



RESEARCH CENTER

FIELD

Activity Report 2017

# Section Dissemination

Edition: 2018-02-19



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## ABS Project-Team

# 7. Dissemination

## 7.1. Promoting Scientific Activities

### 7.1.1. General Chair, Scientific Chair

Together with J. Cortés (LAAS/CNRS, Toulouse), and C. Robert (IBPC/CNRS, Paris), we launched and have been organizing the Winter Schools series *Algorithms in Structural Bio-informatics*. These schools are meant to train PhD students and post-docs on advanced algorithmic techniques in structural biology. The 2017 Edition, which took place at the CNRS center in Cargèse, focused on *Protein design*, see <https://algosb2017.sciencesconf.org/>. It attracted 40 participants from worldwide institutions.

### 7.1.2. Scientific Events Selection

#### 7.1.2.1. Member of Conference Program Committees

– Frédéric Cazals was member of the following program committees:

- Symposium On Geometry Processing
- Symposium on Solid and Physical Modeling
- Intelligent Systems for Molecular Biology (ISMB), PC member of Protein Interactions & Molecular Networks
- ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics
- JOBIM

### 7.1.3. Journal

#### 7.1.3.1. Reviewer - Reviewing Activities

- Journal of mathematical biology
- Bioinformatics
- Journal of computational chemistry

### 7.1.4. Invited Talks

– Frédéric Cazals gave the following invited talks:

- *Beyond two-sample-tests: localizing data discrepancies in high-dimensional spaces*, NIPS workshop of Topological Data Analysis, Los Angeles, December 2017.
- *Modeling in structural bioinformatics: the tryptic structure - dynamics - function*, GDR Bioinformatique moléculaire, Paris, November 2017.
- *Modèles géométriques pour la prédiction des interactions macro-moléculaires*, seminar for the course *Géométrie algorithmique Données, Modèles, Programmes*, by Jean-Daniel Boissonnat, Chaire d'informatique et sciences numériques, Collège de France, March 2017.

### 7.1.5. Leadership within the Scientific Community

– Frédéric Cazals:

- 2010-.... Member of the steering committee of the *GDR Bioinformatique Moléculaire*, for the *Structure and macro-molecular interactions* theme.
- 2017-.... Co-chair, with Yann Ponty, of the working group / groupe de travail (*GT MASIM - Méthodes Algorithmiques pour les Structures et Interactions Macromoléculaires*), within the *GDR de Bioinformatique Moléculaire* (GDR BIM, <http://www.gdr-bim.cnrs.fr/>).

### 7.1.6. Research Administration

– Frédéric Cazals:

- 2017-.... President of the *Comité de suivi doctoral* (CSD), Inria Sophia Antipolis - Méditerranée. The CSD supervises all aspects of PhD student's life within Inria sophia antipolis.

– Dorian Mazaauric:

- 2016-2019. Member of the *Comité de Centre*, Inria Sophia Antipolis - Méditerranée.

## 7.2. Teaching - Supervision - Juries

### 7.2.1. Teaching

Master: Frédéric Cazals (Inria ABS) and Frédéric Chazal (Inria Saclay), *Foundations of Geometric Methods in Data Analysis*, Data Sciences Program, Department of Applied Mathematics, Ecole Centrale Paris. (<http://www-sop.inria.fr/abs/teaching/centrale-FGMDA/centrale-FGMDA.html>)

### 7.2.2. Supervision

**PhD thesis, ongoing, 3rd year.** Romain Tetley, *Structural alignments: beyond the rigid case*. Université Côte d'Azur. Under the supervision of Frédéric Cazals.

**PhD thesis, ongoing, 3rd year.** Augustin Chevallier, *Sampling biomolecular systems*. Université Côte d'Azur. Under the supervision of Frédéric Cazals.

**PhD thesis, ongoing, 1st year.** Denys Bulavka, *Modeling macro-molecular motions*. Université Côte d'Azur. Under the supervision of Frédéric Cazals.

**PhD thesis, ongoing, 1st year.** Méliné Simsir, *Modeling drug efflux by Patched*. Université Côte d'Azur. Thesis co-supervised by Frédéric Cazals and Isabelle Mus-Veteau, IPMC/CNRS.

**Postdoctoral research of Rémi Watrigant, 2016 - 2017.** Projet de Recherche Exploratoire (Inria). *Improving inference algorithms for macromolecular structure determination*. Under the supervision of Dorian Mazaauric and Frédéric Havet (Inria COATI project-team).

### 7.2.3. Juries

– Frédéric Cazals:

- Clément Viricel, University of Toulouse, December 2017. Rapporteur on the PhD thesis *Contributions au développement d'outils computationnels de design de protéines : méthodes et algorithmes de comptage avec garantie*. Advisors: T. Schiex and S. Barbe.

## 7.3. Popularization

This section describes the activities of Dorian Mazaauric (member of the popularization committee of Inria Sophia Antipolis - Méditerranée).

– **Founding.**

- Coordinator of the project GALEJADE (*Graphes et ALgorithmes : Ensembles de Jeux À Destination des Écoliers*) founded by Fondation Blaise Pascal (2017 - 2018). We aim at developing an educational kit for primary schools in order to play with the notions of graphs and algorithms. We also propose conferences for the general public.

– **Resources.**

- 13 posters - *Transmission de pensée - La magie du binaire*: [22].
- 2 posters - *Tour de cartes - La magie des graphes et du binaire*: [21].

**– Activities.**

- Training with Laurent Giauffret of 30 teachers (cycle 1) of Académie de Nice (*Jeux avec les graphes et les algorithmes*).
- Stage MathC2+: half day activities for 40 high school students (Boruvka algorithm for the minimum spanning tree problem played on “real” graphs constructed with plastic hoops and slats).
- Fête de la Science 2017
  - Village des sciences et de l’innovation au Palais des Congrès d’Antibes Juan-les-Pins.
  - Conferences (classe préparatoire, 2 classes de seconde, une classe de sixième, 2 classes de CM1).
- 4 conferences in high schools (Aix-en-Provence, Antibes, Grasse, Miramas), dispositif Science Culture PACA.
- One conference in a secondary school (French *college*) (Cagnes-sur-Mer).

## ACUMES Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Scientific Events Organisation

##### 8.1.1.1. General Chair, Scientific Chair

- P. Goatin is member of the the scientific committee of the annual seminar CEA-GAMNI “*Numerical fluid-mechanics*”.
- J.-A. Désidéri and A. Habbal had organized and chaired the 27th IFIP TC7 Conference on System Modeling and Optimization (Sophia Antipolis, June 29 - July 3, 2015). As a result, they jointly chaired with L. Bociu (North Carolina University) the reviewing panel that elaborated the book of revised contributions edited by Springer [29].

##### 8.1.1.2. Member of the Organizing Committees

- P. Goatin was member of the organizing committee of the Indam “*Transport Modeling and Management: Vehicles and Crowds*”, Roma (Italy), March 2017.
- R. Duvigneau and A. Habbal organized a minisymposium *PDE-Constrained Optimization, Control and Games: New Models and Methods - Part I and II* at the SIAM Conference on Optimization, May 22-25, Vancouver BC (Canada).

#### 8.1.2. Scientific Events Selection

##### 8.1.2.1. Member of the Conference Program Committees

- A. Habbal is member of the the scientific committee of the 8th Conference on Trends in Applied Mathematics Tunisia-Algeria-Morocco TAMTAM 2017, May 10-13, Hammamet (Tunisia).

#### 8.1.3. Journal

##### 8.1.3.1. Member of the Editorial Boards

- P. Goatin is member of the Editorial Board of *Networks and Heterogeneous Media*.

##### 8.1.3.2. Reviewer - Reviewing Activities

- J.-A. Désidéri has made reviews for the *International Journal of Information Technology & Decision Making*, *Comptes Rendus de l'Académie des Sciences*, and *Algorithms*.
- R. Duvigneau is a reviewer for the following international journals : *Computers & Fluids*, *International Journal for Numerical Methods in Fluids*, *Computer Methods for Applied Mechanical Engineering*, *Computer Aided Geometric Design*, *Applied Mathematics & Mechanics*, *Engineering Optimization*.
- P. Goatin is reviewers for the following international journals: *Acta Applicandæ Mathematicæ* ; *African Journal of Mathematics and Computer Science Research*; *Algorithms*; *Annales de l'Institut Henri Poincaré (C) Analyse Non Linéaire*; *Applied Mathematics and Computation*; *Computer-aided Civil and Infrastructure Engineering*; *Discrete and Continuous Dynamical Systems*; *European Journal of Operational Research*; *IEEE Transactions on Automatic Control*; *IEEE Transactions on Intelligent Transportation Systems*; *International Journal of Dynamical Systems and Differential Equations*; *Journal of Computational Physics*; *Journal of Flow, Turbulence and Combustion*; *Mathematical Models and Methods in Applied Sciences*; *Mathematics of Computation*; *Networks and Heterogeneous Media*; *New Journal of Physics*; *Nonlinear Analysis Ser. B: Real World Applications*; *SIAM Journal of Mathematical Analysis*; *SIAM Journal of Applied Mathematics*; *SIAM Journal of Numerical Analysis*; *SIAM Journal on Scientific Computing*.

- A. Habbal is reviewer for the following international journals: Applied Mathematics (AM), Scientific Research Publishing ; Journal of Structural and Multidisciplinary Optimization ; Journal of Math. Model. Nat. Phenom. ; International Journal of Mechanical Sciences ; Modern Applied Science ; Asian Journal of Control ; Applied Mathematics and Computation ; Computer Methods in Applied Mechanics and Engineering ; Bulletin of Mathematical Biology ; Journal of Pure and Applied Functional Analysis ; Int. Journal of Mathematical Modeling and Numerical Optimization; Numerische Mathematik; Journal of Differential Equations; EMS Surveys; AMS reviews.

#### 8.1.4. Invited Talks

- P. Goatin: Workshop “Current topics in kinetic theory”, Warsaw (Poland), March 2017.  
Invited talk: “*Non-local macroscopic models of traffic flow*”.
- A. Habbal: Univ. Wurzburg Chair of Mathematics (Scientific Computing) Mathematical Colloquium, Wurzburg, April 2017.  
Invited talk: *Modeling avoidance dynamics by FP-constrained Nash games*
- P. Goatin: Barcelona Mathematical Days, Barcelona (Spain), April 2017.  
Session “Progress in Transport Phenomena”.  
Invited talk: “*Non-local conservation laws arising in traffic modeling*”.
- P. Goatin: 2016-17 Warwick EPSRC Symposium, Warwick (UK), May 2017.  
Workshop “Emerging PDE models in Socio-Economic Sciences”.  
Invited talk: “*Moving bottlenecks in traffic flows*”.
- J.-A. Désidéri & A. Dervieux: Journées Scientifiques Inria, Sophia Antipolis, 14-16 June, 2017:  
Invited talk: 50 ans de calcul scientifique: le point de vue de numériciens des fluides (*50 years of scientific computing: the viewpoint from CFD-ers*).
- P. Goatin: ICERM Topical Workshop “Pedestrian Dynamics: Modeling, Validation and Calibration”, Providence, RI (USA), August 2017.  
Invited talk: “*Macroscopic modeling and simulation of crowd dynamics*”.

#### 8.1.5. Research Administration

- P. Goatin is member of BCP (“Bureau du Comité des Projets”) at Inria Sophia Antipolis Méditerranée.
- R. Duvigneau is member of CDT (“Comité Développement Technologique”) at Inria Sophia Antipolis Méditerranée.
- R. Duvigneau is member of CSD (“Comité Suivi Doctoral”) at Inria Sophia Antipolis Méditerranée.
- R. Duvigneau is responsible for the Immersive Space Committee at Inria Sophia Antipolis Méditerranée.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master: Advanced Optimization, 40.5 hrs, M2, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (J.-A. Désidéri, R. Duvigneau).

Master: Conservation laws and finite volume scheme, 30 hrs, M2, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (P. Goatin).

Master: Multidisciplinary Optimization, 22.5 hrs, joint *Institut Supérieur de l’Aéronautique et de l’Espace* (ISAE Supaéro, “Complex Systems”) and M2 (Mathematics), Toulouse (J.-A. Désidéri).

Licence: Summer Project in Mathematical Modeling, 36 hrs, L3, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

Master: Numerical Methods for Partial Differential Equations, 66 hrs, M1, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal and R. Duvigneau).

Master: Modeling strategies for e-Formula races, M1 Students Project, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

### 8.2.2. Supervision

PhD in progress : Cédric Durantin, *Meta-modelling for the optimization of nanophotonic devices*, October 2014. Supervisors : J.-A. Désidéri and A. Glière (CEA LETI).

PhD in progress : Quentin Mercier, *Multicriterion optimization under uncertainties : the stochastic multiple gradient approach. Application to aerelasticity*, October 2015. Supervisors : J.-A. Désidéri and F. Poirion.

PhD in progress : Sosina Mengistu-Gashaw (EURECOM), *Mobility and connectivity modelling of 2-wheels traffic for ITS applications*, March 2015. Supervisors: P. Goatin and J. Härrri (EURECOM).

PhD in progress: Rabeb Chamekh, *Game strategies for thermo-elasticity*, Jan 2015, Supervisors: A. Habbal, Moez Kallel (LAMSIN, ENIT, Tunis)

PhD in progress: Marwa Ouni, *Solving inverses problems in fluid mechanics with game strategies*, October 2016, Supervisors: A. Habbal, Moez Kallel (LAMSIN, ENIT, Tunis)

PhD in progress: Kelthoum Chahour, *Modeling and optimal design of coronary angioplastic stents*, Nov 2015, Supervisors: A. Habbal, Rajae Aboulaich (LERMA, EMI, Rabat)

PhD in progress: A. Azaouzi, *isogeometric analysis methods for hyperbolic systems*, ENIT (Tunisia) / University of Nice - Sophia Antipolis, Oct. 2013, supervisors: R. Duvigneau and M. Moakher (ENIT).

PhD in progress: M. Sacher, *advanced methods for numerical optimization of yacht performance*, Ecole Navale, Oct. 2014, supervisors: R. Duvigneau, O. Le Maitre (LIMSI), F. Hauville and J.-A. Astolfi (Ecole Navale).

PhD in progress: C. Fiorini, *Sensitivity equation method for hyperbolic systems*, Univ. Versailles, Oct. 2014, supervisors: R. Duvigneau, C. Chalons (Univ. Versailles).

PhD in progress : Nicolas Laurent-Brouty (ENPC), *Macroscopic traffic flow models for pollution estimation and control*, September 2016. Supervisor: P. Goatin.

PhD in progress : Felisia Angela Chiarello (Université de Nice Sophia Antipolis), *Conservation laws with non- local flux*, October 2016. Supervisor: P. Goatin .

PhD in progress : Nikodem Dymski (Maria Curie Sklodowska University & Université de Nice Sophia Antipolis), *Conservation laws in the modeling of collective phenomena*, October 2016. Supervisors: P. Goatin and M.D. Rosini (UMCS).

PhD defended on November 2017: Boutheina Yahyaoui, *Validation of mecano-chemo-biological models for cell sheet wound closure*, Jan 2013, Supervisors: A. Habbal, Mekki Ayadi (LAMSIN, ENIT, Tunis)

### 8.2.3. Juries

- P. Goatin was member of the committee of P. Grandinetti's PhD thesis "*Control of large-scale traffic networks*", Université de Grenoble, September 11th, 2017.
- A. Habbal was member of the committee of F. Kpadonou *Optimisation de forme et anisotropie par une méthode isogéométrique-polaire*, Université de Versailles et Saint-Quentin, August 31, 2017.

## 8.3. Popularization

- J.-M. Loubes and P. Goatin, "*La prédiction dans les transports*", Les Big Data à découvert, CNRS Editions (2017), pp. 124-125.
- Press article: *Les mathématiciennes ont de plus en plus confiance*, La Tribune, May 2017. Portrait of P. Goatin by L.J. Baudu.
- P. Goatin gave the talk "*Le trafic routier en équations*" at Luxembourg University and at Lycée Aline Mayrisch du Luxembourg on October 5, 2017, as part of the conference cycle "*La Recherche au féminin*" organized by the French Institute of Luxembourg.
- Web Press articles : *On a Collision Course with Game Theory* about the Royal Society Proceedings paper [13] in <https://phys.org/news/2017-09-collision-game-theory.html> and in <http://www.sciencenewsline.com/news/2017092714240040.html>

## AGORA Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- Razvan Stanica was general co-chair of the 1st International Workshop on Data Analytics for Mobile Networking, DAMN! 2017, held together with IEEE PerCom in Kona, Hawaii, in March 2017.
- Fabrice Valois was general co-chair of the 2nd French National Conference CoRes 2017 (Rencontres Francophones sur la Conception de Protocoles, l'Evaluation de Performance et l'Expérimentation des Réseaux de Communication), May 2017, Quiberon, France.

#### 10.1.1.2. Member of the Organizing Committees

- Walid Bechkit and Razvan Stanica organized the 1st French National Workshop on Smart Cities Communications and Networking, in Sophia Antipolis, in January 2017.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

- Walid Bechkit was in the TPC of IEEE ICC and MobiSPC.
- Khaled Boussetta was in the TPC of the following conferences: IEEE CCNC, IEEE GlobeCom, GIIS, IEEE ICC, Med-Hoc-Net, IEEE VTC Fall, IFIP Wireless Days.
- Oana Iova was in the TPC of the following conferences: FailSafe, IEEE GlobalSIP, Grace Hopper Conference, AlgoTel.
- Razvan Stanica was in the TPC of the following conferences: IEEE ICC, IEEE GlobeCom, IEEE CCNC, IEEE WCNC, IEEE PIMRC, IEEE VTC Spring/Fall, IEEE ISC2.
- Fabrice Valois was in the TPC of the following conferences: IEEE GlobeCom, WiSARN, IEEE IWCMC, IEEE PIMRC, IEEE ICT, IEEE ISC.

#### 10.1.2.2. Reviewer

- Walid Bechkit was a reviewer for IEEE IWCMC.
- Oana Iova was a reviewer for the following conferences: IEEE WCNC, IEEE ICC.

### 10.1.3. Journal

#### 10.1.3.1. Reviewer - Reviewing Activities

- Walid Bechkit was a reviewer for IEEE Transactions on Parallel and Distributed Systems.
- Oana Iova was a reviewer for the following journals: ACM Transactions on Sensor Networks, IEEE Access, Elsevier Ad Hoc Networks, Elsevier Future Generation Computer Systems, MDPI Sensors, Springer International Journal of Wireless Information Networks.
- Razvan Stanica was a reviewer for the following journals: IEEE Transactions on Mobile Computing, IEEE Journal on Selected Areas in Communications, IEEE Communications Magazine, IEEE Communications Letters, IEEE Transactions on Intelligent Transportation Systems, Elsevier Computer Networks, Springer Wireless Networks, IEEE Access, IET Intelligent Transport Systems.

### 10.1.4. Invited Talks

- Razvan Stanica was an invited speaker at the School of Informatics at the University of Edinburgh, Scotland, UK (Oct. 2017).

### **10.1.5. Leadership within the Scientific Community**

- Walid Bechkit is a nominated member in the scientific committee of the Fédération d'Informatique de Lyon (FR 2000 CNRS).
- Oana Iova is awards co-chair for Networking Networking Women (N2Women) since 2016, an ACM SIGMOBILE program whose goal is to foster connections among the under-represented women in computer networking and related research fields.
- Hervé Rivano is member of the steering committee of the ResCom axis of the RSD CNRS GdR.
- Hervé Rivano is a member of the Scientific Council of TUBA Lyon.
- Fabrice Valois is a member of the Scientific Council of the LIMOS-UMR6158 laboratory, Clermont Ferrand.
- Fabrice Valois is member of the Scientific Council of the Labex IMU (Intelligence des Mondes Urbains).
- Fabrice Valois is in the steering committee of the Fédération d'Information de Lyon (FR 2000 CNRS).

### **10.1.6. Scientific Expertise**

- Hervé Rivano gave expertise on JORISS international projects.
- Hervé Rivano is member of the Metropole de Lyon [R] Challenge board of experts.
- Hervé Rivano is member of the Scientific Committee of the Digital League Regional Cluster.
- Razvan Stanica was a member in the recruitment committee of an Associate Professor in Computer Science at INSA Lyon.
- Fabrice Valois was a member in the recruitment committee of a Full Professor in Computer Science at INSA Lyon.
- Fabrice Valois was a member in the recruitment committee of an Associate Professor in Computer Science at INSA Lyon.

### **10.1.7. Research Administration**

- Walid Bechkit is responsible for seminar organization and scientific animation within the CITI laboratory.
- Khaled Boussetta is member of the steering committee of the MathStic federation at University Paris 13.
- Hervé Rivano is member of the Administration Council of the EquipEx Sense City as representative of Inria.
- Hervé Rivano is member in the CITI laboratory council.
- Razvan Stanica is the CITI laboratory correspondent with the Labex IMU.
- Razvan Stanica is member of the steering committee of the Volvo Chaire at INSA Lyon.
- Fabrice Valois was director of the CITI research laboratory of INSA Lyon until Oct. 2017.
- Fabrice Valois is in the steering committee of the SPIE INSA Lyon IoT Chaire.

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

Licence : Walid Bechkit, Fundamentals of wireless sensor networks, 60h, L2, INSA Lyon.

Licence : Walid Bechkit, IP Networks, 40h, L3, Telecom. Dpt. INSA Lyon.

Licence : Oana Iova, IP Networks, 2h, L3, Telecom. Dpt. INSA Lyon.

Licence : Hervé Rivano, IP Networks, 8h, L3, Telecom. Dpt. INSA Lyon.



Licence : Hervé Rivano, DB, Algorithms and programming, 79h, L1 - L2, INSA Lyon.

Licence : Hervé Rivano, Discovering digital tools, 21h, L1, INSA Lyon.

Licence : Razvan Stanica, Network Programming, 90h, L3, Telecom. Dpt. INSA Lyon.

Licence : Fabrice Valois, IP Networks, 100h, L3, Telecom. Dpt. INSA Lyon.

Licence : Fabrice Valois, IP Networks, 20h, L3, IST / Telecom. Dpt. INSA Lyon (lectures given in english).

Master : Walid Bechkit, Network architectures, protocols and services, 12h, M1, Telecom. Dpt. INSA Lyon.

Master : Walid Bechkit, Performance evaluation of telecom networks, 100h, M1, Telecom. Dpt. INSA Lyon.

Master : Walid Bechkit, Wireless networks: architecture and security, 30h, M2, INSA Lyon.

Master : Oana Iova, Network architectures, protocols and services, 20h, M1, INSA Lyon.

Master : Hervé Rivano, Smart Cities, 2h, M1-M2, Master Geography Lyon St Etienne.

Master : Hervé Rivano, Smart Cities, 4h, M2, Polytech Perpignan.

Master : Hervé Rivano, Smart Cities and IoT, 44h, M2, Telecom. Dpt. INSA Lyon.

Master : Razvan Stanica, Mobile Networks, 30h, M1, Telecom. Dpt. INSA Lyon.

Master : Razvan Stanica, Network Science, 10h, M2, Telecom. Dpt. INSA Lyon.

Master : Fabrice Valois, Mobile Networks, 30h, M1, Telecom. Dpt. INSA Lyon.

Master : Fabrice Valois, Wireless Sensor Networks, 6h, M2, University of Grenoble.

MOOC : Hervé Rivano, Smart Cities, 3rd season of the french version and production of the english version.

MOOC : Hervé Rivano, Razvan Stanica, Fabrice Valois, Connectez à Internet vos Objets Intelligents, production started in the context of the ANR Connect-IO project.

Walid Bechkit is in charge of the admission service of the Telecommunication department at INSA Lyon.

Khaled Boussetta is the studies director of Apprenticeship Education Program Specialty in Computer Science and Network at Sup'Galilée Engineering School (University Paris 13).

Hervé Rivano is responsible for the coordination of all courses in the Smart Cities and IoT option at the INSA Lyon Telecommunications department.

Hervé Rivano is responsible for the coordination of the 1st cycle of INSA Lyon and the DSI administration.

Razvan Stanica is responsible of the research option at the Telecommunications department of INSA Lyon.

Razvan Stanica is vice dean of the Telecommunications department of INSA Lyon, in charge of education related affairs.

Fabrice Valois is responsible of the networking teaching team in the Telecommunications department at INSA Lyon, coordinating all the courses in the networking domain.

Fabrice Valois and Walid Bechkit are elected members of the Telecommunications Department Council at INSA Lyon.

### **10.2.2. Supervision**

PhD in progress : Yosra Bahri Zguira, DTN for IoT, since 05/2015. Advisors: Aref Meddeb (Univ. Sousse, Tunisia), Hervé Rivano.

PhD in progress : Amjed Belkhiri, Optimisation of wireless sensor networks mobility for a better characterization of atmospheric pollution, since 10/2017. Advisors: Walid Bechkit, Hervé Rivano.

PhD in progress: Abderrahman Ben Khalifa, Cognitive mechanisms for IoT networks, since 11/2016. Advisors: Hervé Rivano, Razvan Stanica.

PhD in progress: Ahmed Boubrima, Optimal deployment of wireless sensor networks for air pollution monitoring, since 10/2015. Advisors: Walid Bechkit, Hervé Rivano.

PhD in progress : Rodrigue Domga Komguem, Autonomous WSN architectures for road traffic applications, since 11/2012. Advisors: Razvan Stanica, Maurice Tchuenté (Univ. Yaoundé, Cameroun), Fabrice Valois.

PhD in progress : Alexis Duque, Use of visible light communication in a smart city context, since 10/2015. Advisors: Hervé Rivano, Razvan Stanica.

PhD in progress: Abdul Aziz Mbacke, Data gathering in sensor and passive RFID with energy harvesting for urban infrastructure monitoring, since 10/2016. Advisors: Nathalie Mitton (FUN team), Hervé Rivano.

PhD in progress: Jad Oueis, Self organization in professional mobile radio networks, since 10/2015. Advisors: Razvan Stanica, Fabrice Valois.

PhD in progress: Mihai Popescu, Connectivity constrained mobility in fleets of robots, since 11/2015. Advisors: Olivier Simonin (Inria CHROMA), Anne Spalanzani (Inria CHROMA), Fabrice Valois.

### 10.2.3. *Juries*

- Khaled Boussetta was a member in the following PhD defense committees:
  - R. Sorokin, Video Conference based on Enterprise Desktop Grid, Telecom ParisTech, 2017
  - A. Aissioui, The Path towards Future Mobile Service Architectures: from Follow Me Cloud (FMC) to Follow Me edge Cloud (FMeC), University Of Versailles, 2017.
- Hervé Rivano was a reviewer in the following PhD defense committees:
  - V. Toldov, Adaptative MAC layers for interference limited WSN, University of Lille 1, 01/2017.
  - R.B. Messaoud, Towards efficient mobile crowd sensing assignment and uploading schemes, University of La Rochelle, 09/2017.
  - B. Mbarek, Efficient Authentication Approaches for Wireless Sensor Networks, University of Tunis El-Manar, 09/2017.
  - M.A. Messous, UAVs network: Towards an optimal exploration and an efficient computation, University of Burgundy, 10/2017.
  - C. Lopez, Dynamic modeling of traffic and urban freight: toward a combined approach, Ecole Nationale des Travaux Publics d'Etat, 10/2017.
  - C. Dorffer, Informed matrix factorization methods for mobile sensor networks calibration and pollution mapping, University of Littoral Côte d'Opale, 12/2017.
- Hervé Rivano was a reviewer in the following HDR defense committee:
  - N. Chiabaut, Dynamic modeling of multimodal transportation networks, University Claude Bernard Lyon 1, 05/2017.
- Razvan Stanica was a reviewer in the following PhD defense committee:
  - P. Katsikouli, Distributed and Privacy Preserving Algorithms for Mobility Information Processing, University of Edinburgh, 10/2017.
- Razvan Stanica was a member in the following PhD defense committee:
  - C. Razafimandimby, Toward Internet of Heterogeneous Things : Wireless Communication Maintenance and Efficient Data Sharing among Devices, Mines Paris Tech, Inria FUN, Université Lille 1, 10/2017.

- Fabrice Valois was a reviewer in the following PhD defense committees:
  - S. Hamdoun, Adaptive and Efficient Radio Resource Sharing Schemes for Machine Type Communications underlying Cellular Networks, Institut Gaspard Monge, Université Paris-Est, 2017.
  - D. H. Nguyen, Enhancing and improving voice transmission quality over LTE networks: Challenges and Solutions, Télécom Sud Paris, 2017.
- Fabrice Valois was a member in the following PhD defense committee:
  - L. Reynaud, Stratégies de mobilité optimisées pour la tolérances aux perturbations dans les réseaux sans fil, Université de Lyon, 2017.
- Fabrice Valois was a reviewer in the following HDR defense committees:
  - A. Gallais, Contributions to Low Power Listening in Dynamic Internet of Things, I-Cube, Université de Strasbourg, 11/2017.
  - E. Natalizio, Mobility as a primitive to improve communications in wireless network, Heudiasyc, Université Technologique de Compiègne, 11/2017.
- Fabrice Valois was a member in the following HDR defense committee:
  - R. Dhaou, IoT composé de réseaux terrestres et par satellite au service des Smart Cities : mobilité et hétérogénéité, IRIT, INP Toulouse, 2017.

### 10.3. Popularization

- Walid Bechkit participated in the "Rencontres Inria Industrie 2017" - <https://www.youtube.com/watch?v=qKzubSkpvSk>
- Walid Bechkit, Ahmed Boubrima and Hervé Rivano participated in the documentary "Métropole intelligente" projected as part of the 1st edition of "Thematix - Les rencontres de la Métropole Intelligente".
- Walid Bechkit, Ahmed Boubrima and Hervé Rivano participated in the "Forum des interconnectés" - <http://www.interconnectes.com/>
- Hervé Rivano was interviewed by the press about future of IoT 04/17 and the Sense City EquipEx 08/17
- Hervé Rivano was animating the Twitter account of « En direct du Labo » for a week, 06/17
- Hervé Rivano gave a talk on IoT for sensing the environment at the Entretiens Jacques Cartier, Montreal, 10/17.
- Hervé Rivano gave a talk on Smart Cities to a workshop of sustainable urban spaces, Ministère Enseignement Supérieure, Recherche et Innovation, 10/2017

## AIRSEA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

E. Blayo and M. Nodet were in the organizing committee of a one-day meeting: Teaching mathematical and numerical methods to students in geosciences (Paris, December 21, 2017).

E. Blayo, E. Cosme and A. Vidard organize a one-week school "Introduction to data assimilation" for doctoral students.

F. Lemarié was the convener of the session « Recent developments in numerical atmospheric, oceanic and sea-ice models: towards global cloud and eddy resolving simulations on exascale supercomputers » during the 2017 European Geosciences Union General Assembly in Vienna (<http://meetingorganizer.copernicus.org/EGU2017/session/23945>).

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

- C. Prieur is associate editor of the journal Computational and Applied Mathematics

#### 10.1.2.2. Reviewer - Reviewing Activities

F. Lemarié: reviewer for Ocean Modeling, Geoscientific Model Development

### 10.1.3. Invited Talks

C. Prieur was invited to give a tutorial for the opening workshop of the SAMSI program on QMC. <https://www.samsi.info/programs-and-activities/year-long-research-programs/2017-18-program-quasi-monte-carlo-high-dimensional-sampling-methods-applied-mathematics-qmc/>

L. Debreu gave an invited talk in the session "Emerging methods for scalable atmosphere and ocean modelling", SCICADE 2017, University of Bath, September 2017

L. Debreu gave an invited talk at the conference "An overview on free surface flows", Paris, November 2017.

L. Debreu gave an invited talk at the conference "Numwave", Montpellier, December 2017.

F. Lemarié has been invited for a talk at the 3rd international workshop on « Energy transfers in Atmosphere and Ocean » in Hamburg (Germany) [17]

### 10.1.4. Leadership within the Scientific Community

E. Blayo is the chair of the CNRS-INSU research program LEFE-MANU on mathematical and numerical methods for ocean and atmosphere <http://www.insu.cnrs.fr/co/lefe>.

C. Prieur chairs GdR MASCOT NUM, in which are also involved M. Nodet, E. Blayo, C. Helbert, E. Arnaud, L. Viry, S. Nanty, L. Gilquin. <http://www.gdr-mascotnum.fr/doku.php>.

L. Debreu is the coordinator of the national group COMODO (Numerical Models in Oceanography).

L. Debreu is a member of the steering committee of the CROCO ocean model <https://www.croco-ocean.org>

### 10.1.5. Scientific Expertise

F. Lemarié is a member of the CROCO (<https://www.croco-ocean.org/>) scientific committee in charge of the « numerical methods » topic.

### 10.1.6. Research Administration

E. Blayo is a deputy director of the Jean Kuntzmann Lab.

C. Prieur is a member of the Scientific Council of the Mathematical Society of France (SMF).

C. Prieur is a member of the Committee of Statistical Mathematics Group of the French Statistical Society (SFdS).

E. Arnaud has been a member of the executive committee of IXXI (complex system institute) until July 2017 <http://www.ixxi.fr>

E. Arnaud is in charge of the MAD (Modèles et algorithmes déterministes) department of Laboratoire Jean Kuntzmann

L. Debreu is a member of the scientific evaluation committee of the French Research Institute for Development (IRD).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

License: E. Arnaud, Mathématiques pour l'ingénieur, 50h, L1, University Grenoble Alpes, France.

License: E. Arnaud, Algorithmique, 18h, L2, University Grenoble Alpes, France.

License: V. Trappier, Méthodes statistiques pour la biologie, 18h, L2, University Grenoble Alpes, France.

Licence: E. Blayo, Analyse approfondie, 80h, L1, Univ. Grenoble Alpes.

Licence: M. Nodet, Outils mathématiques pour l'ingénieur, 80h, Univ. Grenoble Alpes

Master: E. Arnaud, Tutorat d'apprentis MIAGE, 28h, M2, University Grenoble Alpes, France.

Master: E. Arnaud, Data assimilation and inverse problem, 38h, M2, University Grenoble Alpes, France.

Master: E. Blayo, PDEs and numerical methods, 43h, M1, Univ. Grenoble Alpes and Ensimag engineer school.

Master: M. Nodet, Partial differential equations, 20h, Univ. Grenoble Alpes

Master: M. Nodet, Inverse methods, 30h, Univ. Grenoble Alpes

Doctorat: E. Blayo and A. Vidard, Introduction to data assimilation, 20h, Univ. Grenoble Alpes

Doctorat: F.-X. Le Dimet, Data Assimilation for Geophysical Fluids, 16h, Harbin Institute of Technology, Summer School in Pure and Applied Mathematics.

Doctorat: L. Debreu co-organized a one week doctoral training session on numerical modelling of atmospheric and oceanic flows (with F. Hourdin (LMD, Paris), G. Roullet (UBO, Brest) and T. Dubos (Ecole Polytechnique, Paris).)

#### E-learning

E-learning, SPOC: E. Arnaud, M. Nodet, E. Blayo, A. Vidard 10 weeks, moodle platform <http://tinyurl.com/uga-mat207>, University Grenoble Alpes, L1, 150 students

Pedagogical resources : all documents for problem-based learning including videos <http://tinyurl.com/youtube-mat207>

### 10.2.2. Supervision

Intern: Victor Trappier, Robust Estimation of bottom friction ; Parameter control in presence of uncertainties, M2, DTU Aqua, National Institute of Aquatic Resources, Technical University of Denmark, 6 months, E. Arnaud, L. Debreu and A. Vidard.

Intern: Adrien Hirvoas, Sensitivity of a floating offshore wind turbine to uncertain parameters and identification of observable variables for data assimilation, M2, University Grenoble Alpes, IFPEN, 6 months, E. Arnaud, C. Prieur, A. Vidard, F. Caleyron.

PhD in progress: Rémi Pellerej, Étude et développement d'algorithmes d'assimilation de données variationnelle adaptés aux modèles couplés océan-atmosphère, October 2014, A. Vidard, F. Lemarié.

PhD in progress: Long Li, Assimilation d'image pour le suivi de polluants, September 2017, A. Vidard, J.-W. Ma (Harbin University, China).

PhD in progress: Charles Pelletier, Etude mathématique et numérique de la formulation du couplage océan-atmosphère dans les modèles de climat. December 2014, E. Blayo and F. Lemarié.

PhD in progress: Sophie Thery, Numerical study of coupling algorithms and boundary layer parameterizations in climate models. October 2017, E. Blayo and F. Lemarié.

PhD in progress: Victor Trappier, Parameter control in presence of uncertainties, October 2017, E. Arnaud, L. Debreu and A. Vidard.

PhD in progress: Reda El Amri, Analyse d'incertitudes et de robustesse pour les modèles à entrées et sorties fonctionnelles, April 2016, Clémentine Prieur, Céline Helbert (Centrale Lyon), funded by IFPEN, in the OQUAIDO chair program.

PhD in progress: Maria Belén Heredia, a generic Bayesian approach for the calibration of advanced snow avalanche models with application to real-time risk assessment conditional to snow conditions, October 2017, Nicolas Eckert (IRSTEA Grenoble), Clémentine Prieur, funded by the OSUG@2020 Labex.

PhD: Patricia Tencaliec, Approches stochastiques pour la gestion des risques environnementaux extrêmes, October 2013 - February 2017, Clémentine Prieur, Anne-Catherine Favre (LTHE).

PhD : Thomas Capelle, Calibration of LUTI models, UGA, April 2017, P. Sturm (EPI STEEP), A. Vidard, [36].

### 10.2.3. Juries

E. Blayo:

- October 13, 2017: PhD thesis of Olivier Passalacqua, Univ. Grenoble Alpes (president);
- November 9, 2017: HDR thesis of Matthieu Plu, University of Toulouse (referee);
- December 14, 2017: PhD thesis of Marina Duran Moro, Univ. Grenoble Alpes (president).

C. Prieur:

- 18 décembre 2017: PhD thesis of Elliott Tixier, UPMC (referee);
- June 28, 2017: PhD thesis of Claire Delplancke, Univ. of Toulouse (referee);
- June 13, 2017: PhD thesis of Angie Pineda, Univ. of Caracas, Venezuela (president);
- March 1, 2017: PhD thesis of Nabil El Moçayd, Univ. of Toulouse (referee);
- February 1, 2017: PhD thesis of Patricia Tencaliec, Univ. Grenoble Alpes (directrice);
- February 16, 2017: HDR thesis of N. Eckert, Univ. Grenoble Alpes (referee).

F.-X. Le Dimet: PhD thesis of Hind Oubanas, Univ. of Toulouse (referee);

E. Arnaud: juries of M2 thesis and M2 Miage apprentices.

## 10.3. Popularization

M. Nodet and J. Erhel won the first prize of the second Imaginary Mathematics for Planet Earth competition with their web module entitled "Simulating the melting of ice caps" [26].

E. Blayo gave several outreach talks, in particular for middle school and high school students, and for more general audiences.

Ch. Kazantsev and E. Blayo are strongly involved in the creation of "La Grange des maths", a science center that will be located in Varcès (south of Grenoble), which will offer a huge variety of mathematical hands-on exhibits. See <http://www.la-grange-des-maths.fr/>.

Ch. Kazantsev leads two IREM groups. One of them works in frames of the center "La Grange des maths" and prepares "The Mathematical box", a set of 23 games and mathematical activities designed to allow children to study mathematics in an original and autonomous way. Since October, these box are available to rent by secondary schools. Another group organizes "The Sunday Math Club" that teaches mathematics in a researchers way by proposing interesting mathematical problems to children from 10 to 17 years old.

M. Nodet and E. Arnaud co-organises a year-round weekly math club in two secondary schools, part of the national network "Math en Jeans", where pupils research open mathematical problems.

M. Nodet takes part in training modelling in mathematics to secondary school maths teachers through the regional "Maison pour la Science"

M. Nodet is in charge of an IREM group about building interdisciplinary projects for secondary school classes. Part of their work has been accepted for publication in the IREM national journal [28].

M. Nodet is a member of "Les Emulateurs", a group of Grenoble University professors meeting once a month around the subjects of innovative pedagogy and its applications to universities.

M. Nodet co-autored, with other Univ. Grenoble Alpes teachers, a paper at the Pedagogy conference QPES [27] and offered a 3h practical work session during this conference about "Peer assessment in education".

## ALICE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

We organized a free workshop on February 2017 (<http://shapeforge.loria.fr/workshop/>) in-between the PhD defenses of Jean Hergel and Jérémie Dumas. International jury members gave talks; the workshop was open to the public. We recorded all the talks and made them available online (<https://www.youtube.com/playlist?list=PLfUzw-QfoyuWLPJpCCp6xwTAPMIjt7Q-k>).

#### 10.1.1.2. Member of the Organizing Committees

B. Lévy is an elected member of the steering committee of Shape Modeling Association (since 2017).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

Sylvain Lefebvre was program co-chair for SMI 2017. B. Lévy was conference co-chair of WSOM 2017.

#### 10.1.2.2. Member of the Conference Program Committees

B. Lévy was program committee member of Eurographics 2017, SGP 2017, SPM 2017

#### 10.1.2.3. Reviewer

Members of the team were reviewers for SoCG'17, Eurographics, SIGGRAPH, Computer Aided Design, Pacific Graphics, and SPM.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- B. Lévy is a member of the editorial board of ACM Transactions on Graphics.
- B. Lévy is a member of the editorial board of Graphical Models (Elsevier)
- B. Lévy is a member of the editorial board of Computer Graphics and Applications
- Sylvain Lefebvre was associated editor for ACM Transactions on Graphics.

#### 10.1.3.2. Reviewer - Reviewing Activities

Members of the team were reviewers for Computer Aided Design (CAD), Discrete Applied Mathematics (Elsevier), Transactions on Visualization and Computer Graphics (IEEE), and Computers & Graphics (Elsevier).

### 10.1.4. Invited Talks

B. Lévy gave an invited keynote talk at Eurographics 2017

### 10.1.5. Research Administration

Samuel Hornus was a moderator of the CDT (Technological Development Commission) of CRI Nancy.



## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence: Samuel Hornus, Module « mathématiques appliquées à l'informatique » (MAI). 64h eq. TD, niveau L3. à Télécom Nancy, France.

Licence: Cédric Zanni, Informatique 2, 40h ETD, L3, École des Mines de Nancy, France.

Licence: Cédric Zanni, Informatique 1, 20h ETD, L3, École des Mines de Nancy, France.

Master: Nicolas Ray, Initiation à la recherche, 10 heures, M1, université de Lorraine, France.

Master: Sylvain Lefebvre, Programmation pour le jeux vidéo, 30h ETD, Ecole des Mines de Nancy, France.

Master: Sylvain Lefebvre, Introduction au parallélisme et au graphisme, 9h ETD, ENSG Nancy, France.

Master: Sylvain Lefebvre, Introduction à la fabrication additive, 9h ETD, ENSEM Nancy, France.

Master: Cédric Zanni, Database essentials, 24h ETD, M1, École des Mines de Nancy, France.

Master: Cédric Zanni, Techniques de l'animation et du jeu vidéo, 27h ETD, M1, École des Mines de Nancy, France.

Master: Cédric Zanni, Software Engineering, 18h ETD, M1, École des Mines de Nancy, France.

Master: Cédric Zanni, Operating System, 17h ETD, M1, École des Mines de Nancy, France.

Master: Cédric Zanni, Introduction au C/C++, 34h ETD, M1, École des Mines de Nancy, France.

Master: Cédric Zanni, UML, 4h ETD, M1, École des Mines de Nancy, France.

Master: B. Lévy teaches Numerical Methods in École nationale supérieure de géologie de Nancy, France (12h).

Master: B. Lévy teaches Algorithmic Gems in École des Mines de Nancy, France (8h).

### 10.2.2. Supervision

Ph.Ds in progress supervised by B. Lévy:

- Maxence Reberol, Finite elements on hex-dominant meshes, third year. Funding: ERC ShapeForge and région Lorraine. Defense: February 15th 2018.
- Pierre Anquez, Robust meshing of geological data, consortium GOCAD, second year, co-supervised with Guillaume Caumon.
- Julien Renaudeau, Constrained geo-modelling using implicit functions, second year, Cifre Schlumberger, co-supervised with Guillaume Caumon.

Jérémie Dumas and Jean Hergel, supervised by Sylvain Lefebvre, defended their PhD theses in February 2017.

Jérémie Dumas received the University of Lorraine award for the best 2017 PhD thesis in Computer Science.

### 10.2.3. Juries

Sylvain Lefebvre was "rapporteur" for the PhD of Benoit Arbelot (Grenoble Universities, defended April 7 2017), for the PhD thesis of Luigi Malomo (CNR Pisa) and Christian Santoni (Computational Design Lab, University of Rome).

## 10.3. Popularization

Haichuan Song, Sylvain Lefebvre and Salim Perchy presented IceSL at a booth at the Maker Faire Rome 2017 (<http://www.makerfairerome.eu/en/>). This is a major event with 100K+ visitors every year. We presented the software to students, general public and 3D printing enthusiasts. We received a Maker of Merit award for our project.

Sylvain Lefebvre participated to the radio program "La méthode scientifique" on France Culture, aired on November 8 2017 (<https://www.franceculture.fr/emissions/la-methode-scientifique/la-methode-scientifique-mercredi-8-novembre-2017>).

B. Lévy gave an invited talk at "Forum Art Inovation" organized by IRCAM, Paris, Pompidou center (16-03-2017): [http://medias.ircam.fr/stream/ext/video/files/2017/04/04/Vertigo\\_16mars2017\\_%20BrunoLevy\\_GB.mov.webm](http://medias.ircam.fr/stream/ext/video/files/2017/04/04/Vertigo_16mars2017_%20BrunoLevy_GB.mov.webm).

## ALMANACH Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- DSBE: Co-Chair and coorganizer of the summerschool manuSciences '17, Fréjus, France, 10-15 September 2017.
- LR, DSBE: Coorganizers of the France/Israel DH conference, Jerusalem, 27 February-1 March 2017.
- DSBE: Co-chair and coorganizer of the workshop Cambridge-PSL-Lausanne, Paris, France, 11-12 March 2017.
- DSBE: Co-chair and coorganizer of the workshop FSP-Patrima-EPHE on Scientific Approaches to Inscribed Objects, Ministry of Culture and Communication, Paris, France, 24 January, 2017.

#### 10.1.1.2. Member of the Organizing Committees

- LR, BS: Members of the Organizing Committee of the Lexical Data Masterclass, Berlin, 4-8 December 2017
- CR: Member of the Organizing Committee of the conference “La Part de l’ombre, Action clandestine et imaginaire du complot, XXe-XXIe siècles”, Paris, France, 18-19 May 2017
- MP: Member of the Organizing Committee of the conference Text as a resource. Text mining in Historical Science, Paris, France, 29-30 June 2017.
- MP: Member of the Organizing Committee of the masterclass Penser/ Utiliser les données de la recherche, Paris, France, 25-29 September 2017.
- DSBE: Member of Organizing Committee for the Poster Session on Digital Humanities at the World Congress of Jewish Studies, Jerusalem, 6-10 August 2017.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- MB, Program chair of the 8th ACM-SoICT, 2017, Nha Trang, Vietnam.

#### 10.1.2.2. Member of the Conference Program/Scientific/Reviewing Committee

- LR: Member of the Reviewing Committee of the following conferences: DHd 2017, DATeCH2017, ACL 2017, TOTh 2017, TPDL 2017, MDQual 2017
- EVdLC: Member of the Reviewing Committee of ACL'17 (Tagging, Chunking, Syntax and Parsing area), DaTeCH'17 (co-reviewer), TMPA-2017 (co-reviewer)
- EVdLC: Member of the Scientific, Programm or Reviewing Committee of EMNLP'17, DepLing'17, EPIA'17, LATA'18, Games4NLP'17, ToTH'17, LREC'18.
- DS: Member of the Scientific, Programm or Reviewing Committee of ACL'17, EMNLP'17, CoNLL'17, TALN2017, LREC2018, TLT #15, LAW 2017, W-NUT 2017
- DSBE: Member of the Program Committee for HIP'17, member of the Reviewing Committee of HIP 2017
- BS: Member of the Program, Scientific or Reviewing Committee of the following conferences and workshops: \*SEM 2017, CoNLL 2017, DeriMo 2017, EACL 2017, LAW XI (2017), LREC 2018, WRDTM 2017

- CR: Member of the Reviewing Committee of DH Nord and DH 2018
- MP: Member of the Reviewing Committee of the following conferences: DH Nord, Digital Humanities in the Nordic Countries, DH 2018

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- LR: Member of the Editorial Board of the following journals: *JDMDH*, *ACM JOCCH*
- LR: Member of the Scientific/Advisory Committee of the following journals: *Revue Humanités Numériques*, *Journal of the TEI*, *Language Resources and Evaluation*
- DSBE: Member of the Advisory Committee of the following journals: *Jewish Studies Quarterly*, *Henoch*, *Biblical Annals*, *Digital Paleography and Book History*, *Cultural Heritage Digitization*, *Marginalia*
- DSBE: Member of the Advisory Committee of the book series “Humanités numériques et patrimoine” (U. Grenoble, E. Pierazzo)
- BS, together with Olivier Bonami (LLF), was Guest Editor for a thematic issue of the journal *Morphology* on computational methods for descriptive and theoretical morphology [10].

#### 10.1.3.2. Reviewer - Reviewing Activities

- BS: Reviewer for the following journals: *Computational Linguistics*, *Journal of Language Modelling*, *Arabian Journal for Science and Engineering*, *wék<sup>w</sup>os*
- BS: Reviewer for the MIT Press
- DS: *Computational Linguistics Journal*, *Transactions on Asian and Low-Resource Language Information Processing Journal*

### 10.1.4. Invited Talks

- Héctor Martínez Alonso gave a talk at the Inria Paris Junior Seminar, Paris, France
- CR, “Traces de l’héroïsme, les plaques commémoratives de la Résistance parisienne”, Plaques commémoratives dans l’espace parisien, Paris, France
- LF, CR, “Grobid for Humanities, when engineering meets History”, DHIHA, Paris, France
- CR, “La Libération du Sud-Est parisien, un mouvement populaire, CLIO94, Créteil, France
- CR, “Traces de l’héroïsme, les plaques commémoratives de la Résistance parisienne”, Plaques commémoratives dans l’espace parisien, Paris, France
- MP, “Fcailiter l’accès des chercheurs aux données patrimoniales. La Charte de réutilisation des données”, séminaires Nouveaux champs d’étude en droit du patrimoine culturel, Le Mans, France, 14 December 2017.
- MP, “La TEI et les historiens. Le projet Time-Us : Travail, rémunération, textile et foyer (XVIIe-XXe siècles)”, Edition électronique & TEI : enjeux, pratiques & perspectives, 4ème journée dayClic TEI, Le Mans, France
- DSBE: ‘Automatic layout analysis and transcription of medieval manuscripts’, Mondes anciens nouveaux regards, AnHIMA, Paris, 8 June 2017.
- DSBE: “Digital Humanities”, University of Haifa, 10 June 2017.
- DSBE: “Automatic lectionary analysis with the database Thesaurus Antiquorum Lectionarium Ecclesiae Synagogaeque”, Hagiographico-homiletic collections in Greek, Latin and Oriental Manuscripts –Histories of Books and Text Transmission in a comparative perspective, Hamburg, 27 June 2017.
- DSBE: “Teaching DH and Jewish Studies”, Hamburg, 5 September 2017.
- DSBE: “Automatic layout analysis and transcription of medieval Hebrew manuscripts”, Jerusalem, 22 June 2017.

- DS: "Robust Data Driven Parsing of Deep Syntax Graph: Syntax Is Not Dead Yet", Naverlabs, ex-Xerox, Grenoble, December 8th, 2017.

#### **10.1.5. Leadership within the Scientific Community**

- LR: President of the board of directors of DARIAH
- LR: Member of the board of directors or the TEI consortium
- LR: President of ISO committee TC 37 (Language and terminology)
- EVdLC: Chairman of the ACL special interest group SIGPARSE
- BS: Member, Deputy Treasurer and Member of the Board of the Société de Linguistique de Paris (since Dec. 2017)
- DS: Board member of the French NLP society (Atala, 2017-2020), program chair of the "journée d'études".
- Member of the ACL's BIG (Broad Interest Group) Diversity group.

#### **10.1.6. Scientific Expertise**

- EVdLC: Reviewer for an European ERC proposal and for an European COST proposal
- BS: Reviewer for the ANR (CE32 committee)
- EVdLC: Member of the selection committee for the call for projects "Langues et numérique 2017" organized by DGLFLF (Délégation générale à la langue française et aux langues de France)
- DSBE: Reviewer for a proposal at the SNF.

#### **10.1.7. Research Administration**

- XY: [description]
- DSBE: Director of the DH Programme of the EPHE.
- BS: Member of the Board of Inria Paris's Scientific Committee ("Comité des Projets")
- BS: Member of the International Relations Working Group of Inria's Scientific and Technological Orientation Council (COST-GTRI)
- BS: Deputy Head of the research strand on Language Resources of the LabEx EFL (Empirical Foundations of Linguistics), and is therefore a deputy member of the Governing Board of the LabEx; BS and DS are in charge of several research operations in the LabEx

#### **10.1.8. Teaching**

Licence: Djamé Seddah, "Certificat Informatique et Internet", 30h, L1-L2-L3, Université Paris Sorbonne, France

Licence: Djamé Seddah, "Programmation et algorithmique en Java", 50h, L2, Université Paris Sorbonne, France

Licence: Loïc Grobol, "Informatique et Industries de la Langue", 22h, L2, Université Sorbonne Nouvelle, France

Licence: Loïc Grobol, "Introduction aux Humanités Numériques", 15h, L2, Université Sorbonne Nouvelle, France

Master: Djamé Seddah, "Modèles pour la linguistique computationnelle", 36h, M2, Université Paris Sorbonne, France

Master: Djamé Seddah, "Modèles pour la linguistique computationnelle", 36h, M1, Université Paris Sorbonne, France

Master: Djamé Seddah, "Programmation générique et C++", 26h, M1, Université Paris Sorbonne, France

Master: Djamé Seddah, “Programmation réseau et Java”, 26h, M1, Université Paris Sorbonne, France

Master: Djamé Seddah, “Traduction automatique”, 30h, M2, Université Paris Sorbonne, France

Master: Laurent Romary, “Governance challenges in setting up and running an ERIC”, 1h30, Webinar Rltrain – Executive Master in Management of Research Infrastructures at University of Milano-Bicocca, 24 November 2017

Master: Marie Puren, Charles Riondet, “Formation à la TEI pour des documents historiques”, 3 heures, M1-M2, Université Aix-Marseille, France, 19 October 2017

Master: Marie Puren, “Valorisation de la recherche - Humanités numériques”, 4 X 3 heures, M2 Histoire, Université Versailles-Saint-Quentin, Rennes, France, January-March 2017.

Master/PhD: Daniel Stökl Ben Ezra, “Approches numériques aux textes du judaïsme ancien”, 26 heures, M2/PhD, EPHE

Master/PhD: Marc Bui, “Introduction à la programmation Python pour les chercheurs en SHS” (2x24h) niveau M1/M2/PhD, EPHE (EPHE students and Master humanités numériques ENC-ENS-EPHE students)

Master class, Daniel Stökl Ben Ezra, “Simple and Advanced Image Treatment for Manuscript Analysis”, 2h, manuSciences summer school, 11 September 2017

Master class: Laurent Romary, “Overview of lexical models and introduction to the TEI dictionary chapter”, 1h30, Lexical Master Class, Berlin, 5 December 2017

Master class: Laurent Romary, “Querying and presenting TEI dictionary data with XSLT”, 1h30, Lexical Master Class, Berlin, 6 December 2017

Master class: Marie Puren, “Data management practices and recommendations. Managing, sharing and preserving linguistic data”, 1h30, Lexical Master Class, Berlin, 7 December 2017

Master class: Mohamed Khemakhem, “GROBID-Dictionaries”, 4 X 3 heures, Lexical Master Class, Berlin, 5-7 December 2017

EPHE, Marc Bui, “Introduction à la conception des bases de données avec SQL” (24h)

EPHE, Marc Bui, “La mise en page avec LaTeX pour les chercheurs en SHS” (12h)

IES Inria, Laurent Romary, “Formation à la TEI, XPath et XSLT pour HAL”, 3 journées Centre Inria Paris

IES Inria, Marie Puren, Charles Riondet, “Gestion des données de la recherche”, 7 heures, Centre Inria Paris, France, 31 March 2017

INIST, Marie Puren, “Créer un plan de gestion des données” et “Les métadonnées dans un DMP”, 2h30, INIST, Vandoeuvre-Lès-Nancy, France, 6 July 2017.

INIST: Laurent Romary, “Formation à la TEI pour les documents scientifiques”, 2 X 2 journées, INIST, Vandoeuvre Lès Nancy, France

URFIST, Marie Puren, “Données de recherche : le Plan de Gestion des Données”, 1 journée, URFIST, Rennes, France, 1st June 2017

### **10.1.9. Supervision**

PhD in progress: Loïc Grobol, “Reconnaissance automatique de chaînes de coréférences en français par combinaison d’apprentissage automatique et de connaissances linguistiques”, “Université Sorbonne Nouvelle”, started in Oct. 2016, supervised by Isabelle Tellier (main supervisor), Éric de La Clergerie and Marco Dinarelli

PhD in progress: Mathilde Regnault, “Annotation et analyse de corpus hétérogènes”, “Université Sorbonne Nouvelle”, started in Oct. 2017, supervised by Sophie Prévost (main supervisor), Isabelle Tellier, and Éric de la Clergerie

PhD in progress: Jack Bowers, “Technology, description and theory in language documentation: creating a comprehensive body of multi-media resources for Mixtepec-Mixtec using standards, ontology and Cognitive Linguistics”, October 2016, EPHE, Laurent Romary

PhD in progress: Axel Herold, “Automatic identification and modeling of etymological information from retro-digitized dictionaries”, October 2016, EPHE, Laurent Romary

PhD in progress: Mohamed Khemakhem, “Structuration automatique de dictionnaires à partir de modèles lexicaux standardisés”, September 2016, Paris Diderot, Laurent Romary

PhD in progress: Antony Perrot, “Qumran Opisthographs”, started in Oct 2015, EPHE, PSL, supervised by Daniel Stökl Ben Ezra

PhD in progress: Jérémie Bosom, “Big data, internet des objets, fouille de données: élaboration de services intelligents pour le pilotage industriel”, started in Oct 2015, EPHE, PSL, supervised by Marc Bui

PhD in progress: Dogu Kaan Eraslan, “Les relations entre Milet et l’Égypte à la Basse Époque (664-332 av. J.-C.)” (with a strong emphasis on computational humanity approaches for both encoding information and extracting information, e.g. with neural image processing techniques on ancient documents), started in Oct 2015, EPHE, PSL, co-supervised by Michel Chauveau and Marc Bui

### 10.1.10. *Juries*

- EVdLC: member of the PhD committee for Jakub Waszczuk at University of Blois on June 26th (Title: “Leveraging MWEs in practical TAG parsing: towards the best of the two worlds”; Supervisors: Agata Savary and Yannick Parmentier)
- MB: member of the PhD committee for Karim Sayadi at Université Paris 6 en partenariat avec EPHE on March 28th (Title: “Classification du texte numérique et numérisé. Approche fondée sur les algorithmes d’apprentissage automatique”; Supervisor: Marc Bui)
- EVdLC: examiner and member of the Master 2 jury for Jean Argouarc’h (Master de sciences cognitives, Paris Diderot; title: “Semantic models for analysis of brain activation during naturalistic text listening”; Supervisor: C. Pallier)
- BS: member of the recruiting committee for a Maître de Conférences position (NLP) at Université Paris Sorbonne

## 10.2. Standardization activities

### 10.2.1. *ISO TC 37/ SC4*

- Mohamed Khemakhem and Laurent Romary: Project leaders of the ISO 24613-4 LMF “TEI Serialisation”
- Jack Bowers: Project leader of the ISO 24613-3 LMF “Etymology Extension”
- Éric de la Clergerie: Participation to AFNOR meetings, in relation with TC37/ SC4

### 10.2.2. *COST ENEL & DARIAH*

- Laurent Romary, Mohamed Khemakhem, Axel Herold and Jack Bowers: Experts of a joint lexical standardisation action “TEI Lex0: Towards Best TEI P5 Encoding Practices”

## 10.3. Popularization

- BS, jointly with Emmanuel Dupoux (EHESS & ENS), gave a talk on “NLP and AI” as part of the seminar on AI organised by the Institut de l’École Normale Supérieure (21 June 2017)
- EVdLC and BS presented ALMANACH’s research (as well as its spin-off opensquare) at the “Rencontres Inria-industries” (forum bringing together Inria and companies) (18 November 2017)

- DSBE and BS: participation to a meeting on Digital Humanities bringing together researchers from the PSL ComUE, the University of Cambridge (UK) and the EPFL (Switzerland) (11 May 2017)
- BS: with Jean Ponce, Isabelle Ryl and H el ene Robak, represented the Inria Paris research center at the forum organised for the 30th anniversary of the DRM (the French Military Intelligence Office) (23 March 2017)
- BS and DSBE: talks during the NLP edition of the “Paris Sciences et Data” conference series.
- EVdLC: talk at the opening of the Math Olympiades 2017 about “Une palette math ematique pour appr ehender le langage” (Versailles, January 25 2017)
- EVdLC: talk at the GFII DIXIT Seminar on “IA et Traitement Automatique des Langues (TAL) : Quel panorama ?” (Paris, February 24th 2017); member of the organizing committee of the forum 2017 of the GFII and panelist of the session on “de l’IA washing   la r ealit e industrielle, quels sont les contours du renouveau actuel de l’IA ?” (December 5th, 2017)
- EVdLC: co-animator of a new GFII Working Group “Technologies de la Connaissance”, with a focus on AI
- Lo ic Grobol: participation to the 18th meeting on “Culture & Jeux Math ematiques” organized by AMIES
- MP, LR : Webinar on “Humanities and Open Science: Workflows and tools for publishing, licensing, versioning, identifiers, archiving, software...” for the International Open Access Week, 26 October 2017.
- DS gave a talk on “From Noisy Questions to Minecraft Texts: Annotation Challenges in Extreme Syntax Scenarios” at the NLP Paris Meetup, Paris, November 22th, 2017.

## ALPINES Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- Frederic Hecht: Organized the 9th FreeFem++ days (December 2017, Paris)
- Xavier Claeys was main organiser (together with S. Fliss, B. Delourme and J. Diaz) of the 3 days colloquium "Waves Diffracted by Patrick Joly", in honour of P. Joly's 60th birthday, that took place in Saclay and Gif-sur-Yvette.
- Xavier Claeys and Frédéric Nataf were the main organisers (together with V. Dolean) of a workshop on "Numerical methods for wave propagation and applications" held in Jussieu campus of UPMC on 31st of August and 1st of September.

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

##### 10.1.2.1.1. Laura Grigori

- March 2014 – current. Member of the editorial board for the SIAM book series Software, Environments and Tools. See <http://bookstore.siam.org/software-environments-and-tools/>.
- June 2013 – current. Area editor for Parallel Computing Journal, Elsevier
- January 2016 – current. Associate Editor, SIAM Journal on Scientific Computing.
- January 2017 – current. Associate Editor, SIAM Journal on Matrix Analysis and Applications.
- January 2016 – current. Editorial board, Numerical linear algebra with applications Journal, Wiley.

##### 10.1.2.1.2. Frédéric Nataf

- 2014 – current. Associate Editor, Journal of Numerical Mathematics, de Gruyter.

### 10.1.3. Invited Talks

- Laura Grigori: Keynote speaker, 46th International Conference on Parallel Processing (ICPP-2017), <http://www.icpp-conf.org/2017/index.php>, Bristol, UK, August 14-17, 2017.
- Laura Grigori: Keynote speaker, Power-Aware Computing Workshop - PACO2017, <https://www2.mpi-magdeburg.mpg.de/mpcsc/events/paco2017/index.php>, July 2017, Germany.
- Laura Grigori: Plenary talk, Householder Symposium XX on Numerical linear algebra, <http://www.math.vt.edu/HHXX/>, June 2017, Virginia Tech.
- Laura Grigori: Invited plenary speaker, International Conference on Domain Decomposition Methods DD XXIV, <http://www.ddm.org/dd24/invited.html>, February 2017, Longyearbyen, Norway.

### 10.1.4. Leadership within the Scientific Community

- Laura Grigori: Chair of the SIAM SIAG on Supercomputing (SIAM special interest group on supercomputing), January 2016 - December 2017. Nominated by a Committee and elected by the members of this SIAG.
- Laura Grigori: Member of the PRACE (Partnership for Advanced Computing in Europe, <http://www.prace-ri.eu/>) Scientific Steering Committee, September 2016 - current.
- Laura Grigori: Steering committee member, Challenge 7: Information and communication society, ANR (Comité de Pilotage , Défi 7), November 2016 - September 2017.



### 10.1.5. Scientific Expertise

- Laura Grigori: November 2015 - current, expert to the Scientific Commission of IFPEN (French Petroleum Institute). Evaluation of research programs, PhD theses, work representing a total of 5 days per year.
- Xavier Claeys was member of a hiring committee for a position of maître de conférence in section CNU 60/61 for the Institut de Recherche de Coordination Acoustique et Musicale (IRCAM) and Université Pierre-et-Marie Curie Paris 6, in Spring 2017.

### 10.1.6. Research Administration

- Laura Grigori: Member of the Director Committee (Comité Directeur) of GIS Geosciences franciliennes, since November 2015.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

#### 10.2.1.1. Xavier Claeys

- Academic year 2017-2018, total number of course hours: 192 hrs
  - Master 1: supervision of a student project for a group of 4 students in the curriculum Polytech, 80hrs, UPMC.
  - Master 1: Initiation to C++, 36 hrs of programming tutorials in C++, UPMC.
  - Master 1: Computational Linear Algebra, 32 hrs of lectures, UPMC.
  - Master 1: Practical programming of the finite element method, 12 hrs of lectures, UPMC.
  - Master 1: Approximation of EDPs, 24 hrs of programming tutorials in Python, UPMC.

#### 10.2.1.2. Laura Grigori

- Spring 2017, Course on *High performance computing, large scale linear algebra, and numerical stability* (*Calcul haute performance, algorithmes parallèles d'algèbre linéaire à grande échelle, stabilité numérique* in french), [https://who.rocq.inria.fr/Laura.Grigori/TeachingDocs/UPMC\\_Master2/Spr2017.html](https://who.rocq.inria.fr/Laura.Grigori/TeachingDocs/UPMC_Master2/Spr2017.html), Master 2nd year, Mathematics & Applications, University Pierre and Marie Curie, 20 hours per year.
- Winter 2017, Participation in the course on High Performance Computing given at University Pierre and Marie Curie, Master 2nd year, Computer Science, intervention for 8 hours per year.

#### 10.2.1.3. Frédéric Hecht

- Academic year 2016-2017, total number of course hours: 192 hrs
  - Master 1: Initiation au C++, 24hrs, M1, Université Pierre-et-Marie Curie Paris 6, France
  - Master 2: Des EDP à leur résolution par la méthode des éléments finis (MEF), 24hrs, M2, Université Pierre-et-Marie Curie Paris 6, France
  - Master 2: Numerical methods for fluid mechanics, 10hrs, M2, Université Pierre-et-Marie Curie Paris 6, France
  - Master 2: Calcul scientifique 3 / projet industriel FreeFem++, 28hrs, M2, Université Pierre-et-Marie Curie Paris 6, France
  - Master 2: Ingénierie 1 / Logiciel pour la simulation (FreeFem++), 21hrs, M2, Université Pierre-et-Marie Curie Paris 6, France
  - Master 2: Ingénierie 2 / Projet collaboratif, 21hrs, M2, Université Pierre-et-Marie Curie Paris 6, France

#### 10.2.1.4. Frédéric Nataf

- Spring 2017: Course on *Domain Decomposition Methods*, Master 2nd year Mathematics & Applications, University Pierre and Marie Curie
- Winter 2017: Course on *Domain Decomposition Methods*, Master 2nd year, Mathematics & Applications, ENSTA and UVSQ

### **10.2.2. Supervision**

- PhD in progress: Alan Ayala, since October 2015 (funded by NLAFFET H2020 project), co-advisors Xavier Claeys and Laura Grigori.
- PhD in progress : Sebastien Cayrols, since October 2013 (funded by Maison de la simulation), advisor Laura Grigori.
- PhD in progress: Hussam Al Daas, since February 2015 (funded by contract with Total), advisor Laura Grigori.
- PhD in progress: Olivier Tissot, since October 2015 (funded by NLAFFET H2020 project), advisor Laura Grigori.
- PhD in progress: Rim El Dbaissy, since November 2015 (funded by Univ. St Joseph, Liban), advisors Tony Sayah, Frédéric Hecht.
- PhD in progress: Pierre Marchand, since October 2016 (funded by ANR NonLocalDD project), advisors Xavier Claeys et Frédéric Nataf.
- PhD in progress: Zakariae Jorti, since February 2016 (funded by IFPen), advisor Laura Grigori.
- PhD in progress: Igor Chollet, since October 2017 (funded by ICSD), advisors Xavier Claeys, Pierre Fortin, Laura Grigori.
- PhD in progress: Thanh Van Nguyen, since November 2017 (funded by ANR CinePara), advisor Laura Grigori.

### **10.2.3. Juries**

- Frédéric Hecht, President of the Jury for the PhD thesis of Alexandre LIMAR, Applied Mathematics, UTT, October 2017.
- Laura Grigori, President of the Jury for the PhD thesis of Chaoyu Quan, Applied Mathematics, UPMC, November 2017.
- Frédéric Hecht, President of the Jury for the PhD thesis of Roberto Molina, Applied Mathematics, UPMC, December 2017.

## AMIBIO Team

# 7. Dissemination

## 7.1. Promoting Scientific Activities

### 7.1.1. Scientific Events Organisation

#### 7.1.1.1. General Chair, Scientific Chair

- RECOMB'18: Y. Ponty, M. Regnier (co-chair)

### 7.1.2. Scientific Events Selection

#### 7.1.2.1. Member of the Conference Program Committees

- RECOMB'17: Y. Ponty, M. Regnier
- ISMB/ECCB'17: Y. Ponty
- ACM/BCB'17: A. Héliou
- MCCMB'17: M. Régnier
- BiCoB'17: Y. Ponty

#### 7.1.2.2. Reviewer

- CPM'17: Y. Ponty

### 7.1.3. Journal

#### 7.1.3.1. Member of the Editorial Boards

M. Régnier is an editor of PeerJ Computer Science.

#### 7.1.3.2. Reviewer - Reviewing Activities

M. Régnier and Y. Ponty reviewed manuscripts for a large selection of journals in Mathematics, Computer Science and Bioinformatics: Discrete Mathematics and Theoretical Computer Science, Theoretical Computer Science, Bioinformatics, BMC Bioinformatics, Journal of Mathematical Biology, IEEE/ACM Transactions on Computational Biology and Bioinformatics, Journal of Discrete Algorithms, Algorithms for Molecular Biology, PLOS One, Journal of Theoretical Biology, RNA, Nucleic Acids Research...

### 7.1.4. Leadership within the Scientific Community

Y. Ponty is *animateur* of the *Macromolecular structure and interactions* axis of the CNRS GDR BIM (BioInformatique Moléculaire). With F. Cazals (ABS, Inria Sophia-Antipolis), he co-created in Oct. 2017 and currently heads the MASIM (Méthodes Algorithmiques pour les Structures et Interactions des Macromolécules) workgroup of BIM;

M. Régnier is a member of DIGITEO program Committee and SDV working group in Saclay area.

### 7.1.5. Scientific Expertise

Y. Ponty reviewed grants for the OPUS program of the NCN agency (Poland), the Bioinformatics and Theoretical Biology programm of the DFG (Germany). He acted as an external reviewer and external assessor for an assistant professor position at the Faculty of Science of the University of South Denmark. He also refereed for a postdoc call by the French Chammmat LabEx of Univ. Paris-Saclay.

### 7.1.6. Research Administration

M. Regnier is the current head of the Computer Science department (LIX) of Ecole Polytechnique.

## 7.2. Teaching - Supervision - Juries

### 7.2.1. Teaching

#### 7.2.1.1. Initial training in engineering at Ecole Polytechnique.

At the undergraduate level, AMIBio is essentially involved in Computer Science courses at Ecole Polytechnique, mainly in programming languages and Big Data processing (high-performance computing and machine learning). Notably, we are involved in the *parcours d'Approfondissement en Bioinformatique* at École Polytechnique.

#### 7.2.1.2. Graduate-level programs and courses.

Our project is also very much involved in the AMI2B (*Analyse, Modélisation et Ingénierie de l'Information Biologique et Médicale*, formerly named BIBS – *Bioinformatique et Biostatistique*) Master program at Université Paris-Sud/École Polytechnique. Most AMIBio permanent members teach recurrent courses in AMI2B, and M. Regnier is in charge of the program at the M1 and M2 levels for Ecole Polytechnique.

Beyond the *plateau de Saclay*, AMIBio members participate in the BIM master program at UPMC, and regularly deliver PhD-level lectures in Summer/Winter schools.

Bachelor (Licence & Ecole Ingénieur)

- P. Chassignet, INF\*, 100h, L2/L3, Ecole Polytechnique, France
- Al. Héliou, INF\*, 40h, L3, Ecole Polytechnique, France

Master

- P. Chassignet, INF\*/Modal Bioinfo, 90h, M1/M2, Ecole Polytechnique, France
- Al. Héliou, INF\*, 7h, M1 AMI2B, Univ. Paris-Saclay, France
- Am. Héliou, INF\*, 44h, M1 AMI2B, Univ. Paris-Saclay, France
- Y. Ponty, Bioinfo ARN, 12h AMI2B, M2, Univ. Paris-Saclay, France
- Y. Ponty, Bioinfo ARN, 12h BIM, M2, UPMC, France
- M. Regnier, Algo/Combinatoire, 12h AMI2B, M2, Univ. Paris-Saclay, France
- J.-M. Steyaert, Algo/Combinatoire, 12h AMI2B, M2, Univ. Paris-Saclay, France
- J.-M. Steyaert, Bioinformatics INF/BIO 588, 20h Majeure BioInfo, M1, Ecole Polytechnique, France

Doctorat

- Y. Ponty, Design ARN, 3h BIM, PhD, Univ. Tehran, Iran

### 7.2.2. Supervision

PhD :

Wei Wang, *Practical structure-sequence alignment of pseudoknotted RNAs*, Univ. Paris-Saclay, December 2017, Y. Ponty, A. Denise

Alice Héliou, *Analyse des séquences génomiques : Identification des ARNs circulaires et calcul de l'information négative*, Univ. Paris-Saclay, July 2017, M. Regnier

Amélie Héliou, *Théorie des jeux et échantillonnage de conformations pour l'amarrage macromoléculaire multi-corps et multi-échelle*, Univ. Paris-Saclay, August 2017, J. Cohen

PhD in progress

Afaf Saaidi, *Differential analysis of RNA SHAPE probing data*, Ecole Polytechnique, Encadrants: Yann Ponty and Mireille Régnier.

Antoine Soulé, *Evolutionary study of RNA-RNA interactions in yeast*, Ecole Polytechnique, Encadrants: Jean-Marc Steyaert and J. Waldispohl (U. McGill, Canada);

Jorgelindo Moreira da Veiga, *Caractérisation dynamique et optimisation des flux métaboliques*, Ecole Polytechnique, Encadrants: L. Schwartz (AP-HP) Sabine Peres (U. Paris-Sud)

Juraj Michalik, *Non-redundant sampling for the study of RNA kinetics*, Inria Saclay, Encadrants: Y. Ponty and H. Touzet (Cristal, Univ. Lille I);

Pauline Pommeret, *Étude de l'impact phénotypique de variants génétiques altérant la structure secondaire des ARNs chez le bovin : Méthodes algorithmiques et validations expérimentales*, INRA Jouy & Ecole Polytechnique, Encadrants: Y. Ponty and D. Rocha (INRA Jouy);

Ha Thi Ngoc Nguyen, *New computational strategies for analyzing the diversity of transcriptome sequence and structure, and their relationship to disease*, I2BC (Univ. Paris-Sud) & Ecole Polytechnique, Encadrants: Y. Ponty and D. Gautheret (Univ. Paris-Sud);

### 7.2.3. Juries

Y. Ponty participated in a hiring committee for an associate professor position in Discrete Mathematics at the University of Southern Denmark;

Y. Ponty acted as an external opponent for the PhD defence of X. Pan at the University of Copenhagen;

## 7.3. Popularization

May 2017 Participation to the CURIOSITas art & science festival organized by univ. Paris-Saclay on the CNRS campus (Gif-sur-Yvette, France);

March 2017 Outreach presentation by AMIBio on RNA folding and combinatorial design for a class of high school students (Montmorency, France);

## ANGE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organising Committees

Y. Penel and J. Sainte-Marie organised (with E. Fernández-Nieto) the workshop “An overview on free-surface flows” that took place at Inria on November 13th-14th and that gathered 35 researchers (from France, US, Italy, Spain).

B. Di Martino, J. Sainte-Marie and A. Mangeney organised the 5th EGRIN summer school that took place at Cargèse from May, 29th to June, 2nd and that gathered 40 researchers.

E. Audusse was a member of the organising committee of the 8th edition of the conference “Finite-Volume for Complex Applications” (June, 12th to 16th, Lille).

M. Parisot organises the monthly ANGE seminar. The program for 2017 comprises: H. Martin (Jan), J. Sainte-Marie (Feb), V. Desveaux (Mar), V. Mallet (Apr), B. Al Taki (Sep), C. Cancès (Oct), R. Ventura (Nov), V. Duchêne (Dec).

J. Salomon co-organises the LJLL-Inria meetings (twice a month). L. Boittin co-organises the Junior Seminar at Inria–Paris.

E. Audusse, C. Guichard and Y. Penel organised the welcome session for newly recruited researchers in mathematics on behalf of national research institutions (CNRS, Inria, SFdS, SMAI, SMF) on January, 23rd.

We finally mention that M. Parisot and J. Salomon will organise a workshop entitled “Scientific computing and optimisation processes for renewable energies” at Inria on January 2018.

### 10.1.2. Journal

#### 10.1.2.1. Reviewer - Reviewing Activities

Member	Journal
E. Audusse	M2AN, Water
C. Guichard	Springer Proc. Math., CRAS Mathematiques, Journal of Scientific Computing, Computers and Mathematics with Applications, Journal of Computational Physics, Numerical Methods for Partial Differential Equations
V. Mallet	JAMES, Atmospheric Environment
A. Mangeney	JGR, GRL, GJI
M. Parisot	ESAIM:ProcS, Springer Proc. Math., M2AN
Y. Penel	Springer Proc. Math., Journal of Computational Physics
J. Sainte-Marie	M2AN, Applied Mathematical Modelling, IJNMF, ANR, Journal of Scientific Computing
J. Salomon	CRAS, SIAM SISC, JMPA

**10.1.3. Invited Talks**

<b>Conference</b>	<b>Location</b>	<b>Month</b>	<b>Members involved</b>
Earth Sciences	Durham (UK)	January	A. Mangeney
DD24	Svalbard (Norway)	February	J. Salomon
Workshop on reduced order methods for wind and marine current power	Nice	February	J. Salomon
Entreprises pour l'environnement	Paris	March	V. Mallet
Clifford lectures	New-Orleans (USA)	April	J. Sainte-Marie
EGRIN (5th summer school)	Cargèse	June	E. Audusse, L. Boittin, A. Mangeney, M. Parisot, Y. Penel
SMAI 2017	Ronce-les-Bains	June	F. Wahl
Forecasting and risk management for renewable energy	Paris	June	V. Mallet
EGU Meeting "Environmental Seismology"	Ohlstadt (Germany)	June	A. Mangeney
InterNoise	Hong-Kong	August	V. Mallet
SIAM GS 2017	Erlangen (Germany)	September	E. Audusse, L. Boittin, F. Wahl
ENUMATH	Voss (Norway)	September	J. Salomon
Euromech colloquium 588	Toulouse	October	L. Boittin
Workshop EDP-Normandie	Caen	October	F. Wahl
Workshop on numerical schemes for low Mach number flows	Toulouse	November	Y. Penel
UMEMA	Torino (Italy)	November	V. Mallet
Numerical Methods for Shallow Water Equations and Related Models	Shenzhen (China)	November	J. Sainte-Marie
NumWave	Montpellier	December	E. Audusse, M. Parisot
<b>Seminars</b>	<b>Date</b>	<b>Member</b>	
Clermont-Ferrand (Blaise Pascal)	January	B. Di Martino	
Bordeaux (MathOcean)	February	E. Audusse, M. Parisot	
Marne-la-Vallée (ENPC)	February	V. Mallet	
Orléans (BRGM)	April	A. Mangeney	
Tokyo (Earthquake Research Institute)	October	A. Mangeney	
Saclay (CEA-LSCE)	October	V. Mallet	

**10.1.4. Leadership within the Scientific Community**

Organisation	People	Duty
AMIES	E. Godlewski	Member of board
ANR	V. Mallet	Expert
CEREMADE lab council	J. Salomon	Member
CFEM	E. Godlewski	Director
EGRIN	E. Audusse	Correspondent (Paris 13)
	B. Di Martino	Correspondent (Corse)
	N. Goutal	Correspondent (EDF)
	C. Guichard	Correspondent (UPMC)
	B. Haspot	Correspondent (CEREMADE)
	A. Mangeney	Member of board
	M. Parisot	Correspondent (ANGE)
	J. Sainte-Marie	Scientific head
HCERES	A. Mangeney	Expert
LJLL	E. Godlewski	Deputy director
SMAI	Y. Penel	Member of board

A. Mangeney was a member of the hiring panel for a full professor position at Univ. Grenoble Alpes.

We also mention that V. Mallet and M. Parisot are members of the Inria committee of doctoral monitoring and that J. Salomon is in the committee for the next location of the centre Inria Paris (rue Barrault).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

PhD degree - J. Salomon, Variational inequalities, 6 hours (lectures), Mines ParisTech

Master's degree (M2) - E. Godlewski and J. Sainte-Marie, Hyperbolic models for complex flows and energy applications, 25 hours (lectures), Univ. Pierre et Marie Curie Paris 6

Master's degree (M2) - C. Guichard, Numerical methods for nonstationary PDEs, 6 hours (programming classes), Univ. Pierre et Marie Curie Paris 6

Master's degree (M2) - A. Mangeney and J. Sainte-Marie, Numerical methods in geosciences, 60 hours (lectures and programming classes), Univ. Paris Diderot Paris 7, IGP

Master's degree (M2) - B. Di Martino, Mathematical modelling, 21 hours (lectures, example and programming classes), Univ. Corse

Master's degree (M2) - J. Salomon, Numerical methods for PDEs, 45 hours (lectures), Univ. Paris Dauphine

Master's degree (M2)- Y. Penel, Deterministic models in life sciences, 30h (lectures, example and programming classes), Univ. Paris Descartes

Master's degree (M2) - V. Mallet, Modelling of air quality, 4.5h (lectures), ENPC

Master's degree (M2) - V. Mallet, Simulation of atmospheric dispersion, 3h (programming classes), ENPC

Master's degree (M2) - V. Mallet, Data assimilation in geophysics, 7h (programming classes), ENPC

Engineering school (2nd year) - E. Audusse, ODEs: analysis and numerical simulation, 30 hours (lectures and example classes), Univ. Paris 13

Engineering school (2nd year) - E. Audusse, Finite difference method for PDEs, 21 hours (lectures), Univ. Paris 13

Master's degree (M1) - C. Guichard, Basis of numerical methods, 63 hours (programming classes), Univ. Pierre et Marie Curie Paris 6



Master's degree (M1) - A. Mangeney and J. Sainte-Marie, Modelling of gravity flows, 80 hours (lectures), Univ. Paris Diderot Paris 7, IPGP

Master's degree (M1) - B. Di Martino, Finite element methods, 18 hours (lectures and example classes), Univ. Corse

Master's degree (M1) - B. Di Martino, Risk modelling, 33 hours (lectures and example classes), Univ. Corse

Master's degree (M1) - J. Salomon, Numerical methods for PDEs, 85 hours (lectures and example classes), Univ. Paris Dauphine

Engineering school (1st year) - E. Audusse, Introduction to scientific computing, 30 hours (lectures and example classes), Univ. Paris 13

Bachelor's degree (L3) - L. Boittin and C. Guichard, Numerical methods for ODEs, 101.5 hours (example and programming classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L3) - C. Guichard, Python, 21 hours (programming classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L3) - B. Di Martino, Linear numerical analysis, 54 hours (lectures and example classes), Univ. Corse

Bachelor's degree (L2) - B. Di Martino, Analysis, 54 hours (lectures and example classes), Univ. Corse

Bachelor's degree (L2) - Y. Penel and F. Wahl, Integration in 2 and 3 dimensions, 31 hours (lectures and example classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L2) - C. Guichard, Some numerical approximations, 17 hours (lectures and programming classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L1-L2) - B. Al Taki, Analysis and algebra, 12 hours (example classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L1-L2) - Y. Penel, Linear algebra, ODEs, elementary probabilities, 20 hours (example classes), Univ. Pierre et Marie Curie Paris 6 (Roscoff)

Bachelor's degree (L1) - B. Di Martino, Mathematics, 18 hours (lectures and example classes), Univ. Corse

Bachelor's degree (L1) - F. Wahl, Sequences and integrals, linear algebra, 54 hours (example classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L1) - L. Boittin, Calculus, 38 hours (example classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L1) - L. Boittin, Linear algebra, 18 hours (example classes), Univ. Pierre et Marie Curie Paris 6

Some members are responsible of educational pathways:

E. Audusse is the deputy director of the "Applied Mathematics and Scientific Computing" program of the SupGalilee engineering school.

E. Godlewski is the head of the "Mathematics for Industry" M.Sc. program of Univ. Pierre et Marie Curie Paris 6.

C. Guichard is the associated head of the "Mathematics and Programming" B. program of Univ. Pierre et Marie Curie Paris 6.

### 10.2.2. Supervision

PostDoc in progress - Bilal Al Taki, *Well-posedness multilayers Saint-Venant equation*, Inria, supervised by J. Sainte-Marie, B. Haspot and B. Di Martino, from 2017

PostDoc in progress - Guillaume Chérel, *Data assimilation for urban pollution*, Inria, supervised by V. Mallet, from 2016

PostDoc in progress - Virginie Durand, *Analysis of rockfalls and generated seismic signals at La Réunion*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney, from 2014

PostDoc in progress - Janelle Hamond, *Uncertainty quantification applied to air quality simulation at urban scale*, Inria, supervised by V. Mallet, from 2017

PostDoc in progress - El Hadji Kone, *Numerical modelling of two-phase flows*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with G. Narbona-Reina and E. Fernández-Nieto), from 2014

PostDoc in progress - Pierre-Olivier Lamarre, *Optimisation of the hydrodynamic regime in a raceway and lagrangian trajectories of algae*, Inria, supervised by J. Sainte-Marie (in collaboration with O. Bernard, BIOCORE), from 2016

PostDoc in progress - Sylvain Viroulet, *Numerical modelling of granular flows and generated forces on the topography*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney, from 2016

PhD - Do Minh Hieu, *Analyse mathématique et schémas volumes finis pour la simulation des écoulements quasi-géostrophiques à bas nombre de Froude*, Univ. Paris 13, supervised by E. Audusse and Y. Penel (in collaboration with S. Dellacherie and P. Omnes), defended on Dec. 17

PhD - Jean Thorey, *Prévision d'ensemble par agrégation séquentielle appliquée à la prévision de production d'énergie photovoltaïque*, Inria grant, supervised by V. Mallet (in collaboration with I. Herlin), defended on Sept. 17

PhD in progress - Frédéric Allaire, *Quantification du risque incendie par méta-modélisation de la propagation de feux de forêt*, Inria grant, supervised by V. Mallet and J. Sainte-Marie, from 2017

PhD in progress - Vincent Bachelet, *Granular flows and generated acoustic waves: a laboratory investigation*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with J. De Rosny and R. Toussaint), from 2015

PhD in progress - Léa Boittin, *Modelling, analysis and efficient numerical resolution for erosion processes*, Univ. Pierre et Marie Curie Paris 6 (Inria grant), supervised by E. Audusse, M. Parisot and J. Sainte-Marie, from Jan. 16

PhD in progress - Pauline Bonnet, *Vers un catalogue des vélages d'icebergs en région polaire par une approche couplée sismologie et modélisation mécanique*, Institut de Physique du Globe (Univ. Paris 7) & ENSAM-ParisTech, supervised by A. Mangeney (in collaboration with O. Castelnaud and V. Yastrebof), from 2017

PhD in progress - Ruiwei Chen, *Uncertainty quantification in the simulation of traffic emissions*, ENPC, supervised by V. Mallet (in collaboration with V. Aguiléra, K. Sartelet), from 2014

PhD in progress - Virgile Dubos, *Numerical methods for the elliptic/parabolic parts of non-hydrostatic fluid models*, Univ. Pierre et Marie Curie Paris 6, supervised by C. Guichard, Y. Penel and J. Sainte-Marie, from 2017

PhD in progress - Nadia Jbili, *Contrôle optimal pour la résonance magnétique nucléaire*, Univ. Paris Dauphine, supervised by J. Salomon, from 2017

PhD in progress - Julian Kühnert, *Simulation of high frequency seismic waves*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney, from 2016

PhD in progress - Antoine Lesieur, *Estimation d'état et modélisation inverse appliquées à la pollution sonore en milieu urbain*, Inria grant, supervised by V. Mallet and J. Sainte-Marie, from 2017

PhD in progress - Hugo Martin, *Simulation of the coupling between seismic waves and granular flows*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with Y. Maday), from 2016

PhD in progress - Ethem Nayir, *Approximation multi-vitesse des équations de Navier-Stokes hydrostatiques: Analyse mathématique et simulations numériques*, Univ. Pierre et Marie Curie Paris 6, supervised by E. Audusse, Y. Penel and J. Sainte-Marie, from 2014

PhD in progress - Nourelhouda Omrane, *Mathematical analysis and control of free-surface flows in variable domains*, Univ. Corse, supervised by B. Di Martino, from 2016

PhD in progress - Marc Peruzzetto, *Hazard assessment related to gravitational flows: from modelling to risk analysis*, Institut de Physique du Globe (Univ. Paris 7) & BRGM, supervised by A. Mangeney (in collaboration with G. Grandjean), from 2017

PhD in progress - Pierrick Quémar, *3D numerical simulations of environmental hydrolics: application to Telemac*, Univ. Paris 13, supervised by E. Audusse and N. Goutal (in collaboration with A. Decoene, O. Lafitte, A. Leroy and C. Tuân Phan), from 2016

PhD in progress - Sebastian Reyes-Riffo, *Mathematical methods for recovering marine energies*, Univ. Paris Dauphine, supervised by J. Salomon, from 2016

PhD in progress - Raphaël Ventura, *Estimation de la pollution sonore en milieu urbain par assimilation d'observations mobiles*, Inria grant, supervised by V. Mallet (in collaboration with I. Herlin), from 2014

PhD in progress - Fabien Wahl, *Modelling and analysis of interactions between free surface flows and floating objects*, Univ. Pierre et Marie Curie Paris 6, supervised by C. Guichard, E. Godlewski, M. Parisot and J. Sainte-Marie, from 2015

M2 internship - M Hamed Bouchiba, *Obtention du modèle Saint-Venant et stabilité des solutions faibles d'un système Navier-Stokes compressible*, Univ. Pierre et Marie Curie Paris 6, supervised by B. Di Martino and B. Haspot, Summer 2017

M2 internship - Anthony Guimpier, *Analyse d'instabilités gravitaires sur Mars*, IPGP, supervised by A. Mangeney (in collaboration with S. Conway, N. Mangold), Summer 2017

M2 internship - Ani Miraçi, *Formulation et étude numérique de la partie elliptique d'un problème couplé issu de la géophysique*, Univ. Pierre et Marie Curie Paris 6, supervised by C. Guichard, Y. Penel and J. Sainte-Marie, Summer 2017

M2 internship - Pablo Poulain, *Granular flows simulation and application to volcanic flank collapse*, IPGP, supervised by A. Mangeney (in collaboration with A. Le Friand, G. Boudon), Summer 2017

M2 internship - Laurie Supperamaniyen, *Dynamique éruptive du Piton de La Fournaise à partir d'enregistrements sismiques continus sur quelques éruptions*, IPGP, supervised by A. Mangeney (in collaboration with S. Vergnolle), Summer 2017

L3 internship - Jeanne Trinquier, *Tsunamath : module pédagogique présentant les travaux de modélisation et de simulation des tsunamis*, supervised by E. Audusse and J. Sainte-Marie, Summer 2017

### 10.2.3. Juries

Jan., PhD - J. Sainte-Marie: Amélie Simon (E. Centrale Lyon, *Modélisation des phénomènes de films liquides dans les turbines à vapeur*)

Feb., PhD - Y. Penel: Arthur Talpaert (École Polytechnique, *Simulation numérique directe de bulles sur maillage adaptatif avec algorithmes distribués*)

Mar., PhD - J. Sainte-Marie (referee): Nabil El Mocayd (Cerfacs – Univ. Toulouse, *La décomposition en polynôme du chaos pour l'amélioration de l'assimilation de données ensembliste en hydraulique fluviale*)

Mar., PhD - A. Mangeney (referee): Perrine Freyrier (Univ. Grenoble Alpes – IRSTEA, *Dynamique interne au front d'écoulements à surface libre. Application aux laves torrentielles*)

May, PhD - J. Salomon: Francesc Fàbregas Flavià (École Centrale Nantes, *A Numerical Tool for the Frequency Domain Simulation of Large Clusters of Wave Energy Converters*)

May, PhD - V. Mallet: Chi Vuong NGuyen (École Centrale Lyon, *Assimilation de données et couplage d'échelles pour la simulation de la dispersion atmosphérique en milieu urbain*)

Sept., PhD - V. Mallet: Jean Thorey (Univ. Pierre et Marie Curie, *Prévision d'ensemble par agrégation séquentielle appliquée à la prévision de production d'énergie photovoltaïque*)

Nov., PhD - J. Sainte-Marie (president): Charles Demay (Univ. Grenoble Alpes, *Modélisation et simulation des écoulements transitoires diphasiques eau-air dans les circuits hydrauliques*)

Nov., PhD - A. Mangeney (president): Thao Trinh (Univ. Rennes 1, *Mécanisme d'érosion et de déposition de l'écoulement granulaire sur un fond meuble*)

Dec., PhD - A. Mangeney (president): Julien Brondex (Univ. Grenoble Alpes – IGA, *Influence de l'endommagement et du frottement basal sur la dynamique de la ligne d'échouage*)

Dec., PhD - A. Mangeney: Alexis Bougouin (Institut National Polytechnique de Toulouse, *Étude expérimentale de l'effondrement d'une colonne fluide-grains*)

Dec., PhD - C. Guichard: Riad Sanchez (IFPEN – Univ. Paris-Saclay, *Techniques de bases réduites pour les écoulements diphasiques en milieux poreux*)

Dec., PhD - J. Sainte-Marie (referee): Athmane Bakhta (Univ. Paris-Est, *Modèles mathématiques et simulation numérique de dispositifs photovoltaïques*)

Dec., PhD - B. Di Martino: Réjane Fieschi (Univ. Corse, *Résolution d'équations d'ondes en dimension quelconque*)

Dec., PhD - E. Audusse and Y. Penel: Do Minh Hieu (Univ. Paris 13, *Analyse mathématique de schémas volume finis pour la simulation des écoulements quasi-géostrophiques à bas nombre de Froude*)

### 10.3. Popularisation

April - V. Mallet participated to the workshop Smart Cities organised by *Le Monde* in Lyon

May - L. Boittin and R. Ventura ran a stand on the occasion of the “salon de la culture et des jeux mathématiques” on behalf of AMIES

June - V. Mallet and R. Ventura helped the organising committee of the “noise walk” in Helsinki (as well as the November edition)

June-July - J. Trinquier's internship was dedicated to the development of an educational tool based on Tsunamath which incorporates modelling and simulation (supervision by E. Audusse and J. Sainte-Marie)

October - E. Audusse got involved in a TPE for students in 1<sup>re</sup> S

November - R. Ventura provided an association in Paris with noise reports

November - Y. Penel ran a stand during the ONISEP exhibition

December - L. Boittin, Y. Penel and F. Wahl helped the organisation at the “Math. Employment” show

## ANTIQUÉ Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Selection

#### 10.1.1.1. Chair of Conference Program Committees

- Jerome Feret served as co-Chair of CMSB 2017 (Computational Methods in Systems Biology).
- Xavier Rival is serving as Chair of the Artifact Evaluation Committee of SAS 2018 (Static Analysis Symposium).

#### 10.1.1.2. Member of the Conference Program Committees

- Jerome Feret served as a Member of the Program Committee of TMPA 2017 (Tools and Methods of Program Analysis).
- Jerome Feret served as a Member of the Program Committee of JOBIM 2017 (Journées Ouvertes en Biologie, Informatique et Mathématiques).
- Jerome Feret served as a Member of the Program Committee of SASB 2017 (Static Analysis and System Biology).
- Jerome Feret is serving as a Member of the Program Committee of LICS 2018 (Logic in Computer Science).
- Jerome Feret is serving as a Member of the Program Committee of VEMDP 2018 (Verification of Engineered Molecular Devices and Programs).
- Jerome Feret is serving as a Member of the Program Committee of SAS 2018 (Static Analysis Symposium).
- Jerome Feret is serving as a Member of the Program Committee of CMSB 2018 (Computational Methods in Systems Biology).
- Xavier Rival was a Member of the Program Committee of SAS 2017 (Static Analysis Symposium).
- Xavier Rival is serving as a Member of the Program Committee of SAS 2018 (Static Analysis Symposium).
- Xavier Rival was a Member of the Program Committee of Web Design, Analysis, Programming and Implementation of the WWW'18 Conference.
- Xavier Rival was a Member of the Extended Review Committee of PLDI 2018 (Programming Languages Design and Implementation).
- Cezara Dragoi was a member of Programming languages design and implementation PLDI'17.
- Cezara Dragoi was a member of Computer Aided Verification CAV'18.

#### 10.1.1.3. Reviewer

- Jerome Feret served as reviewer for CONCUR 2017 (Concurrency Theory).
- Jerome Feret served as reviewer for LICS 2017 (Logic in Computer Science).
- Jerome Feret served as reviewer for VMCAI 2017 (Verification, Model Checking, and Abstract Interpretation).

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

- Jerome Feret is a member of the editorial board of the Frontiers in Genetics journal and the Open Journal of Modeling and Simulation.
- Jerome Feret serves as co-Editor of an Issue of the Theoretical Computer Science journal, that is composed of papers from SASB 2016, and is expected to appear in 2018.
- Jerome Feret serves as Editor of an Issue of the IEEE/ACM Transactions on Computational Biology and Bioinformatics, that is composed of papers from CMSB 2016, and is expected to appear in 2019.
- Xavier Rival serves as Editor of an Issue of the Formal Methods in System Design Journal, that is composed of a selection of papers from SAS 2016, and is expected to appear in 2018.

#### 10.1.2.2. Reviewer - Reviewing Activities

- Jerome Feret served as a Reviewer for FMSD (Formal Methods in System Design).
- Jerome Feret served as a Reviewer for TCS (Theoretical Computer Sciences).
- Jerome Feret served as a Reviewer for TCBB (IEEE/ACM Transactions on Computational Biology and Bioinformatics).
- Jerome Feret served as a Reviewer for TCL (Transactions on Computational Logic).
- Xavier Rival served as a Reviewer for ACM TOPLAS (Transactions On Programming Languages and Systems).
- Xavier Rival served as a Reviewer for ACM TOPS (Transactions On Privacy and Security).

#### 10.1.3. Invited Talks

- Jerome Feret gave a talk on automatic reduction of models of intra-cellular signaling pathways at the Dagstuhl Seminar on Algorithmic Cheminformatics (5–10 November 2017).
- Cezara Dragoi was invited speaker at the 6th South of England Regional Programming Language Seminar University College London, Workshop on Software Correctness and Reliability at ETH Zurich, and Workshop on Formal Reasoning in Distributed Algorithms (FRIDA), Wien Austria.

#### 10.1.4. Leadership within the Scientific Community

Xavier Rival is a member of the IFIP Working Group 2.4 on Software implementation technology.

#### 10.1.5. Research Administration

Jerome Feret and Xavier Rival are members of the Laboratory Council of DIENS.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence:

- Jerome Feret, and Marc Chevalier, Mathematics, 40h, L1, FDV Bachelor program (Frontiers in Life Sciences (FdV)), Université Paris-Descartes, France.
- Jerome Feret and Xavier Rival, “Semantics and Application to Verification”, 36h, L3, at École Normale Supérieure, France.
- Xavier Rival, “Introduction to Static Analysis”, 8h, L3, at École des Mines de Paris, France.
- Xavier Rival “Programmation Avancée”, 18h, L3, at École Polytechnique, France.
- Cezara Dragoi “Les principes des langages de programmation”, 18h, L1, at École Polytechnique, France.

Master:

- Xavier Rival, “Verification” Lab Course, 20h, M1, École Polytechnique, France.

- Xavier Rival, “Protocol Safety and Verification”, 12h, M2, Advanced Communication Networks Master, France.
- Xavier Rival, “Program Analysis”, 24h, M2, Korea Advanced Institute for Science and Technology (KAIST), South Korea.
- Cezara Drăgoi, Jerome Feret, Antoine Miné, and Xavier Rival, “Abstract Interpretation: application to verification and static analysis”, 72h, M2. Parisian Master of Research in Computer Science (MPRI), France.
- Vincent Danos and Jerome Feret (with Jean Krivine), Computational Biology, 28h, M1. Interdisciplinary Approaches to Life Science (AIV), Master Program, Université Paris-Descartes, France.

### **10.2.2. Supervision**

- PhD defended: Ferdinanda Camporesi, Formal and exact reduction for differential models of signaling pathways in rule-based languages. Defended the 23th of January, 2017 and supervised by Jerome Feret.
- PhD in progress: Marc Chevalier, Static analysis of Security Properties in Critical Embedded Software. started in 2017 and supervised by Jerome Feret
- PhD in progress: Hugo Illous, Relational Shape Abstraction Based on Separation Logic, started in 2015 and supervised by Xavier Rival and Matthieu Lemerre (CEA)
- PhD in progress: Huisong Li, Disjunctive Shape Abstraction for Shared Data-Structures, started in 2014 and supervised by Xavier Rival
- PhD in progress: Jiangchao Liu, Static Analysis for Numeric and Structural Properties of Array Contents, started in 2014 and supervised by Xavier Rival

### **10.2.3. Juries**

- Jerome Feret served as a member of the Jury of the PhD of Jean Coquet (Defended the 20th of December, 2017).
- Xavier Rival served as a Reviewer in the Jury of the PhD of Ahmad Salim Al-Sibahi (Defense planned for the 11th of January, 2018).

### **10.2.4. Responsibilities**

- Jerome Feret is a member of the Monitoring Committee for PhD Studies (CSD) of Inria Paris.
- Jerome Feret is deputy head of studies of the Computer Science department of École normale supérieure.

### **10.2.5. Selection committees**

- Jerome Feret was a member of the recruitment committee for an assistant professor in Evry University 2017.
- Jerome Feret is a member of the recruitment committee for an assistant professor in Paris-Diderot University 2018.

## **AOSTE2 Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific Events Organisation***

#### *10.1.1.1. Member of the Steering Committees*

- Liliana Cucu-Grosjen is member of the steering committees of the following conferences and workshops: RTSS, RTAS, RTNS, WMC, RTSOPS.
- Rob Davis is member of the steering committees of the following conferences and workshops: RTSS, RTAS, RTNS, WMC, RTSOPS.

#### *10.1.1.2. Member of the Organizing Committees*

- Liliana Cucu is Local Arrangement Chair of the 38th IEEE Real-time Systems Symposium (RTSS'17).

### ***10.1.2. Scientific Events Selection***

#### *10.1.2.1. Member of the Conference Program Committees*

- Liliana Cucu: RTAS, RTNS, WFCS
- Robert Davis: RTSS, RTAS, RTNS
- Adriana Gogonel: ACM RACS, WMC
- Dumitru Potop-Butucaru: ACSOFT, EMSOFT
- Yves Sorel: DASIP

#### *10.1.2.2. Reviewer*

All members of the team are regularly serving as reviewers for the main scientific events of our domain: RTSS, RTAS, RTCSA, RTNS, DATE, ETFA, EMSOFT, DASIP, etc.

### ***10.1.3. Journal***

#### *10.1.3.1. Reviewer - Reviewing Activities*

All members of the team are regularly serving as reviewers for the main journals of our domain: Journal of Real-Time Systems, Journal of Systems Architecture, Leibniz Transactions on Embedded Systems, IEEE Transactions on Industrial Informatics, etc.

### ***10.1.4. Invited Talks***

- Liliana Cucu is keynote speaker at the 11th edition of CRTS, invited speaker at MMR'17 and MEFOSYLOMA seminar.

### ***10.1.5. Leadership within the Scientific Community***

Liliana Cucu and Rob Davis are the scientific organizers of the 2nd Dagstuhl seminar on mixed-criticality systems.



### 10.1.6. Scientific Expertise

- Yves Sorel: Steering Committee of System Design and Development Tools Group of Systematic Paris-Region Cluster.
- Yves Sorel: Steering Committee of Technologies and Tools Program of SystemX Institute for Technological Research (IRT).

### 10.1.7. Research Administration

- Liliana Cucu-Grosjean is member of Inria Evaluation Commission, co-chair of Inria Committes on gender equality and equal oportunities, and member of the CLHCST.
- Dumitru Potop-Butucaru is member of mobility grant commission for postdocs and invited profesors.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Liliana Cucu, Distributed Databases and Statistics in Computer Science, 64h, U. Dunarea de Jos, Romania (Invited Professor).

Master: Dumitru Potop Butucaru, A synchronous approach to the design of embedded real-time systems, 30h, M1, EPITA Engineering School, Paris France.

Master: Yves Sorel, Optimization of distributed real-time embedded systems, 38H, M2, University of Paris Sud, France.

Master: Yves Sorel, Synchronous languages and real-time scheduling, 9H, M2, University of Paris-Est Créteil, France.

Master: Yves Sorel, Correct by construction design of reactive systems, 18H, M2, ESIEE Engineering School, Noisy-Le-Grand, France.

### 10.2.2. Supervision

PhD: Cristian Maxim, End to end constraints using probabilistic approaches, UPMC, defended December 2017, supervised by Liliana Cucu.

PhD in progress: Slim Ben-Amor, Schedulability analysis of probabilistic real-time tasks under end to end constraints, UPMC, started on September 2016, supervised by Liliana Cucu.

PhD in progress: Keryan Didier, Formal certification of real-time implementations, Université Pierre et Marie Curie/EDITE, started November 2015, supervised by Dumitru Potop Butucaru.

PhD in progress: Cristian Maxim, End to end constraints using probabilistic approaches, UPMC, started March 2014, supervised by Liliana Cucu.

PhD in progress: Evariste Ntaryamira, Analysis of embedded systems with time and security constraints, UPMC, started on January 2017, supervised by Liliana Cucu and Rachel Akimana.

PhD in progress: Walid Talaboulma, Probabilistic timing analysis in presence of dependences, UPMC, started November 2015, co-supervised by Liliana Cucu and Adriana Gogonel.

PhD in progress: Salah-Edinne Saidi, Distributed real-time scheduling for the co-simulation of multiple control models, University of UMPC-Paris-Sorbonne, started December 2014, co-supervised by Nicolas Pernet (IFPEN) and Yves Sorel.

### 10.2.3. Juries

- Liliana Cucu is Phd reviewer for the thesis of Fabrice Guet, ONERA and ISAE, defended December 2017.
- Liliana Cucu is Phd reviewer for the thesis of Bader Alahmad, University of British Columbia, defended December 2017.
- Liliana Cucu is Phd jury member for the thesis of Romain Gratia, Telecom Paritech, defended January 2017.

## 10.3. Popularization

Popularization video of the probabilistic notions for mixed-criticality systems [https://www.youtube.com/watch?v=sSJT4eGhS\\_A](https://www.youtube.com/watch?v=sSJT4eGhS_A)

## APICS Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

- L. Baratchart gave a talk at SEAM 2017 <https://www.math.utk.edu/SEAM/> and organized a scientific session at AIP 2017 <http://aip2017.csp.escience.cn/dct/page/1>.
- J. Leblond presented oral communications at the Conference “Cerveau.at.UCA”, <http://cauca2017.sciencesconf.org/>, Fréjus, France, Jun., at the Workshop ERNSI 2017, <http://ernsi2017.sciencesconf.org/>, Lyon, France Sept. and a poster at the Conference BACI 2017, <http://www.baci-conference.com/>, Bern, Switzerland, Aug.
- J.-P. Marmorat presented a poster at the 18th International Symposium on Applied Electromagnetic and Mechanics (ISEM), <http://www.isem2017.org/>, Chamonix, France, Sep.
- K. Mavreas presented oral communications at the Conference Tendances des Applications Mathématiques en Tunisie, Algérie, Maroc (TAMTAM), <http://indico.math.cnrs.fr/event/1335/overview>, Hammamet, Tunisia, May [13], at the 18th ISEM, <http://www.isem2017.org/>, Chamonix, France, Sep. [25], and at the PhD Seminar of the Research Center, Jun.
- C. Papageorgakis gave an oral communication at the Conference TAMTAM, <http://indico.math.cnrs.fr/event/1335/overview>, Hammamet, Tunisia, May [14], and at the Conference GRETSI 2017, <http://gretsi.fr/colloque2017/>, Juan-Les-Pins, France, Sep. [17].
- D. Martinez presented a poster at the International Microwave Symposium 2017 <https://ims2017.org/>, Hawaii, USA.
- G. Bose gave a talk at the International Conference on Electromagnetics in Advanced Applications <http://www.iceaa.net/j3/>, Verona, Italy, [15].
- A. Cooman presented a poster at the Workshop ERNSI 2017, <http://ernsi2017.sciencesconf.org/>, Lyon, France.
- M. Olivi gave a seminar at ONERA, Toulouse, January 12. She presented a poster at the Workshop ERNSI 2017, <http://ernsi2017.sciencesconf.org/>, Lyon, France.

#### 8.1.1. Scientific Events Organisation

##### 8.1.1.1. General Chair, Scientific Chair

- J. Leblond was the scientific chair of a mini-symposium at the Conference TAMTAM, <http://indico.math.cnrs.fr/event/1335/overview>, Hammamet, Tunisia, May.

##### 8.1.1.2. Member of the Organizing Committees

- K. Mavreas was one of the organizers of the PhD seminar of the Research Center, until Oct.

#### 8.1.2. Scientific Events Selection

##### 8.1.2.1. Member of the Conference Program Committees

L. Baratchart was a member of the program committee of “Control and Distributed Parameter Systems”, Bordeaux, 2017.

#### 8.1.3. Journal

##### 8.1.3.1. Member of the Editorial Boards

L. Baratchart is an editor for “Complex Analysis and Operator Theory” (CAOT) and “Constructive Methods and Function Theory” (CMFT).

### 8.1.3.2. Reviewer - Reviewing Activities

S. Chevillard was a reviewer for the journal *Transactions on Computers*.

J. Leblond was a reviewer for the journals *Czechoslovak Mathematical Journal*, *Annals of West University of Timisoara - Mathematics and Computer Science*, *ESAIM: Control, Optimisation and Calculus of Variations*, *Adv. in App. Clifford Algebras*, *ARIMA*, *Numerical Algorithms*.

F. Seyfert was a reviewer for the journal *IEEE Microwave Theory and Techniques*.

M. Olivi was a reviewer for the journal *Automatica*.

### 8.1.4. Invited Talks

L. Baratchart was an invited speaker at the conference “Complex and Functional Analysis and their interactions with Harmonic Analysis”, Bedlewo, Poland (June) <https://plas.mat.umk.pl/etcafa/cfaha.html> and at the “Harmonic Analysis and Inverse Problems” session of the Mathematical Congress of the Americas, Montreal, Canada (Jul.) <https://mca2017.org/prog/sessions/scientific>. He was a plenary speaker at the conference “Complex and Harmonic Analysis”, Holon, Israel (June) <http://www.hit.ac.il/acc/golberga/CHA17/CHA17.html> and an invited speaker at the “Mid-western Workshop on Asymptotic Analysis”, Indianapolis, USA (October) <http://mwaa.math.iupui.edu/>, as well as an invited speaker at the conference “Mathematics, Signal Processing and Linear Systems: New Problems and Directions”, <http://www1.chapman.edu/~mbvajiac/conferences/2017Conference.html>, Chapman University, Orange, CA, USA, Nov.

J. Leblond was an invited speaker at the 17ème Journée Calcul Scientifique et Modélisation Mathématique d’Amiens, <http://www.lamfa.u-picardie.fr/desveaux/JCS17/journeeCS16.html>, June, at the Conference on Control of Distributed Parameter Systems (CDPS 2017), <http://indico.math.cnrs.fr/event/1363/>, Bordeaux, July, at the annual days of GdR AFHP, <http://www.math.u-bordeaux.fr/~sgolenia/GDR/>, Bordeaux, Oct., and at the Conference Mathematics, Signal Processing and Linear Systems: New Problems and Directions, <http://www1.chapman.edu/~mbvajiac/conferences/2017Conference.html>, Chapman University, Orange, CA, USA, Nov.

M. Olivi was invited to give a communication at the symposium “Mathematics in Knowledge Engineering and Data Science - Identifying Connections”, June 30, in Maastricht, the Netherlands.

### 8.1.5. Scientific Expertise

F. Seyfert is a member of the IEEE MTT-8 Technical Committee on Filters and Passive Components

### 8.1.6. Research Administration

L. Baratchart sits on the committee “Mathématiques et Informatique” of the French Agency for research (ANR).

J. Leblond is an elected member of the “Conseil Scientifique” and of the “Commission Administrative Paritaire” of Inria. Until April, she was a member of the “Conseil Académique” of the Univ. Côte d’Azur (UCA).

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

**Graduate course:** L. Baratchart gave a graduate course titled “Introduction to Inverse Problems” (40 hours) at Vanderbilt University, Nashville, Tennessee.

**Colles:** S. Chevillard is giving “Colles” at Centre International de Valbonne (CIV) (2 hours per week).

**Summer School:** M. Olivi gave two lectures at the 38-th summer school of automatic control, Grenoble, September 11-15: “Optimization-based model reduction” with P. Vuillemin (Onera) and “Applications in electronics: design of frequency filters and stability analysis of amplifiers”.

### 8.2.2. Supervision

PhD: C. Papageorgakis, *Conductivity model estimation*, since October 2014 (advisors: J. Leblond, M. Clerc, M. Rusiniak), defended Dec. 15th [10].

PhD in progress: K. Mavreas, *Inverse source problems in planetary sciences: dipole localization in Moon rocks from sparse magnetic data*, since October 2015 (advisors: S. Chevillard, J. Leblond).

PhD in progress: D. Martinez Martinez, *Méthodologie et Outils de Synthèse pour des Fonctions de Filtrage Chargées par des Impédances complexes*, since October 2015, advisors: L. Baratchart and F. Seyfert.

PhD in progress: G. Bose, *Filter Design to Match Antennas*, since December 2016, advisors: F. Ferrero and F. Seyfert.

PhD in progress: S. Fueyo, *Cycles limites et stabilité dans les circuits*, since October 2016, advisors: L. Baratchart and J.-B. Pomet.

### 8.2.3. Juries

L. Baratchart was a referee of the “Mémoire d’habilitation” by Nicolas Brisebarre (ENS de Lyon).

J. Leblond was a member of the “Jury d’admissibilité du concours CR2” of the Inria Research Center Nancy Grand Ouest and of the “Comité de Sélection” for professors at UNSA (Polytech Nice), in March. She was a member of the PhD thesis defense committee of Lobna Merghmi, Aix-Marseille Université, Institut de Math. de Marseille (I2M), Jan.

M. Olivi was a reviewer for the PhD document of Igor Pontes-Duff-Pereira, université de Toulouse, January 11. She was a member of the PhD thesis defense committees of Afroz Ebadat, KTH, Stockholm, September 8, and Yusuf Bhujwalla, université de Lorraine, Nancy, December 5. She was a member of the “jury d’admission du concours CR” of Inria.

## 8.3. Popularization

- M. Olivi is responsible for Scientific Mediation and president of the Committee MASTIC (Commission d’Animation et de Médiation Scientifique) <https://project.inria.fr/mastic/>. Her main contributions related with this mission were:
  - management of the contract “région PACA: Science Culture Lycée” and organization of about thirty conferences in the high schools of the region (100 students per conference),
  - co-organization of 10 robotics sessions for 2 classes of middle school students (device “MEDITES” <http://medites.fr>, founded by ANRU, the “Agence Nationale de Rénovation Urbaine”),
  - co-organization of the “stage MathC2+”, a four-day internship for 50 high school students (“secondes”, about 16 years old) organized by the Committee MASTIC and its partners (June 14-17),
  - co-organization of Inria participation to the event “Le Village des Sciences et de l’Innovation” in Antibes (October 7 & 8, 10000 people),
  - co-organization of about 10 “cafés scientifiques” (c@fé-in’s and cafés Techno, 30 to 80 participants each),
  - supervision of a (2 months) internship, done by Sabrina Ballauris, for the realization of objects to manipulate, in view of illustrating some mathematical results and scientific principles (Pythagora’s puzzles, Galton’s board, Galileo’s experiment, the fastest toboggan, ...)

She was a member of the scientific committee of the “Forum Mathématiques Vivantes”, a national event (initiated by CFEM, the French Commission for Mathematics Education, <http://forum-maths-vivantes.fr/>) organized in Lille, Lyon, Rennes, Toulouse during the Mathematics Week. She participated into the reviewing process for the book “Panorama Mathématiques et Langages” published in this occasion by CFEM.

- M. Olivi animated two half-day workshop sessions “activités débranchées” at “l’ESPE de Nice” for primary school students (March 16 & 24), 200 students each session). She gave three presentations for high school students in Gap and Marseille. With K. Mavreas, she participates to the event “Le Village des Sciences et de l’Innovation” in Antibes (October 7 & 8, 10000 people).
- A. Cooman gave a presentation at the “stage MathC2+”, a four-day internship for high-school students organized by the Committee MASTIC and its partners (June 14-17).

## ARAMIS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- S. Durrleman was co-chair of the 6th international workshop on the Mathematical Foundations of Computational Anatomy (MFCA) in Quebec City on September 14.

#### 10.1.1.2. Member of the Organizing Committees

Fabrizio De Vico Fallani is member of the scientific board for the ICM conferences

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

O. Colliot was a member of the program committee of the Workshop on Patch-based Techniques in Medical Imaging (Patch-MI) held in conjunction with the MICCAI conference.

O. Colliot was a member of the program committee of SPIE Medical Imaging conference.

F. De Vico Fallani was member of the program committee of the Satellite on Brain networks, International Conference on Network Science (NetSci), Indianapolis, US, 2017

F. De Vico Fallani was member of the program committee of 5th International Workshop on Complex Networks and their Applications, Lyon, France, 2017

S. Epelbaum was a member of the French medical board on the management of Early phase Alzheimer's Disease, Issy les moulineaux, France, 2017

#### 10.1.2.2. Reviewer

O. Colliot acted as a reviewer for the annual meeting of the Organization for Human Brain Mapping (OHBM).

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

O. Colliot is a member of the Editorial Board of Medical Image Analysis (Elsevier).

S. Durrleman is associate editor of IEEE Transactions on Medical Imaging (TMI)

#### 10.1.3.2. Reviewer - Reviewing Activities

O. Colliot acted as a reviewer for NeuroImage, NeuroImage: Clinical, IEEE Trans Medical Imaging, Medical Image Analysis and Neurobiology of Aging.

S. Epelbaum acted as a reviewer for Alzheimer's & Dementia and the Journal of Alzheimer's disease.

A. Bertrand acted as a reviewer for European Radiology, Journal of Magnetic Resonance Imaging, Journal of Neuroradiology.

F. De Vico Fallani acted as a reviewer for Cerebral Cortex, Brain Topography, IEEE TBME/TNRSE, Neuroimage, Sci Rep, Brain Connectivity, PLOS ONE

### 10.1.4. Invited Talks

A. Bertrand gave an invited lecture at the French-Quebecois Colloquium of the National Academy of Medicine "Towards news preventive and therapeutic strategies for neurodegenerative diseases: the role of imaging" in Québec City, Québec, september 2017.

F. De Vico Fallani gave an invited lecture at the international workshop on complex networks in Lipari, Italy, september 2017.

F. De Vico Fallani gave an invited lecture at the Neuroscience School of Advanced Studies in Siena, Italy, April 2017.

O. Colliot gave an invited lecture at the ICM/Supelec Workshop 2017.

S. Durrleman gave an invited lecture at the BIOVISION congress in Lyon.

S. Durrleman gave an invited lecture at the conference “Topological and Geometrical Science of Information” at Centre International de Rencontre Mathématiques, Luminy

S. Durrleman gave an invited lecture for the “diplôme inter-universitaire: diagnostic et prise en charge de la Maladie d’Alzheimer et apparentée”, Lille

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Olivier Colliot coordinates the module "Méthodes d’imagerie médicale" of the Master 2 in Computer Science of Université Pierre et Marie Curie.

Master: Olivier Colliot, Master in Computer Science (module Réseaux complexes), 4.5 hours (eqTD), Université Pierre et Marie Curie

Master: Olivier Colliot, Master in Computer Science, 4.5 hours (eqTD), Université Pierre et Marie Curie

Master: Stéphane Epelbaum, Master in Neuroscience, 4 hours (eqTD), Université Pierre et Marie Curie

Master: S. Durrleman, Master 2 “Mathematics, Vision and Learning”, 31,5 jours (eqTD), ENS Paris-Saclay

Engineering school: Olivier Colliot, 3 hours (eqTD), Mines ParisTech

Medical school: Didier Dormont is the Director of the University Diploma (DIU) “Diagnostic and Therapeutic Neuroradiology”, Université Pierre et Marie Curie

Medical school: Didier Dormont, Courses for Medical Students, Université Pierre et Marie Curie

Medical school: Didier Dormont organizes and participates in the practical teaching of Neuroradiology for Medical Students in the Department of Diagnostic Neuroradiology of Pitié Salpêtrière University Hospital

Medical school: Didier Dormont organizes and participates in the practical teaching of Neuroradiology for Radiology Specializing Residents in the Department of Diagnostic Neuroradiology of Pitié Salpêtrière University Hospital

Medical school: Anne Bertrand gives lectures in Neuroimaging of degenerative diseases and normal aging for residents in Radiology and Neurology, for Radiology technicians, for License students in Orthophony, and in various "University Diploma" medical programs (Neurogeriatrics, Neuro-radiology, Alzheimer’s Disease and related disorders, Neurovascular Imaging, Emergency-Stroke, Neuroresuscitation), for a total of 50 hours a year.

Medical school: Stéphane Epelbaum gives lectures in Neurology on the topic of degenerative diseases for medical students of the UPMC (10 hours/year) and is regional supervisor of the national Inter University Diploma on Alzheimer’s disease and Related disorders for Paris since 2015.

### 10.2.2. Supervision

PhD in progress : Giulia Bassignana, “Identification of driver nodes in biological networks”, Inserm, started in 2017, advisors: Fabrizio De Vico Fallani, Olivier Colliot, Violetta Zujovic

PhD in progress : Tiziana Cattai, “Leveraging brain connectivity networks to detect mental states in brain-computer interfaces”, Inria, started in 2017, advisor: Fabrizio De Vico Fallani

PhD in progress : Catalina Obando-Forero, “Graph models of cortical plasticity in temporal brain networks”, Inria, started in 2015, advisor: Fabrizio De Vico Fallani

PhD in progress : Jeremy Guillon, “Méthode d’analyse multimodale de connectivités neuronales basée sur la théorie des réseaux complexes multicouches”, Université Pierre et Marie Curie, started in 2015, advisors: Fabrizio De Vico Fallani and Mario Chavez

PhD Cifre in progress : Fanny Grosselin, “Fouille des données EEG et suivi longitudinal grande échelle pour le diagnostic et la prédiction du niveau de stress chez l’homme”, EDITE Université Pierre et Marie Curie, started in 2016, advisors: Fabrizio De Vico Fallani and Mario Chavez,

PhD in progress : Junhao Wen, “Cortical morphometry for discovering new biomarkers of neurodegenerative diseases”, Université Pierre et Marie Curie, Started in 2015, advisors: Olivier Colliot, Anne Bertrand and Stanley Durrleman

PhD in progress : Jorge Samper-Gonzalez, “Learning from heterogeneous data for prediction of Alzheimer’s disease”, Université Pierre et Marie Curie, Started in 2015, advisors: Olivier Colliot and Theodoros Evgeniou

PhD in progress : Alexandre Routier, “Multimodal neuroimaging for characterization of primary progressive aphasia”, Université Pierre et Marie Curie, Started in 2015, advisors: Marc Teichmann, Olivier Colliot and Marie-Odile Habert

PhD in progress: Pascal Lu, “Machine learning from multimodal genetic and neuroimaging data for personalized medicine”, Université Pierre et Marie Curie, Started 2016, advisor: O. Colliot

PhD in progress: Wen Wei, “Learning brain alterations in multiple sclerosis from multimodal neuroimaging data”, Université de Nice Sophia-Antipolis, Started 2016, advisors: N. Ayache, O. Colliot and S. Durrleman

PhD in progress: Alexandre Bône, “Learning methods for the spatiotemporal analysis of longitudinal image data : application to the diagnosis, prognosis and monitoring of Alzheimer’s disease”, started 2016, advisors: O. Colliot and S. Durrleman

PhD in progress: Manon Ansart, “Automatic recommendation systems built on the statistical exploitation of longitudinal medical data sets”, started 2016, advisors: D. Dormont and S. Durrleman

PhD in progress: Maxime Louis, “Learning spatiotemporal trajectories of iconic-geometric data sets”, started 2016, advisors: S. Durrleman

PhD in progress: Igor Koval, “Construction of disease progression models from multimodal longitudinal data”, started 2016, advisors: S. Allasonnière and S. Durrleman

PhD in progress: Raphael Couronné, “Spatiotemporal analysis of the progression of the Parkinson’s Disease informed by multimodal longitudinal data”, advisor: S. Durrleman

PhD in progress: Thomas Lartigue, “Mixture Models in Gaussian Graphical Models”, advisors: S. Allasonnière and S. Durrleman

### 10.2.3. Juries

Olivier Colliot participated, as referee, to the PhD committee of Elaheh Moradi (TU Finland) (supervisor: J. Tohka).

Olivier Colliot participated, as examiner, to the HdR committee of Roberto Toro (Institut Pasteur).

Anne Bertrand participated, as examiner, to the PhD committee of Clémence Duffant (Université Paris Sud), 2017 (supervisor: Marc Dhenain).

S. Durrleman participated, as examiner, to the PhD committees of Jean Dumoncel (Université Paul Sabatier, Toulouse) and Pierre Roussillon (Université Paris Descartes).

## 10.3. Popularization



With the precious help of the communication department of the ICM, ARAMIS prepared and presented games on brain data analysis at the "Fête de la Science" 2017.

Fabrizio De Vico Fallani was invited speaker at the Neuroplanete conference held in Nice 2017. In that occasion, a live BCI experiment has been presented to the public. This event has been reported by France 3.

Fabrizio De Vico Fallani was invited speaker at the Palais Decouverte in Paris for the theme "Vers le meilleur des mondes" 2017.

Olivier Colliot was invited speaker at the Palais Decouverte in Paris for the theme "Vers le meilleur des mondes" 2017.

Stanley Durrleman and Stéphane Epelbaum were invited speakers at the "Open Brain Bar: Artificial intelligence and Alzheimer's disease" event organized by the ICM in Paris 2017.

Olivier Colliot was invited speaker for the "Olympiades académiques de mathématiques", Paris, 2017.

S. Durrleman gave a presentation for the 50th anniversary of Inria featuring 50 ERC laureates

S. Durrleman gave two interviews for the magazine Sciences et Avenir (1 video interview, one article)

S. Durrleman and S. Epelbaum took part in the program "Priorité Santé" of the radio Radio France International

S. Durrleman gave a video interview for FrenchWeb.fr

S. Durrleman gave a talk at the event S3 Odéon ([www.s3odeon.fr](http://www.s3odeon.fr))

ARAMIS was featured in a video of the Agence France Presse (AFP)

## ARIC Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of Organizing Committees

Nicolas Brisebarre was a member of the organization committee of JNCF 2017 (Journées Nationales de Calcul Formel) that took place at CIRM, in Luminy in January 2017. There were more than 70 participants.

Claude-Pierre Jeannerod and Nicolas Louvet organized RAIM 2017 (Rencontres “Arithmétiques de l’Informatique Mathématique”) at ENS Lyon in October 2017.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

Bruno Salvy is a member of the program Committee of AofA2018 (Analysis of Algorithms) and of FP-SAC’2019 (Formal Power Series and Algebraic Combinatorics).

Benoît Libert was a program committee member for Eurocrypt 2017 and TCC (Theory of Cryptography Conference) 2017. He is in the program committees of SCN 2018 (Security and Cryptography for Networks) and ACNS 2018 (Applied Cryptography and Network Security).

Nathalie Revol was a member of the program committee for Arith 24, Correctness 2017, CRE 2017 (Computational Reproducibility at Exascale, Workshop of Supercomputing 2017).

Damien Stehlé is in the program committees of PQCrypto 2017 and 2018, Eurocrypt 2017 and 2018, Asiacrypt 2017 and SCN 2018.

Chitchanok Chuengsatiansup is in the program committee of CRYPTO 2018.

Jean-Michel Muller is a member of the board of the Steering Committee of the ARITH (IEEE Symposium on Computer Arithmetic) series of conferences.

Fabien Laguillaumie is a program committee member for Africacrypt 2017, ACISP 2018 and C2SI-SEA 2018.

### 10.1.3. Journal

#### 10.1.3.1. Member of Editorial Boards

Bruno Salvy is a member of the editorial boards of the *Journal of Symbolic Computation*, of the *Journal of Algebra* (section Computational Algebra) and of the collection *Texts and Monographs in Symbolic Computation* (Springer).

Jean-Michel Muller is a member of the Editorial board of IEEE Transactions on Computers.

Nathalie Revol was guest editor and Jean-Michel Muller was supervising associate editor of a special issue on Computer Arithmetic of IEEE Transactions on Computers [18].

Nathalie Revol is a member of the editorial board of the journal *Reliable Computing*.

Gilles Villard is a member of the editorial board of the *Journal of Symbolic Computation*.

### 10.1.4. Invited Talks

Bruno Salvy was an invited speaker at AofA’2017 (Princeton), where he gave a talk on effective methods in the asymptotic analysis of sequences. He also gave an invited plenary talk at FoCM’2017 (Barcelona), on the use of linear differential equations as a data structure. He will be giving a tutorial at STACS’2018 on random generation of combinatorial structures.

Damien Stehlé gave an invited tutorial talk at the ISSAC 2017 conference (Kaiserslautern, Germany), on lattice reduction algorithms. He was an invited speaker at the Africacrypt 2017 conference (Dakar, Senegal), on the Learning With Errors problem and its applications in cryptography.

Jean-Michel Muller gave an invited talk at the 2017 Asilomar Conference on Signals, Systems, and Computers (Pacific Grove, CA, USA), on the analysis and design of algorithms for complex arithmetic.

### 10.1.5. Leadership within the Scientific Community

Paola Boito and Claude-Pierre Jeannerod were members of the scientific committee of JNCF (Journées Nationales de Calcul Formel).

Nathalie Revol is the chair of the IEEE 1788 group for the standardization of interval arithmetic: a simplified version of the standard, based only on the binary64 format of IEEE-754, has been approved in December 2017 and will be published as IEEE 1788.1.

### 10.1.6. Scientific Expertise

Paola Boito was a member of the recruitment committees for two associate professor positions in Limoges (mathematics and computer science).

Jean-Michel Muller was a member of the recruitment committee for an associate professor position in Université Grenoble Alpes (computer science).

Jean-Michel Muller is a member of the Scientific committee of CERFACS, Toulouse. Until October 2017 he was a member of the Steering Committee of “Défi 7” (*information and communication society*) of the french Agence Nationale de la Recherche. He is a member of the Scientific Council of CERFACS, Toulouse. In January 2017, he chaired the Evaluation Committee of LIF Laboratory, Marseille.

Nathalie Revol was a member of the visiting committee for the Computer Science Department and the Mathematics Department of Uppsala University, Sweden.

Fabien Laguillaumie was a member of the recruitment committee for an associate professor position in the Université Claude Bernard Lyon 1.

Claude-Pierre Jeannerod was a member of the recruitment committee for postdocs and sabbaticals at Inria Grenoble Rhône-Alpes.

### 10.1.7. Research Administration

Jean-Michel Muller is co-head of the GDR (Groupement de Recherches) IM of CNRS (around 1400 permanent members, [www.gdr-im.fr](http://www.gdr-im.fr)).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Claude-Pierre Jeannerod, Nathalie Revol, *Algorithmique numérique et fiabilité des calculs en arithmétique flottante* (24h), M2 ISFA (Institut de Science Financière et d’Assurances), Université Claude Bernard Lyon 1.

Master: Vincent Lefèvre, *Arithmétique des ordinateurs* (12h), M2 ISFA (Institut de Science Financière et d’Assurances), Université Claude Bernard Lyon 1.

Master: Fabien Laguillaumie, Cryptography, Error Correcting Codes, 150h, Université Claude Bernard Lyon 1 (on CNRS secondment in 2016-2017).

Master: Damien Stehlé, Cryptography, 12h, ENS de Lyon.

Master: Benoît Libert, Cryptography, 12h, ENS de Lyon.

Master: Damien Stehlé, Hard lattice problems, 24h, ENS de Lyon.

Post-graduate: Claude-Pierre Jeannerod and Nathalie Revol, *Arithmétique flottante et erreurs d’arrondi* (3h), École Jeunes Chercheurs et Jeunes Chercheuses en Informatique Mathématique.

Post-graduate: Damien Stehlé, Foundations of lattice-based cryptography, 10h, NTT (Japan).

Post-graduate: Damien Stehlé, Foundations of lattice-based cryptography, 3h, Seoul National University (South Korea).

Professional teaching: Nathalie Revol, *Introduction à l'arithmétique par intervalles* (3h00), École Précis (Précision, Reproductibilité en Calcul et Informatique Scientifique).

Professional teaching: Nathalie Revol, *Contrôler et améliorer la qualité numérique d'un code de calcul industriel* (2h30), Collège de Polytechnique.

Master: Bruno Salvy, Calcul Formel (9h), MPRI.

Master: Bruno Salvy, Mathématiques expérimentales (44h), École polytechnique.

Master: Bruno Salvy, Logique et complexité (32h), École polytechnique.

### 10.2.2. Supervision

- PhD: Stephen Melczer, *Effective analytic combinatorics in one and several variables*, defended on June 13, 2017, co-supervised by George Labahn (U. Waterloo, Canada) and Bruno Salvy.
- PhD: Marie Paindavoine, *Méthodes de calculs sur des données chiffrées*, defended on January 27, 2017, co-supervised by Fabien Laguillaumie and Sébastien Canard (Orange).
- PhD: Antoine Plet, *Contribution à l'analyse d'algorithmes en arithmétique virgule flottante* [3], defended on July 7, 2017, co-supervised by Nicolas Louvet and Jean-Michel Muller.
- PhD: Valentina Popescu, *Vers des bibliothèques multi-précision certifiées et performantes* [4], defended on July 6, 2017, co-supervised by Mioara Joldes (LAAS) and Jean-Michel Muller.
- PhD in progress: Fabrice Mouhartem, *Privacy-preserving protocols from lattices and bilinear maps*, since September 2015, supervised by Benoît Libert.
- PhD in progress: Chen Qiang, *Applications of Malleability in Cryptography*, since September 2016, co-supervised by Benoît Libert, Adeline Langlois (IRISA) and Pierre-Alain Fouque (IRISA).
- PhD in progress: Radu Titiu, *Pseudorandom functions and functional encryption from lattices and bilinear maps*, since January 2017, supervised by Benoît Libert.
- PhD in progress: Weiqiang Wen, *Hard problems on lattices*, since September 2015, supervised by Damien Stehlé.
- PhD in progress: Alice Pellet–Mary, *Cryptographic obfuscation*, since September 2016, supervised by Damien Stehlé.
- PhD in progress: Miruna Rosca, *Hardness of lattice problems over rings*, since January 2017, supervised by Damien Stehlé.
- PhD in progress: Florent Bréhard, *Outils pour un calcul certifié. Applications aux systèmes dynamiques et à la théorie du contrôle*, since September 2016, co-supervised by Nicolas Brisebarre, Mioara Joldeş (LAAS, Toulouse) and Damien Pous (LIP).
- PhD in progress: Ida Tucker, *Conception de systèmes cryptographiques avancés reposant sur des briques homomorphes*, since Octobre 2017, co-supervised by Guilhem Castagnos (IMB, Bordeaux) and Fabien Laguillaumie.
- PhD in progress: Adel Hamdi, *Chiffrement fonctionnel pour le traitement de données externes en aveugle*, since December 2017, co-supervised by Sébastien Canard (Orange Labs, Caen) and Fabien Laguillaumie.

### 10.2.3. Juries

Bruno Salvy was a reviewer for the HdR of Thomas Cluzeau (Limoges) and for the PhD thesis of Thomas Sibut-Pinote (École polytechnique). He was also a member of the Habilitation committee of Michael Rao (ENS Lyon). He was a member of the recruitment committee for junior researchers at Inria Grenoble.

Benoît Libert was a reviewer for the PhD theses of Florian Bourse (ENS Paris) and Alonso Gonzalez (University of Chile, Santiago). He was the president of the PhD committee of Geoffroy Couteau (ENS Paris), and a member of the PhD committees of Florian Bourse (ENS Paris) and Alonso Gonzalez (University of Chile, Santiago).

Damien Stehlé was a reviewer for the PhD theses of Pierrick Méaux (ENS Paris) and Philippe Moustrou (University of Bordeaux). He was the president of the PhD committee of Thomas Camus (University of Grenoble).

Jean-Michel Muller was the president of the PhD committee of Anastasia Volkova (Pierre et Marie Curie University, Paris), and a member of the Habilitation committee of Nicolas Brisebarre (ENS Lyon).

Fabien Laguillaumie was a reviewer for the PhD thesis of Francisco Vial-Prado (Université Versailles St-Quentin-en-Yvelines) and Laurent Grémy (Université de Lorraine). He was the president of the PhD committee of Thierry Menfenza (ENS Paris and Université de Yaoundé). He was also a member of the HDR committee of Céline Chevalier (ENS Paris).

### 10.3. Popularization

Nathalie Revol is a member of the steering committee of the MMI: Maison des Mathématiques et de l'Informatique, and in particular she was involved in the creation of the *Magimatique 2* exhibition. She presented some magic tricks at Bibliothèque Municipale de la Part-Dieu and at MMI for 3 classes during the Science Fair. She gave talks for a large audience during "Forum Maths Vivantes" and for "La tournée de Pi" (mathematical musical, around 600 attendees) (March 2017). As an incentive for high-school pupils, and especially girls, to choose scientific careers, she gave talks at Lycée Ella Fitzgerald (Saint-Romain-en-Gal) and Mondial des Métiers (in February 2017) and during "Journée Filles et Sciences" in Musée des Confluences and "Journée Filles" by INSA Lyon (above 550 attendees in total, March 2017). She co-organized for two "Coding gouters" organized by MixTeen. She co-organized two days on "Info Sans Ordinateur" gathering researchers interested in unplugged activities. She is a member of the editorial committee of Interstices: <https://interstices.info>. She taught how to disseminate (computer) science for PhD students in a 20h module of *Insertion Professionnelle*.

Bruno Salvy will give a talk at the Collège de France in December 2017 on methods of analytic combinatorics in random generation.

Damien Stehlé hosted a visit at ENS de Lyon by the regional winners of the Alkindi competition (middle school and high school).

## AROMATH Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Member of the Organizing Committees

Bernard Mourrain (chair), Evelyne Hubert, André Galligo, Laurent Busé were members of the organizing committee of the conference MEGA (Effective Methods in Algebraic Geometry), held at the University of Nice – Sophia Antipolis, June 12 – 16, 2017.

Laurent Busé organized the first "Learning Week" of the ARCADES Network : « Opportunity Recognition » at Inria Sophia Antipolis, April 3-7, 2017.

Laurent Busé co-organized the workshop "Commutative Algebra, Syzygies and Singularities" at the University of Nice, December 4-6, 2017.

Ioannis Emiris and Christos Konaxis organized the 1st software workshop and the Midterm Review meeting of the ARCADES Network in Athens, November 27 to December 1, 2017.

Evelyne Hubert co-organized the mini-symposium *Symmetry and Structure in Algebraic Computation* in the conference SIAM Algebraic Geometry, July 31st to August 4th Atlanta (USA) as well as the first joint meeting of the London Mathematical Society and the Institute of Mathematics and its Applications *Symmetry and Computation*, October 12th London, UK.

Bernard Mourrain co-organized the mini-symposium *Sparse representations from moments* in the conference SIAM Algebraic Geometry, Atlanta July 31st to August 4th.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

Laurent Busé was a PC member of MACIS 2017.

Ioannis Emiris was PC member of ACM ISSAC 2017, and is a member of the Advisory Board of MEGA.

Bernard Mourrain was a member of Executive Committee of the conference MEGA 2017.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

Ioannis Emiris is associate editor of the Journal of Symbolic Computation (since 2003) and of Mathematics in Computer Science (since 2016).

Bernard Mourrain is associate editor of the Journal of Symbolic Computation (since 2007) and of the SIAM Journal on Applied Algebra and Geometry (since 2016).

Evelyne Hubert is associate editor of the Journal of Symbolic Computation (since 2007) and the journal Foundation of Computational Mathematics (since May). She is a reviewer for Mathematical Reviews (since 2016).

#### 9.1.3.2. Reviewer - Reviewing Activities

Laurent Busé reviewed for the journal *Math. Zeitschrift*, the journal *Computer Aided Geometric Design*, the *Journal of Computational and Applied Mathematics*, the journal *ACM Transactions on Graphics*, the *Journal on Applied Algebra and Geometry*, the *Journal of Software for Algebra and Geometry*, the *Journal of Algebra*, the journal *Annales de l'Institut Fourier*, the journal *Algebra & Number Theory*, and the conferences MEGA, ISSAC and MACIS 2017. He also reviewed an application for CIFRE PhD thesis grants for the ANRT.

Ioannis Emiris reviewed for the journals *ACM Transactions on Graphics*, *Discrete Applied Mathematics*, *Discrete & Computational Geometry*, *Graphical Models*, and the conferences MEGA, and ACM Solid & Physical Modeling 2017. He also reviewed applications for H2020 Projects.

Bernard Mourrain reviewed for the journals *Advances in Computational Mathematics*, *Computer Aided Design*, *Computer Aided Geometric Design*, *Computational Methods and Function Theory*, *Computer Methods in Applied Mechanics and Engineering*, *Discrete Applied Mathematics*, *Foundations of Computational Mathematics*, *Journal of Pure and Applied Algebra*, *Linear Algebra and Applications*, *Mathematical Programming*, and for the conferences MEGA, ISSAC. He is also guest editor of the Special Issue of the *Journal Of Symbolic Computation* after MEGA 2017.

Alessandro Oneto reviewed for the journal *Linear and Multilinear Algebra* and for *Mathematical Reviews* (MathSciNet).

Evelyne Hubert reviewed for the journals *Foundation of Computational Mathematics*, *Journal of Symbolic Computation*, *Journal of Algebra*, as well as for the Springer book series *Texts and Monographs in Symbolic Computation* and the conferences MEGA and CASC.

#### 9.1.4. Invited Talks

Laurent Busé was invited to give a talk at the workshop on *Szygies*, Trento, September 4-9, 2017.

Ioannis Emiris was invited to give a talk at ETH Zurich, Switzerland, in February 2017; and at EU Joint Research Center, Ispra, Italy, in October 2017.

A. Galligo was invited to give a talk at the workshop *Stillman's Conjecture and other Progress on Free Resolutions: (in honor of the sixtieth birthdays of Dave Bayer and Mike Stillman)*, July 17-21, 2017 at the University of California, Berkeley, USA.

Evelyne Hubert gave plenary lectures at the *International Symposium on Orthogonal Polynomials, Special Functions and Applications* (July 3-7 Canterbury, UK) and at the *Journées Nationales du GdR Informatique-Mathématiques* (March 14-16, Montpellier).

Evelyne Hubert was invited to give talks at the first joint meeting of the London Mathematical Society and the Institute of Mathematics and its Applications, *Symmetry and Computation*, October 12th London, UK; the international conference *Integrable systems, symmetries, and orthogonal polynomials*, September 18-22 Madrid, Spain; the workshop *Resultants, Subresultants and Applications* in the SIAM Conference on Algebraic Geometry, July 31st to August 4th Atlanta, USA; the *Symbolic Analysis* workshop in the conference *Foundations of Computational Mathematics*, July 10-19 Barcelona, Spain; the Mathematics Colloquium at University of Kent in Canterbury, February 28th, UK; *Inaugural meeting of the LMS-EMS Applied Algebra and Geometry Research Network*, February 21st Nottingham, UK.

Bernard Mourrain was invited to give a talk at USTC and HFUT, Hefei, China, April 11-12.

Alessandro Oneto was invited to give talks at the Seminario de Geometría Algebraica y Singularidades, BCAM, Bilbao (Spain) on Hadamard decompositions of tensors, May 16, 2017; at the SIAM Conference in Applied and Algebraic Geometry, GeorgiaTech, Atlanta (USA) on Hadamard decompositions of matrices (and tensors), August 02, 2017; at the Algebra and Geometry Seminar, KTH, Stockholm (Sweden) on Combinatorial tools for new questions on planar polynomial interpolation, October 11, 2017; at the workshop *Commutative Algebra, Syzygies and Singularities*, Nice (France) on A new question on planar polynomial interpolation and line arrangements, December 4, 2017;

#### 9.1.5. Scientific Expertise

Bernard Mourrain was member of the committee of the HCERES for the evaluation of XLIM, Limoges.

Ioannis Emiris was elected member of the Scientific Council of the Hellenic Foundation of Research and Innovation (<http://www.elidek.gr>), responsible for Informatics and Mathematics.

### 9.1.6. Research Administration

Evelyne Hubert is a member of the *Conseil Académique de l'Université Côte d'Azur* (since October) and of the *Commission d'Évaluation* (since 2015), and participated to the hiring jury of junior researchers in Inria NGE and RBA.

Laurent Busé is a board member of the (national) labex AMIES (CRI-SAM representative) and a member of the steering committee of the MSI, *Maison de la Modélisation, de la Simulation et des Interactions* of the University Côte d'Azur. He is also an elected member of the CPRH (Commission Permanente de Ressources Humaines) of the math laboratory of the university of Nice, and is the Inria representative at the "Academic Council" and the "Research Commission" of the University of Nice Sophia Antipolis.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Licence : Ioannis Emiris, Discrete Math, 52 h, L1, U. Athens, Greece.
- Licence : Ioannis Emiris, Software development for algorithmic problems, 52 h, L3, U. Athens, Greece.
- Master : Ioannis Emiris, Computational Geometry, 52h, M1, U. Athens, Greece.
- Master : Ioannis Emiris, Structural Bioinformatics, 52h, M2, U. Athens, Greece.
- Master : Laurent Busé, Geometric Modeling, 27h ETD, M2, EPU of the University of Nice-Sophia Antipolis.
- Master 2: Bernard Mourrain, Computer Algebra, 15h, MDFI, Univ. Aix-Marseille, Luminy.
- Master 2: Bernard Mourrain, Symbolic-Numeric Computation, 6h, Master ACSYON, Limoges.

### 9.2.2. Supervision

PhD: Elisa Berrini, "Geometric modeling and deformation for automatic shape optimisation" [1], defended in June 2017. CIFRE collaboration with MyCFD. Supervised by Bernard Mourrain and Yann Roux (My-CFD,K-Epsilon).

PhD in progress: Erick Rodriguez-Bazan, Computational Invariant Theory and Applications, CORDI Inria SAM, started in November 2017, supervised by Evelyne Hubert.

PhD in progress: Evangelos Anagnostopoulos, Geometric algorithms for massive datasets. Started in May 2016, supervised by Ioannis Emiris.

PhD in progress: Evangelos Bartzos, Modeling motion. ARCADES Marie Skłodowska-Curie ITN, started in May 2016, supervised by Ioannis Emiris.

PhD in progress: Ahmed Blidia, New geometric models for the design and computation of complex shapes. ARCADES Marie Skłodowska-Curie ITN, started in September 2016, supervised by Bernard Mourrain.

PhD in progress: Alvaro-Javier Fuentes-Suarez, Skeleton-based modeling of smooth shapes. ARCADES Marie Skłodowska-Curie ITN, started in October 2016, supervised by Evelyne Hubert.

PhD in progress: Jouhayna Harmouch, Low rank structured matrix decomposition and completion. Cotutelle Univ. Liban, started in November 2015, cosupervised by Houssam Khalil and Bernard Mourrain.

PhD in progress: Clément Laroche, Change of representation in CAGD. ARCADES Marie Skłodowska-Curie ITN, started in Nov. 2016, supervised by Ioannis Emiris.

PhD in progress: Ioannis Psarros, Geometric approximation algorithms. Thales network (Greece), started in May 2015, supervised by Ioannis Emiris.

PhD in progress: Fatmanur Yildirim, Distances between points, rational Bézier curves and surfaces by means of matrix-based implicit representations. ARCADES Marie Skłodowska-Curie ITN, started in October 2016, supervised by Laurent Busé.



### **9.2.3. Juries**

Anna Karasoulou (U. Athens) defended successfully her PhD in June 2017. She was supervised by I. Emiris, while B. Mourrain was in the three-person supervising committee of the thesis. Both were members of the seven-person exam committee.

L. Busé was a member of the committee of the PhD of Hao Quang Tran entitled *Images et fibres des applications rationnelles et algèbres d'éclatement*, University Pierre and Marie Curie, Paris, France, November 17th.

## ASAP Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. Member of the Organizing Committees

- George Giakkoupis was a co-organizer of the Workshop on Decentralized Machine Learning, Optimization and Privacy, Lille, France, Sep 2017.

### 8.1.2. Scientific Events Selection

#### 8.1.2.1. Member of the Conference Program Committees

- François Taïani served on the TPC of the 18th ACM/IFIP/Usenix International Conference on Middleware (Middleware 2017).
- François Taïani served on the TPC of the 37th IEEE International Conference on Distributed Computing Systems (ICDCS 2017), in the Distributed Operating Systems and Middleware track.
- François Taïani served on the TPC of the 16th Workshop on Adaptive and Reflective Middleware (ARM 2017).
- François Taïani served on the TPC of the 1st Workshop on Scalable and Resilient Infrastructures for Distributed Ledgers (SERIAL 2017)
- George Giakkoupis served as a program committee member for the 31st IEEE International Parallel and Distributed Processing Symposium (IPDPS), Orlando, Florida, USA, May 2017.
- George Giakkoupis served as a program committee member for the 44th International Colloquium on Automata, Languages, and Programming (ICALP), Warsaw, Poland, July 2017.
- George Giakkoupis served as a program committee member for the 31st International Symposium on Distributed Computing (DISC), Vienna, Austria, Oct 2017.
- Davide Frey served as a program committee member for the 11th ACM International Conference on Distributed and Event-Based Systems (DEBS 2017), Barcelona, Spain, Jun 2017.
- Davide Frey served as a program committee member for the International Symposium on Computer Architecture and High Performance Computing, SBAC PAD 2017.
- Pierre-Louis Roman served in the program committee of the 7th IEEE International Symposium on Cloud and Service Computing (SC2 2017), Kanazawa, Japan, November 2017.
- Pierre-Louis Roman served in the program committee of the 10th IEEE International Conference on Service-Oriented Computing and Applications (SOCA 2017), Kanazawa, Japan, November 2017.

### 8.1.3. Journal

#### 8.1.3.1. Member of the Editorial Boards

Anne-Marie Kermarrec is an associate editor of IEEE Internet Computing.

Anne-Marie Kermarrec is an associate editor of the Springer Computing Journal.

#### 8.1.3.2. Reviewer - Reviewing Activities

- David Bromberg was reviewer for Journal of Internet Services and Applications
- Davide Frey was a reviewer for PPNA Peer-to-Peer Networking and Applications.
- Davide Frey was a reviewer for Transactions on Cloud Computing.
- Davide Frey was a reviewer for Transactions on Sensor Networks.

### 8.1.4. Invited Talks

- Anne-Marie Kermarrec gave a keynote talk at DISC 2017, Vienna, Austria
- Davide Frey gave an Invited talk at the “Session d’information sur les appels à projets 2017 Big Data” at Business France, Paris, on January 6, 2017.
- David Bromberg gave an invited talk on “Dolmen: Towards the programmatic assembly of large-scale distributed systems” as a UFG Seminar, UFG - Instituto de Informática, Goiania, Brazil, February 20, 2017
- David Bromberg gave an invited talk on “Dolmen: Towards the programmatic assembly of large-scale distributed systems” as a UFG Seminar, Department of Computer Science, University of São Paulo, Sao Paulo, Brazil, February 22, 2017
- David Bromberg gave an invited talk on “Interoperability in distributed systems: past, present and future” at DISCOTEC/DIEBS, University of Neuchatel, June 21, University of Neuchatel, 2017

### 8.1.5. Leadership within the Scientific Community

- François Taïani has been a member of the Steering Committee of IFIP WG 6.1 International Conference on Distributed Applications and Interoperable Systems (DAIS) since 2013.
- François Taïani has been a member of the Steering Committee of the ACM/IFIP/USENIX International Conference on Middleware (Middleware) since 2014.
- Anne-Marie Kermarrec is a member of the ARCEP Prospective Board since 2015

### 8.1.6. Research Administration

- François Taïani has been a member of the Scientific Orientation Committee (COS) of IRISA (UMR 6074) since 2013.
- Anne-Marie Kermarrec was chair of the ERC Consolidator Grant Panel in 2017
- Davide Frey is “correspondant scientifique Europe” at the DPEI for Inria Rennes.
- Davide Frey is an associate member of the COST-GTRI of Inria.
- David Bromberg is responsible of International relationships of IRISA
- David Bromberg is member of the scientific committee of the Media & Networks competitiveness cluster
- David Bromberg is scientific correspondent for ICT Digital in Rennes

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

- Engineering School: David Bromberg, tools and programming languages for the Web, 48h, 2nd year of Engineering School ( M1), ESIR / Université of Rennes 1, France.
- Engineering School: David Bromberg, Distributed software architecture, 24h, 2nd year of Engineering School ( M1), ESIR / Université of Rennes 1, France.
- Pôle Universitaire Français: David Bromberg, Distributed software architecture, 60h, ( M2), PUF / Université of Bordeaux, Vietnam.
- Engineering School: David Bromberg, Network security, 48h, 2nd year of Engineering School ( M1), ESIR / Université of Rennes 1, France.
- Engineering School: David Bromberg, Cloud for the Internet of Things, 60h, 3rd year of Engineering School ( M2), ESIR / Université of Rennes 1, France.
- Engineering School: David Bromberg, Internet of Things projects, 50h, 2nd year of Engineering School ( M1), ESIR / Université of Rennes 1, France.

- University of Rennes 1: David Bromberg, Software engineering for the cloud, 4h, (M1), Université of Rennes 1, France.
- Engineering School: Francois Taiani, Synchronization and Parallel Programming, 48h, 2nd year of Engineering School (M1), ESIR / Univ. Rennes I, France.
- Engineering School: Francois Taiani, Distributed Systems, 24h, 3rd year of Engineering School (M2), ESIR / Univ. Rennes I, France.
- Engineering School: Francois Taiani, Parallel Algorithms for Big Data, 24h, 3rd year of Engineering School (M2), ESIR / Univ. Rennes I, France.
- Engineering School: Francois Taiani, Introduction to Operating Systems, 24h, 1st year of Engineering School (L3), ESIR / Univ. Rennes I, France.
- Master: Francois Taiani, Programming Technologies for the Cloud, 28h, M2, Univ. Rennes I, France.
- Master: Davide Frey, Scalable Distributed Systems, 10 hours, M1, EIT/ICT Labs Master School, Univ. Rennes I, France.
- Master: Davide Frey, Big-Data Storage and Processing Infrastructures, 10 hours, M2-SIF, Univ. Rennes I, France.

### 8.2.2. Supervision

PhD: Stéphane Delbruel, Towards a Decentralized Embryomorphic Storage System [12], University of Rennes 1, 27 January 2017, Francois Taiani and Davide Frey.

PhD: Resmi Ariyattu Chandrasekharannair, Towards Decentralized Federations for Plug-based Decentralized Social Networks [11], University of Rennes 1, 5 July 2017, Francois Taiani.

PhD in progress : Pierre-Louis Roman, Epidemic Distributed Convergence for Decentralized Social Networking, Oct 2014, Francois Taiani and Davide Frey.

PhD in progress : Olivier Ruas, Dynamic Learning and Recommendations in Very Large Distributed Computing Infrastructures, Oct 2015, Anne-Marie Kermarrec and Francois Taiani.

PhD in progress: Simon Bouget, EMILIO: Emergent Middleware for Extra-Large-Scale Self Adaptation, Sep 2014, Francois Taiani and David Bromberg (since Sep 2015).

PhD in progress: Adrien Luxey, Towards New Solutions to Build Large Scale Distributed Applications in the Cloud, Oct 2016, David Bromberg.

PhD in progress: Louison Gitzinger, “Combattre les menaces à la confidentialité des données des utilisateurs sur Android.”, Oct 2017, David Bromberg.

### 8.2.3. Juries

- François Taïani served as external examiner on the PhD defense committee of Gowri Sankar Ramachandran on 12 June 2017 at KU Leuven (Belgium)
- François Taïani as served examiner on the PhD defense committee of Nicolas Keriven on 12 October 2017 at University of Rennes 1 (France)
- François Taïani served as reviewer on the PhD defense committee of Joachim Queireix on 21 November 2017 at Université de Bordeaux (France)
- François Taïani served as chair on the PhD defense committee of Florian Grandhomme on 23 November 2017 at Université de Rennes 1 (France)
- François Taïani served as chair on the PhD defense committee of Orçun Yildiz on 8 December 2017 at École Normale Supérieure de Rennes (France)
- Anne-Marie Kermarrec served as an examiner in the HDR defense of Christian Grothoff on October 18, 2017.

## 8.3. Popularization

- Davide Frey published an article on the Telecom ParisTech Magazine. Issue 185.
- Pierre-Louis Roman gave an Invited talk at the Regional council of notaries of Brittany, Rennes, France, December 15, 2017. Title “Demystifying the blockchain and its utility for notaries” (talk in French).

## ASCLEPIOS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

- X. Pennec was co-chair of the MICCAI 2017 workshop on Mathematical Foundations of Computational Anatomy MFCA 2017 which was held in Quebec, Canada on September 14, 2017 and co-organiser of the Conference on Topological and Geometrical Structure of Information, held at CIRM Luminy (FR) on Aug.28 - Sept. 1 2017.
- M. Sermesant was a co-chair of the MICCAI 2017 Workshop Statistical Atlases and Computational Models of the Heart (STACOM 2017), which was held in Quebec City, Octobre 10, 2017.
- H. Delingette was a member of the organizing committee of the two scientific days at Inria Sophia Antipolis (July 6th and Dec 4th) presenting the activities of the UCA academy on "Networks, Information and Digital Society".

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

- X. Pennec was a member of the paper selection committee of the Conference Information processing in Medical Images (IPMI 2017) held at Boone, NC, USA, June 25-30 2017; area chair of the International Symposium on Biomedical Imaging ISBI 2017; member of the scientific committee of the 3rd conference on Geometric Science of Information GSI2017, Novembre 7-9 2017, Paris (France).
- H. Delingette was program committee member of the conference on the MICCAI 2017 workshop on Simulation and Synthesis of Medical Imaging (SASHIMI'17).

#### 9.1.2.2. Reviewer

- M. Lorenzi was a reviewer for the conferences Neural Information Processing Systems (NIPS 2017), Medical Image Computing and Computer Aided Intervention (MICCAI 2017), International Conference on Learning Representations (ICLR 2018), IEEE International Symposium of Biomedical Imaging (ISBI 2017-18), Information Processing in Medical Imaging (IPMI 2017).
- X. Pennec was a reviewer for the ICCV International Workshop on Manifold Learning: from Euclid to Riemann (MANIFLEARN2017) and the 3rd CVPR International Workshop on DIFFerential Geometry in Computer Vision and Machine Learning (DIFF-CVML 2017).
- H. Delingette was a reviewer for the International Symposium on Biomedical Imaging (ISBI'17), the international conference Functional Imaging and Modeling of the Heart (FIMH 2017), the international conference on computer-aided interventions (IPCAI'17), the conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2017), the International Conference on Computer Vision and Pattern Recognition (CVPR 2017).
- M. Sermesant was a reviewer for the MICCAI 2017 and FIMH 2017 conferences.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

- N. Ayache is the co-founder and the Co-Editor in Chief with J. Duncan (Professor at Yale) of Medical Image Analysis journal. This scientific journal was created in 1996 and is published by Elsevier.

- N. Ayache is a member of the editorial board of the following journals: Medical Image Technology (Japanese journal) and Journal of Computer Assisted Surgery (Wiley).
- H. Delingette is a member of the editorial board of the journal Medical Image Analysis (Elsevier).
- I. Strobant is editorial coordinator for Medical Image Analysis, Elsevier (since october 2001).
- X. Pennec is a member of the editorial board of the journal Medical Image Analysis (Elsevier), of the International Journal of Computer Vision (Springer), of the SIAM Journal on Imaging Sciences (SIIMS), and of the Journal of Mathematical Imaging and Vision (JMIV).
- M. Lorenzi is a member of the editorial board of the journal Scientific Reports (Nature Publishing Group); he is also member of the Board of Statisticians of the Journal of Alzheimer's Disease (IOS Press).

#### 9.1.3.2. Reviewer - Reviewing Activities

- M. Lorenzi was a reviewer for the following journals: Neurobiology of Aging, Alzheimer's and Dementia, Journal of Alzheimer's Disease, Medical Image Analysis, IEEE Transactions on Medical Imaging, NeuroImage, International Journal of Computer Vision, Journal of Mathematical Image and Vision, IEEE Transactions on Biomedical Engineering, Human Brain Mapping, Scientific Reports, Neural Computation.
- X. Pennec was a reviewer for the following journals: Proceedings on the London Mathematical Society (PLMS), Journal of mathematical imaging and vision (JMIV), Journal of Machine Learning Research (JMLR), NeuroImage (NIMG), Foundations of Computational Mathematics (FoCM), International Journal of Computer Vision (IJCV), SIAM journal on Imaging Sciences (SIIMS), Medical Image Analysis (MedIA).
- H. Delingette was a reviewer for the following journals: Medical Image Analysis (Elsevier), IEEE Transactions in Medical Imaging, IEEE Transactions in Biomedical Engineering, Biomedical Engineering, Computers in Biology and Medicine.
- M. Sermesant was a reviewer for the following journals: Journal of the American College of Cardiology, IEEE Transactions on Medical Imaging, IEEE Transactions on Biomedical Engineering, Medical Image Analysis and Computers in Biology and Medecine.

#### 9.1.4. Invited Talks

- **M. Lorenzi** was invited as lecturer at the Mathematical Models In Biomedical Imaging Summer School, organized by the University of Granada, Spain, on July 2017.
- **X. Pennec** was a keynote speaker of the 3rd Int. W on Differential geometry in Comp. Vis. and Machine Learning (DIFF-CVML), Hawaii, USA, 21 July 2017 and at the Computational Brain Connectivity Mapping Winter School Workshop CoBCoM, November 20-24 2017, Juan-les-Pins, France. He was also invited to the MIT CSAIL Seminar series, Cambridge, MA, September 8 2017 and an Imaging Genetics Center Seminar at USC, Marina del Rey, Los Angeles, CA, USA, 19 July 2017.
- **H. Delingette** was a keynote speaker at the Euromech conference in Lille, an invited speaker at the GDR Mamovi in Lyon, at the Computer Vision Seminar at UPF in Barcelona.
- **M. Sermesant** was a keynote speaker at the FIMH conference in Toronto, and an invited speaker at the VT/VF Symposium in Berlin, and the TRM Forum in Lugano.
- **N. Ayache** gave the following plenary invited talks in 2017:
  - From Cardiac Images to Digital Hearts ; Inria 50th anniversary, Paris
  - From Medical Images to Digital Patients, Inria 50th anniversary, Sophia,
  - Important MICCAI contributions of the past 20 years, MICCAI, Québec,
  - Le patient numérique, Académie Nationale de Chirurgie, Paris,
  - Images, informatique et médecine : Institut Mondor de recherche biomédicale, Créteil.

### 9.1.5. Leadership within the Scientific Community

- **H. Delingette** is a member of the MICCAI Society Board of Directors.
- **Nicholas Ayache** is a member of the French Academy of Sciences in the section of Mechanics and Informatics. He was elected a free member of the French Academy of Surgery on 6 Dec. 2017. He became an officer of the order of the "Palme Académiques" on 14 Jul. 2017.

### 9.1.6. Scientific Expertise

- **Xavier Pennec** was an evaluator for the European Research Council (ERC) and the French Agence Nationale pour la Recherche (ANR).
- **M. Lorenzi** was reviewer of the granting agencies ANR (Agence Nationale de la Recherche, France) and EPSRC (Engineering and Physical Sciences Research Council, UK).
- **H. Delingette** was an evaluator for the European Research Council, for the Research Council of KU Leuven.
- M. Sermesant was an evaluator for the Aquitaine region, the Dutch and the Swiss research councils.
- **Nicholas Ayache** is a member of the scientific council of the Ile de France region since 2016.

### 9.1.7. Research Administration

- **Xavier Pennec** is co-director and at the board of the Ecole doctorale STIC of Université Côte d'Azur. He is a member of the Doctoral follow-up Committee (CSD) at Inria Sophia Antipolis, of the "Comité de la Recherche Biomédicale en Santé Publique (CRBSP)" of the Nice hospitals and in charge of the relationships of Inria-Sophia with the Nice University Hospital (CHU).
- **Marco Lorenzi** is a member of the local steering committee of the technological platforms (Comités Scientifiques de Pilotage des Plateformes) in charge of Cluster, Grid, Cloud, and HPC technologies.
- **Hervé Delingette** is a member of the local committee in charge of the scientific selection of visiting scientists (Comité NICE) and the local committee on the immersive platform. He is the coordinator of the Academy of excellence on "Networks, Information and Digital Society" at the Université Côte d'Azur.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master: H. Delingette and X. Pennec, Introduction to Medical Image Analysis, 21h course (28.5 ETD), Master 2 MVA, ENS Cachan, France.

Master: X. Pennec and H. Delingette, Advanced Medical Imaging, 21h course (28.5 ETD), Master 2 MVA and École Centrale de Paris, France.

Master: X. Pennec and H. Delingette, Computational Anatomy and Physiology, 21h course (28.5 ETD), Master CBB - Computational Biology and Biomedicine, Univ. Nice-Sophia Antipolis.

Master: M. Sermesant, Computational Anatomy and Physiology, 3h course (4.5 ETD), Master CBB - Computational Biology and Biomedicine, Univ. Nice-Sophia Antipolis.

Master: X. Pennec is co-responsible of the Master CBB - Computational Biology and Biomedicine, Univ. Nice-Sophia Antipolis.

### 9.2.2. Theses Defended

- Marc-Michel Rohé, Analyse statistique spatio-temporelle des formes, déformations, flots et propriétés physiologiques du cœur, Nice Sophia Antipolis University. Started in 2014. Co-directed by X. Pennec and M. Sermesant. Defended on July 3rd, 2017

- Sophie Giffard-Roisin, Non-invasive Estimation of Cardiac Electrophysiological Parameters, Nice Sophia Antipolis University. Started in 2014. Co-directed by N. Ayache and M. Sermesant. Defended on 11th December 2017
- Roch Molléro, Uncertainty quantification in personalized electromechanical models. Application to cardiomyopathies and obesity, Nice Sophia Antipolis University. Started in 2014. Co-directed by N. Ayache and M. Sermesant. Defended on December 19th, 2017
- Thomas Demarcy, Segmentation and anatomic variability of the cochlea and other temporal bone structures from medical images, Nice Sophia Antipolis University. Started in 2014. Directed by H. Delingette. Defended on July the 4<sup>th</sup>, 2017
- Loïc Devilliers, Consistency of statistics on infinite dimensional orbifolds – Applications to computational anatomy, Nice Sophia Antipolis University. Started in October 2015. Co-directed by X Pennec and St. Allassonnière. Defended on November 20th, 2017

### 9.2.3. PhD in progress

- Raphaël Sivera, Analyse statistique de l'évolution de structures morphologiques partir de séquences temporelles d'IRM, Nice Sophia Antipolis University. Started in October 2015. Co-directed by N. Ayache and H. Delingette and co-supervised by M. Lorenzi and X. Pennec.
- Pawel Mlynarski, Tumor segmentation based on Random Forests and Convolutional Neural Networks trained on partially annotated data, Nice Sophia Antipolis University. Started in December 2015. Co-directed by N. Ayache and H. Delingette.
- Qiao Zheng, Deep learning for cardiac image analysis, Nice Sophia Antipolis University. Started in January 2016. Co-directed by N. Ayache and H. Delingette.
- Shuman Jia, Population-based Model of Atrial Fibrillation: from Shape Statistics to Group-wise Physiology, Nice Sophia Antipolis University. Started in 2016. Co-directed by M. Sermesant and X. Pennec.
- Wen Wei, Learning Brain Alterations in Multiple Sclerosis from Multimodal Neuroimaging Data, Nice Sophia Antipolis University. Started in 2016. Co-directed by N. Ayache and O. Colliot.
- Julian Krebs, Robust image registration based on machine learning, Nice Sophia Antipolis University. Started in 2016. Co-directed by H. Delingette and N. Ayache.
- Luigi Antelmi, Statistical learning on large databases of heterogeneous imaging, cognitive and behavioural data, Nice Sophia Antipolis University. Started in 2017. Co-directed by P. Robert and N. Ayache and supervised by M. Lorenzi.
- Clément Abi-Nader, Statistical Learning of Heterogeneous Data in Large-Scale Clinical Databases, Nice Sophia Antipolis University. Started in 2017. Co-directed by P. Robert and N. Ayache and supervised by M. Lorenzi.
- Jaume Banús Cobo, Heart & Brain: discovering the link between cardiovascular pathologies and neurodegeneration through biophysical and statistical models of cardiac and brain images., Nice Sophia Antipolis University. Started in 2017. Directed by M. Sermesant and co-supervised by Marco Lorenzi.
- Tania-Marina Bacoyannis, Cardiac Imaging and Machine Learning for Electrostructural Tomography, Nice Sophia Antipolis University. Started in 2017. Co-directed by M. Sermesant and H. Cochet.
- Pamela Mocerì, From normal right ventricle to pathology: shape and function analysis with different loading conditions using imaging and modelling. Started in 2015. Directed by M. Sermesant.

### 9.2.4. Juries



- Xavier Pennec was supervisor or co-supervisor of the PhD theses of Loïc Devilliers (Univ. of Nice Sophia Antipolis), Marc-Michel Rohé (Univ. of Nice Sophia Antipolis) and Roch Molléro (Univ. of Nice Sophia Antipolis). He was also reviewer and member of the jury of the HDR of Joan Alexis Glaunes (Université Paris Descartes), reviewer and member of the jury of the PhDs of Remi Agier (INSA Lyon) and Alice Le Bruigant (Univ. Bordeaux) and member of the PhD jury of Jean-Baptiste Schiratti (Ecole Polytechnique).
- Marco Lorenzi was jury member for the PhD probation exam (in April 2017) of Kurt Kutajar and Remi Domingues, students of the EURECOM research institute, France.
- Hervé Delingette was co-supervisor of the PhD thesis of T. Demarcy (Univ. of Nice Sophia Antipolis). He was a reviewer in the PhD thesis committee of C. Paulus (Univ. of Strasbourg), of Mikael Agn (Danish Technical University, Lingby, Danemark), of N. Mangado (Univ. Pompeu Fabra, Barcelone), of M. Hafri (Univ. Orléans). He was a member of the PhD thesis committee of Sophie Giffard-Roisin (Univ. of Nice Sophia Antipolis), and Roch Philippe Mollero (Univ. of Nice Sophia Antipolis).
- Maxime Sermesant was a reviewer and a member of the PhD jury of Corentin Dallet, Bordeaux University (Nov 23) and of the HDR jury of Ed Vigmond, Bordeaux University (Jan 13).

### **9.3. Popularization**

M. Lorenzi gave a general audience lecture during the “Semaine du Cerveau” at the CHU of Nice (March 2017).

Nina Miolane participated to the following popularization events:

- Speaker at Unesco France’s Ceremony for 70th Anniversary.
- Speaker at the Women Forum Global Meeting 2016. How to bring more women in the sci-tech workforce?
- Speaker at the L’Oreal-Unesco Prizes Ceremony 2016.
- Journal regional de France 3 Azur (Oct. 31 2016)
- Invited on "Le Club de la Tete au Carre". France Inter (National Radio), Oct. 14 2016.

## ASCOLA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- J. Noyé has co-organized with M. Aksit the symposium Modularity 2017, colocated with <Programming> 2017 (Brussels).
- A. Lebre has been Publicity Chair of the Big Graph Processing workshop (co-located with ICDCS'17).
- A. Lebre has co-organized the CNRS Rescom Summer School 2017 edition (70 persons).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- A. Lebre and A. Simonet were co-program chair of ICFEC'17.
- S. Ibrahim was program co-chair of the 17th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP-2017), Helsinki, Finland, August, 2017.
- S. Ibrahim was program co-chair of the 1st Workshop on the Integration of Extreme Scale Computing and Big Data Management and Analytics (EBDMA 2017), co-located with CCGrid'17, Madrid, Spain, May 2017.

#### 10.1.2.2. Member of the Conference Program Committees

- H. Coullon was member of the program committees of the following conferences: CloudCOM'17, ICFEC'17, ICCS'17, SAC PAPP'17, Compas'17
- S. Ibrahim was member of the program committees of SC'17, Cluster'17, HiPC'17, CCGrid'17, ISPA'17, I-SPAN'17, CloudCom'17, FCST'17, PDSW-DISCS@SC'17, NetBOS@ICNP'17, HPBDC@IPDPS'17, SCRAMBL@CCGrid'17.
- A. Lebre was member of the program committees of HPDC'17, SC'17, CCGRID'17, CloudCom'2017, and NoF'17.
- T. Ledoux was member of the program committees of the following workshops: ARM'17@Middleware, CrossCloud'17@EuroSys
- J.-M. Menaud was member of the program committees of SDS'17, Xgreen2017, AICT'17, CEIS'17, EEEP'17, Energy'17, SMARTGREENS'17
- J.-C. Royer was member of the program committees of CAREMAS, ICIS'2017, SCAI'2017 and WETICE'2017.
- M. Südholt was a member of the program committees of CloudCom'17, ProWeb'17, and Programming'17
- C. Zhou was member of the program committees of FCST'17, ICA3PP'17, EBDMA'@CCGrid'17.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- A. Lebre is an Associate Editor of the IEEE Transactions on BigDat
- S. Ibrahim is a Guest Editor of IEEE Transactions on Big Data – Special Issue on the Integration of Extreme Scale Computing and Big Data Management and Analytics. a Journal.

- M. Südholt is an Associate Editor of the journals Programming and Modularity (Springer).

#### 10.1.3.2. Reviewer - Reviewing Activities

- H. Coullon has been a reviewer for the following journals: Annals of Telecommunication, Future Generation Computer Systems, Transactions on BigData.
- H. Coullon has been a reviewer for the following conferences: Cluster' 17, HPDC' 17.
- A. Lebre has been reviewer for the following journals: IEEE Transactions on Network and Service Management, and Journal of Parallel and Distributed Computing.
- A. Lebre has been reviewer for Europar 2017.
- T. Ledoux has been a reviewer for the journal IEEE Transactions on Services Computing.
- J. Noyé has been a reviewer for the Journal of Object Technology.
- S. Ibrahim has been a reviewer for the following journals: IEEE Transactions on Parallel and Distributed Systems, and IEEE Transactions on Big Data.

#### 10.1.4. Invited Talks

- S. Ibrahim has been invited to present a talk at the ResCom summer school (Le Croisic) : “ Big Data Processing in the Cloud: Hadoop and Beyond”.
- S. Ibrahim has been invited to present a talk at CGCL (Huazhong University of Science and Technology, China, 02/11/2017): “Scalable Big Data Management on clouds and HPC systems”.
- S. Ibrahim has been invited to present a talk at ShenZhen University (China, 09/11/2017): “Scalable Big Data Management on clouds and HPC systems”.
- A. Lebre has been invited to present a talk at the 11th edition of the CloudControl Workshop serie (Sweden) : “Enos: a Holistic Framework for Conducting Scientific Evaluations of OpenStack”.
- A. Lebre has been invited to present a talk at the ResCom summer school (Le Croisic) : “ Utility Computing: From Mainframes to Clouds and Beyond!”.
- T. Ledoux has been invited for a talk about *frugal* Cloud by the GDS EcoInfo (CNRS) (Grenoble, France, 02/03/2017)
- T. Ledoux has been invited to present the CoMe4ACloud project at the 4th Grenoble Workshop on Autonomic Computing and Control (Grenoble, France, 10/23/2017)
- M. Südholt has been invited to present a talk at the IMT Cybersecurity day on “Privacy and sharing of genomic data.”

#### 10.1.5. Scientific Expertise

- S. Ibrahim is Leading the *Resource Management and Scheduling for Data-Intensive HPC Workflows* activity within the JLESC, Joint Inria-Illinois-ANL-BSC-JSC-RIKEN/AICS Laboratory for Extreme-Scale Computing.
- S. Ibrahim is member of Grid'5000 Sites Committee – Responsible for the Rennes site.
- A. Lebre is member of the executive committee of the GDR CNRS RSD “Réseau et Système distribué” and Co-leader of the transversal action Virtualization and Clouds of this GDR since 2015.
- A. Lebre is leading the OpenStack “Fog/Edge/Massively Distributed Clouds” Special Interest Group (further information at: [https://wiki.openstack.org/wiki/Massively\\_Distributed\\_Clouds](https://wiki.openstack.org/wiki/Massively_Distributed_Clouds)).
- A. Lebre is member of the executive and architect committees of the Grid'5000 GIS (Groupement d'intérêt scientifique).
- J.-M. Menaud is the organizer of "Pôle Science du Logiciel et des Systèmes Distribués" in Laboratoire des Sciences du Numérique à Nantes (LS2N) since June 2015.
- J.-M. Menaud member of the thesis committee Gilles Kahn Award, sponsored by the French Academy of Sciences awarded by the SiF

#### 10.1.6. Research Administration

J. Noyé is deputy head of the Automation, Production and Computer Sciences department of IMT Atlantique.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Supervision

- PhD: Md Sabbir Hasan, "Smart management of renewable energy in Clouds: from infrastructure to application", INSA Rennes, 05 March 2017, advisor: T. Ledoux
- HdR : Adrien Lebre, "Contributions to Large Scale Distributed Systems: The infrastructure view-point", University of Nantes, 1 Sept 2017.
- PhD: Emile Cadorel, director: J-M. Menaud, advisor: H. Coullon
- PhD: Fatima-zahra Boujdad, advisor: Mario Südholt
- PhD: Maverick Chardet, advisors: H. Coullon and A. Lebre
- PhD: Yewan Wang, director: J-M. Menaud.
- PhD: Mohammad Mahdi Bazm: codirectors: Mario Sudholt, J-M. Menaud.
- Postdoc: Dimitri Pertin, advisor: H. Coullon
- Postdoc: Chi Zhou, advisor: S. Ibrahim

### 10.2.2. Juries

- S. Ibrahim was member of the PhD Committee of Thomas Lambert, "Etude de l'effet de la replication de fichiers d'entree sur l'efficacite et la robustesse d'un ensemble de calcul", University of Bordeaux, September 2017.
- A. Lebre was member of the PhD Committee of Ismael Cuadrado-Cordero, "Microclouds: An Approach for a Network-Aware Energy-Efficient Decentralized Cloud", University of Rennes 1, Feb 2017.
- A. Lebre was member of the PhD Committee of Luis Pineda, "Efficient Support fo Data-Intensive Scientific Workflows on Geo-Distributed Clouds", University of Rennes 1, May 2017.
- A. Lebre was member of the PhD Committee of Aymen Jlassi, "Optimisation de la gestion des ressources sur une plateforme inforamtique de type Big-data basée sur le logiciel Hadoop", University of Tours, Dec 2017.
- T. Ledoux was a member of the PhD committee of Xuan Sang Le, "Software/FPGA Co-design for Edge-computing: Promoting Object-oriented Design", Univ. Bretagne Occidentale, May 2017
- J.-M. Menaud was reviewer of the PhD of Ines de Courchelle, "Vers une meilleure utilisation des énergies renouvelables : application à des bâtiments scientifiques", (Nov. 20, 2017), Toulouse ; Boris Teabe (Oct 12, 2017) "Performance et qualité de service de l'ordonnanceur dans un environnement virtualisé", Toulouse ; Alexis Martin (Jan. 13, 2017) "Infrastructure pour la gestion générique et optimisée des traces d'exécution pour les systèmes embarqués", Grenoble.
- J.-C. Royer was member of the PhD comittee of Walid Benghabrit, "A Formal Model for Accountability", IMT Atlantique, October 27 2017 and Gwendal Daniet, "Efficient Persistence, Query and Tranformation of Large Models", IMT Atlantique, November 14, 2017.
- M. Südholt was a member of the PhD committee of Pauline Bolignano, "Formal Models and Verification of Memory Management in a Hypervisor", Inria, May 2017.

## ASPI Team

## 8. Dissemination

### 8.1. Promoting scientific activities

#### 8.1.1. Scientific events organisation

Valérie Monbet has co-organized the workshop and summer school on **Data Science and Environment**, held in Brest in July 2017. The conference gathered researchers that have an expertise in one of the two areas (data science, environmental data) and some interest for the other. Its main goal was to explore the fruitful interplay between the two areas, and ultimately to help create new connections and collaborations between the scientific communities involved. Another objective was to propose some high level courses and practices at the interaction of these two areas.

#### 8.1.2. Participation in workshops, seminars, lectures, etc.

In addition to presentations with a publication in the proceedings, which are listed at the end of the document, members of ASPI have also given the following presentations.

Frédéric Cérou has given an invited talk on the convergence of adaptive multilevel splitting at the workshop **Quasistationary Distributions: Analysis and Simulation** held in Paderborn in September 2017.

Patrick Héas has presented his joint work with Mamadou Lamarana Diallo and Cédric Herzet (EPI FLUMINANCE, Inria Rennes–Bretagne Atlantique) on model reduction with “multi-space” prior information, at the **European Conference on Numerical Mathematics and Advanced Applications** (ENUMATH), held in Voss, Norway, in September 2017.

Thi Tuyet Trang Chau has presented her work on non parametric state–space model for missing–data imputation, at the workshop on **Data Science and Environment**, held in Brest in July 2017.

#### 8.1.3. Research administration

François Le Gland is a member of the *conseil d’UFR* of the department of mathematics of université de Rennes 1. He is also a member of the *conseil scientifique* for the EDF/Inria scientific partnership.

Valérie Monbet is a member of both the *comité de direction* and the *conseil* of IRMAR (institut de recherche mathématiques de Rennes, UMR 6625). She is also the deputy head of the department of mathematics of université de Rennes 1, where she is a member of both the *conseil scientifique* and the *conseil d’UFR*.

## 8.2. Teaching, supervision, thesis committees

### 8.2.1. Teaching

Patrick Héas gives a course on **Monte Carlo simulation methods in image analysis**, at université de Rennes 1, within the SISEA (signal, image, systèmes embarqués, automatique) track of the master in electrical engineering and telecommunications.

François Le Gland gives

- a 2nd year course on **introduction to stochastic differential equations**, at INSA (institut national des sciences appliquées) Rennes, within the GM/AROM (risk analysis, optimization and modeling) major in mathematical engineering,
- a 3rd year course on **Bayesian filtering and particle approximation**, at ENSTA (école nationale supérieure de techniques avancées), Palaiseau, within the statistics and control module,
- a 3rd year course on **linear and nonlinear filtering**, at ENSAI (école nationale de la statistique et de l’analyse de l’information), Ker Lann, within the statistical engineering track,
- a course on **Kalman filtering and hidden Markov models**, at université de Rennes 1, within the SISEA (signal, image, systèmes embarqués, automatique, école doctorale MATISSE) track of the master in electrical engineering and telecommunications,
- and a 3rd year course on **hidden Markov models**, at Télécom Bretagne, Brest.

Valérie Monbet gives

- a course on machine learning for biology at université de Rennes 1, within
  - the G2B (genetics, genomics, biochemistry) track of the master in molecular and cellular biology,
  - the MODE (modélisation en écologie) track of the master in biodiversity, ecology, evolution
  - and the master in scientific computing and modelling,
- a course on machine learning for environmental data, at the summer school on **Data Science and Environment**, held in Brest in July 2017,
- a course on graphical models at université de Rennes 1, within the master on applied mathematics and statistics,
- a course on MATLAB at université de Rennes 1, within the master in economics and financial engineering.

### 8.2.2. Supervision

François Le Gland and Valérie Monbet are jointly supervising one PhD student

- Thi Tuyet Trang Chau, provisional title: *Non parametric filtering for Metocean multi-source data fusion*, université de Rennes 1, started in October 2015, expected defense in October 2018, funding: Labex Lebesgue grant and Brittany council grant, co-direction: Pierre Ailliot (université de Bretagne Occidentale, Brest).

François Le Gland is supervising three other PhD students

- Kersane Zoubert–Ousseni, provisional title: *Particle filters for hybrid indoor navigation with smart-phones*, université de Rennes 1, started in December 2014, expected defense in 2017, funding: CEA grant, co-direction: Christophe Villien (CEA LETI, Grenoble),
- Audrey Cuillery, provisional title: *Bayesian tracking from raw data*, université du Sud Toulon Var, started in April 2016, expected defense in 2019, funding: CIFRE grant with DCNS, co-direction: Claude Jauffret (université du Sud Toulon Var) and Dann Laneuville (DCNS, Nantes).
- Ramatoulaye Dabo, provisional title: *Rare event simulation in epidemiology*, université Assane Seck de Ziguinchor (Senegal) and université de Rennes 1, started in September 2015, expected defense in 2018, co-direction: Alassane Diedhiou (université Assane Seck de Ziguinchor).

Valérie Monbet is supervising two other PhD students

- Audrey Poterie, provisional title: *Régression d'une variable ordinale par des données longitudinales de grande dimension : application à la modélisation des effets secondaires suite à un traitement par radiothérapie*, université de Rennes 1, started in October 2015, expected defense in 2018, funding: INSA grant, co-direction: Jean–François Dupuy (INSA Rennes) and Laurent Rouvière (université de Haute Bretagne, Rennes).
- Marie Morvan, provisional title: *Modèles de régression pour données fonctionnelles. Application à la modélisation de données de spectrométrie dans le proche infra rouge*, université de Rennes 1, started in October 2016, expected defense in 2019, funding: MESR grant, co-direction: Joyce Giacofci (université de Haute Bretagne, Rennes) and Olivier Sire (université de Bretagne Sud, Vannes).

Mathias Rousset is supervising one PhD student

- Yushun Xu, provisional title: *Variance reduction of overdamped Langevin dynamics simulation*, université Paris–Est, started in October 2015, expected defense in 2018, co-direction: Pierre–André Zitt (université Paris–Est).

Patrick Héas has been supervising two post-doctoral fellows

- Hassan Maatouk, title: *Compressing the model by exploiting observations*, EPI ASPI, Inria Rennes–Bretagne Atlantique, started in September 2016, ended in September 2017, funding: ANR GERONIMO, co-supervision: Cédric Herzet (EPI FLUMINANCE, Inria Rennes–Bretagne Atlantique).
- Mamadou Lamarana Diallo, title: *Model reduction with “multi-space” prior information*, EPI FLUMINANCE, Inria Rennes–Bretagne Atlantique, started in October 2016, ended in October 2017, funding: ANR GERONIMO, co-supervision: Cédric Herzet (EPI FLUMINANCE, Inria Rennes–Bretagne Atlantique).

### **8.2.3. Thesis committees**

François Le Gland has been a member of the committee for the HDR of Christian Musso (université du Sud, Toulon).

Mathias Rousset has been a member of the committee for the PhD thesis of G r me Faure (CERMICS Ecole des Ponts Paris-Tech and CEA DAM, advisor: Gabriel Stoltz and Jean–Bernard Maillet).

## **ATHENA Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific Events Organisation**

#### *10.1.1.1. General Chair, Scientific Chair*

R. Deriche and S. Deslauriers-Gauthier organized the **CoBCOM Winter School Workshop** in Juan Les Pins from November 20 to 24, 2017. Organized within the framework of the ERC CoBCOM and targeted at graduate students, early career and senior researchers interested in structural and functional brain connectivities via multi imaging modalities including diffusion MRI, functional MRI, MEG, and EEG, this Winter School Workshop offered several tutorials and advanced lectures from more than 20 leading researchers and experts on Computational Brain Connectivity Mapping. In addition, it included 3 sessions dedicated to 27 posters presentations from participants.

#### **10.1.2. Scientific Events Selection**

##### *10.1.2.1. Member of the Conference Program Committees*

- T. Papadopoulo is member of the Program Committee of GRETSI 2017.
- D. Wassermann serves as part of the Conference Program of MICCAI 2017; IPMI 2017; and ISMRM 2017.

##### *10.1.2.2. Reviewer*

- M. Clerc serves several international institutions in reviewing applications : ERC, FET-Open, ANR-NSF.
- M. Clerc serves several international conferences (Graz International BCI Conference, BaCI, IEEE EMBC Neural Engineering).
- R. Deriche serves several international institutions in reviewing applications : ERC Grants, Swiss National Science Foundation, the Netherlands Organisation for Scientific Research (NWO)...
- R. Deriche serves several international conferences (ISBI, MICCAI, ISMRM, ...) and international workshops ( CD-MRI Miccai, MFCA Miccai...).
- T. Papadopoulo serves several international conferences as a reviewer (GRETSI, ICIP, ISBI).
- D. Wassermann serves several international conferences as a reviewer (MICCAI, ISMRM, HBM, CDMRI, etc)
- D. Wassermann serves several international institutions in reviewing applications: ANR, the Netherlands Organisation for Scientific Research (NWO), ERC FET program, Argentina MINCYT.

#### **10.1.3. Journal**

##### *10.1.3.1. Member of Editorial Boards*

- R. Deriche is member of the Editorial Board of the Journal of Neural Engineering, Associate Editor of SIAM Journal on Imaging Sciences (SIIMS), editorial board member at Springer for the book series entitled Computational Imaging and Vision and member of the Editorial Board of the Medical Image Analysis Journal
- M. Clerc is member of the Editorial Board of the Journal of Neural Engineering, and of the ISTE-Wiley book series.

##### *10.1.3.2. Reviewer - Reviewing Activities*



- M. Clerc serves several international journals (Brain Topography, Trends in Biotechnology, Journal of Neural Engineering, Biomedical Engineering OnLine).
- R. Deriche serves several international journals (NeuroImage, IEEE Transactions on Medical Imaging, Magnetic Resonance in Medicine, Journal of Mathematical Imaging and Vision, Medical Image Analysis Journal, ...).
- T. Papadopoulo serves several international journals (NeuroImage, Frontiers Neuroscience, IEEE PAMI, Pattern Recognition, ...).
- D. Wassermann serves several international journals (NeuroImage, IEEE Transactions on Medical Imaging, Human Brain Mapping, Medical Image Analysis Journal, ...).

#### **10.1.4. Invited Talks**

- M. Clerc gave several invited talks: MiniCours axe MTC-NSC in Sophia Antipolis, Journées des Jeunes Chercheurs en Interfaces Cerveau Ordinateurs in Bordeaux, CoBCoM in Antibes.
- R. Deriche gave an invited talk at Huawei Vision Forum, Le Phébus.
- T. Papadopoulo gave an invited talk at CoBCoM in Antibes.
- D. Wassermann gave several invited talks at international institutions including Stanford Medical School, USA; National University of the South, Argentina; Brain and Spine Institute, and NeuroSpin, France

#### **10.1.5. Leadership within the Scientific Community**

- M. Clerc is in charge of the BCI-LIFT Inria Project Lab. She is also a founding member and vice-president of the CORTICO association (Collectif pour la Recherche Transdisciplinaire sur les Interfaces Cerveau Ordinateur), the French association for BCI.
- R. Deriche is the P.I. of the ERC AdG CoBCoM.
- D. Wassermann is the P.I. of the ERC StG NEUROLANG, ANR-NSF NEUROREF, and the Associated Team LARGE BRAINNETS

#### **10.1.6. Scientific Expertise**

- M. Clerc is a member of the Inria Evaluation Committee since 2015.
- M. Clerc is a member of the Scientific Committee of Académie 4 of Université Côte d'Azur.
- M. Clerc is a member of the Steering Committee of the Magneto-Encephalography Platform of La Timone, Marseille.
- R. Deriche is a member of the Scientific Committee of Académie 2 of Université Côte d'Azur.
- R. Deriche serves several international institutions in reviewing applications : ERC Grants, Swiss National Science Foundation, the Netherlands Organisation for Scientific Research (NWO).
- D. Wassermann serves several international institutions in reviewing applications: ANR, the Netherlands Organisation for Scientific Research (NWO), ERC FET, Argentine MINCyT

#### **10.1.7. Research Administration**

- M. Clerc is Déléguée Scientifique Adjointe (vice-head of Science) of the Sophia Antipolis Inria Research Center since 2014.
- M. Clerc is member of the Commission Scientifique Interne (CoSI) of Inria since 2014.
- M. Clerc was vice-president of the hiring committee for CR2 at Inria Sophia Antipolis in 2017.
- M. Clerc was a member of the CR1 hiring committee at Inria in 2017.
- R. Deriche is member of the Academic Council of UCA (Université Côte d'Azur)
- R. Deriche is member of the Scientific Council of Académie 2 *Complex Systems*, Université Côte d'Azur and member of the Scientific Council of Olea Medical Company (<http://www.olea-medical.com/>)

- T. Papadopoulo represents Inria at the Administration Council of the **CIU Santé**.
- T. Papadopoulo is member of the Software Development Committee at Inria.
- T. Papadopoulo is the head of the DTK platform committee of the Sophia Antipolis Inria Research Center since 2016.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

BS : M. Clerc made a presentation to medical school students enrolled in “Ecole de l’Inserm”, in Sèvres.

Master: M. Clerc taught a course on “Brain Machine Interfaces” at Sciences Po, Paris, in a Master program on “Disruptive Technologies and Public Policies”.

Master: R. Deriche, Variational approaches and Geometrical Flows for Computational Brain Imaging, 36 ETD, M2 "Computational Biology and Biomedicine", Université Côte d’Azur. France.

Master: R. Deriche, Advanced Image Processing Techniques, 12 ETD, M1 International CBB & Ubinet, Université Côte d’Azur, France.

Master: T. Papadopoulo, *3D Computer Vision*, 12 ETD, M1 International Ubinet, Université Côte d’Azur. France.

Master: T. Papadopoulo, *Inverse Problems in Brain Functional Imaging*, 36 ETD, M2 "Computational Biology and Biomedicine", Université Côte d’Azur. France.

Master: T. Papadopoulo, *Inverse problems for brain functional imaging*, 24 ETD, M2, Mathématiques, Vision et Apprentissage, ENS Cachan, France.

Master: D. Wassermann, *Fundamentals of Computer Science*, 36 ETD, M2 "Computational Biology and Biomedicine", Université Côte d’Azur. France.

Master: D. Wassermann, *Machine Learning in Neuroimaging*, 36 ETD, National University of the South, Argentina.

### 10.2.2. Supervision

PhD defended [13]: Rutger Fick, “Microstructure Recovery via dMRI”, Université Côte d’Azur. Supervisor: Rachid Deriche.

PhD defended [12]: Kai Dang, “Modeling and characterizing electrical conductivity for cochlear implantation”, started Dec. 2013, Université Université Côte d’Azur. Supervisor: Maureen Clerc.

PhD defended [15]: Marco Pizzolato, “Diffusion & Perfusion MRI: From bench to bedside” started Dec. 2013, Université Côte d’Azur. Supervisor: Rachid Deriche.

PhD defended [11]: Brahim Belaoucha, “Using diffusion MR information to reconstruct networks of brain activations from MEG and EEG measurements”, Université Côte d’Azur, started Oct. 2013. Supervisor: Théodore Papadopoulo.

PhD defended [14]: Christos Papageorgakis, “Patient-specific conductivity models: characterization of the skull bones”, Université Côte d’Azur. Supervisor: Juliette Leblond, Co-supervisor: Maureen Clerc

PhD defended: Lorraine Perronnet, “Combining EEG and FMRI for Neurofeedback”, Université Rennes 1. Supervisors: Christian Barillot and Anatole Lécuyer, Co-supervisor: Maureen Clerc.

PhD in progress: Mouloud Kachouane, “Invariants and biomarqueurs in dMRI”, started Oct. 2012. Supervisors: Rachid Deriche & L. Boumghar (USTHB, Algiers).

PhD in progress: Thinhinane Megherbi, “HARDI & High Order Tensors”, started Sept. 2011. Supervisors: Rachid Deriche & L. Boumghar (USTHB, Algiers)

PhD in progress: Abib Alimi, “Diffusion & PLI” started Nov, 1st, 2016, Université Côte d’Azur. Supervisor: Rachid Deriche.

PhD in progress: Isa Costantini, “Brain Connectomics” started Oct. 1st, 2016, Université Côte d’Azur. Supervisor: Rachid Deriche.

PhD in progress: Kostiantyn Maksymenko, “Inverse problem in EEG/MEG/SSEG: towards a better consideration of anatomo-functional constraints”, Université Côte d’Azur, started Oct. 2016. Supervisors: Théodore Papadopoulo and Maureen Clerc.

PhD in progress: Guillermo Gallardo Diez, “Connectivity-Based Brain Parcellation”, started Nov. 2015, Université Côte d’Azur. Supervisors: D. Wassermann and R. Deriche

PhD in progress: Antonia Machlouzariades-Shalit, “Semantic Representations of Brain Anatomy”, started Jun. 2017, Université Paris Sud. Supervisor: D. Wassermann

PhD in progress: Nathalie Gayraud, “Structured Dictionary Learning”, Université Côte d’Azur, started November 2015. Supervisor: Maureen Clerc.

PhD in progress: Federica Turi, “User-adapted Brain Computer Interaction”, Université Côte d’Azur, started October 2016. Supervisor: Maureen Clerc.

Master: Paul Görlach, “Rotational Invariants of Ternary Quartics”, Supervised by E. Hubert and T. Papadopoulo.

Master: Gaston Zanitti, “An ADMM Algorithm for Regularised Random Effect Representations of Anatomo-Functional Connectivity”, Supervised by D. Wassermann.

### 10.2.3. *Juries*

- R. Deriche chaired the HDR jury of P. Montesinos at LIRMM, UMR 5506 CNRS - Université Montpellier, June 9, 2017.
- R. Deriche chaired the PhD jury of B. Belaoucha at Université Côte d’Azur, May 29, 2017.
- R. Deriche participated as a reviewer in the PhD jury of T.C.J. Dela Haije at TU/e Eindhoven University of Technology, May 16, 2017.
- R. Deriche participated as a reviewer in the PhD Jury of R. Hedouin at Université de Rennes 1, June 12, 2017.
- R. Deriche participated in the PhD jury of C. Lian at Université de Technologie de Compiègne., Jan. 27, 2017.
- R. Deriche participated in the PhD jury of R. Fick at Université Côte d’Azur, March 10, 2017.
- R. Deriche participated in the PhD jury of M. Pizzolato at Université Côte d’Azur, Mars 31, 2017.
- M. Clerc chaired the PhD jury of Thomas Demarcy at Université Côte d’Azur in June 2017.
- M. Clerc participated as a reviewer in the PhD jury of Sara Sommariva at University of Genova, Italy, in February 2017.
- M. Clerc participated as a reviewer in the PhD jury of Emmanuelle Kristensen at Université Grenoble Alpes, in June 2017.
- M. Clerc participated as a reviewer in the PhD jury of Etienne Combrisson at Université de Lyon, in December 2017.
- M. Clerc participated in the PhD jury of Sara Rebagliati at University of Genova, Italy, in February 2017.
- M. Clerc participated in the PhD jury of L. Perronnet, at Rennes 1 University in September 2017.
- M. Clerc participated in the PhD jury of K. Dang, at Université Côte d’Azur in June 2017.
- M. Clerc participated in the PhD jury of C. Papageorgakis at Université Côte d’Azur in December 2017.
- M. Clerc participated in a BIM Masters 1 jury at Université Côte d’Azur.

- T. Papadopoulo participated in the PhD jury of B. Belaoucha at Université Côte d'Azur, May 29, 2017.
- T. Papadopoulo participated in a BIM Masters 1 jury at Université Côte d'Azur.
- D. Wassermann participated in the PhD jury of V. D. Nguyen, Paris Sud University, February 24, 2017

### **10.3. Popularization**

- The P300 speller enjoyed a large publicity: on French TV *Le Magazine de la Santé* of France 5 in January 2017. It was featured in a newspaper article in *La dépêche du midi* in February 2017.
- M. Clerc gave interviews for *Le Temps* (Switzerland), *Science et Vie Magazine* on the topic of Brain-Computer Interfaces.

## AVALON Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

Laurent Lefèvre was

- co-chair of the colloquium : "Towards a sustainable digital society : from Clouds to Connected Objects", with Centre Jacques Cartier and Concordia University, Montreal, Canada, October 2017
- co-chair of the PEAC 2017 Workshop on "Power and Energy Aspects of Computations", held in conjunction with the 12th International Conference on Parallel Processing and Applied Mathematics, PPAM 2017, Lublin, Poland, September 2017
- track co-chair of the ICA3PP 2017 conference: 17th International Conference on Algorithms and Architectures for Parallel Processing, for the track Distributed and Network-based Computing, Helsinki, Finland, August 2017

#### 9.1.1.2. Member of the Organizing Committees

Laurent Lefèvre was

- co-organizer of the GreenDays@Sophia, SophiaTech, Nice, June 2017
- co organizer of the Ecoinfo conference on "Edge Datacenters, a leverage for innovation - Edge datacenters, un levier pour l'innovation", Paris, March 2017 and the Ecoinfo conference on "Eco-design of software", Grenoble, February 2017
- co-chair of the Special Session on Energy Efficient Management of Parallel Systems, Platforms, and Computations during PDP2017 : 25th Euromicro International Conference on Parallel, Distributed and Network based Processing, St Petersburg, Russia, March 2017

Christian Perez served on the Organizing Committee of the 2017 International Conference on High Performance Computing & Simulation (HPCS 2017) as Conference Awards and Recognitions Co-Chair.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

Eddy Caron was the chair of the Chair Parallelism for Compas'2017 (Conférence d'informatique en Parallélisme, Architecture et Système). June 27-30, 2017.

Laurent Lefèvre was co-chair of the Poster and Research Demos of CCGrid 2017 : 17th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, Madrid, Spain, May 2017

#### 9.1.2.2. Member of the Conference Program Committees

Eddy Caron was member of the program committees of 6<sup>th</sup> International Conference on Advances in Computing, Communications and Informatics (ICACCI-2017), Conférence Nationale (en Afrique) sur la Recherche en Informatique et ses Applications (CNRIA 2017), The 3rd International Conference on Cloud Computing Technologies and Applications (CloudTech'17), 7<sup>th</sup> International Conference on Cloud Computing and Service Science (CLOSER 2017), Third Symposium on Emerging Topics in Computing and Communications (SETCAC'17), The 10<sup>th</sup> International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage (SpaCCS 2017).

Marcos Dias de Assunção was member of the program committees of the International Conference on Cloud Computing Technology and Science (CloudCom 2017) and Workshop on Clouds and Applications (WCGA 2017).

Olivier Glück was a member of the program committees of PDP 2017 (25th Euromicro International Conference on Parallel, Distributed, and Network-Based Processing) and ICA3PP-2017 (17th International Conference on Algorithms and Architectures for Parallel Processing).

Laurent Lefèvre was member of the program committees of The 3rd IEEE International Conference on Data Science and Systems (DSS 2017), The 23rd IEEE International Conference on Parallel and Distributed Systems (ICPADS 2017), 9th International Conference on Cloud Computing Technology and Science (CloudCom 2017), International Symposium on Computer Architecture and High Performance Computing (SBACPAD 2017), 46th International Conference on Parallel Processing (ICPP2017) and the Conférence d'informatique en Parallélisme, Architecture et Système (Compas'17).

Christian Perez was member of the program committees of the IEEE International Conference on Cluster Computing 2017 (Cluster 2017), the 17th IEEE/ACM International Symposium on Cluster, Cloud and Grid (CCGRID 2017), the 25th annual High Performance Computing Symposium 2017 (HPC '17), the 9th International Conference on Cloud Computing Technology and Science (IEEE CloudCom 2017) and of the 2017 International Conference on Parallel Computing (ParCo 2017). He was a member of the Tutorials Committee of ISC High Performance 2018.

Frédéric Suter was member of the program committees of the European MPI Users' Group Meeting (EuroMPI'17), the International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP'17), the IEEE / ACM International Symposium on Cluster, Cloud, and Grid Computing (CCGrid 2017), the International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms (HeteroPar'17), and the Conférence d'informatique en Parallélisme, Architecture et Système (Compas'17). He was a member of the Posters Committee of the IEEE International Conference on Cluster Computing (Cluster'17).

#### *9.1.2.3. Reviewer*

Eddy Caron reviewed a paper for the 23rd International European Conference on Parallel and Distributed Computing (Euro-Par 2017).

Christian Perez reviewed a paper for the 23rd International European Conference on Parallel and Distributed Computing (Euro-Par 2017).

### **9.1.3. Journal**

#### *9.1.3.1. Member of the Editorial Boards*

Laurent Lefèvre is associate editor of IEEE Transactions on Sustainable Computing

#### *9.1.3.2. Reviewer - Reviewing Activities*

Eddy Caron reviewed articles for Journal of Cloud Computing, Journal FGCS, Transaction on Service Computing, Concurrency and Computation (Practice and Experience), Information Security Journal: A Global Perspective.

Marcos Dias de Assunção reviewed articles for the ACM Computing Surveys, Computer Networks, IEEE Cloud Computing, Software Practice and Experience, Sustainable Computing Journal, Parallel Computing, Cluster Computing Journal, Future Generation Computer Systems Journal (FGCS), Transactions on Cloud Computing, and IEEE Transactions on Network and Service Management.

Thierry Gautier reviewed articles for the ACM Transactions on Architecture and Code Optimization journal.

Christian Perez reviewed articles for the IEEE's Transactions on Big Data journal.

Frédéric Suter reviewed articles for the IEEE's Transactions on Parallel and Distributed Systems and ParallelComputing.

#### 9.1.4. Invited Talks

Marcos Dias de Assunção gave the following talk:

- “Challenges on Resource Elasticity”, University of Umea, Sweden, March 29, 2017.

Laurent Lefèvre has been invited to give the following talk:

- "L'impact environnemental des nouvelles technologies de l'information et de la communication / Environmental impact of ICT", Ville de Vincennes : "Au coeur des savoirs", Vincennes, March 2017
- "Améliorer l'efficacité énergétique de l'informatique et des réseaux de communications / Improving energy efficiency of computing and networking", Assemblée Nationale, Audition publique sur les enjeux de la recherche en énergie, Office Parlementaire d'Evaluation des Choix Scientifiques et Technologiques (OPECST), Paris, February 2017
- "Eco-design of software : conclusion of the day - Eco-conception logicielle : conclusion de la journée", Journée EcoInfo sur "Impact des logiciels sur l'environnement quid de l'éco-conception ?", IMAG, Grenoble, February 2017
- "Impacts environnementaux des TICs : constats et pistes d'améliorations (sans green washing) / Environmental impact of ICT : overview and improvements (without green washing)", ENSIMAG, Grenoble, January 2017

Christian Perez has been invited to give the following talk:

- "HPC Component Models", 2017 JLESC Summer School, NCSA, Urbana, Illinois, July 21, 2017.

#### 9.1.5. Leadership within the Scientific Community

Eddy Caron is animator and co-chair for the FIL (Fédération Informatique de Lyon) on the theme IDCHP (Informatique Distribuée et Calcul Haute Performance).

Laurent Lefèvre is animator and chair of the transversal action on "Energy" of the French GDR RSD ("Réseaux et Systèmes Distribués")

Christian Perez is co-leader of the pole Distributed Systems of the French GDR RSD ("Réseaux et Systèmes Distribués").

#### 9.1.6. Scientific Expertise

Eddy Caron reviewed 3 projects for the French National Research Agency (ANR).

Thierry Gautier and Christian Perez were member of the programming environment working group of ETP4HPC in order to define the Strategic Research Agenda (SRA). The SRA identifies the principal challenges in HPC and is used by the European Commission for writing their work programme. The EC is currently working on the WP2018-2020. The SRA -3 was released in November 2017.

Olivier Glück is member of the CNU (Conseil National des Universités) section 27 (Computer Science). He participated to the 2017 "Qualifications" session and "Promotions/CRCT" session.

Christian Perez was a member of the HCERES evaluation committees for the Laboratoire d'Informatique Fondamentale d'Orléans (LIFO) and for the *Mathématiques et Systèmes* unit of Mines ParisTech. He reviewed projects for the French National Research Agency (ANR), for the *Comité Français d'Évaluation de la Coopération Scientifique et Universitaire avec le Brésil* (COFECUB), and for the Région Pays de la Loire (France).

#### 9.1.7. Research Administration

Eddy Caron is a member of the CDT (Commission de Développement Technologique) de l'Inria Rhône-Alpes. He is deputy director in charge of call for projects, research transfert and international affairs since September 2017 for the LIP laboratory.

Olivier Glück is member of the "Conseil Académique" of Lyon 1 University and Lyon University.

Laurent Lefèvre is a member of the executive board and the sites committee of the Grid'5000 Scientific Interest Group. Laurent Lefèvre leads the PhD committee and is member of the council of LIP Laboratory (ENS Lyon). He is elected member of the council of Federation Informatique of Lyon. He is a scientific member of the Digital League enterprise cluster of Rhône-Alpes Auvergne Region. He is member of the direction committee of the GDS Ecoinfo group.

Christian Perez represents Inria in the overview board of the France Grilles Scientific Interest Group. He is a member of the executive board and the sites committee of the Grid'5000 Scientific Interest Group. He is a member of the committee selection of the project call from the Rhône-Alpes region ARC6 (France). He is also a member of the Inria Grenoble Rhône-Alpes Strategic Orientation Committee.

Frédéric Suter is a member of the Direction Committee of the IN2P3 Computing Center (USR 6402).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence: Eddy Caron, Projet 1, 48h, L3, ENS de Lyon. France.

Master: Eddy Caron, Projet Intégré, 42h, M1, ENS de Lyon. France.

Master: Eddy Caron, Système distribués, 30h, M1, ENS de Lyon. France.

Master: Eddy Caron, Advanced Topics in Scalable Data Management, 18h, M2, ENS de Lyon. France.

Licence: Yves Caniou, Algorithmique programmation impérative, initiation, 24h, niveaux L1, Université Lyon 1, France

Licence: Yves Caniou, Unix, 3h, niveaux L1, Université Lyon 1, France

Licence: Yves Caniou, Système d'Exploitation, 42h, niveaux L2, Université Lyon 1, France

Licence: Yves Caniou, Programmation Concurrente, 33h, niveaux L3, Université Lyon 1, France

Licence: Yves Caniou, Réseaux, 54h, niveaux L3, Université Lyon 1, France

Master: Yves Caniou, Sécurité, 36h, niveaux M2, Université Lyon 1, France

Master: Yves Caniou, Systèmes avancés, 4.5h, niveaux M2, Université Lyon 1, France

Master: Yves Caniou, Projet, Bibliographie, Certification, 10h, niveaux M2, Université Lyon 1, France

Master: Yves Caniou, Suivi d'un étudiant en introduction à la recherche, 3h, M1, Université Lyon 1, France

Master: Yves Caniou, Suivi d'étudiants (apprentissage, stage), 33h, niveaux M1 et M2, Université Lyon 1, France

Master: Yves Caniou, Responsable of professional Master SRIV (Systèmes Réseaux et Infrastructures Virtuelles), 42h, Université Lyon 1, France

Master: Yves Caniou, Sécurité, 20h, niveau M2, IGA Casablanca, Maroc

Master: Jean-Patrick Gelas, Programmation embarquée et mobile des objets, 17h, niveau M1, Université Lyon 1, France

Master: Jean-Patrick Gelas, Introduction au Cloud Computing, 24h, niveau M2 (CCI), Université Lyon 1, France

Master: Jean-Patrick Gelas, Système d'exploitation, 52h, niveau M2 (CCI), Université Lyon 1, France

Master: Jean-Patrick Gelas, Projet en Informatique en Anglais, 10h, niveau M2 (CCI), Université Lyon 1, France



- Master: Jean-Patrick Gelas, Réseaux Avancés, 27h, niveau M2 (CCI), Université Lyon 1, France
- Master: Jean-Patrick Gelas, Sécurité et Admin des infra résx, 37h, niveau M2 (CCI), Université Lyon 1, France
- Master: Jean-Patrick Gelas, Technologies embarquées, 19h, niveau M2 (Image), Université Lyon 1, France
- Master: Jean-Patrick Gelas, Routage (BGP), Routeurs et IPv6, 15h, niveau M2, Université Lyon 1, France
- Master: Jean-Patrick Gelas, Systèmes embarqués (GNU/Linux, Android, ARM, Arduino), 34h, niveau M2, Université Lyon 1, France
- Master: Jean-Patrick Gelas, Analyse de performance, 3h, niveau M2 (TIW), Université Lyon 1, France
- Master: Jean-Patrick Gelas, Cloud Computing, 17h, niveau M2 (TIW), Université Lyon 1, France
- Master: Jean-Patrick Gelas, Développement informatique, 23h, niveau M2 (Data science), Université Lyon 1, France
- Licence: Olivier Glück, Licence pedagogical advisor, 30h, niveaux L1, L2, L3, Université Lyon 1, France.
- Licence: Olivier Glück, Introduction Réseaux et Web, 90h, niveau L1, Université Lyon 1, France.
- Licence: Olivier Glück, Algorithmique programmation impérative initiation, 37h, niveau L1, Université Lyon 1, France.
- Licence: Olivier Glück, Réseaux, 2x70h, niveau L3, Université Lyon 1, France.
- Master: Olivier Glück, Responsable of professional Master SIR (Systèmes Informatiques et Réseaux) located at IGA Casablanca, 20h, niveau M2, IGA Casablanca, Maroc
- Master: Olivier Glück, Réseaux par la pratique, 14h, niveau M1, Université Lyon 1, France.
- Master: Olivier Glück, Réseaux et protocoles, 33h, niveau M1, Université Lyon 1, France.
- Master: Olivier Glück, Applications systèmes et réseaux, 30h, niveau M2, Université Lyon 1, France.
- Master: Olivier Glück, Applications systèmes et réseaux, 24h, niveau M2, IGA Casablanca, Maroc
- Master Informatique: Laurent Lefèvre, "Parallelism", Université Claude Bernard, France. (18h), M1
- Master Systèmes Informatique et Réseaux: Laurent Lefèvre, "Advanced Networks", IGA Casablanca, Maroc (20h), M2

### 9.2.2. Supervision

- PhD: Radu Carpa, *Efficacité énergétique des échanges de données dans une fédération d'infrastructures distribuées à grande échelle*, 26/10/2017, Laurent Lefèvre (dir), Olivier Glück (co-dir).
- PhD : ACAR Hayri, Software development methodology in a Green IT environment, Université Claude Bernard Lyon 1, 22/11/2017, Parisa Ghodous (dir), Jean-Patrick Gelas (co-dir), Gulfem Isiklar Alptekin (co-dir).
- PhD: Jérôme Richard, *Conception of a software component model with task scheduling for many-core based parallel architecture, application to the Gysela5D code*, 6/12/2017, Christian Perez (dir), Julien Bigot (CEA, MdlS, co-dir).
- PhD: Pedro De Souza Bento Da Silva, *Application model and co-scheduling algorithm for dynamic and evolutive data-intensive application*, 11/12/2017, Christian Perez (dir), Frédéric Desprez (Inria, CORSE team, co-dir).
- PhD in progress: Dorra Boughzala, *Simulating Energy Consumption of Continuum Computing between Heterogeneous Numerical Infrastructures in HPC*, IPL Hac-Specis Inria, Laurent Lefèvre (dir), Martin Quinson and Anne-Cécile Orgerie (Myriads, Rennes, co-dir) (since december 2017)

PhD in progress: Anchen Chai: *Simulation of the Distributed Execution of a Medical Imaging Simulator*, Hugues Benoit-Cattin (co-dir, CREATIS, INSA Lyon), Frédéric Suter (co-dir).

PhD in progress: Arthur Chevalier, *Optimisation du placement des licences logiciel des fonctions réseau dans le Cloud pour un déploiement économique et efficace*, Eddy Caron (dir), Noëlle Baillon (co-dir, Orange) (since october 2017 ).

PhD in progress: Hadrien Croubois, *Étude et conception d'un système de gestion de workflow autonome*, 10/2015, Eddy Caron (dir).

PhD in progress: Jad Darrous : *Geo-distributed storage for distributed Cloud*, Gilles Fedak (dir) until Aug. 2017 then Christian Perez (dir), Shadi Ibrahim (co-dir)

PhD in progress: Aurélie Kong-Win-Chang: *Techniques de résilience pour l'ordonnancement de workflows sur plates-formes décentralisées (cloud computing) avec contraintes de sécurité*, Yves Robert (dir, ROMA, ÉNS-Lyon), Eddy Caron (co-dir) et Yves Caniou (co-dir).

PhD in progress: Valentin Lorentz : *Energy traceability of data*, Gilles Fedak (dir), Laurent Lefèvre (co-dir) (2016-2019)

PhD in progress: Issam Rais, *Multi criteria scheduling for exascale infrastructures*, 10/2014, Laurent Lefèvre (dir), Anne Benoit (Roma Team, LIP, ENS Lyon, co-dir) and Anne-Cécile Orgerie (CNRS, Myriads team, IriSa Rennes, co-dir).

PhD in progress: Felipe Rodrigo de Souza, *Networking Provisioning Algorithms for Highly Distributed Data Stream Processing*, École Doctorale, Eddy Caron (dir), Marcos Dias de Assunção (co-dir) (2017-2020).

PhD in progress: Alexandre Veith : *Elastic Mechanisms for Big-Data Stream Analytics*, Labex MiLyon, Laurent Lefèvre (dir), Marcos Dias de Assunção (co-dir) (2016-2019).

### 9.2.3. Juries

Laurent Lefèvre was reviewer and member of the Ph.D. defence committee of Ronnie Muthada Pot-taya, University of Bourgogne Franche-Comté (December 8, 2017), Ines de Courchelle, University of Toulouse (November 20, 2017), Nicolas Huin, Nice-Sophia Antipolis University (September 28, 2017), Atefeh Khosravi, University of Melbourne, Australia (July 2017) and Loris Belcastro , University of Calabria, Italy (May 2017). Laurent Lefèvre was a member of the Ph.D. defence committee of Yunbo Li, Université Bretagne Loire (June 2017)

Frédéric Suter was a member of the Ph.D. defence committee of Fernando Mendonca, Ph.D. student of Université de Grenoble held on May 23, 2017.

## 9.3. Popularization

Laurent Lefèvre has been:

- Participating to the "Nuit européenne des chercheurs - European night of researchers" : talk in the dark "Let's talk about Green IT in the dark" - Interview by Lyon Capitale and Radio Brume, Villeurbanne, September 29, 2017
- Interviewed for the paper "Réseaux, data centers et terminaux, sur les traces de notre empreinte environnementale numérique", Inriality, Pierre Guyot, February 14, 2017
- Interviewed for the paper "Surfing is bad for the planet / Surfer nuit gravement à la planète", 01 Net, Number 859, February 15, 2017

## AVIZ Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. Member of the Organizing Committees

- Jean-Daniel Fekete organized the Doctoral Colloquium (Doctoriales) for the Journées Visu 2017
- Tobias Isenberg was Posters co-chair for EuroVis 2017
- Pierre Dragicevic co-organized the CHI 2017 workshop on **Moving Transparent Statistics Forward @CHI 2017**.
- Petra Isenberg was Posters co-chair for VIS 2017
- Evanthia Dimara organized the workshop "DECISIVe 2017: Dealing with Cognitive Biases in Visualisations" at IEEE VIS'2017 (<http://decisive-workshop.dbvis.de/>).

### 8.1.2. Scientific Events Selection

#### 8.1.2.1. Member of the Conference Program Committees

- Jean-Daniel Fekete was a member of the program committee for IEEE VIS 2017.
- Jean-Daniel Fekete was a member of the test of time award committee for IEEE InfoVis 2017.
- Jean-Daniel Fekete was a member of the program committee for EuroVis 2017.
- Tobias Isenberg was a member of the program committee for ACM/Eurographics Expressive 2017.
- Tobias Isenberg was a member of the program committee for ACM SUI 2017.
- Tobias Isenberg was a member of the program committee for IEEE VISAP 2017.
- Tobias Isenberg was a member of the program committee for IEEE InfoVis 2017.
- Tobias Isenberg was a member of the program committee for EuroVis 2017, full & short papers.
- Tobias Isenberg was a member of the program committee for Eurographics 2017.
- Tobias Isenberg was a member of the program committee for SCCG 2017.
- Tobias Isenberg was a member of the program committee for IEEE 3DUI 2017.
- Pierre Dragicevic was a member of the program committee for IEEE VIS 2017.
- Pierre Dragicevic was a member of the program committee for IHM 2017.
- Pierre Dragicevic was a member of the program committee for the DECISIVE 2017 workshop.
- Petra Isenberg was a member of the program committee for IEEE InfoVis 2017.
- Petra Isenberg was a member of the program committee for EuroVA 2017.
- Petra Isenberg was a member of the short paper committee for EuroVis 2017.
- Petra Isenberg was a member of the program committee for IEEE PacificVis 2017.
- Tanja Blascheck was a member of the Program Committee – NIER and Tool Tracks for VISSOFT 2017.

#### 8.1.2.2. Reviewer

- Jean-Daniel Fekete reviewed for CHI, EuroVis, InfoVis.
- Tobias Isenberg reviewed for InfoVis, SciVis, EuroVis, SIGGRAPH, Eurographics, CHI, VR, SCCG, 3DUI, ISS, Graphics Interface, PacificVis, Expressive, SUI, VISAP.
- Pierre Dragicevic reviewed for CHI, VIS, UIST, Interact, IHM.

- Petra Isenberg reviewed for EuroVA, EuroVis, Interact, PacificVis, InfoVis.
- Christoph Kinkeldey reviewed for ACM INWUT.
- Tanja Blascheck reviewed for EuroVis, PacificVis, VISSOFT (IEEE Working Conference on Software Visualization), VRST (ACM Symposium on Virtual Reality Software and Technology).
- Lonni Besançon reviewed for 3DUI, CHI, ICMI, IHM, ISS, OzCHI, VR, VRST.

### 8.1.3. Journal

#### 8.1.3.1. Member of the Editorial Boards

- Tobias Isenberg is member of the editorial board of Elsevier's Computers & Graphics journal.
- Pierre Dragicevic is member of the editorial board of the Human-centric Computing and Information Sciences (HCIS) journal.

#### 8.1.3.2. Reviewer - Reviewing Activities

- Jean-Daniel Fekete reviewed for TVCG.
- Tobias Isenberg reviewed for TVCG.
- Pierre Dragicevic reviewed for TVCG.
- Petra Isenberg reviewed for TVCG, InfoVis Journal.
- Christoph Kinkeldey reviewed for TVCG, IEEE CG&A, IJGIS, ISPRS IJGI.
- Tanja Blascheck reviewed for JEMR (Journal of Eye Movement Research), Pattern Recognition Journal, TVCG.
- Lonni Besançon reviewed for IEEE Consumer Electronic.

### 8.1.4. Invited Talks

- Jean-Daniel Fekete: Seminar Dataviz : idée, méthode et perception Visualisation d'information : des principes au passage à l'échelle, INED, Paris, December 4, 2017
- Jean-Daniel Fekete: Keynote EA Artificial Evolution 2017, Progressive Data Analysis: a new computation paradigm for scalability in exploratory data analysis. October 25, 2017
- Jean-Daniel Fekete: Keynote ChinaVis 2017, Qingdao, China, Progressive Data Analysis: a new computation paradigm for scalability in exploratory data analysis , July 17, 2017
- Jean-Daniel Fekete: Invited Talk China-Germany Workshop, Qingdao, China, Visualization for the People, July 16, 2017
- Jean-Daniel Fekete: Keynote WSOM+ 2017, LORIA, Nancy, France, Visualization of Complex Networks, June 28th, 2017
- Jean-Daniel Fekete: Keynote VISIGRAPP 2017, Porto, Portugal, Understanding Complex Networks, Feb. 27, 2017
- Jean-Daniel Fekete: Invited Talk, Univ. of Konstanz and Univ. of Stuttgart, ProgressiVis: A New Language Paradigm for Scalability in Exploratory Analytics, Feb. 9, 2017
- Jean-Daniel Fekete: Keynote Speech, Univ. of Grenoble, Visualizing [Dense, Dynamic, Complex] Networks, Feb. 2, 2017
- Jean-Daniel Fekete: Open Data Conference, La Rochelle, Panel on Open Data and Visualization, Jan. 17, 2017
- Tobias Isenberg: Invited talk at TU Wien, Austria, December 22: "Interactive Navigation and Selection using Tactile and Tangible Inputs for 3D Data Exploration"
- Tobias Isenberg: Invited talk at Visualization research group, University of Bergen, Norway, April 7: "Abstraction in Non-Photorealistic Rendering and Illustrative Visualizations."
- Tobias Isenberg: Invited talk at Dept. of Computer Science, University of Bergen, Norway, April 6: "Tactile Navigation and Selection for 3D Data Exploration."

- Tobias Isenberg: Invited talk at Connecting The Dots/Intelligent Trackers (CTD/WIT 2017), Orsay, France, March 7: “Abstraction in Scientific Data Visualization: Application to Brain Connectivity and Structural Biology.”
- Pierre Dragicevic: “**Statistical Dances: Why No Statistical Analysis is Reliable and What To Do About It**”. Séminaires Recherche Reproductible, LIG, Grenoble. 22 June 2017.
- Petra Isenberg: “Evaluation in Visualization: A closer look at current practices, issues, and perspectives”. University of Stuttgart, Visualization Seminar Series
- Petra Isenberg: “Evaluation in Visualization: A closer look at current practices, issues, and perspectives”. Technical University of Vienna, Visualization Seminar Series
- Tanja Blascheck: “Evaluating Interactive Visualizations using Eye Tracking, Interaction Logs, and Think-Aloud Protocols”. Inria, Aviz, Saclay, France, 3 March 2017.
- Kuno Kurzhals and Tanja Blascheck: “Visual Analysis of Eye Tracking Data”. Popakademie, Mannheim, Germany, 3 July 2017.
- Tanja Blascheck: “Understanding Interactive Visualizations: Leveraging Eye Movements and Visual Analytics”. Hochschule Karlsruhe, Karlsruhe, Germany, 31 August 2017.
- Evanthia Dimara: “The Attraction Effect in Information Visualization”. Invited talk at University of Athens, 28 September 2017.
- Evanthia Dimara: “Biais cognitifs dans la visualisation d’information: implications pour l’évaluation”. Talk at Visu 2017.

### 8.1.5. Leadership within the Scientific Community

- Jean-Daniel Fekete is a member of the Steering Committee of EuroVis (Eurographics WG on Data Visualization).
- Jean-Daniel Fekete is a member of the Steering Committee of the IEEE Information Visualization Conference.
- Jean-Daniel Fekete is a member of the Eurographics Publication Board.
- Tobias Isenberg is a member of the Executive Committee of the Visualization and Computer Graphics Technical Committee of the IEEE Computer Society and serves as Publications Chair
- Tobias Isenberg is a member of the Steering Committee of Expressive (Joined Symposium on Computational Aesthetics, Sketch-Based Interfaces & Modeling, and Non-Photorealistic Animation & Rendering)

### 8.1.6. Scientific Expertise

- Tobias Isenberg reviewed for NSERC.
- Pierre Dragicevic reviewed for NSERC.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

- “Information Visualization” taught by Jean-Daniel Fekete at Polytechnique, Data Science, Saclay, France, Dec. 2017
- “Big Data Visual Analytics” seminar taught by Jean-Daniel Fekete at Centrale Supélec, Decision Support and Business of Intelligence, Nov. 28th, Saclay, France, 2017
- “Information Visualization and Visual Analytics” taught by Jean-Daniel Fekete at ISCD Summer School, Roscoff, France, August 2017
- “Photorealistic Rendering” taught by Tobias Isenberg at Polytech Paris-Sud and Université Paris-Saclay, France
- “Introduction to Computer Graphics” taught by Tobias Isenberg at Polytech Paris-Sud, France

- “Non-Photorealistic Rendering” taught by Tobias Isenberg at the University of Granada, Spain
- “Introduction to Statistics” guest lecture by Pierre Dragicevic for the Visual Analytics Master Course at École Centrale, Paris.
- “Interactive Information Visualization” taught by Petra Isenberg at Université Paris Sud
- “Visual Analytics” taught by Petra Isenberg at CentraleSupélec

### 8.2.2. Supervision

- PhD: Evanthia Dimara, Information Visualization for Decision Making, Université Paris-Sud, 2014, Pierre Dragicevic and Anastasia Bezerianos. Defended on Nov 30.
- PhD: Lonni Besançon, An Interaction Continuum for Scientific Visualization, Université Paris-Sud, 2014, Tobias Isenberg. Defended on December 14.
- PhD: Paola Llerena Valdivia, Wavelet-based analysis of time-varying data on graphs, University of São Paulo - USP, 2017, Jean-Daniel Fekete, Luis Gustavo Nonato.
- PhD: Marc Barnabé, Multiscale reconstruction of microbial ecosystems using semi-supervised machine learning, Université Paris-Sud, 2017, Jean-Daniel Fekete, Evelyne Lutton, INRA.
- PhD in progress: Xiyao Wang, Augmented Reality Environments for the Interactive Exploration of 3D Data, Univ. Paris-Sud; 2017, Tobias Isenberg
- PhD in progress: Sarkis Halladjian, Spatially Integrated Abstraction of Genetic Molecules, Univ. Paris-Sud; 2017, Tobias Isenberg
- PhD in progress: Haichao Miao, Visual Abstraction and Modeling for DNA Nanotechnology, TU Wien, Austria, 2016, Tobias Isenberg

### 8.2.3. Juries

- Jean-Daniel Fekete: Member of the PhD committee of Dr. Arnaud Prouzeau.
- Jean-Daniel Fekete: Member of the PhD committee of Dr. Antoine Lhuillier.
- Jean-Daniel Fekete: Member of the PhD committee of Dr. Alexandre Perrot.
- Jean-Daniel Fekete: Member of the PhD committee of Dr. Nicolas Médoc.
- Jean-Daniel Fekete: Member of the HdR committee of Dr. Jean-Philippe Cointet.
- Jean-Daniel Fekete: Member of the HdR committee of Dr. Gilles Bailly.
- Tobias Isenberg: Member of the PhD committee of Dr. Paul Issartel.
- Pierre Dragicevic: Hiring committee for tenure-track assistant Professor of Information Visualization, University of Copenhagen.
- Pierre Dragicevic: Member of the Commission Consultative de Spécialistes de l'Université Paris-Sud (CCSU).
- Pierre Dragicevic: Mid-term PhD evaluation committee of Michael Wessely.
- Pierre Dragicevic: Mid-term PhD evaluation committee of Abby Liu.
- Pierre Dragicevic: Reviewer for Ruoqi He's M2 internship.
- Petra Isenberg: Jury Inria Starting Research Positions

## 8.3. Popularization

- Jean-Daniel Fekete contributed to the DataVis section of the Terra Data exhibition at La Cité des Sciences, April 4th 2017 to January 7th 2018
- Jean-Daniel Fekete contributed to the exhibition on Jacques Bertin at EHESS Paris, November 14th to December 15th 2017
- Jean-Daniel Fekete and Charles Perin organized a workshop on data visualization for the "retrospective Jacques Bertin" at EHESS Paris on November 23-24 2017
- Pierre Dragicevic and Yvonne Jansen: the [Curated List of Physical Visualizations](#) is continuously being updated.
- Pierre Dragicevic and Jean-Daniel Fekete: Demo of [Zooids](#) at [Inria's 50th anniversary](#). 7 Nov 2017.
- Jean-Daniel Fekete and Pierre Dragicevic interviewed by France Culture (la méthode scientifique) on [Zooids](#). 21 Dec 2017.
- The [Zooids](#) video has been watched 12 million times, shared 65,000 times and liked 86,000 times on [Facebook](#).

## BEAGLE Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. General Chair, Scientific Chair

Carole Knibbe and Guillaume Beslon: respectively scientific chair and local chair of the 14th European Conference on Artificial Life (ECAL), Lyon, September 2017 (<https://project.inria.fr/ecal2017/>).

Eric Tannier: main organizer (Organizing and Scientific chair) of the SMBE Regional meeting on interdisciplinary approaches for molecular evolution in Lyon in November 2017

#### 8.1.1.2. Member of the Organizing Committees

Hugues Berry: Co-organizer of the workshop “Dynamiques des molécules et assemblages moléculaires”, Montpellier, France (Dec 2017).

Guillaume Beslon:

- LyonSysBio conference, Lyon, November 2017
- AIEM2017 (Approches Interdisciplinaire de l'Evolution Moléculaire), Lyon, November 2017.
- ALPHY 2017 (Alignement et Phylogénie) workshop, Lyon, January 2017.

Carole Knibbe: member of the organizing committee of the Scientific Day on "Modelling living systems" of the Faculty of Sciences and Technologies of Université Lyon 1.

### 8.1.2. Scientific Events Selection

#### 8.1.2.1. Member of the Conference Program Committees

Christophe Rigotti was a member of the program committee of the 33rd ACM Symposium On Applied Computing.

Jonathan Rouzaud-Cornabas was a member of the program committee of ECAL 2017

Eric Tannier was a member of the program committee of RECOMB-Comparative Genomics 2017 and is a member of the program committee of ISMB 2018.

### 8.1.3. Journal

#### 8.1.3.1. Member of the Editorial Boards

Hugues Berry: Guest Editor for PLoS Computational Biology (2 articles edited in 2017)

Eric Tannier is an editor of "Peer Community in Evolutionary biology", a peer-reviewing system alternative to publications in journals

#### 8.1.3.2. Reviewer - Reviewing Activities

Hugues Berry: Scientific reports, eLife, Frontiers Cellular Neuroscience, PLoS Computational Biology, PLoS One, Journal Theoretical Biology, Biophysical Journal

Guillaume Beslon: Journals Proceedings of Royal Society B, Entropy and Neural Computing and Applications.

Christophe Rigotti: IEEE Access

Jonathan Rouzaud-Cornabas: IEEE Transactions on Cloud Computing

Eric Tannier: Information Processing Letters, PeerJ, Plos One, Discrete Mathematics and Theoretical Computer Science, BMC Genomics

#### 8.1.4. Invited Talks

Hugues Berry gave invited talks at:

EJCIM (Ecole des Jeunes Chercheurs et Chercheuses en Informatique Mathématique) 2017, Jan. 2017, Lyon

Models of Life, College de France, Paris, Jan. 2017

Cosyne Workshop on Astrocyte-neuron interactions, Salt Lake City, UT, USA, Feb. 2017

Imaging the cell, Rennes, France, June 2017

Dynamiques des molecules et assemblages moleculaires, Montpellier, France, Dec. 2017

You Carreer Day, I2BC, Saclay France, Dec. 2017

and invited seminars at

Institut de Mathematiques de Marseille, Jan 2017

Institut du Fer a Moulin, Paris, March 2017

Guillaume Beslon gave invited seminars at:

Séminaire de Modélisation du Vivant (SeMoVi), Lyon, May 2017

Institut de Biologie Physico-Chimique (IBPC), Paris, June 2017

Journées scientifiques Inria, Nice, June 2017

Carole Knibbe was an invited speaker at the Systems Biology Meeting of Sorbonne Université on December 1st, 2017.

Christophe Rigotti gave an invited seminar at the Centre spatial universitaire de Grenoble (CSUG): "Recherche d'évolutions par fouille de données multi-temporelles satellitaires et photographiques", September 2017.

Eric Tannier gave an invited talk at the conference "Tour de sciences" Lyon, 2017 and an invited seminar at Trinity College, Dublin, Feb. 2017.

#### 8.1.5. Scientific Expertise

Hugues Berry was a reviewer for the call for proposal CARREER of the NSF, USA and for the Research Projects call of the FNRS, Belgium

Guillaume Beslon

Member of a Comité d'Evaluation Scientifique (CES) at the ANR

Member of the HCERES evaluation committee for the Unité Mixte Internationale UM-MISCO.

Christophe Rigotti was an expert/reviewer for the challenge "Univers" organized by Imaginove, Cluster Montagne and Indura.

Eric Tannier was an evaluator (committee bioinformatics) for the Fonds de recherche du Quebec, 2107.

#### 8.1.6. Research Administration

Hugues Berry:

Vice-Chair of Inria's Evaluation committee (2016-2018)

Vice-Chair of the Search Committee for "Inria Senior Research Scientists" (Jury d'admissibilité DR2 2017).

Member of the "Commission des thèses" of the Doctoral School "Info-Maths" (ED 512), Lyon.



Member of the Steering Committee of GdR IMaBIO (Imagerie et Microscopie pour la BIOlogie)

Representative for Inria on the Administrative Board of the RNSC (“Réseau National des Systèmes Complexes”)

Facilitator (with R. Guillemaud, CEA/Leti) of the “Groupe de Travail CEA/Leti-Inria on Numerical Health”.

Guillaume Beslon is a member of the Commission Scientifique Sectorielle (CSS) 5 (Science des Données et des Modèles) at IRD

Carole Knibbe:

Member of the Laboratory Council, LIRIS, UMR 5205 CNRS (until August 2017)

Member of the Technological Grants Committee (CDT) of Inria Grenoble-Rhone Alpes

Member of the Doctoral Studies Committee of Inria Grenoble-Rhone Alpes.

Christophe Rigotti is an elected member of Insa Scientific board (Conseil scientifique)

Eric Tannier:

elected member of the administration council of Inria (2015-2018)

member of the scientific committee of the ethics platform of University of Lyon (2017-)

scientific referent for the conference committee of Inria (2014-)

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Four team members are faculty (Guillaume Beslon, Carole Knibbe, Christophe Rigotti and Jonathan Rouzaud-Cornabas). They teach 192h/year each in INSA-Lyon and University Claude Bernard Lyon 1 in the computer science departments and bioinformatics departments.

All our PhD students who wish it benefit from “teaching contracts”. They teach 64h/year at INSA-Lyon, mainly in the undergraduate school and in the bioinformatics department.

Eric Tannier teaches approximately 60h/year in Master programs at INSA-Lyon and University Claude Bernard Lyon 1.

Licence:

C. Knibbe, Fundamentals of algorithmics and programming, 56 heqTD, L3, Bioinformatics and Modelling program of INSA-Lyon

C. Knibbe, Fundamentals of databases, 27 heqTD, L3, Bioinformatics and Modelling program of INSA-Lyon

C. Knibbe, Architecture of computer systems, 10 heqTD, L3, Bioinformatics and Modelling program of INSA-Lyon

C. Knibbe, Software development, 24 heqTD, L3, Bioinformatics and Modelling program of INSA-Lyon

J. Rouzaud-Cornabas, Object-Oriented Programming, 57h, L3, Computer Science Dept, INSA Lyon, France

Master :

A. Denizot, Enzymology, Cell biology, Neuroscience, 64h, M1 and M2, INSA Lyon, France

M. Fernandez, Biostatistiques, 20h, M1, Université Jean Monnet, Saint-Etienne, France; Méthode en informatique appliqué à la biologie, 17h, M2, Université Jean Monnet, Saint-Etienne, France

C. Knibbe, Careers in bioinformatics and modelling, 35 heqTD, M1, Bioinformatics and Modelling program of INSA-Lyon

J. Rouzaud-Cornabas, Human Machine Interface, 42h, M1, Computer Science Dept, INSA Lyon, France

J. Rouzaud-Cornabas, Systems, 14h, M1, Computer Science Dept, INSA Lyon, France

J. Rouzaud-Cornabas, Parallel Computing, 93h, M2, Computer Science Dept, INSA Lyon

J. Rouzaud-Cornabas, Computational Sciences, 10h, M2, Computer Science Dept, INSA Lyon

J. Rouzaud-Cornabas, Parallel Computing, 8h, M2, BioSciences Dept, INSA Lyon

E. Tannier, Computational Biology, 24h, M1, Insa Lyon and Université de Lyon, France

Doctorat : E. Tannier, BMIC, 2h Université de Lyon, France

### **E-learning**

Eric Tannier produced a 14mn MOOC on Ethics in science, for the Doctoral school of University of Lyon, France.

### **Faculty functions**

Since Sept 2017, Carole Knibbe is the Head of the Bioinformatics and Modeling master program of INSA-Lyon

## **8.2.2. Supervision**

PhD :

Yoann Anselmetti, co-supervised by E. Tannier, Univ Montpellier, defense November 29, 2017

Wandrille Duchemin, co-supervised by E. Tannier, Univ Lyon 1, defense December 4, 2017

Damic Hasic, co-supervised by E. Tannier, Univ Sarajevo, defense July 13, 2017

Alvaro Mateos Gonzalez, Asymptotic analysis of partial differential equations arising in biological processes of anomalous diffusion, co-supervised by H. Berry, T. Lepoutre (Inria Dracula) and V. Calvez (Inria Numed), defense 22 September 2017

Charles Rocabert, Étude de l'évolution des micro-organismes bactériens par des approches de modélisation et de simulation informatique, co-supervised by G. Beslon and C. Knibbe, defense 17 November 2017

Sergio Peignier, Subspace Clustering on Static Datasets and Dynamic Data Streams Using Bio-Inspired Algorithms, co-supervised by C. Rigotti and G. Beslon, defense 27 July 2017

PhD in progress :

Audrey Denizot, Simulation of calcium signaling in fine astrocytic processes, started Sept 2016, supervised by H. Berry

Marie Fernandez, Extraction and analysis of the acoustic network of social birds: tools for population tracking, started Sept 2016, co-supervised by H. Berry, H. Soula (UPMC, Paris) and C. Vignal (UPMC, Paris)

Alexandre Foncelle, Modeling the signaling pathway implicated in STDP: the role of endocannabinoid and dopamine signaling, started Sept 2014, supervised by H. Berry

Vincent Liard, Towards a quantitative digital genetics platform, INSA-Lyon, started Oct 2016, co-supervision: G Beslon, J Rouzaud-Cornabas, C Ofria (Michigan State University, BEACON Center)

## **8.2.3. Juries**

### **8.2.3.1. HDR juries**

H. Berry: Dominique Martinez, Univ. de Lorraine, Nancy, March 2017 (reviewer)  
 C. Rigotti: François Rioult, Univ. Caen Normandie, Caen, December 2017 (examiner).

#### 8.2.3.2. PhD juries

H. Berry :  
 Alexandre Mendes, Univ. P & M Curie, Paris, Sep 2017 (examiner)  
 Ilyas Djafer-Cherif, Univ. Paris-Saclay, Paris, July 2017 (reviewer)  
 Martin Potier, Univ. Paris-Est, Creteil, July 2017 (examiner)

G. Beslon :  
 Roman Goulard, Univ. Aix-Marseille, Marseille, November 2017 (reviewer)  
 Andrei Kucharavy, Univ. P & M Curie, Paris, December 2017 (examiner)

#### 8.2.3.3. Search committees

H. Berry served in the following search pannels: assistant professor (INSA Lyon, France), full professor (UPMC, Paris, France), junior researcher (CR2 Inria, Rennes), senior researcher (DR2 Inria, Paris).

## 8.3. Popularization

The subspace clustering algorithms developed by the team in the context of the EvoEvo project have been included in a software package (EvoMove) enabling real-time monitoring and clustering of a dancer movements. In interaction with the “Desoblique” dance company (Lyon, France), we used this system to interact with the dancers by triggering sounds following the moves of he dancers. This system has been used in the context of the dance performance “Meute” in which three dancers were equipped with inertial measurement units connected to EvoMove (see 2 ). Meute has been played in public 8 times in the Auvergne-Rhône-Alpes region between January and July 2017



Figure 2. The EvoMove system has been used in the public performance “Meute” (here in “La Rotonde”, INSA Lyon in February 2017). Dancers: Claire Lurin, Jean Boulvert, Maxence D’Hauthuille. Sound: Jonas Abernot. Lights: Laurent Turpin. The EvoMove inertial measurement units are tied to the wrists of the dancers.

G. Beslon, together with Dominique Schneider (UGA, France) published an article entitled “Darwin, bit à bit . . .” in the blog “Binaire” on le-monde.fr (<http://binaire.blog.lemonde.fr/2017/11/24/darwin-bit-a-bit/>). This article describes the interdisciplinary view of evolution that the two authors are developing.

A. Denizot is member of association Demesures ([demesures.jimdo.com](http://demesures.jimdo.com)). She organized and participation to scientific events: Geek Touch 2017, Pop Sciences 2017, Fete de la Science 2017 and interviewed researchers (<https://www.youtube.com/watch?v=qoKAwRYI48Q>).

E. Tannier gave a series of lectures (8h) on genetically modified organisms for Universite Populaire de Lyon, for a large audience and gave a talk for the "Tour de science" 2017, in Lyon, a popularization event, for a public of interdisciplinary students.

## BIGS Project-Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

#### 9.1.1. Scientific Events Organisation

- BIGS team has organized a two-days workshop “Statistique pour les processus de Markov déterministes par morceaux” in Nancy, with about 40 participants, among which most members of the team. See <http://pdmp2017.iecl.univ-lorraine.fr/>

#### 9.1.2. Scientific Events Selection

##### 9.1.2.1. Chair of Conference Program Committees

- A. Gégout-Petit is chair of 2017 "Congrès Francophone International de l'Enseignement de la Statistique" (CFIES), Grenoble, September, 2017.

#### 9.1.3. Journal

P. Vallois is in the editorial board of "Risk and Decision Analysis".

##### 9.1.3.1. Reviewer - Reviewing Activities

All the BIGS members are regular reviewers for journals in probability, statistics and machine learning as: Bernoulli, Scandinavian Journal of statistics, Stochastics, Journal of Statistical Planning Inference, Journal of theoretical Biology, IEEE Trans. Biomedical Eng., Theoretical Biology and Medical Modelling, Royal Society of Chemistry, Signal Processing: Image Communication, Mathematical Biosciences, LIDA, Annals of Applied Probability, Annals of Operations Research and Journal of Machine Learning Research, as well as conferences such as ICML, World IFAC Congress, FOSBE, ALCOSP...

#### 9.1.4. Leadership within the Scientific Community

- Anne Gégout-Petit is member of the board of the European Regional Council of the Bernoulli society
- Céline Lacaux is responsible of the *Statistic team*, Laboratory of Mathematic of Avignon (since September 2016)

#### 9.1.5. Scientific Expertise

- T. Bastogne: scientific expert in Biostatistics and Signal Processing in Nanomedicine for CYBER-nano (start-up).

#### 9.1.6. Research Administration

- A. Gégout-Petit: elected member of the laboratory of mathematics "Institut Elie Cartan de Lorraine".
- Céline Lacaux is
  - member of the board of the SMAI-MAS group,
  - elected member of the council of the Laboratory Mathematics of Avignon,
  - correspondent AMIES pour Avignon,
  - Member of the scientific committee of GDR 3477 Stochastic Geometry.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

R. Azaïs and B. Scherrer excepted, BIGS members have teaching obligations at "Université de Lorraine" and are teaching at least 192 hours each year. They teach probability and statistics at different level (Licence, Master, Engineering school). Many of them have pedagogical responsibilities.

### 9.2.2. Supervision

- PhD : Clémence Karmann, " Network inference for zero-inflated models", Grant : Inria-Cordis. Advisors: A. Gégout-Petit, A. Muller-Gueudin.
- PhD : Florine Gréciet, " Modèles markoviens déterministes par morceaux cachés pour la propagation de fissures", grant CIFRE SAFRAN AIRCRAFT ENGINES, Advisors : R. Azaïs, A. Gégout-Petit.
- PhD : Kévin Duarte, "Aide à la décision médicale et télémédecine dans le suivi de l'insuffisance cardiaque", Advisors : J.-M. Monnez and E. Albuissou.
- Post-doc: Florian Bouguet. Advisors: Romain Azaïs, Anne Gégout-Petit, Aurélie Muller-Gueudin.
- Post-doc: Benoît Henry (starting in Dec. 2016). Advisors: Romain Azaïs with Inria team Madynes.
- Master: all BIGS members regularly supervise project and internship of master IMOI students
- Engineering school: all BIGS members regularly supervise project of "Ecole des Mines ", ENSEM or EEIGM students

## **BIOCORE Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific Events Organisation**

#### *10.1.1.1. General Chair, Scientific Chair*

O. Bernard is the Chair of the next CAB conference (CAB 2019 in Brazil).

#### *10.1.1.2. Member of the Organizing Committees*

J.-L. Gouzé is a member of the scientific committee of several summer schools.

### **10.1.2. Scientific Events Selection**

#### *10.1.2.1. Member of the Conference Program Committees*

O. Bernard is in the technical committee of the Computer Applied to Biotechnology (CAB) conferences, of the FOSBE conference (Foundations of Systems Biology in Engineering) and of the Algae Europe conference.

M. Chaves is a member of the program committee of JOBIM 2018 (Marseille).

J.-L. Gouzé is a member of the program committee for the conference POSTA (Italy, China).

#### *10.1.2.2. Reviewer*

All BIOCORE members have been reviewers for the major 2017 conferences in our field: CDC, ECC, IFAC World Congress,...

### **10.1.3. Journal**

#### *10.1.3.1. Member of the Editorial Boards*

V. Baldazzi has been editor of the volume 1182 of Acta Horticulturae on the 'Proceedings of the V International Symposium on Models for Plant Growth, Environment Control and Farming Management in Protected Cultivation (Hortimodel2016)'.

M. Chaves is an Associated Editor of SIAM Journal on Applied Dynamical Systems (SIADS), since January 2015

#### *10.1.3.2. Reviewer - Reviewing Activities*

All BIOCORE members have been reviewers for the major journals in our field: Automatica, IEEE Transactions on Automatic Control, Journal of Mathematical Biology, Mathematical Biosciences, New Phytologist,...

### **10.1.4. Invited Talks**

O. Bernard was invited to give a conference on microalgae at Ecole Centrale de Paris ("Biotechnological challenge") "Use of microorganisms for biofuel production" (January, 16th, 2017).

O. Bernard was invited to do a presentation at the AlgaEurope conference 2017 (December, 5th - 7th, Berlin, D) "Potential of evolution engineering for enhancing productivity of microalgae".

O. Bernard was invited for an oral presentation at the 1st IWA Conference on Algal Technologies for Wastewater Treatment and Resource Recovery conference 2017 (Delft, 16th - 17th, Delft, NL) "The role played by predators in a high rate algal pond for wastewater treatment".

M. Chaves was an invited speaker at the Workshop on Molecular Logic, Universidade de Aveiro, Portugal (June 2017).

S. Touzeau was invited to give a talk at the MADEV 17 “Mathématiques Appliquées à des questions de Développement” International Conference, organised by the French “Académie des Sciences” and the Moroccan “Académie Hassan II des Sciences et Techniques”, Rabat, Morocco (October 2017).

### 10.1.5. Scientific Expertise

O. Bernard is a member of the scientific committee of the companies Inalve and BioEnTech.

J.-L. Gouzé was in several evaluation committees or juries: FWO, NWO, FNRS...

### 10.1.6. Research Administration

O. Bernard represents Inria at the ANCRE (Alliance Nationale de Coordination de la Recherche pour l’Energie), in the biomass committee. He is a member of the ADT (Technological Development Actions) at Inria.

M. Chaves is a member of the COST-GTRI (working group on International Relations at Inria’s council for scientific and technological orientation). The group is charged with evaluating Inria’s Associated Teams as well as some project proposals (EuroMed 3+3), and ERCIM post-docs. She is also member of the CLHSCT (local committee for the safety of working conditions)

J.-L. Gouzé is in the Inria committee supervising the doctoral theses, and a member of the scientific committee of Labex SIGNALIFE of the University of Nice-Sophia-Antipolis, and of COREBIO PACA. He is in the scientific committee of Académie 4 of UCA-Jedi. He is a member of the board of the SFBT (French Speaking Society for Theoretical Biology).

F. Grognard is a member of the NICE committee, which allocates post-doctoral grants and fundings for visiting scientists at Inria Sophia Antipolis. He is a member of the scientific committee of the doctoral school "Sciences de la Vie" at the University of Nice-Sophia Antipolis. Since 2015, F. Grognard is a member of the MBIA CSS (Specialised Scientific Commission), in charge of the research scientists evaluation at INRA. He is a member of the steering committee of Academy 3, Space, Environment, Risk & Resilience of UCA-JEDI.

L. Mailleret is the head of the M2P2 team (Models and Methods for Plant Protection) of ISA. He’s in the scientific council of Institut Sophia Agrobiotech.

S. Touzeau is a member of the steering committee of the metaprogramme SMaCH *Sustainable Management of Crop Health*, INRA (since 2016).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence: F. Grognard (45.5h ETD) and L. Mailleret (26h ETD), “Equations différentielles ordinaires et systèmes dynamiques”, L3, 1st year Engineering in Modeling and Applied Mathematics, Polytech’Nice, Université of Nice Sophia Antipolis, France.

Licence: N. Bajoux (192h ETD) is ATER at IUT Nice Côte d’Azur of Université of Nice Sophia Antipolis, France. ing in Modeling and Applied Mathematics, Polytech’Nice, Université of Nice Sophia Antipolis, France.

Master: O. Bernard (4.5h ETD), “Bioenergy from microalgae”, M2, Master International Energy Management : alternatives pour l’énergie du futur, Ecole Nationale Supérieure des Mines de Paris, France.

Master: O. Bernard (18h ETD), “Modelling biotechnological processes”, M2, Ecole CentraleSup-elec, France.

Master: J.-L. Gouzé (9h ETD), M. Chaves (9h ETD), “Discrete and continuous approaches to model gene regulatory networks”, Master of Science in Computational Biology (M2), University of Nice - Sophia Antipolis.

Master: J.-L. Gouzé (18h ETD), M. Chaves (12h ETD) “Modeling biological networks by ordinary differential equations”, 4th year students, Génie Biologie, Polytech’Nice, University of Nice - Sophia Antipolis.

Master: F. Grogard (21h ETD) and L. Mailleret (21h ETD), “Bio-Mathématiques”, M1, 2nd year Engineering in Modelling and Applied Mathematics (eq. M1), Polytech’Nice, Université of Nice Sophia Antipolis, France.

Master: S. Touzeau, “Analyse de données”, 36.75 ETD, M1 (2nd engineering year in Génie Biologie), Polytech’Nice – Université Nice Sophia Antipolis, France.

O. Bernard together with M. Morales supervised a project involving 6 students of Ecole Nationale Supérieure des Mines de Paris (last year of engineering school, 1 week ("Combining photovoltaic panels and microalgae" ). O. Bernard supervised a project involving 6 students from the Ecole Centrale de Paris (first year of engineering school), 4 months, to design a system for detecting contamination in microalgae cultures.

### 10.2.2. Supervision

PhD : D. Demory, "Impact of temperature on phytoplankton-virus interactions ", January, 17th, 2017, UPMC. Supervisors: A. Sciandra, S. Rabouille and O. Bernard.

PhD : S. Casagrande. “Modeling, analysis and reduction of biological systems”, June 30, Université Côte d’Azur. Supervisors: J.-L. Gouzé and D. Ropers (Inria IBIS).

PhD : N. Bajoux. “Modélisation de stratégies d’introduction de populations, effets Allee et stochasticité”, July 7, Université Côte d’Azur. Supervisors: O. Bernard, F. Grogard, and L. Mailleret.

PhD in progress : S. Almeida. “Theoretical design of synthetic biological oscillators and their coupling”, since October 2014, Université Côte d’Azur. Supervisors: M. Chaves and F. Delaunay (Univ. Nice, iBV).

PhD in progress : M. Caña, "Characterization and modelling of a mixotrophic algae - bacteria ecosystem for waste recovery", since September 2015, University Montpellier. Supervisors: J.-P. Steyer and O. Bernard.

PhD in progress : M. Haond. “Causes et conséquences des fronts de colonisation poussés”, since October 2015, Univ. Nice Sophia Antipolis. Supervisors: E. Vercken (UMR ISA), L. Mailleret and L. Roques (UR BioSP).

PhD in progress : C. Lopez-Zazueta. “Use of Perturbation Theory to optimize metabolic production of biofuels by microalgae.”, since January 2016, Université Côte d’Azur, supervisors O. Bernard and J.-L. Gouzé.

PhD in progress : C. Martinez von Dossow . "Modélisation et optimisation de consortia microalgues-bactéries", since February 2016, UPMC. Supervisors: O. Bernard, F. Mairet and A. Sciandra.

PhD in progress : L. Chambon. “Control of models of genetic regulatory networks”. since October 2016, Université Côte d’Azur. Supervisor J.-L. Gouzé.

PhD in progress : L. Gomes Pereira. “Experimental and computational approaches to understanding the molecular origins of drug response heterogeneity, underlying resistance to cancer therapies”, since October 2016, Université Côte d’Azur. Supervisors: M. Chaves and J. Roux (IRCAN, Nice).

PhD in progress: S. Nilusmas, “Gestion durable des nématodes à galles en cultures maraîchères : modélisation et optimisation du déploiement des résistances et des pratiques agronomiques”, Université Côte d’Azur, since December 2016. Supervisors: S. Touzeau, C. Caporalino (ISA), V. Calcagno (ISA) and L. Mailleret.

PhD in progress: M. Gachelin, “Selection pressure to improve lipid productivity of microalgae”, since March 2017, UPMC. Supervisors: O. Bernard and A. Sciandra.

PhD in progress : E. Firippi. “Mathematical analysis, control design and coupling for models of biological oscillators”, since October 2017, Université Côte d’Azur. Supervisors: M. Chaves.



PhD in progress: I. Tankam Chedjou, "Modeling, analysis and control of plantain plant-parasitic nematodes", University of Yaoundé 1, since December 2015. Supervisors: J.-J. Tewa, F. Grogard, L. Mailleret, S. Touzeau.

PhD in progress: Y. Fotso Fotso, "Modeling, analysis and control of coffee berry borers", University of Dschang, since January 2017. Supervisors: S. Bowong, B. Tsanou, F. Grogard, L. Mailleret, S. Touzeau.

#### Master theses and engineering internships supervision

Engineer: Bruno Assis Pessi, "Modélisation de la croissance de microalgues en raceways sous serre", Ecole CentraleSupélec.

Engineer: Selma Benzekri. "Recherche de matériaux biomimétiques des acarodomatia pour la lutte biologique basée sur les phytoseïdes", 2nd year Agroparistech, supervisors L. Mailleret, C. Bresch, P. Parolin and M. Ferrero.

Engineer: Olivier Fauré. "Augmentative Biological Control - optimizing natural enemies deployment", 2nd year engineering Polytech'Nice, Université Côte d'Azur, supervisors L. Mailleret and F. Grogard.

Engineer: Julien Guégan. "Évolution des traits d'histoires de vie de champignons phytopathogènes", 2nd year engineering Polytech'Nice, Université Côte d'Azur, supervisors F. Grogard and L. Mailleret.

M2: Laurent Dragoni, "Personnalisation de modèles numériques de médicaments", Université Côte d'Azur, supervisors J.-L. Gouzé and F. Dayan (Exactcure).

M2: Eleni Firippi. "Analysis and Control of models of genetic regulatory networks", Université Côte d'Azur, supervisor M. Chaves.

M1: Meng Zhang, "Study of the interactions between microalgae and cyanobacteria", UPMC.

IUT: Elie Varengot. "Recherche de matériaux biomimétiques des acarodomatia pour la lutte biologique basée sur les phytoseïdes", IUT Aix Marseille Université, supervisors L. Mailleret, C. Bresch, P. Parolin and M. Ferrero.

#### 10.2.3. Juries

O. Bernard was in the jury, while F. Grogard and L. Mailleret were invited members in the jury of the PhD of Nicolas Bajoux, "Modélisation de stratégies d'introduction de populations, effets Allee et stochasticité", Université Côte d'Azur, July 7.

O. Bernard was reviewer for the PhD thesis of L. Haustenne " Mathematical modeling of the genetic regulatory network controlling competence for natural transformation in *Streptococcus thermophilus*", Université Louvain-La-Neuve (Belgium). (24 march 2017)

O. Bernard was reviewer for the PhD thesis M. Budinich " Modélisation des réseaux métaboliques en interaction avec l'Environnement ", Nantes Université. (28 april 2017)

O. Bernard was reviewer for the PhD thesis of R. Schaap "UV radiation as a new tool to control microalgal bio-product yield and quality". Massey University (20 Oct. 2017).

O. Bernard was reviewer and J.-L. Gouzé was in the jury of the PhD thesis of N. Giordano "Microbial growth control in changing environments: theoretical and experimental study of resource allocation in *Escherichia coli*", Grenoble University. (23 march 2017)

J.-L. Gouzé was in the jury and S. Touzeau was an invited member in the jury of the PhD of Stefano Casagrande, "Modeling, analysis and reduction of biological systems", Université Côte d'Azur, June 30.

O. Bernard was reviewer for the HDR of S. Tebbani "Contribution à l'étude des systèmes non linéaires incertains : application à la commande de systèmes biotechnologiques ", University of Paris-Sud, November 7th, 2016.

M. Chaves was reviewer for the HDR of Elisabeth Remy “Modélisation logique pour l’analyse des réseaux de régulation biologiques”, Univ. Aix-Marseille, April 24, 2017.

### **10.3. Popularization**

The activities related to microalgae have generated many articles in national newspapers (Le Monde, Nice Matin, ...), and broadcasts on national TV (France 3).

O. Bernard gave a popularization conference “Will we drive with fuels brought algae in 2030?” in the framework of the “science for all” cycle of conferences organized by the city of Biot. 30th of March, 2017.

P. Bernhard has been involved in popularization of applied mathematics with two highschool conferences: Lycée Alexandre Dumas, Cavaillon and Centre International de Valbonne, Valbonne-Sophia Antipolis, on January 10 and 11 respectively.

M. Chaves gave a “180s” presentation “A mathematical tool for determining the dynamics of biological modules interconnection”, at Journées Scientifiques Inria, Sophia Antipolis (June 2017).

M. Chaves gave a presentation on circadian clocks at Café-in, for all Inria personnel, at Inria Sophia Antipolis (October 2017).

## BIOVISION Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

**Workshop UCAGATE:** Pour une Plateforme d'Intelligence Territoriale de la Recherche @UCA, organized by Pierre Kornprobst and Mylène Leitzelman (Mnemotix), on May 16 at Inria Sophia Antipolis - Méditerranée (Amphi Kahn).

#### 10.1.1.2. Member of the Conference Program Committees

- Le MONde des Mathématiques Industrielles (**MOMI 2017**). Dora Karvouniari, Biovision participated to the organizing committee. This is a two-day workshop on applied and industrial mathematics that took place on the 27th and 28th of February, 2017. It was supported by Inria and financed by the Société des Mathématiques Appliquées (SMAI), the Agence pour les Mathématiques en Interaction avec l'Entreprise et la Société (AMIÉS), and by the Maison de la Modélisation, de la Simulation et des Interactions of Université Côte d'Azur (MSI – UCA). In total, 13 invited speakers and 62 participants (researchers, PhDs, and engineers) attended MOMI 2017.
- Pierre Kornprobst was a Technical Program Committee (TPC) member for the 25th European Signal Processing Conference (EUSIPCO 2017).

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

Pierre Kornprobst is associate editor for the Computer Vision and Image Understanding Journal (CVIU).

### 10.1.3. Invited Talks

- Bruno Cessac, "Handling spatio-temporal correlations in neuronal systems", in: LACONEU 2017 - Computational Neuroscience Summer School, Valparaiso, Chile, January 2017
- Bruno Cessac, Multi scale dynamics in retinal waves, in: Brain Dynamics on Multiple Scales - Paradigms, their Relations, and Integrated Approaches, Dresde, Germany, June 2017.
- Bruno Cessac, "Gibbs distribution: from neural network dynamics to spike train statistics estimation", in: Advanced theoretical approaches to collective network phenomena: Bernstein Conference Satellite Workshop, Goettingen, Germany, September 2017.
- Bruno Cessac, "Statistical analysis of retinal responses", in: Random Structures on the Brain, Leiden, Netherlands, December 2017.
- Bruno Cessac, "Multi scale dynamics in retinal waves", in: Winter School on Deterministic and Stochastic Models in Neuroscience, Toulouse, France, December 2017.
- Bruno Cessac, "Multi scale dynamics in retinal waves", in: 2nd Systems Biology meeting at Sorbonne University, Paris, France, December 2017.
- Josselin Gautier, "Mesure de la vision et application au diagnostique et dispositifs de Réalité Mixte pour les malvoyants", école Centrale Supélec de Rennes, November 2017.
- Dora Karvouniari, "Dynamics in retinal waves", Institut de la Vision (Paris, France), February 2017.
- Dora Karvouniari, "Dynamics in retinal waves", Institute of Neuroscience (ION, Newcastle, UK), July 2017.

### 10.1.4. Research Administration

- The PhD Seminars of Inria Sophia Antipolis - Méditerranée are organized and held by PhD candidates every two weeks and aim to share knowledge, and to promote collaborations, all in a friendly and interactive way. Dora Karvouniari, Selma Souihel and Evgenia Kartsaki as past and current members of the organizing committee have been involved in the scheduling, communication and diffusion. These tasks include calls for presentations, calendar planning and promotion of each seminar. Finally, they are also involved in the organization of the **MOMI 2017** conference.
- Pierre Kornprobst is an elected member of the Academic Board of UCA (since Nov. 2015). The role of this council is to proceed with the appointment of selection committees and the recruitment of public servants. Also, it validates the global training offer of Nice area, is involved in the global policy of doctoral training, and awards research funding. The council meets one a month and each member also participate to the evaluation of research proposals submitted to UCA <sup>JEDI</sup> calls.
- Pierre Kornprobst leads the working group UCA <sup>GATE</sup> (since May 2016). UCA commissioned an internal task force called UCA <sup>GATE</sup> to set-up an innovative tool that will extract and exploit the richness of skills present in UCA. This tool should (i) foster the emergence of new synergies inside UCA, (ii) enable external visitors and industrial partners to find in UCA expertise they need, (iii) provide analytics to UCA to be used in reporting periods. His role is to animate this working group and guide the development of the software done by the company **Mnemotix** according to users needs (first prototype in January 2017).
- Pierre Kornprobst is a member of the Comité de Suivi Doctoral (since March 2017).
- Pierre Kornprobst has been appointed by Inria Direction representative of the administration in the **advisory committee of Inria contractual doctoral candidates**<sup>0</sup> (on July 2016, for two years).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence :

- Dora Karvouniari, "Transmissions numériques", 1ere année de l'IUT, Département Réseaux et Télécommunications, 64h/year, 50 students.
- Selma Souihel "Advanced network administration and security: architecture of a company network, services installation and configuration, users management, system and network security, cryptography, virtual private networks and secured protocols, and supervision tools", 1ere année de l'IUT, Département Réseaux et Télécommunications, 64h/year, 50 students.
- Bruno Cessac and Dora Karvouniari: "A mathematical approach to retinal waves", January 2017, LACONEU Summer school [34].

### 10.2.2. Supervision

- PhD in progress: Theodora Karvouniari, "Retinal waves in the retina: theory and experiments". Started in October 2014. Defense scheduled in March 2018. Supervisor, B. Cessac.
- PhD in progress: Selma Souihel, "Generic and specific computational principles for the visual anticipation of motion trajectories". Started in November 2016. Supervisor B. Cessac
- PhD in progress: Evgenia Kartsaki. "How Specific Classes of Retinal Cells Contribute to Vision: a Computational Model", Started in October 2017. Supervisor B. Cessac codirection with E. Sernagor, ION.

### 10.2.3. Juries

- Bruno Cessac was reviewer of the thesis of Gregor Chliamovitch, University of Geneva, January 2017

<sup>0</sup>Représentant de l'administration suppléant au sein de la Commission consultative des doctorants contractuels d'Inria

- Bruno Cessac was reviewer of the thesis of Christophe Gardella, University Pierre et Marie Curie, Paris, September 2017
- Pierre Kornprobst chaired the PhD jury of Effrosyni Doutsis, Université Côte d'Azur, March 2017.

### **10.3. Popularization**

- Dora Karvouniari participated in "Maths C2+" at Inria week 19-23 June 2017. Maths C2+ hosts schoolboys and schoolgirls in a research environment. The goal is to allow young people to imagine the scientific future.
- Selma Souihel participated to the "fête de la science" as part of the scientific animation commission "MASTIC". She was in charge of vulgarizing her PhD research subject in order to make it intelligible by a public of young scholars, and their parents. She also took part in a pedagogical robot training "Poppy Ergo", aimed at introducing robotics and sequential programming to students in primary school.

## BIPOP Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Conference Program Committees

- Pierre-Brice Wieber, Associate Editor for Humanoids 2017 and ICRA 2018.
- Florence Bertails-Descoubes, Program Committee member for ACM Siggraph 2018, Eurographics 2018, and ACM-EG Symposium on Computer Animation 2017.
- Vincent Acary, Program Committee member for 9th European Nonlinear Dynamics Conference (ENOC 2017) in Budapest, Hungary.

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

- Bernard Brogliato is Associate Editor for ASME Journal of Nonlinear and Computational Dynamics.
- Bernard Brogliato is Associate Editor for Nonlinear Analysis: Hybrid Systems.
- Pierre-Brice Wieber is Associate Editor for IEEE Transactions on Robotics.

#### 10.1.2.2. Reviewer - Reviewing Activities

- Arnaud Tonnelier is reviewer for Physical Review E and Journal of Computational and Nonlinear Dynamics
- Vincent Acary, reviewer for Computer Methods in Applied Mechanics and Engineering (CMAME), Engineering Structures, IEEE Transactions on Haptics, International Journal for Numerical Methods in Engineering, Journal Sound and Vibrations, International Journal of Geological Engineering, Comptes Rendus de l'Académie des sciences, ASME Journal of Computational and Nonlinear Dynamics, Multibody systems Dynamics
- Bernard Brogliato, reviewer for IEEE Transactions on Automatic Control, Optimization Letters, Multibody System Dynamics, SIAM journal on Optimization and Control, Automatica, Journal of Optimization Theory and Applications, SIAM Journal of Applied Dynamical Systems, etc.

### 10.1.3. Invited Talks

- Bernard Brogliato was invited speaker at the Sliding Mode Control summer school in Graz (September 2017).
- Florence Bertails-Descoubes was invited talk at the Institut Jean le Rond d'Alembert seminar in Paris (September 2017).

### 10.1.4. Research Administration

- Bernard Brogliato was member of the Commission d'Orientation Scientifique (COS) of Inria Grenoble until June 2017.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : Florence Bertails-Descoubes, module IRL (Introduction à la Recherche), 1.5 éq TD, ENSIMAG 2A.

Master : Vincent Acary, 17H éq TD Systèmes dynamiques, ENSIMAG 2A.

### 10.2.2. Supervision

HdR : Florence Bertails-Descoubes, Numerical Modeling of elastic slender structures subject to contact and friction: From dynamic simulation to inverse static design, Grenoble Universités. Defended the 30th of May, 2017.

PhD : Alejandro Blumentals, Numerical modelling of thin elastic solids in contact. Defended the 3rd of July, 2017. Supervised by B. Brogliato and F. Bertails-Descoubes.

Alexandre Vieira, Optimal Control of Linear Complementarity Systems, October 2015, B. Brogliato and C. Prieur.

Nestor Bohorquez, October 2015, P.-B. Wieber.

Nahuel Villa, October 2016, P.-B. Wieber.

Matteo Ciocca, March 2017, P.-B. Wieber and T. Fraichard (Inria team Pervasive Interaction).

### 10.2.3. Juries

- Bernard Brogliato was member of the HdR jury of Laurentiu Hetel (CR CNRS, LAGIS Ecole Centrale de Lille), 14 juin 2017.
- Guillaume James was a referee for the PhD thesis of Huong Le Thi, Université de Nice (16 June, 2017).
- Bernard Brogliato was member of the HdR jury of Alexandre Kruszewski (MdC Ecole Centrale de Lille), 12 décembre 2017.
- Bernard Brogliato was member of the PhD thesis jury of Maxime Feigensicht (11 décembre 2017), Inria Lille.
- Bernard Brogliato was member of the PhD thesis jury of Sébastien Crozet (08 décembre 2017) , CEA LIST.
- Florence Bertails-Descoubes was member (examiner) of the PhD thesis jury of Vincent Barrielle (24 novembre 2017), CentraleSupélec, Rennes.
- Vincent Acary, member of Ph.D. Thesis committee of Clara Issanchou (25 September 2017), Université Pierre et Marie Curie .

## 10.3. Popularization

Alejandro Blumentals and Florence Bertails-Descoubes have participated in the new showroom “login”, by setting up a fiber demo. The demo allows a user to manipulate a real fiber by moving and twisting the ends, creating self-coiling structures called plectonema. In parallel to real manipulations, a simulation reproduces in real-time the deformations of a rod undergoing the same constraints, which reveals similar patterns compared to the real experiment. The simulation relies upon the optimal control framework set up by Alejandro Blumentals in his PhD thesis, which allows to simulate the quasistatic deformation of a thin elastic rod in the presence of self-contact.

## BONSAI Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

- JOBIM 2017, national conference in bioinformatics (J.-S. Varré for the organizing committee, H. Touzet for the program committee).
- SeqBio 2017, national workshop on stringology, combinatorics and bioinformatics (M. Salson).
- From RNA-Seq data to bioinformatics analysis using Nanopore sequencers 2017 (H. Touzet).

#### 9.1.1.2. Member of the Organizing Committees

- JOBIM 2017, national conference on bioinformatics (A. Béliard, S. Janot, P. Marijon, L. Noé, P. Pericard, M. Pupin, T. Rocher, C. Saad, M. Salson).
- SeqBio 2017, national workshop on stringology, combinatorics and bioinformatics (R. Chikhi, S. Janot, L. Noé, H. Touzet).

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

- WABI 2017 (M. Salson, H. Touzet).
- BCB 2017 (R. Chikhi).
- HiTSEQ 2017 (R. Chikhi).
- CSR 2017 (H. Touzet).
- JOBIM 2017 (S. Blanquart, R. Chikhi).

#### 9.1.2.2. Reviewer

- IWOCA 2017 (M. Salson).
- WALCOM 2017 (M. Giraud, M. Salson),
- LAGOS 2017 (R. Chikhi).
- WG 2017 (R. Chikhi).

### 9.1.3. Journal

#### 9.1.3.1. Reviewer - Reviewing Activities

- Bioinformatics (M. Salson, R. Chikhi, L. Noé).
- Discrete Applied Mathematics (M. Salson).
- NAR (R. Chikhi).
- BMC Bioinformatics (R. Chikhi, L. Noé).
- PeerJ (L. Noé, M. Giraud).

### 9.1.4. Research Administration

- Member of the CUB for Inria Lille (S. Blanquart).
- Member of the CDT for Inria Lille (M. Pupin).
- Member of the CUMI for Inria Lille (M. Salson).
- Member of the national scientific committee of INS2I-CNRS (H. Touzet).



- Member of the scientific committee of MBIA – INRA (H. Touzet).
- Head of the national CNRS network GDR Bioinformatique moléculaire (<http://www.gdr-bim.cnrs.fr>, H. Touzet).
- Co-head of the Lille Bioinformatics platform, bilille (H. Touzet).
- Member of the CRISAL Laboratory council (H. Touzet).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Teaching in computer science:

- License: L. Noé, *Networks*, 42h, L3 Computer science, Univ. Lille 1.
- License: L. Noé, *Programming (Python)*, 54h, L3 Computer science' S3H, Univ. Lille 1.
- License: L. Noé, *Coding and information theory*, 36h, L2 Computer science, Univ. Lille 1.
- License: L. Noé, *Functional Programming*, 30h, L2 Computer science, Univ. Lille 1.
- License: J.-S. Varré, *Object oriented programming*, 36h, L2 Computer Science, Univ. Lille 1.
- License: J.-S. Varré, *Algorithms and data structures*, 50h, L2 Computer science, Univ. Lille 1.
- License: J.-S. Varré, *System*, 84h, L3 Computer science, Univ. Lille 1.
- Master: J.-S. Varré, M. Salson, *Software project*, 40h, M1 Computer science, Univ. Lille 1.
- License: P. Marijon *Databases*, 36h, L3 Computer science, Univ. Lille 1.
- License: S. Janot, *Introduction to programming (C)*, 50h, L3 Polytech'Lille, Univ. Lille 1.
- License: S. Janot, *Databases*, 30h, L3 Polytech'Lille, Univ. Lille 1.
- Master: S. Janot, *Databases*, 12h, M1 Polytech'Lille, Univ. Lille 1.
- Master: S. Janot, *Logic and Semantic Web*, 80h, M1 Polytech'Lille, Univ. Lille 1.
- Licence: M. Pupin, *Programming (Python)*, 78h, L1 Sciences, Univ. Lille 1.
- Licence: M. Pupin, *occupational integration*, 30h, L3 computer science, Univ. Lille 1.
- Master: : M. Pupin, *Programming (JAVA)*, 24h, M1 "Mathématiques et finance", Univ. Lille 1.
- License: C. Saad, *Algorithmics and programming*, 28h, L3 Polytech'Lille, Univ. Lille 1.
- License: C. Saad, *Databases*, 36h, L3 Polytech'Lille, Univ. Lille 1.
- License: C. Saad, *Data structures*, 18h, L3 Polytech'Lille, Univ. Lille 1.
- License: C. Saad, *Introduction to programming (C)*, 34h, L3 Polytech'Lille, Univ. Lille 1.
- License: C. Saad, *Programming (C)*, 22h, L3 Polytech'Lille, Univ. Lille 1.
- License: M. Salson, *Programming (Python)*, 42h, L1 Sciences, Univ. Lille 1.
- License: M. Salson, *Coding and information theory*, 63h, L2 Computer science, Univ. Lille 1.

Teaching in bioinformatics:

- License: S. Blanquart, R. Chikhi, M. Giraud, *Bioinformatics*, 40h, L3 Computer Science, Univ. Lille 1.
- Master: S. Blanquart, *Algorithms and applications in bioinformatics*, 24h, M1 Computer Science, Univ. Lille 1.
- Master: S. Blanquart, *Methods in phylogenetics*, 4h, M2 Biodiversité Evolution Ecologie, Univ. Lille 1.
- Master: L. Noé, *Bioinformatics*, 40h, M1 Biotechnologies, Univ. Lille 1.
- Master: M. Pupin, *Bioinformatics*, 34h, M1 "Biologie-Santé", Univ. Lille 1.
- Master: M. Salson, *Algorithms for life sciences*, 20h, M2 Complex models, algorithms and data, Univ. Lille 1.

Teaching in skeptical thinking:

- License: M. Giraud, 35h, L3 Computer science, Univ. Lille 1.
- Master: M. Salson, *Skeptical thinking*, 27h, M2 Journalist and Scientist, ESJ, Univ. Lille 1.

Formation for academics:

- Bilille permanent training: S. Blanquart (*Phylogenetics*, 28h), M. Pupin (*Gene prediction and protein annotation*, 14h), J.S. Varré (*Gene prediction and protein annotation*, 14h), C. Saad (*Variants*, 13h), R. Chikhi (*De novo assembly* and *Metagenomics de novo assembly*, 8h), H. Touzet (*Metagenomics*, 3h), L. Noé (*DNAmapping*, 3h), M. Salson (*RNA-seq analysis*, 1h).
- Workshop on Genomics (Czech Republic): R. Chikhi *De novo assembly*, 8h, young researchers.
- Roscoff summer school in Bioinformatics: R. Chikhi *De novo assembly*, 8h, engineers and researchers.
- Software training (Granada, Spain and Rennes, France): R. Chikhi *Using the GATB library*, 2x8h, engineers and researchers.

### 9.2.2. Teaching administration

- Head of the licence semester “Computer Science – S3 Harmonisation (S3H)”, Univ. Lille 1 (L. Noé).
- Member of faculty council (M. Pupin, J.-S. Varré).
- Head of the 3rd year of licence of computer science, Univ. Lille 1 (J.-S. Varré).
- Head of the GIS department (Software Engineering and Statistics) of Polytech’Lille (S. Janot).
- Head of the computer science modules in the 1st year of Licence, Univ. Lille 1 (M. Pupin).

### 9.2.3. Supervision

- PhD: L. Siegwald, Solutions d’amélioration des études de métagénomique ciblée, 2017/03/23, H. Touzet, Y. Lemoine.
- PhD: P. Pericard, Algorithmes pour la reconstruction de séquences de marqueurs conservés dans des données de métagénomique, 2017/10/27, H. Touzet, S. Blanquart.
- PhD in progress: T. Rocher, Indexing VDJ recombinations in lymphocytes for leukemia follow-up, 2014/11/01, M. Giraud, M. Salson.
- PhD in progress: C. Saad, Caractérisation des erreurs de séquençage non aléatoires, application aux mosaïques et tumeurs hétérogènes, 2014/10/01, M.-P. Buisine, H. Touzet, J. Leclerc, L. Noé, M. Figeac.
- PhD in progress: Q. Bonenfant, Algorithmes pour l’analyse de séquençage ARN troisième génération, 2017/11/15, L. Noé, H. Touzet.
- PhD in progress: P. Marijon, Analyse de graphes d’assemblage issus du séquençage ADN troisième génération, 2016, R. Chikhi, J.-S. Varré.

### 9.2.4. Juries

- H. Touzet was member of the PhD juries of Antoine Limasset (Université Rennes 1), Anna Kuosmanen (University of Helsinki), Jean-Pierre Glouzon (University of Sherbrooke), Guillaume Madeleine (Université Lille 1) and Jananan Pathmanathan (UPMC).
- R. Chikhi was member of the PhD juries of Kamil Salikhov (Université de Paris-Est) and Guillaume Holley (Bielefeld University).
- M. Salson was member of the PhD jury of Alice Héliou (Université Paris-Sud).
- H. Touzet was member of hiring committees (professors) at Université de Nantes and Université de Strasbourg.

### 9.3. Popularization

- *Recruiting girls to computer science* M. Pupin and T. Rocher are members of the collective *Informatique au féminin* from University of Lille, which was launched three years ago and whose goal is to organize computer science initiatives that reach teenage girls and female students. Among other actions, they were fully involved in the event *L codent, L créent* (she codes, she creates). This action aims to teach code to schoolgirls (13-15 years old), before they amass prejudices against computer science. 35 teenage girls were supervised by 9 female graduate computer science students, to create a proximity link between the young women. To emphasize the fact that coding is a creative and innovative pursuit, we chose to teach *Processing*, a programming language built for visual arts. After eight sessions of creative coding, a public exhibition was organized at the University with inspirational testimonies of women working in the field of computer science. This experiment has been presented at the conference PyParis2017 [30] and at the ACM conference womENCourage2017 [31].
- The team participates to dissemination actions for high school students and high school teachers on a regular basis: multiple presentations on bioinformatics and research in bioinformatics with our dedicated “genome puzzles”, practical session at “Day for Programming and Algorithmic Teaching”, presentations at “Salon de l’étudiant”, visit of high school students in the team (M. Giraud, M. Salson, J.-S. Varré)
- *Explaining big data to a general audience*: H. Touzet was part of the editorial committee and author for the book “*Les big data à découvert*”(368 pages).

## **CAGIRE Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific Events Organisation**

#### *10.1.1.1. Member of the Organizing Committees*

- Member [RM] of the steering committee of the Special Interest Group “Turbulence Modelling” (SIG-15) of ERCOFTAC (European Research COmmittee for Flow, Turbulence and Combustion) that organizes a series of international workshops dedicated to cross-comparisons of the results of turbulence models and experimental/DNS databases.

### **10.1.2. Scientific Events Selection**

#### *10.1.2.1. Member of the Conference Program Committees*

- Intl Symp. Turbulence, Heat and Mass Transfer [RM]
- Intl. Symp. Engineering Turbulence Modelling and Measurement [RM]
- ASME 2018 Fluids Engineering Division Summer Meeting (FEDSM) [RM]

#### *10.1.2.2. Reviewer*

This year, the team members have reviewed (3) contributions for the following conferences:

- ASME-GT Turbo Expo 2018 (Oslo, Norway) (1) [PB]
- FVCA 2017 (Lille, France) (1) [JJ]
- REEE 2017 (Fez, Marocco) (1) [PB]

### **10.1.3. Journal**

#### *10.1.3.1. Member of the Editorial Boards*

- Visualization of Mechanical Processes [PB]
- Advisory Board of International Journal of Heat and Fluid Flow [RM]
- Advisory Board of Flow, Turbulence and Combustion [RM]

#### *10.1.3.2. Reviewer - Reviewing Activities*

During 2017, the team members reviewed (13) papers for the following journals:

- Combustion and Flame (3) [PB]
- Compte Rendus Mécanique (1) [PB]
- Energy and Buildings (1) [PB]
- International Journal of Fluid Mechanics Research (1) [PB]
- International Journal of Heat and Fluid Flow (2) [RM]
- Journal of Petroleum Science and Engineering (1) [PB]
- Mathematics and Computers in Simulation (1) [RM]
- Nuclear Eng Design (2) [RM]
- Physics of fluids (1) [RM]

### 10.1.4. Research Administration

- Co-responsible of seventh day of welcoming new recruits at Institut Henri Poincaré on January [JJ]
- Co-responsible of the organisation of the LMAP seminar <sup>0</sup> [JJ]
- Member of the LMAP council [PB]
- Member of the IPRA scientific council [RM]

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : "Maths 2: Data analysis", 68h25, M1 - Génie Pétrolier, Université de Pau et des Pays de l'Adour, Pau, France. [JJ]

Master : "Finite volume for hyperbolic systems and compressible fluid mechanics", 26h25, M2 - MMS, Université de Pau et des Pays de l'Adour, Pau, France. [JJ]

Master : "Finite volume for hyperbolic systems and compressible fluid mechanics", 24h75, M2 - MMS, Université de Pau et des Pays de l'Adour, Pau, France. [VP]

Master : "Turbulence modelling" (in English), 27h30, M2 - International Master program Turbulence, Université de Poitiers/Ecole centrale de Lille, France. [RM]

Eng. 3 : "Industrial codes for CFD" (in English), 12h30, 3rd year of engineering school (M2), ENSMA, Poitiers, France. [RM]

Eng. 3 : "Advanced physics-Turbulence modelling for CFD", 16h, 3rd year of engineering school (M2), ENSGTI, France. [RM]

### 10.2.2. Supervision

PhD in progress: Gaetan Mangeon, "Modelisation avancée des transferts thermiques pour les configurations industrielles avec et sans prise en compte de la paroi solide", 2017 Supervisor: [RM].

PhD in progress: Saad Jamel, "Modélisation de la turbulence en régimes de convection mixte et naturelle dans un contexte automobile", 2017, Supervisor: [RM].

PhD, in progress: Al Hassan Afailal, "Simulation numérique tridimensionnelle de l'aérodynamique interne non réactive des moteurs à allumage commandé par une méthode hybride RANS/LES", 2017 Supervisor: [RM].

PhD, in progress: Vladimir Duffal, "Hybrid RANS/LES modelling for unsteady loadings in turbulent flows", 2017, Supervisor [RM]

### 10.2.3. Juries

The participation in the following thesis juries is noted ("referee" in a French doctoral thesis jury is more or less equivalent to an external opponent in an Anglo-Saxon like PhD jury):

PhD: Océane Lambert «Solutions architecturées par fabrication additive pour le refroidissement de parois de chambres de combustion» Communauté Université Grenoble Alpes, France, 17 October 2017. Supervisors: R. Dendeviel - C. Davoine. [PB, referee]

## 10.3. Popularization

- «Forum des Métiers» organized by "Collège Pierre Emmanuel", Pau (64), France, 18 May 2017. A stand was manned during one day with the objective of explaining the activity of researcher to an audience of middle school students. [PB]

<sup>0</sup><http://lma-umr5142.univ-pau.fr/fr/activites-scientifiques/seminaires/seminaires-math-et-applications.html>

## CAIRN Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Chair of Conference Program Committees

- O. Sentieys was Track Chair at IEEE NEWCAS.

### 9.1.2. Member of the Conference Program Committees

- D. Chillet was member of the technical program committee of HiPEAC RAPIDO, HiPEAC WRC, MCSoC, DCIS, ComPAS, DASIP, LP-EMS, ARC.
- S. Derrien was a member of technical program committee of IEEE FPL and ARC conferences and of WRC and Impact workshops.
- O. Sentieys was a member of technical program committee of IEEE/ACM DATE, IEEE FPL, ACM ENSSys, ACM SBCCI, IEEE ReConFig, FPGA4GPC.

### 9.1.3. Member of the Editorial Boards of Journals

- D. Chillet is member of the Editor Board of Journal of Real-Time Image Processing (JRTIP).
- O. Sentieys is member of the editorial board of Journal of Low Power Electronics and International Journal of Distributed Sensor Networks.

### 9.1.4. Invited Talks

- O. Sentieys gave an invited talk at FETCH (École d'hiver Francophone sur les Technologies de Conception des Systèmes embarqués Hétérogènes), Mont Tremblant, Canada, January 2017 on "Need more Energy Efficiency? Agree to Compute Inexactly".
- O. Sentieys gave an invited talk at GDR SoC<sup>2</sup>, Paris, France, November 2017 on "Controlling Inexact Computations at Compile Time and Runtime".
- O. Sentieys gave an invited talk at IoT2Sustain Workshop, London, UK, July 2017 on "Challenges in Energy Efficiency of Computing Architectures: from Sensors to Clouds".
- O. Sentieys gave an invited course at ARCHI Spring School, Nancy, France, March 2017 on "Design of VLSI Integrated Circuits – A (very) deep dive into processors".

### 9.1.5. Leadership within the Scientific Community

- D. Chillet is member of the Board of Directors of Grets Association.
- D. Chillet is co-animator of the topics "Connected Objects" and "Near Sensor Computing" of GDR SoC<sup>2</sup>.
- F. Charot and O. Sentieys are members of the steering committee of a CNRS Spring School for graduate students on embedded systems architectures and associated design tools (ARCHI).
- C. Killian was Co-Organizer of the Thematic Day on "Emerging Interconnect Technologies in Many Core Architectures" of GDR SoC<sup>2</sup>, November 27, 2017.
- O. Sentieys is a member of the steering committee of a CNRS spring school for graduate students on low-power design (ECOFAC).
- O. Sentieys is a member of the steering committee of GDR SoC<sup>2</sup>.

### 9.1.6. Scientific Expertise

- E. Casseau served as an expert for the Natural Sciences and Engineering Research Council of Canada (NSERC), program Discovery Grant 2017.
- O. Sentieys served as a jury member in the EDAA Outstanding Dissertations Award (ODA).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- E. Casseau: signal processing, 16h, ENSSAT (L3)
- E. Casseau: low power design, 6h, ENSSAT (M1)
- E. Casseau: real time design methodology, 24h, ENSSAT (M1)
- E. Casseau: computer architecture, 24h, ENSSAT (M1)
- E. Casseau: SoC and high-level synthesis, 24h, Master by Research (SISEA) and ENSSAT (M2)
- S. Derrien: component and system synthesis, 20h, Master by Research (ISTIC) (M2)
- S. Derrien: computer architecture, 12h, ENS Rennes (L3)
- S. Derrien: computer architecture, 24h, ISTIC (L3)
- S. Derrien: introduction to operating systems, 8h, ISTIC (M1)
- S. Derrien: embedded architectures, 48h, ISTIC (M1)
- S. Derrien: high-level synthesis, 6h, ISTIC (M1)
- S. Derrien: software engineering project, 40h, ISTIC (M1)
- F. Charot: processor architecture, 25h, Univ. of Science and Tech. of Hanoi (M1)
- D. Chillet: embedded processor architecture, 20h, ENSSAT (M1)
- D. Chillet: multimedia processor architectures, 24h, ENSSAT (M2)
- D. Chillet: low-power digital CMOS circuits, 6h, Telecom Bretagne (M2)
- C. Killian: digital electronics, 62h, IUT Lannion (L1)
- C. Killian: signal processing, 36h, IUT Lannion (L2)
- C. Killian: automated measurements, 56h, IUT Lannion (L2)
- C. Killian: measurement chain, 58h, IUT Lannion (L2)
- C. Killian: embedded systems programming, 12h, IUT Lannion (L2)
- C. Killian: automatic control, 18h, IUT Lannion (L2)
- A. Kritikakou: computer architecture 1, 32h, ISTIC (L3)
- A. Kritikakou: computer architecture 2, 44h, ISTIC (L3)
- A. Kritikakou: C and unix programming languages, 102h, ISTIC (L3)
- A. Kritikakou: operating systems, 96h, ISTIC (L3)
- A. Kritikakou: multitasking operating systems, 20h, ISTIC (M1)
- O. Sentieys: digital signal processing, 40h, ENSSAT (M1)
- O. Sentieys: VLSI integrated circuit design, 40h, ENSSAT (M1)
- C. Wolinski: computer architectures, 92h, ESIR (L3)
- C. Wolinski: design of embedded systems, 48h, ESIR (M1)
- C. Wolinski: signal, image, architecture, 26h, ESIR (M1)
- C. Wolinski: programmable architectures, 10h, ESIR (M1)
- C. Wolinski: component and system synthesis, 10h, Master by Research (ISTIC) (M2)

### 9.2.2. Teaching Responsibilities

- C. Wolinski is the Director of ESIR.
- S. Derrien was the responsible of the first year (M1) of the Master of Computer Science at ISTIC until Aug. 2017.
- O. Sentieys is responsible of the "Embedded Systems" major of the SISEA Master by Research.
- D. Chillet is the responsible of the ICT Master of University of Science and Technology of Hanoi.
- C. Killian is the responsible of the second year of the Physical Measurement DUT at IUT of Lannion.

ENSSAT stands for "École Nationale Supérieure des Sciences Appliquées et de Technologie" and is an "École d'Ingénieurs" of the University of Rennes 1, located in Lannion.

ISTIC is the Electrical Engineering and Computer Science Department of the University of Rennes 1. ESIR stands for "École supérieure d'ingénieur de Rennes" and is an "École d'Ingénieurs" of the University of Rennes 1, located in Rennes.

### 9.2.3. Supervision

PhD: Benjamin Barrois, Methods to Evaluate Accuracy-Energy Trade-Off in Operator-Level Approximate Computing, Dec. 2017, O. Sentieys.

PhD: Gaël Deest, Implementation Trade-Offs for FPGA Accelerators, Dec. 2017, S. Derrien.

PhD: Xuan Chien Le, Improving performance of non-intrusive load monitoring with low-cost sensor networks, Apr. 2017, O. Sentieys, B. Vrigneau.

PhD: Rengarajan Ragavan, Error handling and energy estimation for error resilient near-threshold computing, Sep. 2017, O. Sentieys, C. Killian.

PhD: Baptiste Roux, Methodology and Tools for Energy-aware Task Mapping on Heterogeneous Multiprocessor Architectures, Nov. 2017, O. Sentieys, M. Gautier.

PhD in progress: Minh Thanh Cong, Hardware Accelerated Simulation of Heterogeneous Multicore Platforms, May 2017, F. Charot, S. Derrien.

PhD in progress: Petr Dobias, Towards efficient application execution on resilient multi-core architectures, Oct. 2017, E. Casseau.

PhD in progress: Gabriel Gallin, Hardware Arithmetic Units and Crypto-Processor for Hyperelliptic Curves Cryptography, Oct. 2014, A. Tisserand.

PhD in progress: Aymen Gammoudi, New Visual Adaptive Real-Time OS for Embedded Multi-Core Architecture, Oct. 2015, D. Chillet, M.Khalgui.

PhD in progress: Mael Gueguen, Improving the performance and energy efficiency of complex heterogeneous manycore architectures with on-chip data mining, Nov. 2016, O. Sentieys, A. Termier.

PhD in progress: Van-Phu Ha, Application-Level Tuning of Accuracy, Nov. 2017, T. Yuki, O. Sentieys.

PhD in progress: Audrey Lucas, Software support resistant to passive and active attacks for asymmetric cryptography on (very) small computation cores, Jan. 2016, A. Tisserand.

PhD in progress: Jiating, Luo, Communication protocol exploration in the context of 3D integration of multiprocessors interconnected by Optical Network-on-Chip with energy constraints, Nov. 2014, D. Chillet, C. Killian, S. Le-Beux.

PhD in progress: Thibaut Marty, Compiler support for speculative custom hardware accelerators, Sep. 2017, T. Yuki, O. Sentieys.

PhD in progress: Genevieve Ndour, Approximate Computing with High Energy Efficiency for Internet of Things Applications, Apr. 2016, A. Tisserand, A. Molnos (CEA LETI).

PhD in progress: Joel Ortiz Sosa, Study and design of a digital baseband transceiver for wireless network-on-chip architectures, Nov. 2016, O. Sentieys, C. Roland (Lab-STICC).

PhD in progress: Van Dung Pham, Design space exploration in the context of 3D integration of multiprocessors interconnected by Optical Network-on-Chip, Dec 2014, O. Sentieys, D. Chillet, C. Killian, S. Le-Beux.

PhD in progress: Rafail Psiakis, A Self-Healing Reconfigurable Accelerator Structure for Fault-Tolerant Multi-Cores, Oct. 2015, A. Kritikakou, O. Sentieys.

PhD in progress: Simon Rokicki, Hybrid Hardware/Software Dynamic Compilation for Adaptive Embedded Systems, Oct. 2015, S. Derrien.

PhD in progress: Nicolas Roux, Sensor-aided Non-Intrusive Appliance Load Monitoring: Detecting Activity of Devices through Low-Cost Wireless Sensors, Oct. 2016, O. Sentieys, B. Vrigneau.

PhD in progress: Mai-Thanh Tran, Hardware Synthesis of Flexible and Reconfigurable Radio from High-Level Language Dedicated to Physical Layer of Wireless Systems, Oct. 2013, E. Casseau, M. Gautier.



## **CAMIN Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific Events Organisation**

#### *9.1.1.1. Member of the Organizing Committees*

David Guiraud was member of the organizing committee of IEEE NER 2017 Shanghai

### **9.1.2. Scientific Events Selection**

#### *9.1.2.1. Member of the Conference Program Committees*

Christine Azevedo was member of the JNRR (french journeys of research in robotics) program committee.

David Andreu was member of the European Congress on Embedded Real Time Software and Systems (ERTS2) program committee

Daniel Simon was member of the ICINCO (Int. Conf. on Informatics in Control, Automation and Robotics) program committee

David Guiraud was Associate editor of Theme 6 at IEEE EMBC

#### *9.1.2.2. Reviewer*

David Andreu was reviewer for ERTS2 2018.

Daniel Simon was reviewer for the ICINCO, IFAC and ECC conferences.

Christine Azevedo was reviewer for several journals and conferences this year.

David Guiraud was reviewer for IEEE EMBC and IEEE NER

### **9.1.3. Journal**

#### *9.1.3.1. Member of the Editorial Boards*

Christine Azevedo was guest editor for EJTM journal and Artificial Organs (2 special issues).

David Guiraud is associate editor for MBEC and JNE

#### *9.1.3.2. Reviewer - Reviewing Activities*

Daniel Simon was reviewer for Real-Time Systems.

David Guiraud was reviewer for JNE J. of Neuroscience Methods, MBEC and EJTM

### **9.1.4. Invited Talks**

Christine Azevedo was invited to give a lecture in January 5th at Institut de la Moelle in Paris in the context of a meeting of the consortium ANR ECOTECH dedicated to Parkinson Posture.

Christine Azevedo and David Guiraud were invited to give 2 lectures in March on hand function rehabilitation during the symposium organized at CHUV hospital in Lausanne "Rehabilitation de la main : de l'amputation à la lésion centrale. Peut-on rêver à de nouvelles solutions technologiques ?".

Christine Azevedo was invited to give a lecture on FES during the workshop organized by BIONESS company at the SOFMER congress.

David Guiraud was invited for a plenary talk in Nagoya, Japan for the International Functional Reconstruction of the Hand Symposium (28-29 of April)

### **9.1.5. Leadership within the Scientific Community**

David Guiraud was member of « Groupe de Travail Neurostimulation alliance Aviesan »

### 9.1.6. Scientific Expertise

David Guiraud was expert for the ERC Advanced Grant

David Guiraud was expert for ANR

### 9.1.7. Research Administration

Christine Azevedo was in charge of one working group to write a scientific challenge on handicap for Inria Strategic Plan.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : François Bonnetblanc, Movement Physiology and Electrophysiology, 6h ETD, Movement Physiology and Electrophysiology, 6h ETD, L3 DU Functional Electrical Stimulation, University of Montpellier, France

Master : D. Andreu, Software engineering, real time OS, discrete event systems, control architectures, networks, neuro-prosthesis, 200 h, master and engineers degrees, Polytech Montpellier, France;

Master : D. Simon, Basics in feedback control, 6.5 h, M2 STIC, University of Montpellier, France;

Master : François Bonnetblanc, Motor Control applied to Neuroprosthesis, 6h ETD, M2 STAPS, University of Montpellier, France

Master : François Bonnetblanc, Neurophysiology of movement et Neuroprosthesis, 6h ETD, M2 Mechanics and Interactions, Polytech, University of Montpellier, France

Master : K. Godary-Dejean, real time OS, embedded and industrial networks, formal validation, dependability, 200h, master and engineers degrees, Polytech Montpellier, France;

Master : D. Guiraud, muscle modeling and FES basics, , SMH master2,

### 9.2.2. Supervision

PhD defended on november 7, 2017: Marion Vincent, Measuring the electrophysiological effect of direct electrical stimulation during awake brain surgery, 01/12/2013, François Bonnetblanc, David Guiraud and Hugues Duffau

PhD defended on november 17, 2017: Mélissa Dali, Modèles de génération et de propagation de potentiel d'action neuronale en condition de stimulation sélective multipolaire, since october 2014, David Guiraud and Olivier Rossel.

PhD in progress : Antony Boyer, Neuroplasticity and recovery in remote (sub)cortical structures following wide-awake surgery of infiltrative low-grade gliomas: investigation of fMRI and EEG signals, 01/09/2016, François Bonnetblanc and Sofiane Ramdani.

PhD in progress : Maxence Blond, Commande et modélisation d'un véhicule sous-marin, 18/01/2016, Daniel Simon, Vincent Creuze (LIRMM) and Ahmed Chemori (LIRMM).

PhD in progress : Ibrahim Merzoug, Validation formelle pour les systèmes embarqués critiques, Since Oct. 2014, K. Godary-Dejean and D. Andreu.

PhD in progress : Benoît Sijobert, Stimulation électro-fonctionnelle pour l'assistance aux mouvements des membres inférieurs dans les situations de déficiences sensori-motrices, Since Dec. 2015, Christine Azevedo Coste and D. Andreu.

PhD in progress: Victor Vagne, "Couplage de la Spectroscopie en proche infrarouge et de la stimulation Transcrânienne (NIRS-tDCS) à courant continu dans l'Évaluation diagnostique de l'ischémie cérébrale lors d'un AVC", Oct. 2016, M. Hayashibe, D. Guiraud, Vincent Costalat (CHU Montpellier) and Emmanuelle Le Bars (CHU Montpellier)

PhD in progress: XinYue Lu, Respiratory detection and monitoring Since March 2017, C. Azevedo Coste, T Similowski (Groupe Hospitalier Pitié-Salpêtrière), S Renaux (NEURORESP)

### 9.2.3. Juries

Christine Azevedo participated in M Merad (UPMC, Paris) PhD thesis defense, December 1, 2017, as Reporter. The PhD was entitled "Investigations on upper limb prosthesis control with an active elbow."

Christine Azevedo participated in A Kubicki (Université de Bourgogne / UFR Staps, Dijon), HDR thesis defense, July 7th, 2017, as Reporter. The HDR was entitled "Comprendre la fragilisation du contrôle moteur prédictif pour optimiser la rééducation gériatrique."

Karen Godary-Dejean participated in M. Senoussi (IRIT, Université de Toulouse) PhD thesis defense, July 12, 2017, as examiner. The PhD was entitled "Etude et prototypage d'une nouvelle méthode d'accès aléatoire multi-canal multi-saut pour les réseaux locaux sans fils".

Karen Godary-Dejean participated in P. Delarboulas (ETIS, Université de Cergy Pontoise ) PhD thesis defense, December 20, 2017, as examiner. The PhD was entitled "Navigation bio-inspirée pour un robot mobile autonome dans de grands environnements intérieurs".

Christine Azevedo participated in F Feuvrier Université de Montpellier, Faculté de Médecine Montpellier-Nîmes ) Medicine thesis defense, December 20, 2017. The thesis was entitled " Evaluation des qualités métrologiques d'une centrale inertielle par rapport à un système optique de capture du mouvement chez des patients avec foot-drop post AVC ."

David Guiraud was president of the PhD defense of Melissa Sourieux, Université de Bordeaux, 15/12/2017 « Etudes des mécanismes de coordination des activités rythmiques locomotrices et sympathiques au sein d'un réseau spinal activé par l'acétylcholine chez le rat nouveau-né »

David Guiraud was reviewer of the HDR of Nicolas Lonjon, 18/12/2017 " La pathologie vertébro-médullaire : Innovation en chirurgie rachidienne pour améliorer la qualité de vie des patients Mécanismes physiopathologiques des lésions médullaires et stratégie de réparation "

David Guiraud was examiner of the PhD defense Vincent Carriou 4/10/2017 "Multiscale, multi-physic modeling of the skeletal muscle during isometric contraction »

David Guiraud was examiner of the PhD defense Kai Dang 13/06/2017 "Electrical conduction models for cochlear implant stimulation"

David Andreu participated in V. Monthé PhD thesis defense (Lab-STIC, Brest University), December 1, 2017, as Reporter. The PhD was entitled « Développement des systèmes logiciels par transformation de modèles : Application aux systèmes robotiques ».

## 9.3. Popularization

CAMIN participated into Fête de la Science at LIRMM with 2 demos (cycling, EMG robotics hand control).

David Andreu presented the job of researcher in secondary school Collège Vincent Badie (Montarnaud)

Christine Azevedo organized Initiation sessions to informatics using Thymio robot at Collège Léon Cordas (Montpellier) in 3 classes (one 5e and two 6e). 3 sessions of 1h30 per class were organized followed by a half day visit at LIRMM robotics hall. One day session was also organized with École primaire Valfalis (Montbazin) in CE2 level.

## CAMUS Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Selection

#### 10.1.1.1. Member of the Conference Program Committees

Philippe Clauss and Cédric Bastoul have been part of the program committee of IMPACT 2017 and 2018 (International Workshop on Polyhedral Compilation Techniques), held in conjunction with the international conference HiPEAC.

Cédric Bastoul has been part of the program committee of the international conference on Compiler Construction 2017 and 2018 (CC'2017 and CC'2018).

Cédric Bastoul and Vincent Loechner have been part of the program committee of the HIP3ES workshop 2017 and 2018 (International Workshop on High Performance Energy Efficient Embedded Systems), co-organized by Cédric Bastoul in conjunction with the international conference HiPEAC.

Arthur Charguéraud has been part of the program committee for the Conference on Verified Software: Theories, Tools, and Experiments (VSTTE 2017).

#### 10.1.1.2. Reviewer

Philippe Clauss has been reviewer for the following conferences and workshops: IMPACT 2017 and 2018 (International Workshop on Polyhedral Compilation Techniques), CC 2017 (International Conference on Compiler Construction).

Cédric Bastoul has been reviewer for the following international conferences and workshops: CC 2017 and 2018 (International Conference on Compiler Construction), PARMA 2017 (International Workshop on Parallel Programming and Run-Time Management Techniques for Many-core Architectures), IMPACT 2017 and 2018 (International Workshop on Polyhedral Compilation Techniques), HIP3ES 2017 and 2018 (International Workshop on High Performance Energy Efficient Embedded Systems).

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

Since October 2001, J. Gustedt is Editor-in-Chief of the journal *Discrete Mathematics and Theoretical Computer Science* (DMTCS).

#### 10.1.2.2. Reviewer - Reviewing Activities

Philippe Clauss has been reviewer for the following journals: Journal of Computer and System Sciences, Journal of Software: Practice and Experience, IEEE Transactions on Computers.

Cédric Bastoul has been reviewer for the following journals: Journal of Parallel, Emergent and Distributed Systems, and IEEE Transactions on Computers.

Arthur Charguéraud has been reviewer for JAR (Journal of Automated Reasoning), DMTCS (journal of Discrete Mathematics and Theoretical Computer Science), and JFP (Journal of Functional Programming).

Vincent Loechner has been reviewer for: JAR (Journal of Automated Reasoning, Springer), STTT (Int. J. on Software Tools for Technology Transfer, Springer), ComCom (Computer Communications, Elsevier).

### 10.1.3. Invited Talks

Philippe Clauss has been invited to give a talk at a seminar dedicated to Jean-Luc Gaudiot, organized by the French Computer Science Engineering school ENSIEE, Paris, September the 21st 2017. The topic of his talk was: *Le modèle polyédrique au delà de la compilation statique, des fonctions affines et des boucles.*

Arthur Charguéraud has been invited to give a talk at ENS Rennes, on November 21st, 2017, to present the CFML interactive program verification tool.

#### 10.1.4. Scientific Expertise

Cédric Bastoul has been an expert for the French research ministry and the French finance ministry for the research tax credit programme.

#### 10.1.5. Standardization

Since Nov. 2014, Jens Gustedt is a member of the ISO working group SC22-WG14 for the standardization of the C programming language and serves as co-editor of the standards document. He participates actively in the **defect report** processing, the planning of future versions of the standard, and publishes an ongoing document to track inconsistencies and improvements of the C threads interface.

In 2017, he was the one of the main forces behind the elaboration of C17, the new version of the C standard that is expected to go into ballot in the member states end of 2017.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : Philippe Clauss, Architecture des ordinateurs, 45h, Université de Strasbourg, France

Licence : Philippe Clauss, Systèmes d'exploitation, 40h, Université de Strasbourg, France

Master : Philippe Clauss, Compilation, 78h, Université de Strasbourg, France

Master : Philippe Clauss, Système et programmation temps-réel, 25h, Université de Strasbourg, France

Master : Philippe Clauss, Compilation avancée, 30h, Université de Strasbourg, France

2nd year engineering school: Jens Gustedt, programmation avancée, 20h, ENSIIE Strasbourg, France

Licence : Jens Gustedt, systèmes concurrents, 20h, Université de Strasbourg, France

Master : Jens Gustedt, parallélisme, 14h, M1, Université de Strasbourg, France

IUT d'Informatique : Alain Ketterlin, Architecture et programmation des mécanismes de base d'un système informatique, 68h, Université de Strasbourg, France

Licence : Alain Ketterlin, Algorithmique et programmation L1, 82h, Université de Strasbourg, France

Master (Informatique) : Alain Ketterlin, Ingénierie de la preuve en Coq, 18h, Université de Strasbourg, France

Master (Calcul Scientifique et Mathématiques de l'Information) : Alain Ketterlin, Compilation et optimisation, 26h, Université de Strasbourg, France

Licence : Cédric Bastoul, Computer architecture, 68h, L1 (IUT), Université de Strasbourg, France

Licence : Cédric Bastoul, Concurrent Systems, 20h, L3, Université de Strasbourg, France

Master : Cédric Bastoul, Compiler Design, 48h, M1, Université de Strasbourg, France

Master : Cédric Bastoul, Parallelism, 19h, M1, Université de Strasbourg, France

Master : Cédric Bastoul, Introduction to Research, 11h, L2+M1, Université de Strasbourg, France

Licence : Eric Violard, Programmation Fonctionnelle (licence informatique), 64h eq. TD, L2, Université de Strasbourg, France

Licence : Eric Violard, Architecture des Ordinateurs (licence informatique), 54h eq. TD, L2, Université de Strasbourg, France

Licence : Eric Violard, Logique et Programmation Logique (licence informatique), 34h eq. TD, L2, Université de Strasbourg, France

Licence : Eric Violard, Algorithmique et Structure de Données (licence mathématique), 39h eq. TD, L3, Université de Strasbourg, France

Licence : Eric Violard, Modèles de Calcul (licence informatique), 29h eq. TD, L1, Université de Strasbourg, France

Licence : Eric Violard, Systèmes Concurrents (licence informatique), 7h eq. TD, L3, Université de Strasbourg, France

Master : Arthur Charguéraud, Proof of Programs (MPRI), 12h, M2, Université Paris Diderot, France

Licence : Vincent Loechner, responsable pédagogique de la licence professionnelle SIL spécialité ARS (Administration de Réseaux et Services), 24h, L3, université de Strasbourg, France

Licence : Vincent Loechner, systèmes d'exploitation, 13h, L2, université de Strasbourg, France

Licence : Vincent Loechner, administration système et internet, 54h, L3, université de Strasbourg, France

Master : Vincent Loechner, calcul parallèle, 32h, M1, université de Strasbourg, France

Master : Vincent Loechner, OS embarqués, 34h, M2, université de Strasbourg, France

Master : Vincent Loechner, calcul parallèle, 30h, 3ième année école d'ingénieur (TPS), université de Strasbourg, France

### 10.2.2. Supervision

PhD: Nabil Hallou, *Dynamic binary optimizations*, University of Rennes, December the 18th 2017, Erven Rohou (PACAP team) and Philippe Claus

PhD in progress: Salwa Kobeissi, *Dynamic parallelization of recursive functions by transformation into loops*, September 2017, Philippe Claus

PhD in progress: Mariem Saied, *Ordered Read-Write Locks for Multicores and Accelerators*, since Nov 2013, Jens Gustedt & Gilles Muller.

PhD in progress: Daniel Salas, *Integration of the ORWL model into parallel applications for medical research*, since Mar 2015, Jens Gustedt & Isabelle Perseil.

PhD in progress: Yann Barsamian, *Optimization and parallelization of particle and semi-Lagrangian methods for multi species plasma simulations*, since Oct 2014, Eric Violard.

PhD in progress: Armaël Généau, *Formal verification of complexity analyses*, since Sept 2016, co-advised by Arthur Charguéraud and François Pottier, from team Gallium (Inria Paris), where Armaël is located.

PhD in progress: Harenome Ranaivoarivony-Razanajato, *Hierarchical Parallelization and Optimization*, Oct. 2016, Cédric Bastoul and Vincent Loechner

PhD in progress: Maxime Schmitt, *Automatic Generation of Adaptive Codes*, September 2016, Cédric Bastoul and Philippe Helluy

PhD in progress : Paul Godard, *Parallelization and Scalability of a Graphical Pipeline for Professional Inkjet Printing*, Jun. 2016, Cédric Bastoul and Vincent Loechner

### 10.2.3. Juries

Philippe Claus participated to the following PhD committees in 2017:

Date	Candidate	Place	Role
Dec. 11	Alexandre Maréchal	Université de Grenoble	Examiner
Dec. 18	Nabil Hallou	Université de Rennes	Co-advisor
Dec. 21	Jordy Ruiz	Université de Toulouse	Reviewer

Vincent Loechner participated as examiner to the PhD committee of Maroua Maalej, defended on Sept. 26th 2017 at Université Claude Bernard (Lyon 1).

### 10.3. Popularization

A. Charguéraud is one of the three organizers of the *Concours Castor informatique*<http://castor-informatique.fr/>. The purpose of the Concours Castor is to introduce pupils (from *CM1* to *Terminale*) to computer sciences. More than 500,000 teenagers played with the interactive exercises in November 2017.

Jens Gustedt is blogging about efficient programming, in particular about the **C programming language**. He also is an active member of the **stackoverflow community** a technical Q&A site for programming and related subjects.

Cédric Bastoul prepared activities and participated to *Fête de la Science* at University of Strasbourg in October 2017.

## CAPSID Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

Marie-Dominique Devignes is a member of the Steering Committee for the European Conference on Computational Biology (ECCB).

Marie-Dominique Devignes organised a workshop on “Security issues in health data processing” for the Fédération Charles Hermite, Nancy.

Sabeur Aridhi co-chaired the workshop on “Large scale time-dependent graphs” (TD-LSG) as part of ECML-PKDD-2017.

#### 9.1.1.2. Member of Organizing Committees

David Ritchie participated in the organisation of GGMM-2017 (Reims).

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

David Ritchie was a member of the programme committee for GGMM-2017, Reims.

Sabeur Aridhi was a member of the programme committee for TDLSG/ECML-PKDD, Skopje, Macedonia.

#### 9.1.2.2. Reviewer

Marie-Dominique Devignes was a reviewer for IWBBIO, NETTAB, KDIR, and BIBM.

David Ritchie was a reviewer for IJCAI and JOBIM.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

David Ritchie is a member of the editorial board of Scientific Reports.

Sabeur Aridhi is a member of the editorial board of Intelligent Data Analysis.

#### 9.1.3.2. Reviewer - Reviewing Activities

The members of the team have reviewed manuscripts for *Algorithms for Molecular Biology, Bioinformatics, BMC Bioinformatics, Computational Biology and Chemistry, Current Opinion in Structural Biology, Journal of Biomedical Semantics, Journal of Computational Chemistry, Journal of Chemical Information and Modeling*, and *Proteins: Structure, Function & Bioinformatics*.

### 9.1.4. Invited Talks

David Ritchie gave a presentation at the Unité de Mathématiques et Informatique Appliquées de Toulouse (MIAT).

### 9.1.5. Scientific Expertise

Marie-Dominique Devignes reviewed grant applications for the Institut Pasteur and the Institut de Recherche en Santé Publique (IRESP).

Sabeur Aridhi reviewed grant applications for the French Committee for the Evaluation of Academic and Scientific Cooperation with Brazil (COFECUB).



David Ritchie is a member of the Bureau of the GGMM (Groupe de Graphisme et Modélisation Moléculaire). Marie-Dominique Devignes participated in a Recruitment Committee for a MdC at Univ Lille.

### 9.1.6. Research Administration

Marie-Dominique Devignes is Chargée de Mission for the CyberBioHealth research axis at the LORIA and is a member of the “Comipers” recruitment committee for Inria Nancy – Grand Est.

David Ritchie is a member of the Commission de Mention Informatique (CMI) of the University of Lorraine’s IAEM doctoral school, and is a member of the Bureau of the Project Committee for Inria Nancy – Grand Est.

Isaure Chauvot de Beauchêne is an elected member of the scientific council of the AM2I (Automatique, Mathématiques, Informatiques et leurs Interactions) pole of the University of Lorraine.

Sabeur Aridhi is responsible for the major in IAMD (Ingénierie et Applications des Masses de Données) at TELECOM Nancy (Univ. Lorraine), and a member of the “Commission du Développement Technologique” recruitment committee at Inria Nancy – Grand Est.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence: Sabeur Aridhi, *Programming Techniques and Tools*, 24 hours, L1, Univ Lorraine.

Licence: Sabeur Aridhi, *Databases*, 82 hours, L1, Univ Lorraine.

Licence: Sabeur Aridhi, *Massive Data Management*, 68 hours, L2, Univ Lorraine.

Licence: Sabeur Aridhi, *Big Data Hackathon*, 8 hours, L3, Univ Lorraine.

Licence: Marie-Dominique Devignes, *Relational Database Design and SQL*, 30 hours, L3, Univ Lorraine.

Licence: Isaure Chauvot de Beauchêne, *TD Bioinformatique et Modelisation*, 10 hours, L3, Univ Lorraine.

Doctorat: Isaure Chauvot de Beauchêne, *Bioinformatics and Visualisation*, 10 hours, M1–PhD, ISCD (Institute for Computing and Data Sciences) Summer School, Roscoff.

### 9.2.2. Supervision

PhD in progress: Bishnu Sarker, *Developing distributed graph-based approaches for large-scale protein function annotation and knowledge discovery*, 01/11/2017, David Ritchie, Sabeur Aridhi.

PhD in progress: Maria Elisa Ruiz Echartea, *Multi-component protein assembly using distance constraints*, 01/11/2016, David Ritchie, Isaure Chauvot de Beauchêne.

PhD in progress: Gabin Personeni, *Apport des ontologies de domaines pour l’extraction de connaissances à partir de données biomédicales*, 01/10/2014, Marie-Dominique Devignes, Adrien Coulet.

PhD in progress: Seyed Ziaeddin Alborzi, *Automatic discovery of hidden associations using vector similarity: application to biological annotation prediction*, 01/10/2014, David Ritchie, Marie-Dominique Devignes.

### 9.2.3. Juries

Bernard Maigret was a “rapporteur” for the PhD thesis of N. Madeleine, *Recherche d’inhibiteurs de l’interaction Lu–Laminine par des techniques de modélisation et de la simulation moléculaire*, Université de La Réunion, 18/09/2017 (PhD supervisor Dr F. Gardebien).

## 9.3. Popularization

The team presented its activities during the Inria Nancy – Grand Est centre’s Open Day for the “Fête de la Science 2017” (14 Oct 2017).

## **CARAMBA Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific Events Organisation**

#### *10.1.1.1. Member of the Organizing Committees*

- Together with Anne-Lise Charbonnier (Inria Nancy – Grand Est), the Caramba team organized the “Journées Codage et Cryptographie 2017”, whose objective is to regroup the French speaking community working on error-correcting codes and on cryptography. It is affiliated with the “Groupe de travail C2” of the GDR-IM.

### **10.1.2. Scientific Events Selection**

#### *10.1.2.1. Member of steering committees*

- Pierrick Gaudry is a member of the steering committee of the Workshop on Elliptic Curve Cryptography (ECC).
- Emmanuel Thomé is a member of the steering committee of the conference series “Algorithmic Number Theory Symposium” (ANTS).
- Emmanuel Thomé is a member of the scientific directorate of the Dagstuhl computer science seminar series.

#### *10.1.2.2. Member of the Conference Program Committees*

- Jérémie Detrey was a member of the Program Committee of ECC 2017.
- Pierrick Gaudry was a member of the Program Committee of EUROCRYPT 2017.
- Aurore Guillevic was a member of the Program Committee of PKC 2018, Latincrypt 2017 and JC2 2017.
- Marine Minier was a member of the Program Committee of WCC 2017 and JC2 2017.
- Pierre-Jean Spaenlehauer was a member of the Program Committee of ISSAC 2017.

### **10.1.3. Journal**

#### *10.1.3.1. Reviewer - Reviewing Activities*

Members of the project-team did their share in reviewing submissions to renowned conferences and journals. Actual publications venues are not disclosed for anonymity reasons.

### **10.1.4. Invited Talks**

- Jérémie Detrey was invited to give a talk at the Rencontres “Arithmétique de l’Informatique Mathématique” (RAIM 2017), Lyon, France.
- Aurore Guillevic was invited to give a talk at the Elliptic Curve Cryptography Conference (ECC17), Nijmegen, Netherlands.
- Emmanuel Thomé was invited to give a talk at the Elliptic Curve Cryptography Conference (ECC17), Nijmegen, Netherlands.
- Marine Minier was invited to give a talk at the Journées Nationales du pré-GDR Sécurité, Paris, France and at the CCA seminar, Paris, France.

### **10.1.5. Other committees**

- Jérémie Detrey is chairing the *Commission des Utilisateurs des Moyens Informatiques* (CUMI) of the Inria Nancy – Grand Est research center.
- Emmanuel Thomé
  - is a member of the management committee for the research project “CPER Cyberentreprises” (co-chair).
  - is a member of the *Comité Local Hygiène, Sécurité, et Conditions de Travail* of the Inria Nancy – Grand Est research center.
  - was a member of the hiring committee for the 2015 junior research positions (CR2) at Inria Bordeaux.
- Pierrick Gaudry is vice-head of the *Commission de mention Informatique* of the *École doctorale IAEM* of the University of Lorraine;
- Pierre-Jean Spaenlehauer is a member of the *Commission développement technologique* (CDT) of the Inria Nancy – Grand Est research center.
- Paul Zimmermann is member of the Scientific Committee of the *EXPLOR Mésocentre*, of the “groupe de réflexion” *Calcul, Codage, Information* of the GDR-IM, of the advisory board of the OpenDreamKit european project, of the scientific council of the LIRMM laboratory in Montpellier, and chair of the organizing committee of the EJCIM (*École Jeunes Chercheurs Informatique Informatique Mathématique*) which will take place in Nancy in 2018.
- Marine Minier is
  - member of the CoS, poste MCF number 27MCF4376, Université de Rouen, November 2017.
  - member of the CoS, poste MCF number 27MCF575, Université de Grenoble Alpes, May 2017.
  - president of the CoS, poste MCF number 27MCF0955, Université de Lorraine, May 2017.
  - member of the CoS, poste MCF number 27MCF4191, Université de Lyon, May 2017.
  - member of the CoS, poste PR number 27PR0154, Université de Toulouse, May 2017.
  - in charge of the redaction for the LORIA of the Impact Project *Digital Trust*.

### 10.1.6. Research Administration

- Laurent Grémy was a member of the *Conseil de laboratoire* of the Loria.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Marine Minier, *Sécurité des systèmes d'information*, 40h eq. TD, M2 Informatique, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-les-Nancy, France.

Master: Marine Minier, *Introduction à la cryptographie*, 18h eq. TD, M1 Informatique, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-les-Nancy, France.

Master: Marine Minier, *Introduction à la sécurité des systèmes et à la cryptographie*, 32h eq. TD, M2 Mathématiques IMOI, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-les-Nancy, France.

Master: Emmanuel Thomé, *Introduction to Cryptography*, 24 hours (lectures + exercises), M1, Télécom Nancy, Villers-lès-Nancy, France.

Master: Emmanuel Thomé, *Cryptography and Security*, 20 hours (lectures + exercises), M2, Télécom Nancy and École des Mines de Nancy, France.

Master: Pierre-Jean Spaenlehauer, *Initiation aux méthodes analytiques de la théorie des nombres, applications à la cryptographie*, 15h eq. TD, M2 Mathématiques MFA, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-les-Nancy, France.

Licence: Jérémie Detrey, *Méthodologie*, 24 hours (practical sessions), L1, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-les-Nancy, France.

Licence: Jérémie Detrey, *Sécurité des applications Web*, 2 hours (lecture), L1, Université de Lorraine, IUT Charlemagne, Nancy, France.

Master: Jérémie Detrey, *Introduction à la cryptographie*, 8 hours (lectures) + 10 hours (tutorial sessions) + 12 hours (practical sessions), Master Spécialisé, École des Mines de Nancy, France.

Licence: Marine Minier, *Introduction à la sécurité et à la cryptographie*, 10 hours (lectures) + 10 hours (tutorial sessions) + 10 hours (practical sessions), L3, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-les-Nancy, France.

Licence: Pierrick Gaudry, *Méthodologie*, 24 hours (practical sessions), L1, Université de Lorraine, Faculté des sciences et technologies, Vandœuvre-lès-Nancy, France.

2e année École Polytechnique, Aurore Guillevic, *Les bases de la programmation et de l'algorithmique*, (INF411), 32 hours (lab sessions), Palaiseau, France (“chargée d’enseignement”).

### 10.2.2. Supervision

Internship: Léo Barré, *cube attacks and cube testers*, Université de Bordeaux, March–September (6 months), Pierre-Jean Spaenlehauer and Marine Minier.

Internship: Nicolas David, *Impact des racines réelles sur la sélection polynomiale pour le crible algébrique*, ENS Cachan, June–July (6 weeks), Paul Zimmermann.

Internship: Quentin Deschamps, *Étude de la sécurité du logarithme discret dans  $GF(p^n)$  lorsque  $n$  est composé*, ENS Lyon, July–August (6 weeks), Aurore Guillevic.

Internship: Joël Felderhoff, *infrastructures in complex cubic fields*, ENS-Lyon, June–July (6 weeks), Pierre-Jean Spaenlehauer.

Ph.D. in progress: Sandra Rasoamiamanana, *Délivrance de contextes sécurisés par des approches hybrides*, since May 2017, Ph.D. CIFRE Orange Gardens, Marine Minier.

Ph.D. in progress: Paul Huynh, *analyse et conception de chiffrements authentifiés à bas coût*, since October 2017, Marine Minier.

Ph.D. in progress: Simon Abelard, *Comptage de points de courbes algébriques sur les corps finis et interactions avec les systèmes polynomiaux*, Univ. Lorraine; since Sep. 2015, Pierrick Gaudry & Pierre-Jean Spaenlehauer.

Ph.D. in progress: Svyatoslav Covanov, *Algorithmes de multiplication : complexité bilinéaire et méthodes asymptotiquement rapides*, since Sep. 2014, Jérémie Detrey et Emmanuel Thomé.

Ph.D. defended [1]: Laurent Grémy, *Sieve algorithms for the discrete logarithm in medium characteristic finite fields*, defended on September 29th, 2017, Pierrick Gaudry & Marion Videau.

### 10.2.3. Juries

Marine Minier: president of the jury of the PhD: *Synchronisation et systèmes dynamiques : application à la cryptographie* defended by Brandon Dravie, July 2017, Université de Lorraine.

Marine Minier: president of the jury of the PhD: *Réseaux de capteurs et vie privée* defended by Jessye Dos Santos, August 2017, Université de Grenoble Alpes.

Marine Minier: president of the jury of the PhD: *Système de détection d'intrusion adapté au système de communication aéronautique ACARS* defended by Eric Asselin, June 2017, Université de Toulouse.

Marine Minier: president of the jury of the PhD: *Probabilistic models of partial enforcement in distributed systems* defended by Jordi Martori-Adrian, June 2017, Université de Lorraine.

Marine Minier: president of the jury of the PhD: *Méthodes de calculs sur les données chiffrées* defended by Marie Paindavoine, January 2017, Université de Lyon.

Emmanuel Thomé: reviewer of the PhD thesis: *Formules de Thomae pour les courbes algébriques résolubles* defended by Alexandre Le Meur, August 2017, Université de Rennes 1.

Paul Zimmermann: member of the jury of the PhD thesis: *Investigations in Computer-Aided Mathematics: Experimentation, Computation, and Certification* defended by Thomas Sibut-Pinote, December 2017, École polytechnique.

### 10.3. Popularization

- Pierrick Gaudry organized and participated in a debate fed by excerpts from movies on the topic of cryptography and privacy in March 2017. He also gave a podcast interview about electronic voting for Interstices [15].
- Pierre-Jean Spaenlehauer did a short presentation of asymmetric cryptography to middle school students who were award winners of the Alkindi competition.
- Paul Zimmermann co-animated a “Math-en-Jeans” atelier with lycée Vauban in Luxembourg city (Luxembourg).

## CARDAMOM Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- M. Colin: Modélisation et Analyse des phénomènes dispersifs, conférence en l'honneur de Jean-Claude Saut, 'ENSEIRB MATMECA, 21-27 November 2107, Bordeaux (<https://jc70.sciencesconf.org>)
- M. Colin : special session "Stability properties for nonlinear dispersive equations" at The Tenth IMACS International Conference, March 2017. (<http://waves2017.uga.edu/index.shtml>)
- M. Ricchiuto: HYWEC17 workshop, April 2017, Bilbao (<http://www.bcamaath.org/en/workshops/hywec2017>)

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

Mathieu Colin is a member of the scientific committee of The Tenth IMACS International Conference and of the JEF day's.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- Mathieu Colin is a member of the board of the journal Applications and Applied Mathematics: An International Journal (AAM)
- P.M. Congedo is Editor of Mathematics and Computers in Simulation, MATCOM (Elsevier)
- Mario Ricchiuto is member of the editorial board of *Computers & Fluids* (Elsevier), and of *GEM - International Journal on Geomathematics* (Springer)
- A special issue of the European Journal of Mechanics / B Fluids will be dedicated to the 2 editions of the international workshop B'Waves on wave breaking, held in 2014 in Bordeaux (M. Colin and M. Ricchiuto as co-organizers), and in 2016 in Bergen (M. Ricchiuto as co-organizer). M. Colin and M. Ricchiuto will be guest editors of this issue

#### 10.1.3.2. Reviewer - Reviewing Activities

We reviewed papers for top international journals in the main scientific themes of the team : journal of Computational Physics, Computer Methods in Applied Mechanics and Engineering, Optimization and Engineering, International Journal of Numerical Methods in Fluids, Physics of Fluids, Journal of Marine Science and Technology, Engineering Applications of Computational Fluid Mechanics, Computers and Fluids, International Journal of Modelling and Simulation in Engineering Aircraft Engineering and Aerospace Technology, International Journal of Computational Fluid Dynamics, Applications and applied mathematics : An international journal, Discrete and Continuous Dynamical Systems - Series A, Electronic Journal of Differential Equations, Calculus of Variations and Partial Differential Equations, Nonlinear Analysis: Modelling and Control, Advanced Nonlinear Studies, Communications on Pure and Applied Analysis, Communications in Computational Physics, Nonlinearity, Applications and Applied Mathematics: An International Journal, Journal of Differential Equations, Analysis and Mathematical Physics.

#### 10.1.4. Invited Talks

- Luc Mieussens has been invited to give a talk [35] in the SIAM Conference on Analysis of Partial Differential Equations, Dec 2017, Baltimore, United States.
- M. Ricchiuto has been plenary speaker at the conferences NUMHYP17 in Switzerland (<http://www.math.uzh.ch/nmhp17/index.php?id=speakers>), and at the conference Numerical Methods for Shallow Water Equations and Related Models, held in Shenzhen in December 2017 (<http://math.sustc.edu.cn/event/10593.html?lang=en>).
- P.M. Congedo has been plenary speaker at the conference SimHydro, in June 2017, Nice.

#### 10.1.5. Research Administration

Luc Mieussens is the new director of the "Mesocentre de Calcul Intensif en Aquitaine", started in September, and he has been scientific Advisor for the French Atomic Energy Agency (CEA) for the third year.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Doctorat: P.M. Congedo, Introduction to Uncertainty Quantification, 26h, Doctorate School of Politecnico di Milano, Italie.

Master : Héloïse Beaugendre, Calcul Haute Performance (OpenMP-MPI), 40h, M1, ENSEIRB-MATMÉCA et Université de Bordeaux, France

Master : Héloïse Beaugendre, Responsable de filière de 3ème année, 15h, M2, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Calcul parallèle (MPI), 39h, M2, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Encadrement de projets de la filière Calcul Haute Performance, 10h, M2, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Encadrement de projets sur la modélisation de la pyrolyse, 20h, M1, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Projet fin d'études, 4h, M2, ENSEIRB-MATMÉCA, FRANCE

Master : Mathieu Colin : Intégration, M1, 54h, ENSEIRB-MATMÉCA, FRANCE

Master : Mathieu Colin : Fortran 90, M1, 44h, ENSEIRB-MATMÉCA, FRANCE

Master : Mathieu Colin : PDE, M1, 28h, University of Bordeaux, FRANCE

Master : Mathieu Colin : Analysis, L1, 47h, ENSEIRB-MATMÉCA, FRANCE

Master : Mathieu Colin : projet professionnel and internship responsibility : 15 h, ENSEIRB-MATMÉCA, FRANCE

Master : Mathieu Colin : Encadrement de projets TER, 20h, ENSEIRB-MATMÉCA, FRANCE

Master : Cécile Dobrzynski, Encadrement de projets TER, 20h, ENSEIRB-MATMÉCA, FRANCE

### 10.2.2. Supervision

PhD : Arpaia Luca, Continuous mesh deformation and coupling with uncertainty quantification for coastal inundation problems, defended in September 2017.

PhD: Peluchon Simon, Approximation numérique et modélisation de l'ablation différentielle de deux matériaux: application à l'ablation liquide. Advisor: Luc Mieussens. PhD hosted in CEA-CESTA. Defended in November 2017.

PhD in progress : Bosi, Umberto, ALE spectral element Boussinesq modelling of wave energy converters, started in November 2015.

PhD in progress : Cortesi Andrea, Predictive numerical simulation for rebuilding freestream conditions in atmospheric entry flows, started in October 2014.

PhD in progress: Lin Xi, Asymptotic modelling of incompressible reactive flows in self-healing composites, started in October 2014.

PhD in progress: Aurore Fallourd, Modeling and Simulation of inflight de-icing systems, Started in October 2016.

PhD in progress: Guillaume Jeanmasson, Explicit methods with local time stepping for the simulation of unsteady turbulent flows. Started in October 2016. Advisor: Luc Mieussens. Hosted in ONERA Châtillon.

PhD in progress: Francois Sanson, Uncertainty propagation in a system of codes, started in February 2016.

PhD in progress: Nassim Razaaly, Robust optimization of ORC systems, started in February 2016.

PhD in progress: Mickael Rivier, Optimization under uncertainties of complex systems, started in May 2017.

### **10.2.3. Juries**

- Luc Mieussens has been referee and member of a jury for the PhD of M. Abdelmalik, defended in TU Eindhoven (Nederlands) in May 2017;
- Héloïse Beagendre has been referee and member of a jury for the PhD of E. Itam (Montpellier University in November 2017), and referee and member of a jury for the PhD of C. Bayeux (ONERA Toulouse, in December 2017);
- Mathieu Colin has been referee and member of a jury for the PhD of Tianxiang Gou, defended in Université de Franche-Comté in October 2017
- Mario Ricchiuto has been referee and member of the jury of the HDR of J. Harris (U. Paris-Est, November 2017), member of the PhD jury of M. Legal (Paris-Est, February 2017), and president of the juries of J. Deborde (U. de Bordeaux, June 2017), and S. Pelouchon (U. de Bordeaux, November 2017);



## CARMEN Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

Y. Coudière co-organised the Workshop on Mathematical Methods in Cardiac Electrophysiology, November 4–6, 2017, at the University of Ottawa in Canada. Approximately 30 scientists from the US, Canada, and several European countries participated in this workshop.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

Y. Coudière was a program committee member for the Functional Imaging and Modeling of the Heart (FIMH) meeting 2017 in Toronto, Canada.

M. Potse is a track chair for the International Congress of Cardiology 2018 in Chiba, Japan.

#### 9.1.2.2. Reviewer

Y. Coudière and M. Potse reviewed abstracts for the Computing in Cardiology meeting in Rennes, September 2017.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

M. Potse: associate editor of *Frontiers in Cardiac Electrophysiology*.

#### 9.1.3.2. Reviewer - Reviewing Activities

L. Weynans: *Computers and Fluids*, *Multiscale Modeling and Simulation*

M. Potse: *Heart Rhythm*, *IEEE Transactions on Biomedical Engineering*, *Medical & Biological Engineering & Computing*, *Journal of Electrocardiology*.

Y. Coudière: *Journal of computational and applied mathematics*, *PLOS ONE*, *SMAI Journal of Computational Mathematics*

N. Zenzemi: *Inverse Problems*, *Europace*, *Inverse Problems in Science and Engineering*, *Mathematical Modelling of Natural phenomena*.

### 9.1.4. Invited Talks

N. Zenzemi: Problèmes directs et inverses en électrophysiologie cardiaque. Séminaire du Laboratoire de mathématiques à Université de Technologie de Compiègne. November 14th 2017.

P.-E. Bécue: A Three-Dimensional Computational Model of Action Potential Propagation Through a Network of Individual Cells. *Workshop on Mathematical Methods in Cardiac Electrophysiology*. University of Ottawa, Ottawa, Canada, November 2017. <http://www.fields.utoronto.ca/activities/17-18/electrophysiology>

A. Davidovic: Modified bidomain model addressing structural heterogeneities. Application to the rat heart ventricles using HR MRI. *Workshop on Mathematical Methods in Cardiac Electrophysiology*. University of Ottawa, Ottawa, Canada, November 2017.

A. Gérard: Data assimilation applied to electroanatomical mapping in a bilayer atrial model. *Workshop on Mathematical Methods in Cardiac Electrophysiology*. University of Ottawa, Ottawa, Canada, November 2017.

M. Potse: Chaos, order, and numerical errors in a large-scale atrial fibrillation model. *Workshop on Mathematical Methods in Cardiac Electrophysiology*. University of Ottawa, Ottawa, Canada, November 2017.

M. Potse: Patient-specific modeling to understand cardiac disease. *BCAM Workshop Quantitative Biomedicine for Health and Disease*. Basque Center for Applied Mathematics, Bilbao, Spain, 21 February 2017.

Y. Coudière: Modélisation d'hétérogénéités de la structure myocardique. GRD Mamovi. Lyon, 27 September 2017.

Y. Coudière: High-order finite volume scheme for cardiac electrophysiology, invited talk for the workshop *Schémas volumes finis*, Nice, 30-31 March 2017, <http://math.unice.fr/~krell/Colloque/index.php>

### 9.1.5. Leadership within the Scientific Community

M. Potse is council member of the International Society of Electrocardiology.

### 9.1.6. Research Administration

L. Weynans: member of the “Conseil du département Sciences et Technologies” of Bordeaux University.

Y. Coudière:

- Scientific responsibility of the IMB (CNRS UMR 5251) team “Calcul Scientifique et Modélisation,” ~ 60 persons.
- Responsible for the scientific communication (*Chargé de mission à l'animation scientifique*) of the IMB.
- N. Zemzemi: Administration of the Inria associated team Epicard.

M. Leguèbe: co-organization of team “Calcul Scientifique et Modélisation” seminar.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : Y. Coudière, Groupe de Travail Applicatif, 33h, L2, Université de Bordeaux, France

Master : Y. Coudière, Méthodes d'éléments finis pour la mécanique des fluides incompressibles, 33h, M2, Université de Bordeaux, France.

Licence : Y. Coudière, Projet multidisciplinaire Matmeca, 33h, L2, Université de Bordeaux, France.

Licence : M. Bendahmane, Mathématiques générales, 36h, L1, Université de Bordeaux, France

Licence : M. Bendahmane, Algèbre Linéaire, 46h, L2, Université de Bordeaux, France

Licence : M. Bendahmane, Fonctions de plusieurs variables et optimisation, 33h, L2, Université de Bordeaux, France

Licence : M. Bendahmane, Analyse appliquée, 33h, L1, Université de Bordeaux, France

Licence : M. Bendahmane, Séries et intégrales multiples, 33h, L1, Université de Bordeaux, France

Master : M. Bendahmane, Analyse appliquée, 33h, M2, Université de Bordeaux, France

Licence : L. Weynans, Fortran MMk, 20h, L1, Université de Bordeaux, France

Master : L. Weynans, Fortran MMk, 28h, M1, Université de Bordeaux, France

Licence : L. Weynans, Introduction Analyse Numérique, 24h, L3, Université de Bordeaux, France

Licence : L. Weynans, Cours Programmation avancée pour le calcul scientifique, 24h, L3, Université de Bordeaux, France

Licence : L. Weynans, TP Programmation avancée pour le calcul scientifique, 34h, L3, Université de Bordeaux, France

Licence : L. Weynans, encadrement de projets 1ère année Matmeca, 25h, L1, Université de Bordeaux, France

Y. Coudière is responsible for the program “Ingénierie mathématique” in the Mathematics Bachelor, and responsible for the program “Modélisation Numérique et Calcul Haute Performance” in the Master program Applied Mathematics and Statistics, at the Université de Bordeaux.

### 9.2.2. Supervision

PhD : A. Davidović, “Multiscale Mathematical Modeling of Structural Heterogeneities in Cardiac Electrophysiology,” Université de Bordeaux, 9 December 2016, supervised by Y. Coudière.

PhD: C. Douanla Lontsi, “Schémas d’ordre élevé pour des simulations réalistes en électrophysiologie cardiaque,” started 1 November 2014, supervised by Y. Coudière.

PhD in progress: P. E. Bécue, “Modélisation et simulation numérique de l’électrophysiologie cardiaque à l’échelle microscopique,” started 1 October 2014, supervised by F. Caro, M. Potse, and Y. Coudière.

PhD in progress: A. Gérard, “Modèles numériques personnalisés de la fibrillation auriculaire,” started 1 September 2015, supervised by Y. Coudière.

PhD in progress: B. Lambert, “Modélisation et simulation numérique de suspensions de particules dans un fluide,” started 1 October 2015, supervised by M. Bergmann and L. Weynans.

PhD : N. Fikal, “Quantification d’incertitudes en électrocardiographie par la méthode éléments finis stochastique,” Université de Mohamed V au Maroc, 21 July 2017, supervised by R. Aboulaich and N. Zenzemi.

PhD : W. Mbarki, “Modélisation et analyse d’un problème d’interaction en biomathématiques : couplage en électrophysiologie cardiaque,” Université de Tunis El Manar, 28 July 2017, supervised by S. Aouadi and N. Zenzemi.

PhD in progress : Y. Abidi, “Etude théorique et numérique de problème d’identification de paramètres en électrophysiologie cardiaque”. Université de Tunis El Manar, started in October 2015, supervised by M. Bellassoued and M. Mahjoub in Tunis and N. Zenzemi in Bordeaux.

### 9.2.3. Juries

L. Weynans: PhD committee of Isabelle Lagrange (Onera, Toulouse), “comité de sélection” at Pau University

Y. Coudière: reviewer for the HDR Thesis of C. Le Potier (Construction et développement de nouveaux schémas pour des problèmes elliptiques et paraboliques), defended 15 november 2017.

Y. Coudière: reviewer for the HDR Thesis of E. Vigmond, defended January 10, 2017.

Y. Coudière: jury member for the PhD defense of Rémi Tesson, Université Marseille-Provence, defended December 12th, 2017.

## 9.3. Popularization

L. Weynans:

- Responsible for the communication (*Chargé de communication*) of the IMB
- Organization of the day “Filles et Maths, une équation lumineuse”
- Several presentations for high-school students about scientific computing

## CARTE Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- Mathieu Hoyrup is member of the Steering Committee of the Conference Series *Computability in Europe* (CiE) for the period 2017-2021.

#### 10.1.1.2. Member of the Organizing Committees

- Mathieu Hoyrup organized the workshop Continuity, Computability, Constructivity - From Logic to Algorithms (CCC) 2017, Nancy, June 2017.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

- Mathieu Hoyrup was co-chair of the workshop Continuity, Computability, Constructivity - From Logic to Algorithms (CCC) 2017, Nancy, June 2017.
- Emmanuel Jeandel was PC member of STACS 2017 (<https://stacs2017.thi.uni-hannover.de/>) and CIE 2017 (<http://math.utu.fi/cie2017/>).
- Romain Péchoux is PC member of the ETAPS affiliated workshop DICE 2018 (<http://cl-informatik.uibk.ac.at/users/zini/events/dice18/>).
- Simon Perdrix was PC member of QPL'17 (14th International Conference on Quantum Physics and Logic, 2017, Nijmegen, the Netherlands) ; IQFA'17 (Quantum Information: Foundations and Applications, 8th IQFA's Colloquium, 2017, Nice, France). He is PC member of the forthcoming MCU'18 (8th Conference on Machines, Computations and Universality) and DCM'18 (12th International Workshop on Developments in Computational Models, FLoC 2018, Oxford, UK).
- Nazim Fatès was a member of the PC of AUTOMATA 2017.

#### 10.1.2.2. Reviewer

- Mathieu Hoyrup reviewed articles for CiE and LICS.
- Romain Péchoux reviewed articles for ISMVL and STACS.
- Simon Perdrix reviewed articles for LICS.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- Emmanuel Jeandel is member of the editorial board of RAIRO-ITA.
- Simon Perdrix is co-editor of the ERCIM issue on Quantum Computing.

#### 10.1.3.2. Reviewer - Reviewing Activities

- Mathieu Hoyrup reviewed articles for Foundations of Computational Mathematics, Theory of Computing Systems, Mathematical Reviews.
- Romain Péchoux reviewed articles for Journal of Automated Reasoning and AMS Mathematical Reviews.
- Nazim Fatès served as a reviewer for *Natural computing* and *Theoretical computer science*.

### 10.1.4. Invited Talks

- Emmanuel Jeandel gave a course on Computability in Symbolic Dynamics on the Pingree Park Dynamics Workshop, <http://web.cs.du.edu/~rpavlov/Pingree2017>
- Emmanuel Jeandel gave a course on the Undecidability of the Domino Problem in the Winter School “Tiling Dynamical System” in Marseille, <http://akiyama-arnoux.weebly.com/school.html>
- Emmanuel Jeandel gave an invited talk on Higman-like theorems in symbolic dynamics at Logic Colloquium 2017, <http://www.math-stockholm.se/konferenser-och-akti/logic-in-stockholm-2/logic-colloquium-2017>
- Romain Péchoux gave an invited talk on Higher order interpretations for higher order programs, cs department, Trinity College, Dublin.
- Simon Perdrix gave an invited talk on Measurement-based quantum computation at QPL'17 (14th International Conference on Quantum Physics and Logic, 2017).
- Simon Perdrix gave an invited talk on quantum algorithms at the event "l'Ordinateur Quantique" organised at IHP by the Fondation Sciences Mathématiques de Paris.

### 10.1.5. Leadership within the Scientific Community

Nazim Fatès is the vice-chair of the IFIP international [working group 1.5 on Cellular automata and discrete dynamical systems](#).

Simon Perdrix is

- head of the GT IQ (groupe de Travail Informatique Quantique) @ GdR IM.
- board of GdR IQFA (Ingénierie Quantique, des aspects Fondamentaux aux Applications).

### 10.1.6. Scientific Expertise

Nazim Fatès was a project reviewer for the CONYCIT, the Chilean state agency for scientific research.

### 10.1.7. Research Administration

- Emmanuel Jeandel is the leader of the CARTE team.
- Isabelle Gnaedig is:
  - vice-leader of the CARTE team,
  - member of the scientific mediation committee at Inria Nancy Grand-Est.
- Emmanuel Hainry is:
  - member of the CNU (Conseil National des Universités), Section 27.
  - organizer of the CARTE Seminar.
- Simon Perdrix is Scientific Secretary at CoNRS Section 6.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence :

- Isabelle Gnaedig:
  - To the limits of the computable, 6 hours, Opening course-conference of the collegium "Lorraine INP", Nancy, France
- Emmanuel Hainry:
  - Systèmes d'exploitation, 30h, L1, IUT Nancy Brabois, Université de Lorraine, France
  - Algorithmique, 40h, L1, IUT Nancy Brabois, Université de Lorraine, France
  - Web dynamique, 60h, L1, IUT Nancy Brabois, Université de Lorraine, France

- Bases de données, 30h, L1, IUT Nancy Brabois, Université de Lorraine, France
- Programmation objet, 12h, L2, IUT Nancy Brabois, Université de Lorraine, France
- Complexité, 30h, L2, IUT Nancy Brabois, Université de Lorraine, France
- Mathieu Hoyrup:
  - Bases de la Programmation Orientée Objet, 20 HETD, L2, Université de Lorraine, France
  - Interfaces Graphiques, 10 HETD, L2, Université de Lorraine, France
- Emmanuel Jeandel:
  - Algorithmics and Programming 1, 60h, L1 Maths-Info
  - Algorithmics and Programming 4, 30h, L3 Informatique
  - Modelling Using Graph Theory, 30h, L3 Informatique
  - Networking, 15h, L2 Informatique
  - Formal Languages, 30h, L3 Informatique
- Romain Péchoux:
  - Programmation orientée objet, 61,5h, L3 MIASHS
  - Programmation orientée objet, 53,5h, L2 MIASHS
  - Outils logiques pour l'informatique, 35h, L1 MIASHS
  - Bases de données, 40h, L3 Sciences de la Gestion

Master:

- Isabelle Gnaedig:
  - Design of Safe Software, Coordination of the module, M2, Telecom-Nancy (Université de Lorraine), Nancy, France,
  - Rule-based Programming, 20 hours, M2, Telecom-Nancy (Université de Lorraine), Nancy, France.
- Emmanuel Jeandel:
  - Algorithmics and Complexity, 30h, M1 Informatique
- Romain Péchoux:
  - Mathematics for computer science, 30h, M1 SCA
  - Implicit Complexity, 15h, M2 Informatique
- Simon Perdrix:
  - Pépites Algorithmiques, 6h, M1/M2 at Ecole des Mines de Nancy.
- Nazim Fatès:
  - Systèmes complexes adaptatifs, M2, 10h, Informatique (UL)
  - Agents intelligents et collectifs M1, 15h, Sciences cognitives (UL)

### 10.2.2. Supervision

- Emmanuel Jeandel and Simon Perdrix supervised the Master Thesis of David Zonneveld on quantum circuits.
- Nazim Fatès and Irène Marcovici supervised the Erasmus Mundus master's thesis of Jordina Francès de Mas [34].
- Emmanuel Jeandel and Simon Perdrix are advisors of Renaud Vilmart, PhD student (UL) since October 2016.

- Romain Péchoux is coadvisor of Pierre Mercuriali, PhD student, Université de Lorraine (50%, advisor: Miguel Couceiro, PR, Université de Lorraine).

### **10.2.3. Juries**

- Emmanuel Jeandel reviewed the PhD thesis of Guilhem Gamard (Université Paul-Valéry-Montpellier) and participated in the PhD defense of Laurent Grémy (Université de Lorraine), David Cattaneo (Université de Grenoble) and Sebastian Barbieri (ENS Lyon)
- Simon Perdrix participated in the PhD defense of Ruben Cohen (U. Paris Sud).

## **10.3. Popularization**

- Nazim Fatès contributed to a booklet on the theme "Mathématiques et langages" edited by the Commission française pour l'enseignement des mathématiques (CFEM) for the forum "Mathématiques vivantes" (see <http://forum-maths-vivantes.fr/-Panorama>).
- This text appeared in a revised version on the CNRS website "images des mathématiques" [27].
- Nazim Fatès participated to a meeting ("projection-debat") at the Réseau et transport de l'électricité (RTE) at Villers-lès-Nancy on the these "Visages de la robotique", organised by "Sciences en lumière" (formerly Festival du film de chercheur).
- Nazim Fatès participated to a workshop on ethics in the "Forum des Sciences cognitives" organised by the "UFR mathématiques et informatique".
- Simon Perdrix gave an invited talk on quantum algorithms at the event "Mathématiques en mouvement sur l'Ordinateur quantique" organised by the Fondation Sciences Mathématiques de Paris at IHP.

## CASCADE Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Scientific Events Organisation

##### 8.1.1.1. Events and Activities

- a regular seminar is organized: <http://www.di.ens.fr/CryptoSeminaire.html>
- quarterly Paris Crypto Days (<https://pariscryptoday.github.io>) supported by CryptoCloud and aSCEND
- working group on lattices ([http://perso.ens-lyon.fr/damien.stehle/LATTICE\\_MEETINGS.html](http://perso.ens-lyon.fr/damien.stehle/LATTICE_MEETINGS.html)), joint with ENS Lyon
- BibTeX database of papers related to Cryptography, open and widely used by the community (<https://cryptobib.di.ens.fr>)

##### 8.1.1.2. Steering Committees of International Conferences

- steering committee of CANS: David Pointcheval
- steering committee of PKC: David Pointcheval
- steering committee of LATINCRYPT: Michel Abdalla (chair)
- steering committee of PAIRING: Michel Abdalla

##### 8.1.1.3. Other Steering Committees

- steering committee of the Coding and Cryptography working group (GT-C2 - <https://crypto.di.ens.fr/c2:main>) of the *Groupe de Recherche Informatique Mathématique* (GDR-IM): Damien Vergnaud is the Head of this steering committee

##### 8.1.1.4. Board of International Organisations

- Board of the *International Association for Cryptologic Research* (IACR): Michel Abdalla (2013 – 2018)

#### 8.1.2. Scientific Events Selection

##### 8.1.2.1. Program Committee Member

- CT-RSA '17 – 14-17 February (San Francisco, California, USA): David Pointcheval
- TCC '17 – 12-15 November (Baltimore, Maryland, USA): Hoeteck Wee
- ICALP '17 – 10-14 July (Warsaw, Poland): Hoeteck Wee
- Euro S&P '17 – 26-28 Apr (Paris, France) : Hoeteck Wee
- PKC '17 – 28-31 March (Amsterdam, Netherlands): Hoeteck Wee, Georg Fuchsbauer
- ASIACRYPT '17 – 3-7 December (Hong Kong): Georg Fuchsbauer
- ACNS '17 – 10-12 July (Kanazawa, Japan): Georg Fuchsbauer
- Indocrypt '17 – 10-13 Dec (Chennai, India): Georg Fuchsbauer
- Africacrypt '17 – 24-26 May (Dakar, Senegal): Georg Fuchsbauer

#### 8.1.3. Editorial Boards of Journals

Editor-in-Chief

- of the *International Journal of Applied Cryptography (IJACT)* – Inderscience Publishers: David Pointcheval



Associate Editor

- of *IET Information Security*: Michel Abdalla
- of *ETRI Journal*: Michel Abdalla
- of *Applicable Algebra in Engineering, Communication and Computing*: David Pointcheval
- of *Journal of Cryptographic Engineering*: Damien Vergnaud

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

- Master: David Pointcheval, Jacques Stern, Damien Vergnaud, Introduction to Cryptology, M1, ENS
- Master: Michel Abdalla, David Pointcheval, Cryptography, M2, MPRI
- Master: Damien Vergnaud, Advanced Algebra and Applications to Cryptography, Ecole Centrale Paris
- Master: David Pointcheval, Cryptography, M2, ESIEA
- Bachelor: Georg Fuchsbauer, Cryptologie, 3e année, ESGI

### 8.2.2. Defenses

- PhD: Thierry Mefenza Nountu, Pseudo-Random Generators and Pseudo-Random Functions : Cryptanalysis and Complexity Measures, ENS, November 28th, 2017 (Supervisor: Damien Vergnaud)
- PhD: Geoffroy Couteau, Zero-Knowledge Proofs for Secure Computation, ENS, November 30th, 2017 (Supervisor: David Pointcheval & Hoeteck Wee)
- PhD: Pierrick Méaux, Hybrid Fully Homomorphic Framework, ENS, December 8th, 2017 (Supervisor: Vadim Lyubashevsky & David Pointcheval)
- HdR: Céline Chevalier, UC-Secure Protocols using Smooth Projective Hash Functions, ENS, December 11th, 2017 (Supervisor: David Pointcheval)
- PhD: Florian Bourse, Functional Encryption for Inner-Product Evaluations, ENS, December 13th, 2017 (Supervisors: Michel Abdalla & David Pointcheval)

### 8.2.3. Supervision

- PhD in progress: Raphael Bost, Symmetric Searchable Encryption, from 2014, David Pointcheval (with Pierre-Alain Fouque, at Rennes)
- PhD in progress: Rafael Del Pino, Lattice-Based Cryptography – Complexity and Ideal-Lattices, from 2014, Vadim Lyubashevsky
- PhD in progress: Aurélien Dupin, Multi-Party Computations, from 2015, David Pointcheval (with Christophe Bidan, at Rennes)
- PhD in progress: Pierre-Alain Dupont, Secure Communications, from 2015, David Pointcheval
- PhD in progress: Romain Gay, Functional Encryption, from 2015, Michel Abdalla & Hoeteck Wee
- PhD in progress: Dahmun Goudarzi, Secure and Fast Cryptographic Implementation for Embedded Devices, from 2015, Damien Vergnaud
- PhD in progress: Louiza Khati, Disk Encryption Modes, from 2015, Damien Vergnaud
- PhD in progress: Michele Minelli, Increased efficiency and functionality through lattice-based cryptography, from 2015, Michel Abdalla & Hoeteck Wee
- PhD in progress: Anca Nitulescu, Verifiable Outsourced Computations, from 2015, David Pointcheval
- PhD in progress: Razvan Rosie, Practical Functional Encryption Schemes For the Cloud, from 2015, Michel Abdalla & Hoeteck Wee

- PhD in progress: Quentin Santos, Advanced Cryptography from a Blockchain, from 2015, David Pointcheval
- PhD in progress: Jérémy Chotard, Attribute-Based Encryption, from 2016, David Pointcheval (with Duong Hieu Phan, at Limoges)
- PhD in progress: Michele Orrù, Functional Encryption, from 2016, Hoeteck Wee & Georg Fuchs-bauer
- PhD in progress: Balthazar Bauer, Transferable e-Cash, from 2017, Georg Fuchsbauer
- PhD in progress: Chloé Héban, Big Data and Privacy, from 2017, David Pointcheval (with Duong Hieu Phan, at Limoges)
- PhD in progress: Mélissa Rossi, Post-Quantum Cryptography, from 2017, Michel Abdalla (with Henri Gilbert at ANSSI and Thomas Prest at Thales)

#### 8.2.4. Committees

- PhD Afonso Delerue Arriaga. *Private Functional Encryption* – Luxembourg University - Luxembourg – January 17th, 2017: Michel Abdalla (Examiner)
- HdR Maria Naya-Plasencia. *Symmetric Cryptography for Long-Term Security* – Université Paris VI – France – May 5th, 2017: David Pointcheval (Reviewer)
- PhD Benjamin Richard. *Study of 3-Party Authentication and Key-Derivation Protocols* – Université Rennes 1 - France – August 30th, 2017: Michel Abdalla (Reviewer)
- PhD Thierry Mefenza Nountu. *Pseudo-Random Generators and Pseudo-Random Functions: Cryptanalysis and Complexity Measures* – ENS - France – November 28th, 2017: Damien Vergnaud (Supervisor)
- PhD Geoffroy Couteau. *Zero-Knowledge Proofs for Secure Computation* – ENS - France – November 30th, 2017: David Pointcheval & Hoeteck Wee (Supervisors)
- PhD Britta Hale. *Low-Latency Key Exchange and Secure Channels* – NTNU - Norway – December 5th, 2017: Michel Abdalla (Reviewer)
- PhD Pierrick Méaux. *Hybrid Fully Homomorphic Framework* – ENS - France – December 8th, 2017: David Pointcheval (Supervisor)
- HdR Céline Chevalier. *UC-Secure Protocols using Smooth Projective Hash Functions* – ENS - France – December 11th, 2017: David Pointcheval
- PhD Florian Bourse. *Functional Encryption for Inner-Product Evaluations* – ENS - France – December 13th, 2017: Michel Abdalla & David Pointcheval (Supervisors)

## CASTOR Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Conference Program Committees

Jacques Blum is member of the scientific committee of PICOOF 18 (Inverse Problem, Control and Shape Optimization) which will take place in Beirut in 2018.

### 9.1.2. Journal

#### 9.1.2.1. Member of the Editorial Boards

- C. Boulbe is layout editor of the free journal SMAI-Journal of Computational Mathematics.
- J. Blum is member of
  - the editorial board of the Journal of Scientific Computing (JSC),
  - the scientific committee of the collection "Mathématiques et Statistiques" of the ISTE publications,
  - editor in chief of the ISTE Open Science journal: "Mathématiques appliquées et stochastiques".

#### 9.1.2.2. Reviewer - Reviewing Activities

- Hervé Guillard have been reviewer fo the Journal of Computational physics, Computers and Fluids and Internationa l Journal for Numerical methods in Fluids.
- R. Pasquetti has been reviewer for several journals, including the journal of Computational Physics and Computers and Fluids.

### 9.1.3. Invited Talks

- Hervé Guillard, "Fast waves and incompressible models", School of Aerospace, Mechanical and Mechatronic Engineering The University of Sydney, NSW 2006
- Hervé Guillard, "Fast waves and incompressible models", Plasma Theory and Modelling, Centre for Plasmas and Fluids, Research School of Physics and Engineering, Australian National University, Canberra ACT 0200, AUSTRALIA
- Hervé Guillard, Workshop "Schémas numériques pour les écoulements à faible nombre de Mach", November 20-22 2017
- R. Pasquetti, Spectral element schemes for the Korteweg-de Vries and Saint-Venant equations, Rencontres Mathématiques - Mécanique du CFM 2017, Lille, August 28 - September 1, 2017

### 9.1.4. Leadership within the Scientific Community

- J. Blum is:
  - a member of the scientific committee of Academy 1 of UCA-IDEX JEDI: «Networks, Information and Digital society»,
  - member of the "bureau" and the director committee of the Fédération FR-FCM (Fédération de Recherche Fusion par Confinement Magnétique - ITER).
- H. Guillard is coordinator of the topic "Turbulence and transport of edge plasma" within the Fédération FR-FCM

- C. Boulbe is task coordinator of the ACT2: Free boundary equilibrium and Control within the Eurofusion WPCD workpackage.
- Responsibilities of Boniface Nkonga
  - Treasure of ECCOMAS, member of the Managing Board : 2017-2021. ECCOMAS : European Community on Computational Methods in Applied Sciences.
  - Scientific committee of EoCoe : 2016-2020.
  - Manager of the ITER contract IO/17/CT/4300001505 : 2017-2019.
  - Manager of the ITER contract IO/15/PR/11410/MCI: 2015-2017.
  - Manager of the Enabling research contract CfP-WP15-ENR-01/IPP-05 : 2014-2018
- Didier Auroux is president of the "Computer Science, Algorithms and Mathematics" committee of GENCI (HPC and numerical simulations)

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Ecole d'ingénieur: D. Auroux, Optimisation, 66h, M1, Polytech Nice, Université de Nice Sophia Antipolis, France

Ecole d'ingénieur: D. Auroux, Méthodes numériques, 36h, M2, Polytech Nice Sophia, Université de Nice Sophia Antipolis, France

Ecole d'ingénieur: D. Auroux, Projet, 35h, L3, Polytech Nice Sophia Antipolis, France

Master: J. Blum, Optimisation, 36h, M1, Université de Nice Sophia Antipolis, France

Ecole d'ingénieur: C. Boulbe, Analyse Numérique, 71.5h, L3, Polytech Nice Sophia Antipolis, France

Ecole d'ingénieur: C. Boulbe, Méthodes numériques - EDP, 66h, M1, Polytech Nice Sophia Antipolis, France

Ecole d'ingénieur: C. Boulbe, Projet, 35h, L3, Polytech Nice Sophia Antipolis, France

Licence: S. Minjeaud, module Eléments de calcul différentiel, 18 h, L3, Université de Nice Sophia Antipolis, France.

Master: S. Minjeaud, module Méthodes numériques en EDP, 36 h, M1, Université de Nice Sophia Antipolis, France.

Master: S. Minjeaud, module Analyse et simulations numériques pour les EDP, 20 h, M2, Université de Nice Sophia Antipolis, France.

Master: S. Minjeaud, module Simulations numériques des problèmes d'évolution, 20 h, M2, Université de Nice Sophia Antipolis, France.

Master: S. Minjeaud, Méthodes numériques en EDP, 18 h, M1, Université de Nice Sophia Antipolis, France.

Master: B. Nkonga, Analyse Numérique, 40h, M1, Université de Nice Sophia Antipolis, France

Ecole d'ingénieur/Master: B. Nkonga, Méthode des éléments finis, 24h, M2, Polytech Nice Sophia, France

Ecole d'ingénieur/Master: B. Nkonga, Eléments finis mixtes, 24h, M2, Polytech Nice Sophia, France

Licence: A. Sangam, Analyse, 40h, L1, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Analyse, 50h, L2, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Méthodes Numériques et Formelles, 40h, L2, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Analyse Numérique, 68h, L3, Université de Nice Sophia Antipolis, France

Master: A. Sangam, Introduction to Finite Elements, 25h, M1, Université Nice Sophia Antipolis, France

### **9.2.2. Supervision**

PhD : Estivals, Elise, MHD modeling and numerical simulation with finite volume-type methods. Application to fusion plasma, Université Côte d'Azur, 2017 May 2nd, PhD Supervisors : Hervé Guillard, Afeintou Sangam. [6]

PhD in progress : X. Song, "Model based control oriented scenario construction in Tokamak", since October 2016, Blaise Faugeras, Holger Heumann.

PhD in progress : J. Llobell, "Schémas numériques sur grilles décalées pour la dynamique des gaz", since October 2015, T. Goudon, S. Minjeaud.

### **9.2.3. Juries**

Boniface Nkonga

- Phd Reports and Jury: E. Itam, Univ de Montpellier, H. Gidey, Univ. of Pretoria (Sud Africa).
- Jury HDR, Jacek Narski, Univ. de Toulouse, 2017.

## CEDAR Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Selection

#### 9.1.1.1. Chair of Conference Program Committees

Y. Diao has been the PC co-chair of IEEE International Conference of Data Engineering (ICDE) 2017.

I. Manolescu has been a track chair for the ACM SIGMOD (Special Interest Group on the Management of Data) 2017 conference.

#### 9.1.1.2. Member of the Conference Program Committees

I. Manolescu has been member of the PC of the DASFAA Conference 2017, of the Semantic Big Data Workshop (SBD) and of the WebDB (Web and Databases) Workshops in conjunction with the SIGMOD Conference 2017.

M. Thomazo has been member of the PC of BDA 2017, and IJCAI 2017.

### 9.1.2. Journal

#### 9.1.2.1. Member of the Editorial Boards

Y. Diao is the editor-in-chief of ACM SIGMOD Record.

I. Manolescu has been an Associate Editor for PVLDB (Proceedings of Very Large Databases) 2017.

#### 9.1.2.2. Reviewer - Reviewing Activities

M. Thomazo has been a reviewer for JODS and TOCL.

### 9.1.3. Invited Talks

- Y. Diao gave a distinguished lecture at the Technische Universitaet Darmstadt, in November 2017.
- I. Manolescu gave a keynote talk at the DEXA Conference in August 2017 [23].
- I. Manolescu gave a keynote talk at the iiWAS Conference in December 2017 [24]

### 9.1.4. Leadership within the Scientific Community

Y. Diao is a member of the ACM SIGMOD Executive Committee, and also a member of the PVLDB Endowment.

I. Manolescu is a member of the PVLDB Endowment, of the ACM SIGMOD “Jim Gray” PhD Award Committee, and of the steering committee (*Comité de Pilotage*) of “Bases de Données Avancées” (BDA), the informal association organizing the database research community in France and french-speaking countries.

### 9.1.5. Research Administration

Y. Diao is on the advisory board of the Data Science Initiative (DSI), a joint center between the applied mathematics and computer science departments of Ecole Polytechnique.

I. Manolescu is responsible of the “Massive Data Processing” axis of the Inria partnership with DGA (Direction Générale de l’Armement).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Master: Y. Diao is a Professor at Ecole Polytechnique, where she teaches “System for Big Data” in M1; she also teaches “Systems for Big Data Analytics” in M2 in the Data Science Master Program of Université Paris Saclay, and organizes a data science research project of M1 (third-year) students at École Polytechnique.
- Master: I. Manolescu, Architectures for Massive Data Management, 12h, M2, Université Paris-Saclay.
- Master: I. Manolescu, Database Management Systems, 52h, M1, École Polytechnique.

### 9.2.2. Supervision

PhD in progress: Maxime Buron: “Raisonnement efficace sur des grands graphes hétérogènes”, since October 2017, François Goasdoué, Ioana Manolescu and Marie-Laure Mugnier (GraphIK Inria team in Montpellier)

PhD in progress: Tien Duc Cao: “Extraction et interconnexion de connaissances appliquée aux données journalistiques”, since October 2016, Ioana Manolescu and Xavier Tannier (LIMSI/CNRS and Université de Paris Sud)

PhD in progress: Sejla Čebirić: “CloudSelect: Data Mobility Within, Across and Outside Clouds”, since September 2015, François Goasdoué and Ioana Manolescu.

PhD in progress: Ludivine Duroyon: “Data management models, algorithms & tools for fact-checking”, since October 2017, François Goasdoué and Ioana Manolescu (Ludivine is in the Shaman team of U. Rennes 1 and IRISA, in Lannion)

PhD in progress: Enhui Huang: “Interactive Data Exploration at Scale”, since October 2016, Yanlei Diao and Anna Liu (U. Massachussets at Amherst, USA)

PhD in progress: Luciano di Palma, “New sampling algorithms and optimizations for interactive exploration in Big Data”, since October 2017, Yanlei Diao and Anna Liu (U. Massachussets at Amherst, USA)

PhD in progress: Felix Raimundo: “Nouveaux algorithmes et optimisations pour l’analyse profonde du génome à l’échelle de la population”, since October 2017, Yanlei Diao and Avinash Abhyankar (New York Genome Center, USA)

PhD in progress: Alexandre Sevin: “Exploration interactive de données sur de grandes sources de données hétérogènes”, since October 2017, Yanlei Diao and Peter Haas (U. Massachussets at Amherst, USA)

PhD in progress: Khaled Zaouk: “Performance Modeling and Multi-Objective Optimization for Data Analytics in the Cloud”, since October 2017, Yanlei Diao

### 9.2.3. Juries

Y. Diao has been a member of the PhD committee of Julien Pilourdault (defended in September 2017, at LIG, Grenoble). The thesis was titled “Scalable Algorithms for Monitoring Activity Traces”.

I. Manolescu has been a member of the PhD committee of Olivier Wang (defended in June 2017, at LIX), the thesis was titled “Adaptive Rule Models: Active Learning for Rule-Based Systems” and also of the PhD committee of Maria Rossi (defended in November 2017, at LIX). The thesis was titled “Graph Mining for Influence Maximization in Social Networks”.

I. Manolescu has been a reviewer and a member of the HDR committee of Vicent Leroy (defended in September 2017, at LIG, Grenoble). The thesis was titled “Data Analysis at Scale: Systems, Algorithms and Information”.

### 9.3. Popularization

- M. Buron, I. Manolescu, F. Raimundo and T. Merabti animated a booth at the “Fête de la Science 2017” at Inria Saclay, in October 2017.
- I. Manolescu published an article on computational fact-checking titled “La vérité, rien que la vérité” in the Binaire blog of Le Monde (<http://binaire.blog.lemonde.fr/2017/04/05/la-verite-rien-que-la-verite/>)
- I. Manolescu participated to a panel on Data Journalism at the Web2Day, a 3000-strong IT and digital conference in Nantes, in June 2017 (<https://web2day.co/en/speakers/ioana-manolescu/>)
- I. Manolescu gave a talk at the Inria Alumni Jam Session “ Fausses informations, post vérité : allons aux faits ! ”, presenting our current work on data management for data journalism (<http://www.inria-alumni.fr/evenement/session-inria-alumni-fausses-informations-post-verite-allons-aux-faits-25-octobre-2017-cnam-paris/>)



## **CELTIQUE Project-Team**

# **6. Dissemination**

## **6.1. Promoting Scientific Activities**

### **6.1.1. Scientific Events Selection**

#### *6.1.1.1. Chair of Conference Program Committees*

- CoqPL 2017 (International Workshop on Coq for PL) was chaired by Sandrine Blazy and Emilio Jesus Gallego Arias

#### *6.1.1.2. Member of the Conference Program Committees*

- TASE 2017 (Symposium on Theoretical Aspects of Software Engineering): Alan Schmitt
- Web Programming 2018: Alan Schmitt
- ProWeb 2018: Alan Schmitt
- CC 2017 (Conference on Compiler Construction) : David Pichardie
- ESORICS 2017 (European Symposium on Research in Computer Security) : David Pichardie
- ESOP 2017 (European Symposium on Programming) : David Pichardie
- CC 2018 (Conference on Compiler Construction) : David Pichardie
- CoqPL 2017 (International Workshop on Coq for PL) : Sandrine Blazy
- AFADL 2017 (Approches Formelles dans l'Assistance au Développement de Logiciels) : Sandrine Blazy
- SRC (Student Research Competition) @ PLDI 2017 : Sandrine Blazy
- VSTTE 2017 (Verified Software: Theories, Tools, and Experiments) : Sandrine Blazy
- GPCE 2017 (Generative Programming: Concepts & Experiences) : Sandrine Blazy
- IFL 2017 (International symposium on Implementation and application of Functional Languages) : Sandrine Blazy
- TFP 2017 (Trends in Functional Programming) : Sandrine Blazy
- CPP 2018 (ACM SIGPLAN Conference on Certified Programs and Proofs) : Sandrine Blazy
- Euro S&P 2018 (IEEE European Symposium on Security and Privacy) : Sandrine Blazy
- TACAS 2017 (Tools and Algorithms for the Construction and Analysis of Software : Thomas Jensen.
- FCS 2017 (Int. workshop on Foundations of Computer Security) : Thomas Jensen.
- SAS 2017 (Static Analysis Symposium) : Thomas Jensen.

#### *6.1.1.3. Reviewer*

- POPL 2018 (Symposium on Principles of Programming Languages): Alan Schmitt

### **6.1.2. Journal**

#### *6.1.2.1. Reviewer - Reviewing Activities*

- Information & Computation: Alan Schmitt
- Science of Computer Programming: Alan Schmitt
- Discrete Mathematics & Theoretical Computer: Alan Schmitt
- Theoretical Computer Science: Alan Schmitt
- Journal of Logical and Algebraic Methods in Programming: Alan Schmitt

- ACM Transactions on Privacy and Security (TOPS): David Pichardie

### 6.1.3. Invited Talks

- Delphine Demange: "On-the-Fly Garbage Collection: An Exercise in Compiler Verification". Inria Scientific Days 2017. June 2017.
- Thomas Genet: "SPAN+AVISPA for Verifying Cryptographic Protocols". RESSI (Rendez-vous de la recherche et de l'enseignement de la sécurité des systèmes d'information), Grenoble, May 2017 [42].
- Thomas Genet: "Tree Automata for Reachability in Rewriting". International School on Rewriting, Eindhoven, July 2017. <http://www.win.tue.nl/~hzantema/isr.html>.
- Thomas Jensen: Formal methods for software security, Forum Méthodes Formelles, Toulouse, France, Jan. 2017 [21].
- Thomas Jensen: Formal methods for software security, Journée inaugurale GDR Sécurité Informatique, Paris, June 2017 [22].
- Thomas Jensen. Hybrid information flow analysis against web tracking.. The 12th International Conference on Risks and Security of Internet and Systems (CRiSIS 2017), Dinard, France, Sept. 2017 [23].

### 6.1.4. Scientific Expertise

- Sandrine Blazy: expertise of an ERC Advanced Grant research proposal.
- Thomas Jensen is Inria representative in the European Cyber Security Organisation (ECSO) working group in Research and Innovation.

### 6.1.5. Research Administration

- Sandrine Blazy is member of Section 6 of the national committee for scientific research CoNRS.
- Sandrine Blazy is coordinator of the LTP (Languages, Types, Proofs) group of the French GDR GPL.
- Thomas Jensen is head of the NUMERIC department at Université Bretagne Loire.
- Thomas Jensen is director of the IT Security track and member of the executive board of the Laboratoire d'excellence "CominLabs".

## 6.2. Teaching - Supervision - Juries

### 6.2.1. Teaching

Licence : Alan Schmitt, Programmation Fonctionnelle, 36h, L3, Insa Rennes, France

Licence : Delphine Demange, Spécialité Informatique 1 - Algorithmique et Complexité Expérimentale, 36h, L1, Université Rennes 1, France

Licence : Delphine Demange, Spécialité Informatique 2 - Functional and Immutable Programming, 70h, L1, Université Rennes 1, France

Licence : Delphine Demange, Programmation de Confiance, 36h, L3, Université Rennes 1, France

Licence : David Pichardie, Graph algorithms, 24h, L3, ESIR, France

Licence : Sandrine Blazy, Functional programming, 30h, L3, Université Rennes 1, France

Licence: Thomas Genet, Software Engineering, 58h, L2, Université de Rennes 1, France

Licence : Thomas Genet, Spécialité Informatique 1 - Algorithmic and Experimental Complexity, 42h, L1, Université Rennes 1, France

Master : Sandrine Blazy, Méthodes Formelles pour le développement de logiciels sûrs, 53h, M1, Université Rennes 1, France

Master : Alan Schmitt, Méthodes Formelles pour le développement de logiciels sûrs, 25h, M1, Université Rennes 1, France France

Master : Sandrine Blazy, Mechanized Semantics, 15h, M2, Université Rennes 1, France

Master : Sandrine Blazy, Semantics, 24h, M1, Université Rennes 1, France

Master : Sandrine Blazy, Software vulnerabilities, 20h, M2, Université Rennes 1, France

Master : Delphine Demange, Software Security, 9h, M2, Université Rennes 1, France

Master : David Cachera, Semantics, 24h, M1, Université Rennes 1, France

Master : David Cachera, Advanced Semantics, 20h, M2, Université Rennes 1, France

Master : Thomas Genet, Formal Design and Verification, 108h, M1, Université de Rennes 1, France.

Master : Thomas Jensen, Program Analysis and Software Security, 21h, M2, Université Rennes 1, France

### 6.2.2. Supervision

PhD in progress : Timothée Haudebourg, Lightweight Formal Verification for Functional Programs, 1st october 2017, Thomas Genet and Thomas Jensen

PhD in progress : Alexandre Dang, Security by compilation, 1st september 2016, Frédéric Besson and Thomas Jensen

PhD in progress : Julien Lepiller, Binary analysis for Isolation, 1st september 2016, Frédéric Besson and Thomas Jensen

PhD in progress : Gurvan Cabon, Analyse non locale certifiée en JavaScript grâce à une sémantique annotée, 1st september 2015, Alan Schmitt

PhD in progress : Florent Saudel, Vulnerability discovery, November 2015, Sandrine Blazy, Frédéric Besson and Cédric Berthion (Amossys)

PhD in progress : Alix Trieu, Formally verified compilation and static analysis, January 2016, Sandrine Blazy and David Pichardie

PhD in progress : Yon Fernandez De Retana, Verified Optimising Compiler for high-level languages, 1st september 2015, Delphine Demange and David Pichardie

David Bühler, Structuring an abstract interpreter through value and state abstractions, defended March 2017, Sandrine Blazy and Boris Yakobowski (CEA)

Yannick Zakowski, Verification of a Concurrent Garbage Collector, defended December 2017, David Pichardie and David Cachera.

Pauline Bolignano, Formal models and verification of memory management in a hypervisor, defended May 2017, Thomas Jensen and Vincent Siles (Prove & Run).

Oana Andriescu, Static analysis of functional programs with an application to the frame problem in deductive verification, May 2017, Thomas Jensen and Stéphane Lescuyer (Prove & Run).

### 6.2.3. Juries

- Alan Schmitt, jury member for the selection of Inria CR (researcher) candidates, March and April 2017, Inria, Rennes, France.
- Thomas Jensen, jury member for the selection of Inria CR (researcher) candidates, March and April 2017, Inria, Rennes, France.
- Sandrine Blazy, jury member for the selection of CNRS CR and DR (researchers) candidates, February and March 2017, CNRS, Paris, France.
- Sandrine Blazy, jury member for the selection of a professor at University of Copenhagen, May 2017, Copenhagen, Denmark.
- Sandrine Blazy, jury member (reviewer) for the PhD defense of Romain Aïssat, January 2017, Paris-Sud University

- Sandrine Blazy, jury member for the PhD defense of Oana Andreescu, May 2017, Université Rennes 1
- Sandrine Blazy, jury member for the PhD defense of Ninon Eyrolles, June 2017, Université Versailles Saint-Quentin
- Sandrine Blazy, jury member (reviewer) for the HDR defense of Alain Giorgetti, December 2017, Université de Franche-Comté
- Sandrine Blazy, jury member for the PhD defense of Jordy Ruiz, December 2017, Université de Toulouse
- Sandrine Blazy, jury member for the PhD defense of Pierre Lestringant, December 2017, Université Rennes 1.
- Sandrine Blazy, jury member of the GDR GPL PhD award committee.
- David Pichardie, external reviewer for the PhD defense of Hendra Gunadi, July 2017, Australian National University, Canberra, Australia.
- David Pichardie, Licenciante discussion leader for the PhD student Marco Vassena, Chalmers University of Technology, Gothenburg, Sweden.
- Delphine Demange, jury member of the Gilles Kahn PhD award committee, December 2017, Inria Paris
- Delphine Demange, jury member for the PhD defense of Pauline Bolignano, May 2017, Université Rennes 1
- Thomas Genet, jury member (reviewer) for the PhD defense of Vivien Pelletier, October 2017, Université d'Orléans, France.
- Thomas Jensen, jury member for the HdR defense of Charlotte Truchet, November 2017, Université de Nantes, France.
- Thomas Jensen, jury member (reviewer) for the PhD defense of Zeineb Zhioua, September 2017, Télécom ParisTech, France.
- Thomas Jensen, jury member for the PhD defense of Deepak Subramanian, December 2017, CentraleSupélec, France.

### 6.3. Popularization

Article “JavaScript, un langage à la croissance organique”, Alan Schmitt, blog Binaire Le Monde. <http://binaire.blog.lemonde.fr/2017/05/12/javascript-un-langage-a-la-croissance-organique/>

Article “L’assistant de preuve Coq”, Sandrine Blazy, Pierre Castéran, Hugo Herbelin, Techniques et Sciences de l’ingénieur, août 2017. <https://www.techniques-ingenieur.fr/base-documentaire/technologies-de-l-information-th9/programmation-42304210/coq-assistant-de-preuve-h3310/>

Talk “Bug, Virus, Intrusion, Pirates... So many threats and no defense? Yes... maths.”, Thomas Genet, given three times in high schools close to Rennes.

## CHROMA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- O. Simonin was Sponsor Chair of ECAL 2017, the 14th European Conference on Artificial Life, organized in Lyon, September 4-8 (<https://project.inria.fr/ecal2017/>).
- C. Laugier, Ph. Martinet, C. Stiller and U. Nunes, organized a workshop entitled “9th Workshop on Planning, Perception and Navigation for Intelligent Vehicle” at IEEE IROS 2017, Vancouver (Canada), September 2017 (about 170 attendees). <http://ppniv17.irccyn.ec-nantes.fr/>
- C. Laugier co-organized with Suzanne Lesecq an Inria-CEA workshop on “Technologies for Autonomous vehicles”, Grenoble, February 2017. <http://www.irtnaoelec.fr/organisation-dun-workshop-autour-des-technologies-du-vehicule-autonome/>
- C. Laugier co-organized with Chao Lu a workshop at Beijing Institute of Technology (BIT) on “Technologies for Autonomous Vehicles”, Beijing, May 2017.
- C. Laugier co-organized with NUS and MIT a workshop at IEEE ICRA 2017 entitled “Workshop on Robotics and Vehicular Technologies for Self-Driving Cars”, Singapore, June 2017. [http://cim.mcgill.ca/malika/ICRA17\\_WS/](http://cim.mcgill.ca/malika/ICRA17_WS/)
- C. Laugier has been appointed as Program co-chair for IEEE/RSJ IROS 2018 (Madrid) and General co-Chair of IEEE/RSJ IROS 2019 (Hong Kong).
- J. Dibangoye and O. Simonin co-organized the 1st Ecole d’Automne en IA, in Lyon, with Prof. C. Solnon (LIRIS, INSA Lyon) and the Pre-GDR IA, CNRS.
- F. Jamel is Member of Organizing Committees of the Robocup@Home league.
- F. Jamel is elected member of Technical Committees of the Robocup@Home league.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- C. Laugier was Associate Editor for IEEE/RSJ IROS 2017 (Vancouver), for IEEE ICRA 2017 (Singapore), and for IEEE ITSC 2017 (Yokohama).

#### 10.1.2.2. Member of the Conference Program Committees

- Gilles S. Dibangoye served, in quality of program committee member, for the following conferences: AAAI, IJCAI
- O. Simonin served, in quality of program committee member, for AAMAS (Autonomous Agent and Multi-agent Systems International Conference), Track Robotics.
- O. Simonin served, in quality of program committee member, for ICAPS (International Conference on Automated Planning and Scheduling), Track Robotics.
- O. Simonin served, in quality of program committee member and co-editor of the proceedings, for ECAL (European Conference on Artificial Life).
- O. Simonin is Program Committee member of the JFSMA conference since 2008 (Journées Franco-phones sur les Systèmes Multi-Agents).

#### 10.1.2.3. Reviewer

- Agostino Martinelli served, in quality of reviewer, for the following conferences: ICRA, IROS, ACC.
- Jilles S. Dibangoye served, in quality of reviewer, for the following conferences: AAI, IJCAI, ICRA.
- Olivier Simonin served, in quality of reviewer, for the following conferences: ICRA, IROS, ICAPS, ACC.

### **10.1.3. Journal**

#### *10.1.3.1. Member of the Editorial Boards*

- C. Laugier is Member of the Steering Committee of the journal IEEE Transaction on Intelligent Vehicles.
- C. Laugier Senior Editor of the journal IEEE Transaction on Intelligent Vehicles.
- C. Laugier is member of the Editorial Board of the journal IEEE ROBOMECH.
- O. Simonin is a member of the editorial board of RIA Revue d'Intelligence Artificielle.

#### *10.1.3.2. Reviewer - Reviewing Activities*

- A. Martinelli served, in quality of reviewer, for the following journals: Transaction on Robotics, Transaction on Automatic Control, Transaction on Control System and Technology, Robotics and Automation Letters.
- Jilles S. Dibangoye served, in quality of reviewer, for the following journals: Revue d'Intelligence Artificielle, Mathematics and Artificial Intelligence Journal
- O. Simonin served, in quality of reviewer, for the following journals : Robotics and Autonomous Systems, Autonomous Robots (AURO) and RIA (Revue d'Intelligence Artificielle).

### **10.1.4. Invited Talks**

- A. Martinelli was invited to give a talk at the Robotics and Perception Group at the university of Zurich, December 2017, "Closed form solution to cooperative visual inertial sensor fusion".
- Christian Laugier was invited to give a talk at the 4th journée "Mobilité Innovante: La sécurité Par et Pour les véhicules autonomes", Clermont-Ferrand, January 2017. Title: "Perception for risk prediction and autonomous driving" [14].
- Christian Laugier was invited to give a talk at the IS-Auto-Europe 2017, Dusseldorf, April 2017. Title: "Embedded Bayesian Perception and V2X Communication for Autonomous Driving" [13].
- Christian Laugier was invited to give a talk at the GTC 2017, San José, California, May 2017. Title: "Embedded Bayesian Perception and VTX Communication for Autonomous Driving" [17].
- Christian Laugier was invited to give a talk at the IEEE ICRA 2017 Workshop on Robotics and Vehicular Technologies for Self-Driving Cars, Jun 2017, Singapore, 2017. Title: "Embedded Bayesian Perception and Collision Risk Assessment" [12].
- Jilles S. Dibangoye was invited to give a talk at the MAFTEC group of the Artificial Intelligence GDR, Nov 2017. Title: "Learning to Act Optimally in Decentralized POMDPs".
- C. Wolf was invited to a talk at DL2T : Deep Learning – Télédétection - Temps November 20th, 2017, Paris (Issy-Les-Moulineaux), France. Title: Apprentissage profond (Deep Learning) et séries temporelles : Concepts et mise en oeuvre.
- C. Wolf was invited to a talk at the conference Journées Nationale de la Recherche en Robotique. November 8th-10th, 2017, Biarritz, France. Title: Learning human centered computing for vision and robotics.
- C. Wolf was invited as a Keynote at European and Nordic Symposium on Multimodal Communication. October 17th, 2017. Title: Learning human motion: gestures, activities, pose, identity.

### **10.1.5. Leadership within the Scientific Community**

- O. Simonin was elected in 2017 as member of the Board of AFIA, the French Association for Artificial Intelligence.
- C. Laugier is co-chair with Philippe Martinet and Christoph Stiller, of the IEEE RAS Technical Committee on “Autonomous Ground Vehicles and Intelligent Transportation Systems (AGVITS)”.
- C. Laugier is member of the Committee "safety of autonomous vehicles" (committee led by ARDI in the scope of the Innovation Regional Strategy).

### **10.1.6. Scientific Expertise**

- C. Laugier is member of the Advisory Board of ISR University of Coimbra. He visited ISR in March 2017.
- C. Laugier is Scientific Advisor for the ProbaYes SA.
- C. Laugier have written a report on the concept of “Robot Taxi”for Renault-Nissan.
- O. Simonin was a member of the 2017 ANR scientific committee, and a reviewer, for the Interaction and Robotics call.
- O. Simonin was a reviewer for ANRT, CIFRE PhD thesis grant.
- O. Simonin was a reviewer for ANR ASTRID project submissions.
- A. Martinelli served, in quality of reviewer, for ANR project submissions.

### **10.1.7. Research Administration**

- C. Laugier is a member of several Ministerial and Regional French Committees on Robotics and Autonomous Cars.
- O. Simonin is member of the Auvergne-Rhone-Alpes Robotics cluster (Coboteam), for Inria and INSA de Lyon entities.
- O. Simonin is member of the Scientific Council of the Digital League (Auvergne-Rhone-Alpes).
- A. Martinelli carried out the activity of leader for the ANR project VIMAD
- A. Martinelli carried out the activity of leader for the CARNOT project SEDIA
- F. Jumel is member of the board of IMAGINOVE cluster (digital content industry)
- F. Jumel is member of the Rhone-Alpes Robotics cluster (Coboteam)

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

CPE Lyon Lyon 4-5th year : F. Jumel, resp. of the Robotics option, 400h M1/ M2, Dept. SN CPE Lyon France.

CPE Lyon Lyon 4-5th year : F. Jumel, 250h (robotic vision, cognitive science, Interface robot machine, deeplearning, Robotic frameworks, robotic platforms, Kalman Filter)

INSA Lyon 3rd year : Jilles S. Dibangoye, Algorithmique et programmation, 76h, L3, Dept. Telecom INSA de Lyon, France.

INSA Lyon 3rd year : Jilles S. Dibangoye, WEB, 42h, L3, Dept. Telecom INSA de Lyon, France.

INSA Lyon 3rd year : Jilles S. Dibangoye, Operating Systems, 56h, L3, Dept. Telecom INSA de Lyon, France.

INSA Lyon 4rd year : Jilles S. Dibangoye, Operating Systems, 16h, Master, Dept. Telecom INSA de Lyon, France.

INSA Lyon 5th year : Jilles S. Dibangoye, the Robotics option : AI for Robotics, Robotics projects, 8h, M2, Dept. Telecom INSA de Lyon, France.

M2R MoSIG: A. Martinelli, Autonomous Robotics, 12h, ENSIMAG Grenoble.

INSA Lyon 5th year : O. Simonin, resp. of the Robotics option : AI for Robotics, Software and Hardware for robotics, Robotics projects, 60h, M2, Dept. Telecom INSA de Lyon, France.

INSA Lyon 3rd year : O. Simonin, Algorithmique et programmation, 30h, L3, Dept. Telecom INSA de Lyon, France.

INSA Lyon 5th year : A. Spalanzani, Navigation en environnement humain, 2h, M2, INSA de Lyon, France.

Master : Laetitia Matignon, Multi-Agents and Self-\* Systems, 10h TD, M2 Artificial Intelligence, Lyon 1 University, France.

Master : Laetitia Matignon, Multi-Robot Systems, 20h TD, 5th year of engineer, Polytech Lyon Informatics Department, France.

Master: C. Laugier, “Bayesian Perception & Decision-making for Autonomous Vehicles and Mobile Robots”, 3 hours, Beijing Institute of Technology, Beijing, Chine.

Doctorat: C. Laugier, “Embedded Perception, Situation Awareness and Decision-making for Autonomous Vehicles”, 4 hours, Intelligent Vehicles International Summer School, ITEAM European H2020 MSCA-ITN project, Compiègne, France.

### 10.2.2. Supervision

PhD : Tiana Rakotovao Andriamahefa, Embedded Bayesian Perception on a Multi-core Architecture, Univ. Grenoble, 21/02/2017, C. Laugier and D. Ruspini (CEA LETI).

PhD in progress: David Sierra Gonzalez, Autonomous Driving (cooperation Toyota), 2014, C. Laugier, J. Dibangoye, E. Mazer (Inria Prima).

PhD in progress: Mathieu Barbier, Decision making for Intelligent Vehicles (cooperation Renault), 2015, C. Laugier, O. Simonin, E. Mazer (Inria Prima).

PhD in progress: Stefan Chitic, Middleware for multi-robot systems, 2013, O. Simonin, J. Ponge (CITI-Dynamid) (to be defended on March 2018).

PhD in progress: Mihai Popescu, Robot fleet mobility under communication constraints, 2015, O. Simonin, A. Spalanzani, F. Valois (CITI/Inria Agora).

PhD in progress: Pavan Vasishta, Situational Awareness of Autonomous Cars in Urban Areas, 2016, A. Spalanzani, Dominique Vaufreydaz (Inria Pervasive Interaction).

PhD in progress: Guillaume Bono, Global-local Optimization Under Uncertainty for Goods Distribution Using a Fleet of Autonomous Vehicles, 2016, O. Simonin, J. Dibangoye, L. Matignon.

PhD in progress: Remi Cambuzat, Robots de Téléprésence : Navigation Sociale et Interaction Verbale immersives, 2016, G. Bailly (CNRS GIPSA lab), A. Spalanzani, O. Simonin.

Starting PhD: Remy Grunblatt, Mobilité contrôlée dans les réseaux de drones autonomes", 2017, I. Guerrin-Lassous (Inria Dante), O. Simonin.

### 10.2.3. Juries

1. PhD thesis juries
  - C. Laugier was reviewer and member of the defense committee of the PhD thesis of Scott Drew Pendleton, NUS Singapore, April 2017.
  - O. Simonin was a reviewer and a member of the defense committee of the PhD thesis of Ange Nizard, Université Blaise Pascal, Clermont-Ferrand, February 4th, 2017.
  - O. Simonin was a reviewer and a member of the defense committee of the PhD thesis of Alexandre Lombard, UTBM (Univ. de Technologie de Belfort-Montbéliard), December 11, 2017.
  - A. Spalanzani was a reviewer and a member of the defense committee of the PhD thesis of Harmish Khambhaita, Université Toulouse III Paul Sabatier, October 2017.



- Laetitia Matignon was a member of the defense committee of the PhD thesis of Nassim Kalde, Université de Lorraine, December 12th, 2017.
  - C. Wolf was reviewer and member of the defense committee of the PhD thesis of Enjie Ghorbel, Université de Normandie, October 10th, 2017.
  - C. Wolf was reviewer and member of the defense committee of the PhD thesis of Jorris Guerry, Ecole Polytechnique, November 20th, 2017.
  - C. Wolf was reviewer and member of the defense committee of the PhD thesis of Juan Manuel Perez Rua, Université de Rennes, December 4th, 2017.
  - C. Wolf was reviewer and member of the defense committee of the PhD thesis of Grigory Antipov, Télécom ParisTech, December 15th, 2017.
2. Member of committee for Professor, Associate Prof., Research Director or Researcher recruitment
- O. Simonin was a member of the jury of the Professor position at INSA Lyon, CITI Lab., on June 2017.

### **10.3. Popularization**

- Laetitia Matignon participated to the « Fête de la Science » with a Turtlebot demonstration workshop (October 12th and 13th, Lyon, 2017).
- Olivier Simonin was invited by Université Populaire de Montelimar to give a talk about Autonomous Vehicles, on December 19.
- January 30, 2017, F. Jumel, Digital Summit, Hotel de Region Auvergne Rhone Alpes, Robotic Show
- February 2017, F. Jumel, FSM 2017, BU Sciences : Robotic Show : Dance with Baxter
- March 7, 2017, F. Jumel, J. Saraydaryan FSM 2017, BU Sciences, Robotic show, Baxter and Co. (with R. Leber)
- June 9, 2017, F. Jumel, AGERA, “service robots, review of the state”
- October 10, 2017, F. Jumel, Conference IESF Lyon-RA, Where Artificial Intelligence Is Now (with L. Chen)
- November 9, F. Jumel, 2017 Scientific event of Open University of Lyon : “Intelligent robotics, between myth and reality”
- November 14, 2017, F. Jumel, IA event, IPL, “Presentation of Challenges of robocup”, (with P. Dominey, R. Lucazeau)
- November 23, 2017, F. Jumel, “Exposition Hello robots”, IUT Lyon 1, “Smart robotic and Robocup”

## CIDRE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

Emmanuelle Anceaume co-chair with Maria Potop Butucaru, Christian Cachin and Shlomi Dolev the Workshop on Blockchain Technology and Theory 2017, co-located with DISC 2017.

#### 10.1.1.2. Member of the Organizing Committees

Christophe Bidan served as a member of the organization committee of C&ESAR 2017 (24rd Computers & Electronics Security Applications Rendez-vous), November 2017, Rennes, France.

Frédéric Tronel served as a member of the organization committee of SSTIC 2017 (Symposium sur la sécurité des technologies de l'information et des communications) that took place in Rennes, France from 7th to 9th of June, where it gathered 600 participants.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

Emmanuelle Anceaume served as a member of the following program committees:

- Algotel 2017 (19èmes Rencontres Francophones sur les Aspects Algorithmiques des Télécommunications), May 2017, Quiberon, France.
- ICDCS 2017 (37th IEEE International Conference on Distributed Computing Systems), Atlanta, USA, 2017
- DEBS 2017 (11th ACM International Conference on Distributed and Event-based Systems), Barcelona, Spain 2017
- NCA 2017 (16th International Symposium on Network Computing and Applications), October 2017, Cambridge, MA, USA.
- PECS 2017 (3rd International Conference on Pervasive and Embedded Computing), Porto, Portugal, 2017
- ADSN2017 (6th International Workshop on Assurance in Distributed Systems and Networks, Atlanta, USA, 2017

Christophe Bidan served as a member of the following program committees:

- CRiSIS 2017 (12th International Conference on Risks and Security of Internet and Systems), September 2017, Dinard, France.
- C&ESAR 2017 (24rd Computers & Electronics Security Applications Rendez-vous), November 2017, Rennes, France.

Frédéric Majorczyk served as a member of the program committee of VizSec 2017 (IEEE Symposium on Visualization for Cyber Security), October 2017, Phoenix, Arizona, USA.

Guillaume Piolle served as a member of the program committee of APVP 2017 (Atelier sur la Protection de la Vie Privée), June 2017, Autrans, France.

Eric Totel served as a member of the program committee of RESSI 2017 (Les Rendez-vous de la recherche et de l'enseignement en sécurité des systèmes d'information).

Frédéric Tronel served as a member of the program committee of SSTIC 2017 (Symposium sur la sécurité des technologies de l'information et des communications) June 2017, Rennes, France.

Gilles guette served as a member of the following program committees:

- ICISSP 2017 (International Conference on Information System Security and Privacy), February 2017, Porto, Portugal.

#### 10.1.2.2. Reviewer

- Gilles Guette - IEEE ISNCC 2017 (IEEE International Symposium on Networks, Computers and Communications).
- Michel Hurfin - NCA 2017 (16th International Symposium on Network Computing and Applications).
- Jean-François Lalande - ICISSP 2017 (3rd International Conference on Information Systems Security and Privacy).

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

Michel Hurfin belongs to the editorial board of the Springer open access journal of Internet Services and Applications.

#### 10.1.3.2. Reviewer - Reviewing Activities

- Emmanuelle Anceaume - Elsevier JPDC (Journal of Parallel and Distributed Computing), Performance Evaluation, IEEE TDSC (Transactions on Dependable and Secure Computing), and IEEE TPDS (Transactions on Parallel and Distributed Systems).
- Michel Hurfin - Springer JISA (Journal of Internet Services and Applications) and Springer TOCS (Theory of Computing Systems).
- Jean-François Lalande - IARIA IJAS (International Journal on Advances in Security), and Elsevier Computer Communications (International Journal for the Computer and Telecommunications Industry).
- Guillaume Piolle - ACM TOIT (Transactions on Internet Technologies).
- Eric Totel - IEEE Transactions on Reliability.

#### 10.1.4. Invited Talks

Emmanuelle Anceaume was invited to give

- a keynote at Algotel 2017, May 2017, entitled "Bitcoin and its distributed ledger"
- a keynote at WIFS 2017, December 2017, entitled: "A primer on blockchain technology and the bitcoin cryptocurrency"

#### 10.1.5. Leadership within the Scientific Community

Ludovic Mé serves the Scientific Council of the LIRIMA (Laboratoire International de Recherche en Informatique et Mathématiques Appliquées).

Ludovic Mé chairs the steering Committee of the annual French conference RESSI (Rendez-Vous de la Recherche et de l'Enseignement de la Sécurité des Systèmes d'Information). He is a member of the Steering Committee of the annual international conference RAID (International Symposium on Research in Attacks, Intrusions and Defenses).

#### 10.1.6. Research Administration

Emmanuelle Anceaume has participated in various juries (Post-doctoral grants, delegation Inria, PEDR Inria). As a member of the CE Inria, Emmanuelle Anceaume has participated to the hiring committee CR2/CR1 of Rennes and Sophia Antipolis.

Michel Hurfin is the local representative of the "mission jeunes chercheurs" in Rennes. He is a member of the "Commission personnel" and is in charge of the PhD student recruitment campaign of Inria Rennes Bretagne Atlantique. He is a member of the councils of the doctoral school Matisse. He is a member of the advisory board of the doctoral training center of EIT Digital in Rennes.

Ludovic Mé acts as Scientific Officer for the Rennes - Bretagne Atlantic Inria Research Center. As such, he is also a member of the Evaluation Commission and of the Internal Scientific Council of Inria.

Ludovic Mé leads the expert group dedicated to the evaluation of the French laboratories working in the "computing and telecom" domain, relatively to the way they protect their scientific and technical patrimony (PPST French regulation).

Valérie Viet Triem Tong has participated in the scientific evaluation comity *Global Security and Cybersecurity* (CES 39) of the French Research Agency (ANR). Valérie Viet Triem Tong has also participated in the Inria post-doctoral grant.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Certification

The master degree program "Mastère Spécialisé en Cybersécurité" has received the [SecNumedu](#) label. This label testifies that this program meets the requirements of a charter that has been jointly established by ANSSI (Agence Nationale de la Sécurité des Systèmes d'Information) and various actors (administrations, companies, ...) of the domain. This label was awarded during the annual Forum International de la Cybersécurité (FIC) in January 2017 at Lille.

### 10.2.2. Teaching

- Master: Emmanuelle Anceaume, *Research in Computer Science - Distributed Algorithms*, 20 hours of lecture, M2; Université Rennes 1, France;
- Licence: Christophe Bidan, *Algorithms and Data Structures*, 36 hours of lecture including 7.5 hours of lectures, L3 - first year of the engineering degree, CentraleSupélec, France;
- Licence: Christophe Bidan, *Software Engineering*, 12 hours, L3 - first year of the engineer degree, CentraleSupélec, France;
- Licence: Christophe Bidan, *Supervision of student project*, 1 project, L3 - first year of the engineer degree, CentraleSupélec, France;
- Master: Christophe Bidan is responsible for the module *Secured information systems*, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Christophe Bidan, *Applied cryptography*, 6 hours of lecture, M2 - master 2 degree, University of Rennes 1, France;
- Master: Christophe Bidan, *Applied cryptography*, 15 hours including 6 hours of lecture, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master : Christophe Bidan, *Cryptographic Protocols*, 6 hours of lecture, mastère CS (Cyber Security), CentraleSupélec, France;
- Master: Christophe Bidan, *Information systems*, 4.5 hours, M1 - second year of the engineer degree, CentraleSupélec, France;
- Master: Christophe Bidan, *Supervision of student project*, 2 projects, M1 - second year of the engineer degree, CentraleSupélec, France;
- Licence: Gilles Guette, *Algorithm and Complexity*, 28 hours, L1 - Licence, ISTIC/University of Rennes, France;
- Licence: Gilles Guette, *Network Initiation*, 57.5 hours, L3 - Licence, ISTIC/University of Rennes, France;

- Licence: Gilles Guette, *Network Initiation*, 41.5 hours, L3 - first year of the engineer degree, ESIR, France;
- Master: Gilles Guette, *Network Routing*, 32 hours, M1 - second year of the engineer degree, ESIR, France;
- Master: Gilles Guette, *Mobile Network Routing*, 5 hours, M1 - second year of the engineer degree, ESIR, France;
- Master: Gilles Guette, *Advanced Network Services*, 10 hours, M1 - second year of the engineer degree, ESIR, France;
- Master: Gilles Guette, *Network Project*, 24 hours, M1 - second year of the engineer degree, ESIR, France;
- Master: Gilles Guette, *Security*, 28 hours, M1 - second year of the engineer degree, ESIR, France;
- Master: Gilles Guette, *Network and System Security*, 12 hours, M2 - third year of the engineer degree, ESIR, France;
- Master: Gilles Guette, *Network Modeling*, 18 hours, M2 - third year of the engineer degree, ESIR, France;
- Master: Gilles Guette, *Sensors Network*, 30 hours, M2 - Master, ISTIC/University of Rennes, France;
- Master: Gilles Guette, *Supervision of student*, Contrat de professionnalisation, M2 - third year of the engineer degree, ESIR, France;
- Master: Gilles Guette, *Supervision of student internship*, M2 - ISTIC/University of Rennes, France;
- Licence: Guillaume Hiet, *Algorithms and Data Structures*, 12.5 hours, L3 - first year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Hiet, *Computer security and privacy for the engineer*, 8 hours, M1 - second year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Hiet, *Buffer overflow vulnerabilities*, 16 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Hiet, *Buffer overflow vulnerabilities*, 16 hours, M2 - Mastère Spécialisé CS (Cyber Security), CentraleSupélec, France;
- Master: Guillaume Hiet, *Pentest*, 19 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Hiet, *Pentest*, 3 hours, M2 - Mastère Spécialisé CS (Cyber Security), CentraleSupélec, France;
- Master: Guillaume Hiet, *Introduction to Linux*, 3 hours, M2 - Mastère Spécialisé CS (Cyber Security), CentraleSupélec, France;
- Master: Guillaume Hiet, *Java Security*, 4.5 hours, M2 - Mastère Spécialisé CS, CentraleSupélec, France;
- Master: Guillaume Hiet, *Linux Security*, 18 hours, M2 - Mastère Spécialisé CS, CentraleSupélec, France;
- Master: Guillaume Hiet, *Linux Security*, 7.5 hours, third year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Hiet, *LDAP*, 7.5 hours, third year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Hiet, *Intrusion Detection*, 15 hours, M2 - Mastère Spécialisé CS, CentraleSupélec, France;
- Master: Guillaume Hiet, *Intrusion Detection*, 13.5 hours, M2 - third year of the engineer degree, M2 research degree of University of Rennes 1, CentraleSupélec, France;

- Master: Guillaume Hiet, *Security Monitoring*, 3 hours, M2, cycle "Sécurité Numérique", INHESJ, France;
- Master: Guillaume Hiet, *Computer Security*, 31.5 hours, M2, Mastère Spécialisé Architecte des Systèmes d'Information, CentraleSupélec, France;
- Master: Guillaume Hiet, *Intrusion Detection*, 16 hours, M2, University of Rennes 1, France;
- Master: Guillaume Hiet, *Intrusion Detection*, 10 hours, M2 - third year of the engineer degree, ESIR, France;
- Master: Guillaume Hiet, *Intrusion Detection*, 9 hours, M2, Université of Limoges, France;
- Master: Guillaume Hiet, *Firewall*, 6 hours, M2, University of Rennes 1, France;
- Master: Guillaume Hiet, *Supervision of student project*, 4 projects, M1 - second year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Hiet, *Supervision of student project*, 2 projects, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Hiet, *Supervision of student project*, 2 projects, M2 - Mastère Spécialisé CS (Cyber Security), CentraleSupélec, France;
- Master: Jean-François Lalande, *Legal aspects of information security*, 3.5 hours, M2 - master CyberSecurity, CentraleSupélec, France;
- Master: Guillaume Hiet, *Android Malware*, 3.5 hours, M2, Mastère Spécialisé CS (Cyber Security), France;
- Master: Jean-François Lalande, *Supervision of student project*, 2 projects, M1 - second year of the engineer degree, CentraleSupélec, France;
- Master: Jean-François Lalande, *Supervision of student project*, 2 projects, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Jean-François Lalande, *Supervision of student project*, 1 projects, M2 - Mastère Spécialisé CS (Cyber Security), CentraleSupélec, France;
- Licence : Ludovic Mé, *Software Engineering*, 18 hours, L3 - first year of the engineer degree, CentraleSupélec, France;
- Licence : Ludovic Mé, *Software Engineering tutorials*, 6 hours, L3 - first year of the engineer degree, CentraleSupélec, France;
- Licence : Ludovic Mé, *Software Engineering and Java development*, 18 hours, L3 - first year of the engineer degree, CentraleSupélec, France;
- Master : Ludovic Mé, *Information systems tutorials*, 6 hours, M1 - second year of the engineer degree, CentraleSupélec, France;
- Master : Ludovic Mé, *Supervision of student project*, 1 project, 38 hours, M1 - second year of the engineer degree, CentraleSupélec, France;
- Licence: Guillaume Piolle, *Software engineering*, 1.5 hours, L3 - first year of the engineering degree, CentraleSupélec, France;
- Master: Guillaume Piolle, *Modelling, Algorithms and Programming*, 22 hours, M1 - second year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Piolle, *Computer security and privacy*, 5 hours, M1 - second year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Piolle, *Software project*, 3.5 hours, M1 - second year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Piolle, *Relational databases*, 6 hours, M1 - second year of the engineer degree, CentraleSupélec, France;

- Master: Guillaume Piolle, *Computer networks*, 30 hours, M1 - second year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Piolle, *Security Policies*, 4.5 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Piolle, *Java programming*, 4.5 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Piolle, *Computer networks*, 9 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Piolle, *Software engineering*, 12 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Piolle, *Network Access Control*, 9 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Piolle, *Web development*, 32 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Piolle, *Privacy protection*, 18 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Piolle, *Computing project*, 60 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Guillaume Piolle, *Legal aspects of information security*, 4.5 hours, M2 - master CyberSecurity, CentraleSupélec, France;
- Licence : Eric Totel, *Foundations of computer science, data structures and algorithms*, 9 hours, L3 - first year of the engineer degree, CentraleSupélec, France;
- Licence : Eric Totel, *Software Modeling*, 15 hours, L3 - first year of the engineer degree, CentraleSupélec, France;
- Master : Eric Totel, *Operating Systems*, 30 hours, M1 - second year of the engineer degree, CentraleSupélec, France;
- Master : Eric Totel, *C language*, 24 hours including 6 hours of lecture, M2 - master CS (Cyber Security), CentraleSupélec, France;
- Master : Eric Totel, *C language and C++ language*, 12 hours including 6 hours of lecture, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master : Eric Totel, *Dependability* , 9 hours including 7.5 hours of lecture, M2 - third year of the engineer degree and master research, CentraleSupélec, France;
- Master : Eric Totel, *Dependability*, 3 hours of lecture, M2 - third year of the engineer degree (ingénierie des systèmes automatisés), CentraleSupélec, France;
- Master : Eric Totel, *Dependability*, 4.5 hours of lecture, M2 - post-graduate training (master Architecture des Réseaux de Communication), CentraleSupélec, France;
- Master : Eric Totel, *Intrusion Detection*, 6 hours of lecture, M2 - M2 - master CS (Cyber Security), CentraleSupélec, France;
- Master : Eric Totel, *Intrusion Detection*, 9 hours of lecture, M2 - master 2 degree, University of Rennes 1, France;
- Master : Eric Totel, *Supervision of student project*, 4 projects, M1 - second year of the engineer degree, CentraleSupélec, France;
- Master : Eric Totel, *Supervision of student project*, 1 project, M2 - third year of the engineer degree, CentraleSupélec, France;
- Licence: Frédéric Tronel, *Software engineering*, 40 hours, L3 - first year of the engineer degree, CentraleSupélec, France;

- Licence: Frédéric Tronel, *Operating Systems*, 12 hours, L3 - first year of the engineer degree, CentraleSupélec, France;
- Master: Frédéric Tronel is responsible of the M2 degree in *CyberSecurity* (mastère spécialisé), organized jointly by CentraleSupélec and Institut Mines Télécom (IMT) Atlantique, France;
- Master: Frédéric Tronel, *Operating systems*, 21 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Frédéric Tronel, *Compilers*, 18 hours, M2 - third year of the engineer degree, Centrale-Supélec, France;
- Master: Frédéric Tronel, *Automatic reasoning*, 4.5 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Frédéric Tronel, *Assembly Language*, 6 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Frédéric Tronel, *Buffer overflow vulnerabilities (theory and practice)*, 20.5 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Frédéric Tronel, *Firewall*, 15 hours, M2 - third year of the engineer degree, CentraleSupélec, France;
- Master: Frédéric Tronel, *Calculability in distributed systems*, 6 hours, M2, jointly with University of Rennes 1 and CentraleSupélec, France;
- Master: Frédéric Tronel, *Computer network*, 8 hours, M2, jointly with University of Rennes 1 and CentraleSupélec, France;
- Licence : Valérie Viet Triem Tong, *Algorithms and Data Structures*, 36 hours of lecture including 7 hours of lectures, L3 - first year of the engineering degree, CentraleSupélec, France;
- Licence : Valérie Viet Triem Tong, *Supervision of student project*, 6 projects of 2nd year of the engineer degree, CentraleSupélec, France;
- Master : Valérie Viet Triem Tong, *Games Theory*, 18 hours, M1 - second year of the engineering degree, CentraleSupélec, France;
- Master : Valérie Viet Triem Tong, *Formal Methods*, 9 hours, M2 - third year of the engineering degree, CentraleSupélec, France;
- Master : Valérie Viet Triem Tong, *Intrusion detection using information flow control*, 9 hours, M2 / third year of the engineering degree, CentraleSupélec, France;
- Master : Valérie Viet Triem Tong, *Programming in Java*, 12 hours, M1 - international students (NplusI) second year of the engineering degree, CentraleSupélec, France;
- Master : Valérie Viet Triem Tong, *Small elements of decidability*, 7.5 hours, M2 - third year of the engineering degree, CentraleSupélec, France;
- Master : Valérie Viet Triem Tong, *Supervision of student project*, 1 project, mastere CS (Cyber Security), CentraleSupélec, France;
- Master : Valérie Viet Triem Tong, *Supervision of student project*, 8 projects, M1 - second year of the engineer degree, CentraleSupélec, France;
- Master : Valérie Viet Triem Tong, *Supervision of student project*, 1 project year of the engineer degree, CentraleSupélec, France;
- Doctorant : Valérie Viet Triem Tong, *Malware analysis by OS information flow tracking*, 2 hours, Summerschool - Cyber in Berry, Bourges, France;

### 10.2.3. Supervision

#### 10.2.3.1. Theses defended in 2017



- PhD: Laurent Georget, *Suivi de flux d'information correct pour les systèmes d'exploitation Linux*, Octobre 2017, supervised by Mathieu Jaume (25% - MdC LIP6), Guillaume Piolle (25%), Frédéric Tronel (25%), and Valérie Viet Triem Tong (25%);
- PhD: Deepak Subramanian, *Multi-level Information Flow Monitoring*, started in January 2013, supervised by Christophe Bidan (20%) and Guillaume Hiet (80%);
- PhD: Antoine Guellier, *Utilisation de la cryptographie homomorphe pour garantir le respect de la vie privée*, started in October 2013, supervised by Christophe Bidan (50%) and Nicolas Prigent (50%);
- PhD: Kun He, *Mise en œuvre de techniques de droit à l'oubli pour les contenus numériques*, started in October 2013, supervised by Christophe Bidan (50%) and Gaetan LeGuelvout (50% - IRT B-Com);
- PhD: Solenn Brunet, *Privacy-preserving location-based services*, started in October 2014, supervised by Christophe Bidan(40%), Sébastien Gams (30%) and Jacques Traoré (30% - Orange Labs Caen);
- PhD: Florian Grandhomme, *Protocole de routage externe type BGP dans un environnement réseaux tactiques adhoc mobiles : faisabilité et performances*, started in October 2014, supervised by Gilles Guette (50%), Adlen Ksentini (25% - Eurecom), and Thierry Plesse (25% - DGA MI).

#### 10.2.3.2. Theses in progress

- PhD in progress: Mouna Hkimi, *Détection d'intrusion dans les systèmes distribués*, started in October 2013, supervised by Eric Totel (50%) and Michel Hurfin (50%);
- PhD in progress: Thomas Letan, *Contribution à la sécurité des couches basses des systèmes d'information*, started in January 2015, supervised by Guillaume Hiet (50%), Pierre Chifflier (25% - ANSSI), and Ludovic Mé (25%);
- PhD in progress: Damien Crémilleux, *Visualisation d'évènements de sécurité pour la supervision*, started in October 2015, supervised by Christophe Bidan (30%), Nicolas Prigent (35%), and Frédéric Majoreczyk (35% - DGA MI);
- PhD in progress: Mourad Leslous, *Déclenchement automatique de codes jugés suspects dans les applications Android*, started in October 2015, supervised by Thomas Genet (20% - Celtique Inria project), Jean François Lalande (40% - INSA Centre Val de Loire), and Valérie Viet Triem Tong (40%);
- PhD in progress: Mounir Nasr Allah, *Contrôle de flux d'information par utilisation conjointe d'analyse statique et d'analyse dynamique accélérée matériellement*, started in November 2015, supervised by Guillaume Hiet (75%) and Ludovic Mé (25%);
- PhD in progress: Pernelle Mensah, *Adaptation de la Politique de Sécurité guidée par l'Évaluation du Risque dans les Infrastructures de Communication modernes*, started in January 2016, supervised by Eric Totel (25%), Guillaume Piolle (25%), Christine Morin (25% - Myriad Inria project), and Samuel Dubus (25% - Nokia);
- PhD in progress: David Lanoë, *Détection d'intrusion dans les applications distribuées : l'approche comportementale comme alternative à la corrélation d'alertes*, started in october 2016, supervised by Michel Hurfin (50%) and Eric Totel (50%);
- PhD in progress: Aurélien Trulla, *Caractérisation de malware Android par suivi de flux d'information et nouvelles techniques d'évasion*, started in October 2016, supervised by Jean Louis Lanet (25% - Tamis Inria project) and Valérie Viet Triem Tong (75%);
- PhD in progress : Ronny Chevalier , “Enhanced computer platform security through an intrusion-detection approach”, started in November 2016, supervised by Guillaume Hiet (50%), Boris Balach-eff (25% - HP), and Ludovic Mé (25%);
- PhD in progress: Laetitia Leichtnam, *Visualisation pour la caractérisation d'évènements de sécurité*, started in october 2016, supervised by Eric Totel (40%), Nicolas Prigent (30%) and Ludovic Mé (30%);

- PhD in progress : Charles Xosanavongsa, *Combining Attack Specification and Dynamic Learning from traces for correlation rule generation*, started in december 2016, supervised by Eric Totel (50%) and Ludovic Mé (50%);
- PhD in progress : Pierre Graux, *Security of Hybrid Mobile Applications*, started in october 2017, supervised by Valérie Viet Triem Tong (50%) and Jean-François Lalande (50%);
- PhD in progress : Vasile Cazacu, *Calcul distribué pour la fouille de données cliniques*, started February 2017, supervised by Emmanuelle Anceaume (50%) and Marc Cuggia (50%)
- PhD in progress : Aurélien Dupin, *Secure multi-partie computations*, started February 2016, supervised by Christophe Bidan(40%), David Pointchavalm (30% - ENS) and Renaud Dubois (30% - Thales).

#### 10.2.3.3. Supervision of external PhD candidates

- LL. D. (Doctor of Laws) in progress: Gustav Malis, *Droit à l'effacement des données mises à disposition par les personnes elles-mêmes*, started in March 2014, supervised by Annie Blandin (80% - IODE) and Guillaume Piolle (20%);
- PhD in progress: Oualid Koucham, *Détection d'intrusions pour les systèmes de contrôle industriels*, started in January 2015, supervised by Stéphane Mocanu (50% - Gipsa-lab), Guillaume Hiet (25%), and Jean-Marc Thiriet (25% - Gipsa-lab);
- PhD in progress : Yves Mocquard, *Population protocols*, started in september 2015, supervised by Bruno Sericola (Dyonisos Inria project) and Emmanuelle Anceaume;.

#### 10.2.4. Juries

Ludovic Mé was a member of the PhD committee for the following PhD and HDR thesis:

- Pierre Laperdrix, *Browser Fingerprinting: Diversity to Augment Authentication and Build Client-side Countermeasures*, INSA of Rennes, 03/10/2017 (President of the Jury);

Ludovic Mé has reported the following PhD thesis:

- Pierre Parrend, *Emergent Industrial Ecosystems*, University of Strasbourg, 12/12/2017.

Christophe Bidan was a member of the PhD committee for the following PhD thesis:

- Jean Aimé Maxa, *Architecture de communication sécurisée d'une flotte de drones*, Université Toulouse 3 Paul Sabatier (UT3 Paul Sabatier), 28/06/2017;
- Eric Asselin, *Système de détection d'intrusion adapté au système de communication aéronautique ACARS*, Institut National Polytechnique de Toulouse (INP Toulouse), 28/06/2017 (reviewer);

Jean-François Lalande has reported the following PhD thesis:

- Julien Hatin, *Evaluation de la confiance dans un processus d'authentification*, 24/11/2017.

Eric Totel was a member of the PhD committee for the following PhD thesis:

- Giannakou Anna, *Self-Adaptable Security Monitoring for IaaS Cloud Environments*, 06/07/2017 (President of the Jury).
- Yacine Hebbal, *Semantic monitoring mechanisms dedicated to security monitoring in IaaS cloud*, 18/09/2017 (President of the Jury).

Valérie Viet Triem Tong has reported the following PhD thesis:

- Franck de Goer de Herve, *Rétro-ingénierie de programmes binaires en une exécution - une analyse dynamique légère basée au niveau des fonctions*, 10/20/2017.

### 10.3. Popularization

Valérie Viet Triem Tong has participated to the scientific television show *l'Esprit Sorcier* recorded at *Musée des Sciences et de l'Industrie* during the *Fête de la Science*. She has also participated to the scientific promotion movie about *High Security Laboratory* recorded at Nancy.

Damien Crémilleux has participated to the event “**Ma thèse en 180s**” and the “RCC challenge: my thesis 3.0” for the popularization of his work's thesis on security visualization.

## COAST Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. Member of the Organizing Committees

- Claudia-Lavinia Ignat was member of the organisation committee of The Fifteenth International Workshop on Collaborative Editing Systems in conjunction with CSCW 2017

### 8.1.2. Scientific Events Selection

#### 8.1.2.1. Member of the conference program committees

- Claude Godart was PC member of the conference program committee of BPMDS (Business Process Modeling, Development and Support), EDOC (The enterprise computing conference), ICSOC (International Conference on Services Oriented Computing), IEEE CLOUD Computing, ICWS (IEEE International Conference on Web Services), SCC (IEEE International Conference on Services Computing), S2 ICIOT (S2 International Conference on Internet of Things), IEEE/WIC/ACM WI (Web Intelligence conference), WISE (Web Information Systems Engineering) conferences.
- Claudia-Lavinia Ignat was PC member of CDVE (International Conference on Cooperative Design, Visualization and Engineering) 2017 and The Fifteenth International Workshop on Collaborative Editing Systems in conjunction with CSCW 2017
- Olivier Perrin was PC Member of ICSOC 2017, CoopIS 2017, ATC 2017, MoLS 2017 and some workshops.
- François Charoy was PC Member of ICEBE (International Conference on Business Engineering) 2017, CTS 2017 (International Symposium on Collaborative Technologies and Systems), DG.O (International Conference on Digital Government Research) 2017, IEEE WETICE 2017, ICSOC 2017, IEEE International Conference on Business Information Systems, ISCRAM 2017 and of several workshops.
- Gérald Oster was a PC member of CoopIS (International Conference on Cooperative Information Systems) 2017, CSCW (21st ACM Conference on Computer-Supported Cooperative Work and Social Computing) 2018 (Online-first).
- Khalid Benali was PC Member of WorldCIST'17 (World Conference on Information Systems and Technologies), I3E 2017 (IFIP Conference on e-Business, e-Services and e-Society), ICICS 2017 (8th International Conference on Information and Communication Systems), INFORSID'2017, CloudTech'17 (Third International Conference of Cloud Computing Technologies and Applications), MEDES 2017 (9th International Conference on Management of Digital EcoSystems),

### 8.1.3. Journal

#### 8.1.3.1. Member of the editorial boards

- Claude Godart is member of the editorial board of IEEE Transactions on Service Computing, International Journal of Services Computing, and member of the review board of the International Journal of Next Generation Computing.
- Claudia-Lavinia Ignat is member of the editorial board of Journal of CSCW (Computer Supported Cooperative Work).
- François Charoy is member of the editorial board of Service Oriented Computing and Applications Journal (Springer).

### 8.1.3.2. Reviewer - Reviewing activities

- Olivier Perrin reviewed papers for IEEE Transactions on Services Computing journal, IEEE Transactions on Parallel and Distributed Systems and Journal of Systems and Software.
- Claudia-Lavinia Ignat reviewed papers for Transactions on Parallel and Distributed Systems, Transactions on Internet Technology, Transactions on Interactive Intelligent Systems and CSCW 2018.
- Gérald Oster reviewed papers for Computer Supported Cooperative Work Journal and Concurrency and Computation: Practice and Experience journal.

### 8.1.4. Scientific Expertise

François Charoy was member of the HECERES committee for the CRI lab of Paris 1 Sorbonne

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Permanent members of the COAST project-team are leading teachers in their respective institutions. They are responsible of lectures in disciplines like software engineering, database systems, object oriented programming and design, distributed systems, service computing and more advanced topics at all levels and in different of departments in the University. Most of the PhD Students have also teaching duties in the same institutions. As a whole, the COAST team accounts for more than 2500 hours of teaching. Members of the COAST team are also deeply involved in the pedagogical and administrative life of their departments.

- Claude Godart is responsible for the Computer Science department of the engineering school ESSTIN.
- Khalid Benali is responsible for the professional Master degree speciality “Distributed Information Systems” of MIAGE and of its international branch in Morocco.
- François Charoy is responsible of the Software Engineering specialisation at the TELECOM Nancy Engineering School of University of Lorraine.
- Pascal Urso was responsible for the “Security, Services, Systems and Network” track of the master degree in computer science at University of Lorraine from September 2013 to June 2017.

### 8.2.2. Supervision

- PhD (in progress): Quang Vinh Dang, Trust-based large scale collaboration, started in 10/2014, Claudia-lavinia Ignat and François Charoy
- PhD (in progress): Hoai Le Nguyen, Study of group performance and behavior in collaborative editing, started in 9/2015, Claudia-Lavinia Ignat and François Charoy
- PhD (in progress): Hoang Long Nguyen, A Trust Based Authorization Model and Framework for the Cloud, started in 11/2015, Claudia-Lavinia Ignat and Olivier Perrin
- PhD (in progress): Victorien Elvinger, Secured Replication for Peer-to-Peer Collaborative Infrastructures, started in 10/2015, François Charoy and Gérald Oster
- PhD (defended): Jordi Martori i Adrian, Data constraints for large-scale collaboration, started in 10/2013, defense in 5/2017, François Charoy and Pascal Urso
- PhD (in progress): Guillaume Rosinoski, Elastic BPM and the Cloud, started in 10/2014, François Charoy and Samir Youssef
- PhD (in progress): Quentin Laporte-Chabasse, Federation of Organisations over Peer to Peer Collaborative Network, started in 10/2016, François Charoy and Gérald Oster
- PhD (in progress): Béatrice Linot, Trust in cooperative systems, Jérôme Dinet et François Charoy, started 11/2016
- PhD (in progress): Anis Ahmed Nacer, Safe Service Composition, Olivier Perrin and François Charoy, started 3/2017

- PhD (in progress): Matthieu Nicolas, Optimisation of Replication Algorithms, Olivier Perrin and G erald Oster, started 10/2017

### **8.2.3. Juries**

- Claudia-Lavinia Ignat was member of CR recruitment jury at Inria Nancy-Grand Est

COAST members were members of the following PhD and HdR defense committees:

- Hala Skaf Molli, HdR, Universit  de Nantes, October 2017 (Fran ois Charoy)
- Mourad Bouneffa, HdR, Universit  du Littoral C te d'Opale (Claude Godart)
- Elian Aubry, PhD, Universit  de Lorraine, December 2017 (Fran ois Charoy)
- Mohsen Sayed, PhD, Universit  de Lorraine, July 2017 (Fran ois Charoy)
- Fatma Slaimi, PhD, Universit  d'Aix Marseille (Claude Godart)
- Cheick Salmi, PhD, Ecole Nationale Sup rieure de M canique et d'A ronautique (Claude Godart)
- Emma Hachicha Belghith, PhD, Universit  Paris-Saclay (Claude Godart)
- Jihane Lakhrouit, PhD, ENSIAS Rabat (Claude Godart)
- Hafida Naim, PhD, Universit  d'Aix Marseille (Claude Godart)

## **8.3. Popularization**

- In June 2017 Claudia-Lavinia Ignat organised the meeting Research@Inria at Inria Nancy-Grand Est for presenting to internship students, PhD students and postdocs various Inria programs and the main research topics at Inria with a focus on activities of research teams at Inria Nancy-Grand Est. She also presented the main activities of a researcher and briefly described her research work.

## **8.4. Institutional commitment**

- Claudia-Lavinia Ignat is in charge of European affairs for Inria Nancy Grand-Est. She is the Delegate of International Relations for Inria Nancy-Grand Est and member of COST-GTRI commission. She is member of the Inria Nancy-Grand Est COMIPERS committee. She is member of Inria CAP Chercheurs commission. She is responsible with the activity kindergarten at AGOS Inria Nancy-Grand Est.

## COATI Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

Whole team

Journées JCALM (May 4-5, 2017) held in Sophia-Antipolis. Topic: Designs.

Christelle Caillouet, David Coudert

“Journées RESCOM 2017” of GDR RSD of CNRS, Sophia Antipolis, France, January 11-13, 2017.

Frédéric Havet

6th STINT meeting, Valgaudemar, France, July 5-7, 2017;

7th STINT meeting, Sophia Antipolis, France, December 4-6, 2017.

Frédéric Havet, Bruce Reed

2nd Cassidian Workshop, Cassis, France, May 14-20, 2017.

Frédéric Giroire, Joanna Moulhierac

GreenDays@Sophia 2017: 8th French workshop on Network Energy efficiency, Université Côte d’Azur, Campus SophiaTech, Sophia Antipolis, June 26-27, 2017.

Bruce Reed

Co-Organizer 2017 Barbados Graph Theory Workshop, Holetown, Barbados, March 24-31, 2017.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

David Coudert

Scientific Co-Chair of Track 7 “Cloud Computing and Data Center Management” of the 14th International Symposium on Pervasive Systems, Algorithms, and Networks (I-SPAN’17), Exeter, UK, June 21-23, 2017.

#### 9.1.2.2. Member of the Conference Program Committees

David Coudert

AlgoTel’17: Rencontres Francophones sur les Aspects Algorithmiques de Télécommunications, Quiberon, France, May 30-June 2, 2017;

ONDM’17: International Conference on Optical Networking Design and Modeling, Budapest, Hungary, May 15-17, 2017;

IEEE ICC’17: IEEE International Conference on Communications, Paris, France, May 21-25, 2017;

IEEE Globecom’17: IEEE Global Communications Conference, Singapore, December 4-8, 2017.

Frédéric Havet

IX Latin and American Algorithms, Graphs and Optimization Symposium (LAGOS 2017), Marseille, France, September 11-15, 2017;

19th Journées Graphes et Algorithmes (JGA 2017), Bordeaux, France, November 15-17, 2017.

Nicolas Nisse

Member of the Scientific Committee of GRASTA' 17, 8th workshop on GRAPh Searching, Theory & Applications, Anogia, Crete, Greece, April 10–13, 2017;

FCT' 17: 21st International Symposium on Fundamentals of Computation Theory, Bordeaux, France, September 11-13, 2017.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

Jean-Claude Bermond

Computer Science Reviews, Discrete Mathematics, Discrete Applied Mathematics, Journal of Graph Theory, Journal of Interconnection Networks (Advisory Board), Mathématiques et Sciences Humaines, Networks, Parallel Processing Letters, the SIAM book series on Discrete Mathematics, Transactions on Network Optimization and Control, Algorithms and Applications.

David Coudert

Discrete Applied Mathematics (Elsevier), Networks (Wiley).

Frédéric Giroire

Journal of Interconnection Networks (World Scientific).

Frédéric Havet

Discrete Mathematics and Theoretical Computer Science.

Bruce Reed

Journal of Graph Theory, Electronic Journal of Combinatorics.

#### 9.1.3.2. Reviewer - Reviewing Activities

Members of COATI have reviewed numerous manuscripts submitted to international journals, including: Algorithmica, Algorithms, Bulletin of the Malaysian Mathematical Sciences Society, Computer Communications, Computer Networks, Computers & Operations Research, Discrete Applied Mathematics, European Journal of Operational Research, IEEE/OSA Journal of Lightwave Technology, Networks, Photonic Network Communications, The Computer Journal, Theoretical Computer Science, IEEE/ACM Transactions on Communications, IEEE/ACM Transactions on Networking, IEEE Transactions on Network and Service Management, etc.

### 9.1.4. Invited Talks

Julien Bensmail

Seminar of the Graphs and Optimisation team, LaBRI, Bordeaux (April 28, 2017): “On augmenting matchings via bounded-length augmentations”.

David Coudert

Seminar of the MAORE team, LIRMM, Montpellier (January 20, 2017): “Design of reliable fixed microwave backhaul networks”;

Joint ACP and GdR RO Summer School on Constraints and Operational Research, Porquerolles, France (September 18-22, 2017): “On the Flinders Hamiltonian Cycle Problem Challenge”;

Seminario del Doctorado en Ingeniera de Sistemas Complejos, Santiago, Chile (November 23, 2017): “On the Flinders Hamiltonian Cycle Problem Challenge”.

Guillaume Ducoffe

Logic seminar, University of Bucharest, Romania (March 2, 2017): “Treewidth vs. Tree-length”;

Scientific seminar, West University of Timisoara, Romania (April 26, 2017): “Revisiting Preferential Attachment with applications to Twitter”;

International Workshop on Graphs, Networks and Digital Humanities, Bucharest, Romania (October 9, 2017): “Revisiting Preferential Attachment with applications to Twitter”.

Frédéric Giroire

Entretiens Jacques Cartier, Concordia University, Montréal, Canada (October 17-18, 2017): “Towards Energy Efficient Networks with SDN and Virtualization”;

SDN Day, IRT SystemX, Palaiseau, France (November 23, 2017): “Approximation algorithms for the Placement of Ordered Service Function Chains”.

Nicolas Nisse

Seminar of the ACRO team, LIF, Marseille (July 10, 2017): “Recovery of disrupted airline operations”.

Luc Hogie, Michel Syska

Action GRAMINEES (GGraph data Mining in Natural, Ecological and Environnemental Sciences), journées Science des Données MaDICS (Masses de Données, Informations et Connaissances en Sciences), Marseille, France (June 23, 2017): “Bibliothèque de fouille de graphe”.

### 9.1.5. Leadership within the Scientific Community

David Coudert

Member of the steering committee of *Pôle ResCom du GDR RSD du CNRS* since 2005, and co-chair since June 2017;

Member of the steering committee of *Rencontres francophones sur les aspects algorithmiques des télécommunications (AlgoTel)*.

Frédéric Giroire

Member of the steering committee of *GT Energy of the GDR RSD du CNRS*.

Frédéric Havet

GT Graphes du GDR IM du CNRS;

Journées Graphes et Algorithmes (JGA);

Journées Combinatoire et Algorithmes du Littoral Méditerranéen (JCALM).

### 9.1.6. Scientific Expertise

Jean-Claude Bermond

Expert for DRTT-MESR (Crédit impôt recherche (CIR et agréments)).

David Coudert

Expert for the Future and Emerging Technologies Open (FET-Open) European program (RIA Cut-off September 27, 2017);

Expert for “Haut Conseil de l’évaluation de la recherche et de l’enseignement supérieur” (HCERES).

Frédéric Giroire

Expert for ANR.

Frédéric Havet

Expert for ANR and NSERC.



### 9.1.7. Research Administration

Jean-Claude Bermond

Responsible for the cooperation between Inria and Greece (meeting with the French Embassy in Greece, obtention of join grants and of financial support for internships via the Bodossakis Foundation).

Christelle Caillouet

Elected member of CPRH (Comité Permanent de Ressources Humaines) University of Nice Sophia Antipolis;

Elected member of I3S laboratory committee since December 2016;

Recruiting committee (comité de sélection) University of Lyon.

David Coudert :

President of “Comité de Sélection” SCIENCES / 27-PR-388, Université Nice-Sophia Antipolis, 2017;

Nominated member for Inria at the doctoral school STIC since September 2017;

Member of the “Comité de Suivi Doctoral” of Inria;

Member of the scientific council of Academy RISE (Networks, Information, Digital Society) of UCA<sup>JEDI</sup>.

Frédéric Giroire :

Elected member of I3S laboratory committee since 2012 (reelected in December 2016);

In charge of the internships of stream UbiNet of Master 2 IFI, UNS.

Frédéric Havet :

Responsible of the ComRed Team of I3S.

Joanna Moulierac

Member of a “Comité de sélection” in Marseille, France, for the 27th section;

Member of the “Conseil de Département Informatique” of IUT Nice.

Nicolas Nisse

Elected member (deputy) of the “Comité de Centre” of Inria Sophia Antipolis.

Michel Syska

Elected member of CPRH (Comité Permanent de Ressources Humaines) University of Nice-Sophia Antipolis;

Recruiting committee (comité de sélection) University of Nice-Sophia Antipolis.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

#### Licence

Julien Bensmail

*Recherche opérationnelle*, 82h ETD, Level L2, IUT Nice Côte d’Azur, UNS;

*Systèmes de gestion de bases de données*, 86h ETD, Level L2, IUT Nice Côte d’Azur, UNS.

Christelle Caillouet

*Object-Oriented Programming*, 60h ETD, Level L1, IUT Nice Côte d’Azur, UNS.

Guillaume Ducoffe

*Introduction Programmation Java*, 9h ETD, Niveau L1, Polytech Nice Sophia.

Nicolas Huin

*Architecture des réseaux*, 21h ETD, Niveau L1, IUT de Nice Côte d'Azur, UNS;

*Programmation répartie*, 21h ETD, Niveau L2, IUT de Nice Côte d'Azur, UNS;

*Compléments d'algorithmique*, 21h ETD, Niveau L2, IUT de Nice Côte d'Azur, UNS.

Nicolas Nisse

*Introduction à l'algorithmique*, 24h ETD, MPSI, Lycée International Valbonne, France.

Joanna Moulierac

*Networks*, 100h ETD, Niveau L1, IUT Nice Côte d'Azur, UNS;

*Algorithmics*, 30h ETD, Niveau L1, IUT Nice Côte d'Azur, UNS;

*Algorithmics*, 30h ETD, Niveau L2, IUT Nice Côte d'Azur, UNS.

Andrea Tomassilli

*Informatique théorique 2*, 24h, Niveau L3, Polytech Nice Sophia.

*Introduction to UNIX and Linux*, 12h, Niveau L3, Polytech Nice Sophia.

Michel Syska

*Operating Systems: Advanced Programming*, 90h ETD, Level L2, IUT Nice Côte d'Azur, UNS;

*Data Structures and Algorithms*, 54h ETD, Level L2, IUT Nice Côte d'Azur, UNS;

*Algorithmics*, 51h ETD, Level L2, IUT Nice Côte d'Azur, UNS;

*Distributed Programming*, 51h ETD, Level L2, IUT Nice Côte d'Azur, UNS;

*Introduction to Algorithms and Complexity*, 30h ETD, Level L3, IUT Nice Côte d'Azur, UNS;

*IT foundations*, 26h ETD, Level L1, IUT Nice Côte d'Azur, UNS;

*Digital culture*, 10h ETD, Level L3, IUT Nice Côte d'Azur, UNS.

## Master

David Coudert

*Algorithms for Telecoms*, 32h ETD, stream UbiNet of Master 2 IFI and Master RIF, UNS;

*Hamiltonian Cycles*, 4h ETD, M2 MDFI, Aix-Marseille University, France.

Frédéric Giroire

*Algorithmics of Telecommunications*, 18h ETD, stream UbiNet of Master 2 IFI, UNS;

*Green Networks*, 18h ETD, stream UbiNet of Master 2 IFI, UNS;

*Introduction to probability and statistics*, 15h ETD, International Master 1, UNS.

Stéphane Pérennes

*Calcul concurrent et distribué en Java*, 60h ETD, Level M1, Miage, Polytech Nice Sophia.

Nicolas Nisse

*Graph Algorithms*, 18h ETD, stream UbiNet of Master 2 IFI and Master RIF, UNS;

*Resolution Methods*, 15h ETD, M1 international, UNS;

*Matching and Graph decompositions*, 4h ETD, M2 MDFI, Aix-Marseille University.

## 9.2.2. Supervision

### 9.2.2.1. Ph.D. theses

PhD: Nicolas Huin, *Energy efficient software defined networks* <https://team.inria.fr/coati/phd-defense-of-nicolas-huin/>, Université Côte d'Azur, September 28, 2017. Co-supervisors: Frédéric Giroire, Dino Lopez (Signet, I3S).

PhD in progress: Fionn McInerney, *Combinatorial Games in Graphs*, since October 2016. Supervisor: Nicolas Nisse.

PhD in progress: William Lochet, *Substructures in digraphs*, since September 2015. Co-supervisors: Frédéric Havet and Stéphan Thomassé (ÉNS Lyon).

PhD in progress: Yelena Yuditsky, School of Computer Science, McGill University. Supervisor: Bruce Reed.

PhD in progress: Andrea Tomassilli, *Diffusion of information on large dynamic graphs*, since October 2016. Supervisors: Stéphane Pérennes and Frédéric Giroire.

PhD in progress: Thibaud Trolliet, *Exploring Trust on Twitter*, since October 2017. Co-supervisors: Arnaud Legout (DIANA) and Frédéric Giroire.

PhD (stopped for reorientation): Steven Roumajon, *Les déterminants de la compétitivité régionale : données microéconomiques et réseaux d'innovation*, from November 2015 until June 2017. Co-supervisors: Patrick Musso (Gredeg) and Frédéric Giroire.

### 9.2.2.2. Internships

Rohit Agarwal

Date: from March 2017 until August 2017

Institution: stream UbiNet of Master 2 IFI, Université Nice-Sophia Antipolis (France)

Supervisors: Frédéric Giroire

Subject: Random graph models for directed social graphs like Twitter

Eleni Batziou

Date: from November 2017 until May 2018

Institution: Master 2, National Technical University of Athens (Greece)

Supervisors: David Coudert

Subject: Enhancing urban mobility with shared on-demand services

Thibaut Blanc

Date: from May 2017 until August 2017

Institution: Licence 3, École Normale Supérieure de Rennes (France)

Co-supervisors: Julien Bensmail, Frédéric Havet

Subject: BMRN-colouring of digraphs

Samir Idwy

Date: from April 2017 until August 2017

Institution: Master 2, Institut National des Postes et Télécommunications (Morocco)

Supervisors: David Coudert

Subject: Transports collectifs personnalisés dans la ville

Lokesh Jain

Date: from June 2017 until August 2017  
Institution: Master 2, Birla Institute of Technology and Science (India)  
Context: Google Summer of Code (GSoC) 2017  
Co-supervisors: David Coudert, Dmitrii Pasechnik (University of Oxford, UK)  
Subject: Modular decomposition of graphs in [Sagemath](#)

Marko Oleksiyenko

Date: from March 2017 until August 2017  
Institution: stream UbiNet of Master 2 IFI, Université Nice-Sophia Antipolis (France)  
Co-supervisors: David Coudert, Nicolas Nisse  
Subject: 2-mode itinerary computation

Panagiotis Pylarinos

Date: from November 2016 until May 2017  
Institution: Master 2, National and Kapodistrian University of Athens (Greece)  
Supervisors: David Coudert  
Subject: Inclusion of dynamic ride-sharing in multimodal trip planning

Maria Spyraou

Date: from June 2017 until August 2017  
Institution: Master 2, National and Kapodistrian University of Athens (Greece)  
Context: Google Summer of Code (GSoC) 2017  
Co-supervisors: David Coudert, Dmitrii Pasechnik (University of Oxford, UK)  
Subject: Modular decomposition of directed graphs in [Sagemath](#)

Thibaud Trolliet

Date: from February 2017 until July 2017  
Institution: Master 2, École Normale Supérieure de Lyon (France)  
Co-supervisors: Frédéric Giroire, Stéphane Pérennes  
Subject: Modélisation du graphe des suivis de Twitter

### 9.2.2.3. Last-year internships

Othmane Bensouda Korachi

Date: from November 2017 until December 2017  
Institution: stream UbiNet of Master 2 IFI, UNS  
Co-supervisors: Christelle Caillouet, Frédéric Giroire  
Subject: Maintaining wireless sensor networks using drones and wireless power transfer

Laila Daanoun

Date: from November 2017 until December 2017  
Institution: stream UbiNet of Master 2 IFI, UNS  
Co-supervisors: Christelle Caillouet, Frédéric Giroire  
Subject: Maintaining wireless sensor networks using drones and wireless power transfer

Mohamed Janati Idrissi

Date: from November 2017 until December 2017  
Institution: stream UbiNet of Master 2 IFI, UNS  
Co-supervisors: Christelle Caillouet, David Coudert  
Subject: Mobile target covering for efficient aerial data gathering

Nirmal Vadakke Palangatt

Date: from November 2017 until December 2017

Institution: stream UbiNet of Master 2 IFI, UNS

Co-supervisors: David Coudert, Nicolas Nisse

Subject: Routing in multimodal networks with bicycles

Mykhailo Zima

Date: from November 2017 until December 2017

Institution: stream UbiNet of Master 2 IFI, UNS

Co-supervisors: David Coudert, Nicolas Nisse

Subject: Routing in multimodal networks with bicycles

Weilin Zhou

Date: from November 2017 until December 2017

Institution: stream UbiNet of Master 2 IFI, UNS

Co-supervisors: Frédéric Giroire, Joanna Moulhierac

Subject: Optimization methods for network slicing

### 9.2.3. *Juries*

Jean-Claude Bermond

President of the jury for the 2017 award “Charles Delorme” for the best PhD thesis in graph theory (<http://gtgraphes.labri.fr/pmwiki/pmwiki.php/PrixTheseDelorme/>);

Member of the jury Robertval (<http://prixroberval.utc.fr/>).

David Coudert :

Referee and member of the PhD jury of Lorenzo Severini, GSSI, L’Aquila, Italy, April 20, 2017;

President of the PhD jury of Guillaume Perez, Université Côte d’Azur, September 29, 2017;

External referee in the PhD thesis monitoring committee of M. Amine Ait-Ouahmed, Université d’Avignon et des Pays de Vaucluse, October 27, 2017;

External referee for authorizing Fen Zhou to enroll in the HDR program, Université d’Avignon et des Pays de Vaucluse, November 2017.

Frédéric Giroire

Member of the PhD jury of Radu Carpa, ÉNS Lyon and Univ. Lyon, October 26, 2017;

Member of the PhD jury of Nicolas Huin, Université Côte d’Azur, September 28, 2017.

Frédéric Havet

Referee and member of the PhD jury of Lucas Pastor, Université Grenoble Alpes, November 23, 2017.

Nicolas Nisse

Member of the PhD jury of Pedro Montealegre, Univ. Orléans, February 28, 2017;

Member of the PhD jury of Sylvain Legay, Univ. Paris Saclay, March 1, 2017;

Referee and member of the PhD jury of Noël Gillet, Université Bordeaux, March 10, 2017;

Referee and member of the PhD jury of Antoine Naudin, Aix-Marseille Université, October 25, 2017.

### 9.2.4. *Teaching responsibilities*

Joanna Moulierac

“Directrice d’études” for the 1st-year students of IUT Nice Côte d’Azur, Département Informatique (since September 2017).

### 9.3. Popularization

Jean-Claude Bermond

Gave a talk “50 years of passion trying to solve delectable problems about graphs and networks” on March 24 during a seminar C@fé ADSTIC organized by the ADSTIC (Doctoral Association of the SophiaTech campus).

Nathann Cohen and David Coudert

Article “[le défi des 1001 graphes](#)” [61] relating how we addressed (and won) the Flinders Hamiltonian Cycle Project Challenge. Published in [Interstices](#) on December 12, 2017.

Frédéric Havet

Co-organised the “Village des Sciences” of Vinon-sur-Verdon, France, October 9-14, 2017. Gave many talks and animated several stands during the whole week;

Animated a stand “Mathémagie” at the “Village des Sciences” of Aix-en-Provence, October 8, 2017;

Organised the “Science Tour” at Rians, January 25-28, 2017. Animated several stands during the four days;

Gave the conferences “Beauty in Mathematics”, “Le métier de chercheur”, “La science du ballon de football” to five classes of the International School of Manosque, France, during the “Semaine des Mathématiques”, March 13-19, 2017;

Gave an interactive conference and animated stands about “Becs, pattes et plumes des oiseaux” and “Nids des oiseaux” to four classes at Rians elementary school, France, January 9 and March 23, 2017;

Gave the conference “Élégance en Mathématiques” at Valgaudemar, France, July 6, 2017;

Frédéric Havet, Joanna Moulierac

Supervised the one-week internship of two 3eme schoolboys.

Nicolas Nisse

Co-organized (with “Les petits débrouillards”, see <http://www.lespetitsdebrouillards.org/>) series of animations for a group of schoolboys, Inria Sophia Antipolis, July 20, 2017;

Animated, during “Fête de la Science”, several stands during the “Village des Sciences” at Vinon-sur-Verdon, France, October 10-13, 2017;

Animated, during “Fête de la Science”, several stands in Palais des Congrès de Juan-Les-Pins, October 7-8, 2017;

Realization of series of posters for scientific popularization [62], [63], [64], [65];

Member of MASTIC (Médiation et Animation scientifiques Inria, see <https://project.inria.fr/mastic/>).

Frédéric Havet, Joanna Moulierac, Nicolas Nisse

Involved in the GALEJADE project supported by Fondation Blaise Pascal. The main objective of this project is to develop a series of games for initiating schoolchildren to graphs and algorithms, and to put them in a pedagogical kit and on the web.

## COFFEE Project-Team

### 9. Dissemination

#### 9.1. Promoting Scientific Activities

##### 9.1.1. Scientific Events Organisation

###### 9.1.1.1. General Chair, Scientific Chair

We do not keep track of such activities.

###### 9.1.1.2. Member of the Organizing Committees

- Co-organisation of the conference FVCA8 june 2017 in Lille

##### 9.1.2. Scientific Events Selection

###### 9.1.2.1. Chair of Conference Program Committees

We do not keep track of such activities.

###### 9.1.2.2. Member of the Conference Program Committees

We do not keep track of such activities.

###### 9.1.2.3. Reviewer

We do not keep track of such activities.

##### 9.1.3. Journal

###### 9.1.3.1. Member of the Editorial Boards

T. Goudon if founding editor and co-Editor in chief of SMAI-J. Computational Mathematics

###### 9.1.3.2. Reviewer - Reviewing Activities

We do not keep track of such activities.

##### 9.1.4. Invited Talks

We do not keep track of such activities.

##### 9.1.5. Leadership within the Scientific Community

We do not keep track of such activities.

##### 9.1.6. Scientific Expertise

Thierry Goudon is member of the scientific board of CIRM and of FSMP.

##### 9.1.7. Research Administration

Roland Masson is the head of the team PDE and Numerical Analysis of the laboratory J.A. Dieudonné.

Roland Masson is a member of the scientific committee of CERFACS.

Roland Masson is scientific advisor at the scientific direction of Total.

Thierry Goudon is member of the Evaluation Committee of Inria.

Thierry Goudon is Scientific Officer at the French Ministry of Education and Research.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Members of the team are faculties of University Nice Sophia Antipolis and they teach in all degrees of the University.

Florent Berthelin, Master 2 Agrégation, Université Nice Sophia Antipolis.

Florent Berthelin, Chair of the Master 2 Agrégation, Université Nice Sophia Antipolis.

Thierry Goudon is President of the national competition to hire teachers (agregation de mathématiques).

Stella Krell, Linear Algebra, Master 1 enseignement, ESPE Nice, 23h.

Stella Krell, Didactics of mathematics, Master 1 EEF, Université Nice Sophia Antipolis, 43h.

Stella Krell, Theses and placement supervision, Master 2 EEF, Université Nice Sophia Antipolis, 12h.

Stella Krell, Preparation to mathematics agrégation interne, Université Nice Sophia Antipolis, 18h.

Stella Krell, Intervention, Master 2 enseignement, Université Nice Sophia Antipolis, 3h.

Laurent Monasse, Introduction to analysis and dynamical systems, Ecole des Ponts ParisTech, 20h.

Thierry Goudon is President of the jury of agregation.

### 9.2.2. Supervision

PhD: Julian Hennicker, Hybrid dimensional modeling of multi-phase Darcy flows in fractured porous media, Univ Nice - Sophia Antipolis, 10 July 2017, Roland Masson and Konstantin Brenner

PhD: Thi Huong Le, On some periodic solutions of discrete vibro-impact systems with a unilateral contact condition, Univ Nice - Sophia Antipolis, 16 June 2017, Stéphane Junca

PhD in progress: Kevin Atsou, Mathematical modeling of tumor growth, analysis and simulation, 01 October 2017, Thierry Goudon

PhD in progress: Laurence Beaude, Discretization of high energy geothermal systems in faulted porous media, 01 October 2015, Roland Masson, Konstantin Brenner, Simon Lopez and Farid Smai

PhD in progress: Billel Guelmame, Conservation laws in mechanics, 01 October 2017, Stéphane Junca

PhD in progress: Giulia Lissonni, DDFV methods and domain decomposition: applications in fluid mechanics, 01 September 2016, Stella Krell and Thierry Goudon.

PhD in progress: Julie Llobell, Numerical schemes on staggered grids for conservation laws, 01 September 2015, Thierry Goudon and Sebastian Minjeaud

PhD in progress: Leo Vivion, Dynamical model of a Lorentz gas : kinetic approach, analysis and asymptotic issues, 01 September 2017, Thierry Goudon

PhD in progress: Frédéric Marazzato, Modeling of fracture and fragmentation using a Discrete Element method, 01 October 2016, Alexandre Ern, Karam Sab and Laurent Monasse.

### 9.2.3. Juries

- Laurent Monasse, Examiner, PhD defense Julien Ridoux, Université Paris 6, 4 October 2017.
- Thierry Goudon, Pdt HDR defese F. Laurent-Nègre, “Méthodes de moments pour la description de sprays et d’aérosols : modélisations et simulations numériques”, ECParis, Mars 2017.
- Thierry Goudon, referee PhD defense T. Blanc, “Étude mathématique des problèmes paraboliques fortement anisotropes”, Marseille, Déc. 2017.



## COMETE Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events organisation

#### 8.1.1.1. Member of the organizing committee

Catuscia Palamidessi is member of:

The Executive Committee of **SIGLOG**, the ACM Special Interest Group on Logic and Computation. Since 2014.

The Organizing Committee of **LICS**, the ACM/IEEE Symposium on Logic in Computer Science. Since 2010.

The Steering Committee of **ETAPS**, the European Joint Conferences on Theory and Practice of Software. Since 2006.

The Steering Committee of **EACSL**, the European Association for Computer Science Logics. Since 2015.

The Steering Committee of **CONCUR**, the International Conference in Concurrency Theory. Since 2016.

The Steering Committee of **FORTE**, the International Conference on Formal Techniques for Distributed Objects, Components, and Systems. Since 2014.

**The IFIP Technical Committee 1** – Foundations of Computer Science. Since 2007.

**The IFIP Working Group 1.7** – Theoretical Foundations of Security Analysis and Design. Since 2010.

**The IFIP Working Group 1.8** – Concurrency Theory.

Frank D. Valencia is member of:

The steering committee of the International Workshop in Concurrency **EXPRESS**. Since 2010.

### 8.1.2. Scientific events selection

#### 8.1.2.1. Member of conference program committees

Catuscia Palamidessi is/has been a member of the program committees of the following conferences and workshops:

**PETS 2019**. The 19th Privacy Enhancing Technologies Symposium. July 2019.

**TASE 2018**. The 12th International Symposium on Theoretical Aspects of Software Engineering Guangzhou, China, 29-31 August 2018.

**PETS 2018**. The 18th Privacy Enhancing Technologies Symposium. Barcelona, Spain, 24-27 July 2018.

**FOSSACS 2018**. The 21st International Conference on Foundations of Software Science and Computation Structures. (Part of **ETAPS 2018**.) Thessaloniki, Greece, 14-21 April 2018.

**SOFSEM 2018**. The 44th Annual Int'l Conference on Current Trends in Theory and Practice of Computer Science (track on Foundations of Computer Science). Krems an der Donau, Austria, 29 January- 2 February, 2018.

**ICTAC 2017**. The 14th International Colloquium on Theoretical Aspects of Computing. Hanoi, Vietnam, 23-27 October 2017.

**TASE 2017.** The 11th International Symposium on Theoretical Aspects of Software Engineering. Nice, France, 13-15 September 2017.

**CONCUR 2017.** The 28th International Conference on Concurrency Theory. Berlin, Germany, 5-8 September 2017.

**CSL 2017.** The 26th EACSL Annual Conference on Computer Science Logic. Stockholm, Sweden, 20-25 August 2017.

**ICSOFT-PT 2017.** The 12th International Conference on Software Paradigm Trends. Lisbon, Portugal, 24-26 July 2017.

**ICALP 2017 (Track B).** The 44th International Colloquium on Automata, Languages, and Programming. Warsaw, Poland, 10-14 July 2017.

**FORTE 2017.** The 37th IFIP International Conference on Formal Techniques for Distributed Objects, Components, and Systems. Neuchâtel, Switzerland, 19-22 June 2017.

**CSR 2017.** The 12th International Computer Science Symposium in Russia. Kazan, Russia, 8-12 June 2017.

Konstantinos Chatzikokolakis is/has been a member of the program committees of the following conferences and workshops:

**BMDA 2018:** Workshop on Big Mobility Data Analytics

**QAPL 2018:** International Workshop on Quantitative Aspects of Programming Languages and Systems

**HotSpot 2018:** 6th Workshop on Hot Issues in Security Principles and Trust

**ICDE 2017:** IEEE International Conference on Data Engineering

**CSF 2017:** 30th IEEE Computer Security Foundations Symposium

**POST 2017:** 6th International Conference on Principles of Security and Trust

**BIGQP 2017:** International Workshop on Big Geo Data Quality and Privacy

Frank D. Valencia is/has been a member of the program committees of the following conferences and workshops:

**RADICAL-2017.** International Workshop Recent Advances in Concurrency and Logic - RADICAL

**CP-ICLP-SAT-DP-17.** Doctoral Program of the 23rd International Conference on Principles and Practice of Constraint Programming

#### 8.1.2.2. *Reviewing*

The members of the team reviewed several papers for international conferences and workshops.

### 8.1.3. **Journals**

#### 8.1.3.1. *Member of the editorial board*

Catuscia Palamidessi is:

Member of the Editorial Board of **Proceedings on Privacy Enhancing Technologies** (PoPETs), published by De Gruyter.

Member of the Editorial Board of **Mathematical Structures in Computer Science**, published by the Cambridge University Press.

Member of the Editorial Board of **Acta Informatica**, published by Springer.

Member of the Editorial Board of the **Electronic Notes of Theoretical Computer Science**, published by Elsevier Science.

Member of the Editorial Board of **LIPICs: Leibniz International Proceedings in Informatics**, Schloss Dagstuhl-Leibniz Center for Informatics.

Konstantinos Chatzikokolakis is:

Editorial board member of the newly established **Proceedings on Privacy Enhancing Technologies** (PoPETs), a scholarly journal for timely research papers on privacy.

#### 8.1.3.2. *Reviewing*

The members of the team regularly review papers for international journals and conferences.

#### 8.1.4. *Other Editorial Activities*

Frank D. Valencia has been:

Co-editor of the special issue on **Mathematical Structures in Computer Science** dedicated to the best papers from the 12th International Colloquium on Theoretical Aspects of Computing.

#### 8.1.5. *Participation in other committees*

Catuscia Palamidessi has been serving in the following committees:

Member of the committee for the assignment of the Inria International Chairs.

Member of the committee for the **Alonzo Church Award** for Outstanding Contributions to Logic and Computation. Since 2015. In 2018 Palamidessi is the president of this committee.

President of the selection committee for the **EATCS Best Paper Award** at the ETAPS conferences. Since 2006.

#### 8.1.6. *Invited talks*

Catuscia Palamidessi has given invited talks at the following conferences and workshops:

**FACS 2017**. The 14th International Conference on Formal Aspects of Component Software. Barga, Portugal. 10-13 Oct, 2017.

**Cybersecurity 2017**. Focus Day on Cyber Security and Helthcare. In the context of the European Cyber Week. Rennes, France, 30 November 2017.

**QuaSy 2017**. Quantitative Systems: Theory and Applications. Como, Italy, 16-17 October 2017.

**Women in Logic 2017**, Reykjavik, Island, June 2017.

**CrossFyre 2017** Workshop on Cryptography, Robustness, and Provably Secure Schemes. Paris. April 2017.

**FORSE 2017** (Keynote speaker). 1st International Workshop on FORmal methods for Security Engineering. Porto, Portugal. 19–21 February, 2017.

#### 8.1.7. *Service*

Catuscia Palamidessi has served as:

Reviewer for the projects proposal for the program PRIN, sponsored by the Italian MIUR (“Ministero dell’Istruzione, dell’Università e della Ricerca”). Since 2004.

Frank Valencia has served as:

Directeur adjoint de l’UMR 7161, le Laboratoire d’Informatique de l’Ecole Polytechnique (LIX). May 2016 - .

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master : Frank D. Valencia has been teaching the undergraduate course "Computability", 45 hours, at the Pontificia Universidad Javeriana de Cali, Colombia. July 27 - Nov 1, 2017.

Master : Frank D. Valencia has been teaching the masters course "Foundations of Computer Science", 45 hours, at the Pontificia Universidad Javeriana de Cali, Colombia. Jan 27 - Jun 1, 2017.

Master: Konstantinos Chatzikokolakis and Catuscia Palamidessi have been teaching a course on the Foundations of Privacy at the **MPRI**, the Master Parisien pour la Recherche en Informatique. University of Paris VII. A.Y. 2016-17 and 2017-18. Total for each semester: 24 hours plus 6 hours for the exam and the exercise session is preparation to the exam.

### 8.2.2. Supervision

PhD in progress (2017-) Marco Romanelli. Co-supervised by Konstantinos Chatzikokolakis, Catuscia Palamidessi, and Moreno Falaschi (University of Siena, Italy). Thesis subject: Application of Information Flow to feature selection in machine learning.

PhD in progress (2017-) Anna Pazii. Co-supervised by Konstantinos Chatzikokolakis and Catuscia Palamidessi. Thesis subject: Local Differential Privacy.

PhD in progress (2016-) **Tymofii Prokopenko**. Ecole Polytechnique and ENS Cachan. Grant Digiteo-Digicosme. Co-supervised by Konstantinos Chatzikokolakis, Catuscia Palamidessi, and Serge Hadad (ENS Cachan).

PhD in progress (2017-) **Sergio Ramirez**. Co-supervised by Frank Valencia and Camilo Rueda, Universidad Javeriana Cali. Thesis subject: Quantitative Spatial Constraint Systems.

PhD terminated (2015-17) **Joris Lamare**. Ecole Polytechnique. Grant MSR Center. Co-supervised by Catuscia Palamidessi and Konstantinos Chatzikokolakis. Joris has stopped his PhD due to personal reasons.

PhD completed (2014-17) **Michel Guzman**. Title: On the Expressiveness of Spatial Constraint Systems [11]. Ecole Polytechnique. Grant Inria CORDI-S. Co-supervised by Catuscia Palamidessi and Frank D. Valencia.

### 8.2.3. Juries

Catuscia Palamidessi has been reviewer and member of the board at the PhD defense for the thesis of the following PhD student:

Nicolas Bonifas (Ecole Polytechnique, France). Member of the committee board at the PhD defense.

Title of the thesis: *Geometric and Dual Approaches to Cumulative Scheduling*. Supervised by Philippe Baptiste. Defended in December 2017.

Maggie Mhanna (CentraleSupélec, France). Member of the committee board at the PhD defense. Supervised by Pablo Piantanida. Defended in January 2017.

### 8.2.4. Other didactical duties

Catuscia Palamidessi is:

Member of the advising committee for Hamid Ebadi, PhD student supervised by David Sands, Chalmers University, Sweden, since 2014. Also reviewer and member of the committee for the half-way thesis defense (Licentiate) that took place in June 2015.

External member of the scientific council for the PhD in Computer Science at the University of Pisa, Italy. Since 2012.

Member of the advising committee for the PhD of Jun Wang (PhD student supervised by Qiang Tang and Peter Ryan), University of Luxembourg. Since December 2014.

Member of the advising committee for the PhD of Andrea Margheri (PhD student supervised by Rosario Pugliese), University of Florence, Italy. 2014-16.

Konstantinos Chatzikokolakis and Catuscia Palamidessi have designed, and coordinate, a course on the Foundations of Privacy at the **MPRI**, the Master Parisien pour la Recherche en Informatique. University of Paris VII. A.Y. Since 2015.

## COML Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

Zero Resource Challenge 2017, held as a special session of EEE ASRU 2017, Okinawa.

#### 10.1.1.2. Member of the Organizing Committees

Executive committee of SIGMORPHON (Association for Computational Linguistics Special Interest Group, <http://www.sigmorphon.org/>).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Reviewer

Invited editor for international conferences: Interspeech, NIPS, ACL, etc. (around 5-10 papers per conferences, 2 conferences per year)

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

Member of the editorial board of: *Mathématiques et Sciences Humaines*, *L'Année Psychologique*, *Frontiers in Psychology*.

#### 10.1.3.2. Reviewer - Reviewing Activities

Invited Reviewer for *Frontiers in Psychology*, *Cognitive Science*, *Cognition*, *Transactions in Acoustics Signal Processing and Language*, *Speech Communication*, etc. (around 4 papers per year)

### 10.1.4. Invited Talks

- Learning in Machines and Brains (CIFAR) invited talk, 2017, Paris.
- CBMM (Center for Brain Mind and Machine) Workshop on Speech representation, perception and recognition. Invited talk. Feb 02-03, 2017, MIT

### 10.1.5. Scientific Expertise

E. Dupoux is invited expert for ERC, ANR, and other granting agencies (around 2 per year).

### 10.1.6. Research Administration

Executive committee of the Foundation Cognition, the research programme IRIS-PSL "Sciences des Données et Données des Sciences", the industrial chair Almerys (2016-) and the collective organization DARCLE ([www.darcle.org](http://www.darcle.org)).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : E. Dupoux, "Introduction to the cognitive science of language", 8h, L2, PSL, France

Master : E. Dupoux, "Theoretical Cognitive Science: Connections and symbols", 8h, M1/M2, PSL, Paris 5, Paris France

Master : E. Dupoux, "Cognitive Engineering", 80h, M2, ITI-PSL, Paris France

Doctorat : E. Dupoux, "Computational models of cognitive development", 32 h, Séminaire EHES, Paris France

### 10.2.2. Supervision

Six PhD theses are currently conducted in the team. Two are programmed to be defended in september 2018.

### 10.2.3. *Juries*

E. Dupoux participated in the PhD jury of Martin Felipe Perez-Guevara on novembre 29th, 2017 at UPMC (supervisor: C. Pallier).

## 10.3. Popularization

E. Dupoux talked in two general public conferences on speech recognition, one organised par France is AI (oct 17, 2017) and the other by Paris Sciences& Data (dec 7, 2017). The public was composed of entrepreneurs in machine learning. He also gave a training course in speech and language technology organised by the Institut de l'Ecole Normale (june 21) aimed at information technology professionals. He gave three interview on the limits of deep learning in general public outlets (Le Monde, La Recherche<sup>0</sup>, Usine Nouvelle).

N. Zeghidour did a high level presentation of AI to 30 students and 8 teachers from Sciences-Po and Ecole 42 during the Policy Innovation Lab<sup>0</sup> following the visit of Facebook's COO. He has been a Mentor (technical advisor) for 9 European start-ups during a pitching event for the IBM Watson AI Xprize<sup>0</sup>. He animated a booth on AI at the Platform Meetup Paris of Facebook. He gave an interview to Libération included in a 100 page special issue on AI<sup>0</sup>. He taught a class on Speech Recognition as part of the Facebook AI Masterclass, a class for developers located at Ecole 42 and broadcasted in developer circles over 25 cities of Europe, Middle-East and Africa with 850 people attending, followed by a live Q&A session with several of these cities over video-conference.

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<sup>0</sup><http://www.larecherche.fr/lintelligence-artificielle-a-lassaut-des-labos>

<sup>0</sup><http://www.sciencespo.fr/public/en/policy-lab/public-policy-incubator>

<sup>0</sup><https://ai.xprize.org/>

<sup>0</sup>[http://www.liberation.fr/voyage-au-coeur-de-lia/2017/12/20/en-kiosque-notre-hors-serie-voyage-au-coeur-de-l-ia\\_1617896](http://www.liberation.fr/voyage-au-coeur-de-lia/2017/12/20/en-kiosque-notre-hors-serie-voyage-au-coeur-de-l-ia_1617896)

## COMMANDS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Selection

#### 10.1.1.1. Member of the Conference Program Committees

- F. Bonnans: PGMO Days 2017.

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

- F. Bonnans: Associate Editor of “Applied Mathematics and Optimization” and of “Series on Mathematics and its Applications, Annals of The Academy of Romanian Scientists”.

#### 10.1.2.2. Reviewer - Reviewing Activities

Reviews in 2017 for major journals in the field: Applied Mathematics and Optimization, Automatica, Int. J. of Control, Inverse problems, J. Convex Analysis, J. Diff. Equations, J. of Optimization Theory and Applications, Optimization Set Valued and Variational Analysis, SIAM J. Optimization, SIAM J. Control and Optimization, several conference proceedings.

### 10.1.3. Invited Talks

- F. Bonnans: Forecasting and risk management for renewable energy, June 7-9, Paris; Numoc, June 19-23, Roma; NHOC2017, July 3-5, Porto; Optimal Control of Partial Differential Equations, Sept, Castro Urdiales.

### 10.1.4. Leadership within the Scientific Community

- F. Bonnans: French representative to the IFIP-TC7 committee (International Federation of Information Processing; TC7 devoted to System Modeling and Optimization).
- F. Bonnans: member of the PGMO board and Steering Committee (Gaspard Monge Program for Optimization and Operations Research, EDF-FMJH).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master :

F. Bonnans: *Numerical analysis of partial differential equations arising in finance and stochastic control*, 24h, M2, Ecole Polytechnique and U. Paris 6, France.

F. Bonnans: *Optimal control*, 15h, M2, Optimization master (U. Paris-Saclay) and Ensta, France.

F. Bonnans: *Stochastic optimization*, 15h, M2, Optimization master (U. Paris-Saclay), France.

A. Kröner : *Optimal control of partial differential equations*, 20h, M2, Optimization master (U. Paris-Saclay), France.

### 10.2.2. Supervision

PhD in progress : Cédric Rommel, Data exploration for the optimization of aircraft trajectories. Started November 2015 (CIFRE fellowship with Safety Line), F. Bonnans and P. Martinon.

PhD in progress : Arthur Le Rhun, Optimal and robust control of hybrid vehicles. Started September 2016 (IFPEN fellowship), F. Bonnans and P. Martinon.

## 10.3. Popularization

The collaboration with startup Safety Line was presented at events “Vivatech” (17/06/2017, <https://vivatechnology.com/>) and “Rencontre Inria Industrie” (17/10/2017) in Paris.

## CONVECS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

- H. Garavel is a member of the model board<sup>0</sup> of MCC (*Model Checking Contest*). In 2017, he helped preparing new models (especially those in the NUPN format) and verified, using the CAESAR.BDD tool of CADP, the forms describing all benchmark models submitted by the contest participants; this revealed a number of inconsistencies. The results of MCC'2017 have been published online [45] and a journal paper is in preparation.
- Together with Peter Höfner (Data61, CSIRO, Sydney, Australia), H. Garavel set up a model repository (hosted on the Gforge of Inria) to collect and archive formal models of real systems; this infrastructure is used by the series of MARS workshops<sup>0</sup>. This repository currently contains 17 models, two of which (a Message Authenticator Algorithm and a Production Cell) were deposited in 2017 by CONVECS.
- G. Salaün is member of the steering committee of the SEFM (*International Conference on Software Engineering and Formal Methods*) conference series since 2014.
- G. Salaün is member of the steering committee of the FOCLASA (*International Workshop on Foundations of Coordination Languages and Self-Adaptive Systems*) workshop series since 2011.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

- G. Barbon was publicity chair of FOCLASA'2017 (*15th International Workshop on Foundations of Coordination Languages and Self-Adaptive Systems*) co-located with SEFM'2017 (*15th International Conference on Software Engineering and Formal Methods*), Trento, Italy, September 5, 2017.
- F. Lang was co-chair of the Formal Methods track of ETR'2017 (*9ème Ecole d'été Temps-Réel*), Paris, France, August 28 - September 1, 2017.
- R. Mateescu was tutorial chair of QRS'2017 (*IEEE International Conference on Software Quality, Reliability, and Security*), Prague, Czech Republic, July 25–29, 2017.
- G. Salaün was co-chair of FOCLASA'2017.

#### 9.1.2.2. Member of the Conference Program Committees

- H. Garavel was program committee member of the 7th FMF (*Forum Methodes Formelles*), Toulouse-Grenoble-Saclay-Rennes, France, January 31, 2017.
- H. Garavel was program committee member of MARS'2017 (*2nd Workshop on Models for Formal Analysis of Real Systems*), Uppsala, Sweden, April 29, 2017.
- H. Garavel and G. Salaün were program committee members of SEFM'2017 (*15th International Conference on Software Engineering and Formal Methods*), Trento, Italy, September 6–10, 2017.
- H. Garavel was program committee member of the 8th FMF (*Forum Methodes Formelles*), Toulouse-Grenoble-Saclay-Rennes, France, October 10, 2017.

<sup>0</sup><http://mcc.lip6.fr/models.php>

<sup>0</sup><http://www.mars-workshop.org/>



- F. Lang was program committee member of GaM'2017 (*3rd Workshop on Graphs as Models*), Uppsala, Sweden, April 22–23, 2017.
- R. Mateescu was program committee member of FMICS-AVoCS'2017 (*International Workshop on Formal Methods for Industrial Critical Systems and Automated Verification of Critical Systems*), Torino, Italy, September 18–20, 2017.
- G. Salaün was program committee member of PDP-4PAD'2017 (*25th Euromicro International Conference on Parallel, Distributed and Network-based Processing - Formal Approaches to Parallel and Distributed Systems*), St. Petersburg, Russia, March 6–8, 2017.
- G. Salaün was program committee member of SAC-SOAP'2017 (the *Service-Oriented Architectures and Programming* track) of SAC'2017 (*32nd ACM Symposium on Applied Computing*), Marrakesh, Morocco, April 3–7, 2017.
- G. Salaün was program committee member of SAC-SVT'2017 (the *Software Verification and Testing* track) of SAC'2017, Marrakesh, Morocco, April 3–7, 2017.
- G. Salaün and W. Serwe were program committee members of FSEN'2017 (*7th IPM International Conference on Fundamentals of Software Engineering*), Tehran, Iran, April 26–28, 2017.
- G. Salaün was program committee member of the poster track of ICSE'2017 (*39th International Conference on Software Engineering*), Buenos Aires, Argentina, May 20–28, 2017.
- G. Salaün was program committee member of COORDINATION'2017 (*19th International Conference on Coordination Models and Languages*), Neuchâtel, Switzerland, June 19–22, 2017.
- G. Salaün was program committee member of COMPSAC'2017 (*IEEE International Conference on Computers, Software, and Applications*), Torino, Italy, July 4–8, 2017.
- G. Salaün was program committee member of VBSP'2017 (*1st International Workshop on Verification of Business and Software Processes*), Paris, France, July 5, 2017.
- G. Salaün was program committee member of FACS'2017 (*14th International Conference on Formal Aspects of Component Software*), Braga, Portugal, October 10–13, 2017.
- G. Salaün was program committee member of Microservices'2017, Odense, Denmark, October 25–26, 2017.

#### 9.1.2.3. Reviewer

- G. Barbon was a reviewer for COMPSAC'2017, SEFM'2017, and SAC-SVT'2018 (*33rd ACM Symposium on Applied Computing - Software Verification and Testing Track*), Pau, France, April 9–13, 2018.
- F. Lang was a reviewer for SEFM'2017 and FMICS-AVoCS'2017.
- L. Marsso was a reviewer for MARS'2017, COMPSAC'2017, SEFM'2017, and FMICS-AVoCS'2017.
- U. Ozeer was a reviewer for SEFM'2017.
- G. Salaün was a reviewer for MARS'2017.
- W. Serwe was a reviewer for MARS'2017, SEFM'2017, and ICTSS'2017 (*19th International Conference on Testing Software and Systems*), Paris, France, August 28–29, 2017.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

- H. Garavel is an editorial board member of STTT (*Springer International Journal on Software Tools for Technology Transfer*).

#### 9.1.3.2. Reviewer - Reviewing Activities

- F. Lang was a reviewer for STTT.
- R. Mateescu was a reviewer for STTT.

- W. Serwe was a reviewer for STTT, SPE (*Journal on Software: Practice and Experience*), and IJPEDS (*International Journal on Power Electronics and Drive Systems*).
- G. Salaün was a reviewer for JSC (*Journal of Symbolic Computation*), IEEE TSE (*Transactions of Software Engineering*), and SCP (*Science of Computer Programming*).

#### 9.1.4. Software Dissemination and Internet Visibility

The CONVECS project-team distributes several software tools, among which the CADP toolbox.

In 2017, the main facts are the following:

- We prepared and distributed twelve successive versions (2017-a to 2017-1) of CADP.
- We were requested to grant CADP licenses for 315 different computers in the world.

The CONVECS Web site <sup>0</sup> was updated with scientific contents, announcements, publications, etc.

H. Garavel started a major rewrite of CorTeX, a build system and a collection of tools for documents prepared using LaTeX.

By the end of December 2017, the CADP forum <sup>0</sup>, opened in 2007 for discussions regarding the CADP toolbox, had over 414 registered users and over 1796 messages had been exchanged.

Also, for the 2017 edition of the Model Checking Contest, three families of models generated using CADP (totalling 64 Nested-Unit Petri Nets) were provided.

Other research teams took advantage of the software components provided by CADP (e.g., the BCG and OPEN/CAESAR environments) to build their own research software. We can mention the following developments:

- The COSTO tool for analyzing Kmelia components and services [48], [21]
- The VERCORS Platform for Model Checking Distributed Components [20]
- A Model-Driven and Multi-Agent Approach for Web Services Composition [19]
- Formal Analysis of Security Guidelines for Program Certification [57], [56], [58]
- A Product-Line for Families of Program Translators [22]
- The GROOVE Tool for Verification Based on Graph Rewriting [44]
- The FTRES Tool for Rare Event Simulation in Dynamic Fault Trees [52]
- The MISTRAL Tool for Middleware Reconfiguration Based on Formal Methods [51]
- The ALVIS Modelling Language for Embedded Systems [54]
- Adaptive Service Composition based on Runtime Verification of Formal Properties [23]

Other teams also used the CADP toolbox for various case studies:

- Assisting Refinement and Formal Verification in the Design of Embedded Systems [49]
- A Formal Model for Plastic Human Computer Interfaces [25]
- Verifying Concurrent Stacks by Divergence-Sensitive Bisimulation [55]
- Compositional Model Checking of Liveness Properties [59]
- Verification of Visibility-Based Properties on Multiple Moving Robots [53]

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<sup>0</sup><http://convecs.inria.fr>

<sup>0</sup><http://cadp.inria.fr/forum.html>

### 9.1.5. Invited Talks

- G. Barbon gave a talk entitled “*Debugging of Concurrent Systems using Counterexample Analysis*” on March 2nd, 2017 at the 2nd year PhD student day of the LIG.
- G. Barbon gave a talk entitled “*Debugging of Concurrent Systems using Counterexample Analysis*” on December 13, 2017 at the *Journée scientifique du pôle MSTIC*.
- H. Garavel gave two talks entitled “*Ten Different Ways on Defining Signed Integers Formally*” and “*Benchmarking Implementations of Conditional Term Rewrite Systems*” on February 28, 2017 at the Formal Methods seminar of Inria Grenoble – Rhône-Alpes.
- H. Garavel gave a talk entitled “*Nested-Units Petri Nets*” during OPCT’2017 (*Open Problems in Concurrency Theory*), a research seminar co-sponsored by the IFIP Working Group 1.8, that took place in the Institute of Science and Technology Austria (IST Austria), Vienna, on June 26–29, 2017.
- H. Garavel gave a talk entitled “*From LOTOS to LNT*” during the ModelEd, TestEd, TrustEd Symposium in honour of the 60th birthday of Ed Brinksma held at the University of Twente, The Netherlands, on October 18, 2017.
- The members of CONVECS attended the 1st RIDINGS Workshop, held at Inria Grenoble – Rhône-Alpes on May 17, 2017. F. Lang gave a talk entitled “*The LNT language and the LNT2LOTOS compiler*”. H. Garavel gave a talk entitled “*The Unheralded Value of the Multiway Rendezvous: Illustration with the Production Cell Benchmark*”. L. Marsso gave a talk entitled “*A Large Term Rewrite System Modelling a Pioneering Cryptographic Algorithm*”. G. Barbon gave a talk entitled “*Debugging of Concurrent Systems using Counterexample Analysis*”.
- L. Marsso gave a talk entitled “*Formal Methods for Testing Networks of Controllers*” on May 29, 2017 at the 1st year PhD student day of the LIG.
- L. Marsso gave a talk entitled “*Formal Methods for Testing Networks of Controllers*” at the Scientific day of the ARC6 held at Université Grenoble Alpes, on November 23, 2017.
- L. Marsso and W. Serwe attended the 2nd RIDINGS Workshop held at Technical University Graz, Austria, on November 15, 2017. L. Marsso gave a talk entitled “*Testor: A Modular Tool for On-the-Fly Conformance Test Case Generation*”. W. Serwe gave a talk entitled “*Using a Formal Model to Improve Verification of a Cache-Coherent System on Chip*”.
- U. Ozeer gave a talk entitled “*Autonomous Resilience of Applications in a Largely Distributed Cloud Environment*” on May 29, 2017 at the 1st year PhD student day of the LIG.
- U. Ozeer gave a talk entitled “*Autonomous Resilience of Distributed IoT Applications in a Fog Environment*” at the IO Labs seminar held at Inria Paris on October 19–20, 2017.
- G. Salaün gave a talk entitled “*Checking Business Process Evolution*” on June 6, 2017 at the University of Málaga, Spain.

### 9.1.6. Research Administration

- H. Garavel was appointed to the Executive Commission in charge of International Relations at COMUE Université Grenoble Alpes.
- F. Lang is chair of the “*Commission du développement technologique*”, which is in charge of selecting R&D projects for Inria Grenoble – Rhône-Alpes.
- R. Mateescu is the scientific correspondent of the European and International Partnerships for Inria Grenoble – Rhône-Alpes.
- R. Mateescu is a member of the “*Comité d’orientation scientifique*” for Inria Grenoble – Rhône-Alpes.
- R. Mateescu is a member of the “*Bureau*” of the LIG laboratory.
- G. Salaün is a member of the Scientific Committee of the PCS action of the PERSYVAL Labex.

- W. Serwe is (together with Laurent Lefèvre from the AVALON Inria project-team) correspondent in charge of the 2017 Inria activity reports at Inria Grenoble – Rhône-Alpes.
- W. Serwe is a member of the “*Comité de Centre*” at Inria Grenoble – Rhone-Alpes.
- W. Serwe is “*chargé de mission*” for the scientific axis *Formal Methods, Models, and Languages* of the LIG laboratory.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

CONVECS is a host team for the computer science master entitled “*Mathématiques, Informatique, spécialité : Systèmes et Logiciels*”, common to Grenoble INP and Université Grenoble Alpes (UGA).

In 2017, we carried out the following teaching activities:

G. Barbon gave a tutorial course on “*Language Theory*” (18 hours “*équivalent TD*” on formal languages, automata, regular expressions, and grammars) to second year students of ENSIMAG.

H. Garavel, together with Laurence Pierre (TIMA, Grenoble), created a new curriculum HECS<sup>0</sup> (“*High-confidence Embedded and Cyberphysical Systems*”) for 2nd-year MOSIG (*Master of Science in Informatics at Grenoble*) students. This curriculum opened for the first time in September 2016.

F. Lang, R. Mateescu, G. Salaün, and W. Serwe gave lectures on models for concurrency, temporal logics, equivalences, formal languages and verification (36 hours “*équivalent TD*”) as part of the MOSIG/MACS-2 course (“*Modeling and Analysis of Concurrent Systems*”) led by G. Salaün.

G. Barbon and W. Serwe supervised each a group of six teams in the context of the “*projet Génie Logiciel*” (55 hours “*équivalent TD*”, consisting in 16 hours of lectures, plus supervision and evaluation), ENSIMAG, January 2017.

F. Lang gave a lecture on “*Modélisation et Vérification des Systèmes Concurrents et Temps-Réel*” (27 hours “*équivalent TD*”) to third year students of ENSIMAG.

F. Lang gave a course on “*Formal Software Development Methods*” (7.5 hours “*équivalent TD*”) in the framework of the “*Software Engineering*” lecture given to first year students of the MOSIG.

L. Marsso gave a course on “*Algorithms and Web Programming*” (44 hours “*équivalent TD*”) at the department MMI of IUT1 (UGA).

G. Salaün taught about 200 hours of classes (algorithmics, Web development, object-oriented programming, iOS programming) at the department MMI of IUT1 (UGA). He is also headmaster of the “*Services Mobiles et Interface Nomade*” (SMIN) professional licence (3rd year of university) at IUT1/UGA.

### 9.2.2. Supervision

PhD in progress: G. Barbon, “*Debugging Concurrent Programs using Model Checking and Mining Techniques*”, Université Grenoble Alpes, since October 2015, G. Salaün and V. Leroy

PhD in progress: L. Marsso, “*Formal Methods for Testing Networks of Controllers*”, Université Grenoble Alpes, since October 2016, R. Mateescu, W. Serwe, I. Parissis, and Ch. Deleuze

PhD in progress: A. Muroor Nadumane, “*Softwarization of Everything: IoT Service Composition*”, Université Grenoble Alpes, since October 2017, G. Salaün, R. Mateescu, L. Noirie, and M. Le Pallec

PhD in progress: U. Ozeer, “*Autonomous Resilience of Applications in a Largely Distributed Cloud Environment*”, Université Grenoble Alpes, since November 2016, X. Etchevers, G. Salaün, F.-G. Ottogalli, and J.-M. Vincent

### 9.2.3. Juries

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<sup>0</sup><http://hecs.imag.fr>

- R. Mateescu was reviewer of Alexandre Duret-Lutz's Habilitation thesis, entitled "*Contributions to LTL and Omega-Automata for Model Checking*", defended at EPITA (Paris, France) on February 10, 2017.
- R. Mateescu was reviewer of Zhengkui Zhang's PhD thesis, entitled "*Time and Cost Optimization of Cyber-Physical Systems by Distributed Reachability Analysis*", defended at the University of Aalborg (Denmark) on March 28, 2017.
- R. Mateescu was reviewer of Simon Busard's PhD thesis, entitled "*Symbolic Model Checking of Multi-Modal Logics: Uniform Strategies and Rich Explanations*", defended at Université Catholique de Louvain (Belgium) on May 10, 2017.
- G. Salaün was reviewer of Imen Boudhiba's PhD thesis, entitled "*A Model-Based Testing framework for IOSTS enriched with function calls*", defended at Centrale-Supélec (Paris, France) on March 2, 2017.
- G. Salaün was PhD committee president of Hosein Nazarpour's PhD thesis, entitled "*Monitoring Multi-threaded and Distributed (Component-Based) Systems*", defended at Université Grenoble Alpes on June 26, 2017.
- G. Salaün was PhD committee president of Jean-François Weber's PhD thesis, entitled "*Guiding and Controlling the Reconfigurations of Component-based Systems*", defended at Université de Franche-Comté (Besançon, France) on October 5, 2017.

### 9.3. Popularization

H. Garavel participates to the program committee and organization committee of FMF (*Formal Methods Forum*)<sup>0</sup>, a series of industrial conferences on formal methods set up by the competitiveness clusters Aerospace Valley and Minalogic, with the support of Inria and many other partners. The 7th FMF conference, devoted to formal methods and cybersecurity, was held on January 31, 2017. The 8th FMF conference, devoted to formal methods and autonomous vehicles, was held on October 10, 2017. Both events gathered a large audience.

L. Marsso, R. Mateescu, and Olivier Clozeau (Innovista Sensors) participated to the "*Forum 5i*" held on June 1st, 2017 at Grenoble (World Trade Center), where they held a stand dedicated to the results of the Bluesky project<sup>0</sup>.

R. Mateescu gave a lecture entitled "*Validation d'applications embarquées par des jumeaux numériques formels*" at the *Journée thématique Minalogic sur la modélisation des systèmes cyber-physiques* held in Grenoble on November 16, 2017.

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<sup>0</sup><http://projects.laas.fr/IFSE/FMF>

<sup>0</sup><http://www.minalogic.com/en/project/bluesky>

## CORSE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

- Fabrice Rastello: General Chair “Journées française de la compilation”, Lyon, June 2017

#### 9.1.1.2. Member of the Organizing Committees

- Fabrice Rastello: Steering Committee ACM/IEEE CGO; Steering Committee “Journées française de la compilation”
- Yliès Falcone: Publicity Chair of the 24th International SPIN Symposium on Model Checking of Software

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

- Fabrice Rastello: Program Chair “Journées française de la compilation”, Lyon, June 2017
- Yliès Falcone: Track Chair on Software Verification and Testing at the 2017 ACM Symposium on Applied Computing

#### 9.1.2.2. Member of the Conference Program Committees

- Fabrice Rastello: ACM/IEEE CGO’18
- François Broquedis: IEEE IPDPS’18
- Jean-François Méhaut: IEEE IPDPS’18
- Frédéric Desprez: ACM/SIGSIM HPC’17, ACM/SIGARCH HPDC’17, IEEE/ACM ISFEC’17, IEEE IPDS’17, IEEE ICDCS’17, IEEE ICA3PP’17, Special Track: Vision/Blue Sky Thinking, EBDMA’17, Europar’17, ICPADS’17, Closer 2017
- Yliès Falcone: CRI’17, MSR’17, RV-CuBES, RV’17, RW-BRMS’17, TASE 2017, iFM 2017, PDP 2017, DATE 2017 – Topic E3

### 9.1.3. Journal

#### 9.1.3.1. Reviewer - Reviewing activities

- Frédéric Desprez: IJHPCA
- Yliès Falcone: ACM Transactions on Software Engineering and Methodology (TOSEM), Formal Aspects of Computing, ACM Transactions on Automatic and Control, Acta Informatica, Formal Methods in System Design

### 9.1.4. Invited talks

- Frédéric Desprez: Entretiens Jacques Cartier, Montréal, Oct. 18 2017 “From IoT Devices to Cloud Computing Infrastructures”

### 9.1.5. Scientific expertise

- Frédéric Desprez: European project in the FP7 framework; Comité d’orientation stratégique de CIRRUS (COMUE Paris); Groupe Technique GENCI; GENCI, expert for grants of computing resources (CT6); COFECUB - CAPES 2018.
- Yliès Falcone: Representative of France in the COST Action ARVI

- Yliès Falcone: COST Action ARVI, co-leader of Working Group on Core Run-Time Verification
- Jean-François Méhaut: Eurolab-4-HPC, expert for cross site mobility research grants
- Jean-François Méhaut: GENCI, expert for grants of computing resources (CT6)
- Jean-François Méhaut: GENCI, reviewer for C3I (*Certificat de Compétences en Calcul Intensif*)

### 9.1.6. Research administration

- Frédéric Desprez: Deputy Scientific Director at INRIA
- Frédéric Desprez: Director of the GIS GRID5000
- Frédéric Desprez: Conseil Scientifique ESIEE Paris
- Yliès Falcone: Mission Valorisation for Laboratoire d'Informatique de Grenoble

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master II: Fabrice Rastello, Advanced Compilers, 12 hours, ENS Lyon

Master I: Jean-François Méhaut, Operating System Design, 50 hours, Polytech Grenoble

L3: Jean-François Méhaut, Numerical Methods, 50 hours, Polytech Grenoble,

L3: Jean-François Méhaut, Advanced Algorithms, 50 hours, Polytech Grenoble

Master I: Jean-François Méhaut, Parallel Algorithms and Programming, 10 hours (M1 Informatique), UFR IM2AG, Université Grenoble Alpes

L3: François Broquedis, Imperative programming using python, 40 hours, Grenoble Institute of Technology (Ensimag)

L3: François Broquedis, C programming, 80 hours, Grenoble Institute of Technology (Ensimag)

M1: François Broquedis, Operating systems and concurrent programming, 40 hours, Grenoble Institute of Technology (Ensimag)

M1: François Broquedis, Operating Systems Development Project - Fundamentals, 20 hours, Grenoble Institute of Technology (Ensimag)

M1: François Broquedis, Operating Systems Project, 20 hours, Grenoble Institute of Technology (Ensimag)

Master: Florent Bouchez Tichadou, Compilation project, 20 hours, M1 Info & M1 MoSIG

Licence: Florent Bouchez Tichadou, C programming, 20 hours, L3, Grenoble Institute of Technology (Ensimag)

Licence: Florent Bouchez Tichadou, Introduction to Programming, 24 hours, L1 UGA

Master: Florent Bouchez Tichadou, Algorithmic Problem Solving, 41 hours, M1 MoSIG

Licence: Florent Bouchez Tichadou, Algorithms languages and programming, 111 hours, L2 UGA

Licence: Florent Bouchez Tichadou is responsible of the second year of INF (informatique) and MIN (mathématiques et informatique) students at UGA

Master I: Yliès Falcone Proof Techniques and Logic Reminders, MoSIG, 3 hours

Master I: Yliès Falcone Recaps on Object-Oriented Programming, MoSIG, 3 hours

Master I: Yliès Falcone Programming Language Semantics and Compiler Design, MoSIG and Master informatique, 96 hours

License: Yliès Falcone Languages and Automata, UJF, 105 hours

Master: Yliès Falcone is co-responsible of the first year of the International Master of Computer Science (Univ. Grenoble Alpes and INP ENSIMAG)

Master I: Frédéric Desprez, Parallel Algorithms and Programming, 30 hours (MOSIG and Info)

## 9.2.2. Supervision

PhD defended: Thomas Gonçalves, Contributions à la parallélisation de méthodes de type transport Monte-Carlo, defended on September 28 2017, advised by Marc Perache (CEA/DAM), Frédéric Desprez, and Jean-François Méhaut

PhD defended: Vanessa Vargas, Approche logicielle pour améliorer la fiabilité d'applications parallèles implémentées sur des processeurs multi-cœurs et many-cœurs, defended on April 28 2017, advised by Raoul Velazco (CNRS, TIMA), and Jean-François Méhaut

PhD defended: Hosein Nazarpour, Monitoring Distributed and Multi-threaded Component-Based Systems, defended on June 26, 2017, advised by Yliès Falcone and Saddek Bensalem (Verimag).

PhD defended: Matthieu Renard, Run-Time Enforcement of (Timed) Properties with Uncontrollable Events, defended on December 11, 2017, advised by Yliès Falcone, Antoine Rollet and Mohamed Mosbah (University of Bordeaux).

PhD defended: Pedro Silva, On the mapping of distributed applications on multiple clouds, defended on December 11 2017, advised by Frederic Desprez, C. Perez (INRIA, Avalon team)

PhD in progress: François Gindraud, Semantics and compilation for a data-flow model with a global address space and software cache coherency, January 1st 2013, advised by Fabrice Rastello and Albert Cohen.

PhD in progress: Antoine El-Hokayem, Decentralised and Distributed Monitoring of Cyber-Physical Systems, October 2017, advised by Yliès Falcone.

PhD in progress: Fabian Grüber, Interactive & iterative performance debugging, September 2016, advised by Fabrice Rastello and Yliès Falcone.

PhD in progress: Georgios Christodoulis, Adaptation of a heterogeneous run-time system to efficiently exploit FPGA, October 2015, advised by Frederic Desprez, Olivier Muller (TIMA/SLS), and François Broquedis

PhD in progress: Luis Felipe Millani, Auto-tuning for optimizations of performance and power consumption, November 2015, advised by Lucas Schnoor (UFRGS) and Jean-François Méhaut

PhD in progress: Philippe Virouleau, Improving the performance of task-based run-time systems on large scale NUMA machines, March 2015, advised by Thierry Gautier (INRIA/AVALON), Fabrice Rastello, and François Broquedis

PhD in progress: Raphaël Jakse, Monitoring and Debugging Component-Based Systems, October 2016, advised by Jean-François Méhaut and Yliès Falcone.

PhD in progress: Thomas Messi Nguelé, Domain Specific Languages for Social Networks Analysis on Multi-Core Architectures, October 2014, advised by Maurice Tchuente (Yaoundé I, LIRIMA) and Jean-François Méhaut

PhD in progress: Ye Xia, Scaling and placement for autonomic management of elasticity of applications in a widely distributed cloud, November 2015, advised by Thierry Coupaye (Orange), Frédéric Desprez, and Xavier Etchevers (Orange)

PhD in progress: Pedro Henrique Penna, Towards an Operating System for Manycore Platforms, October 2017, advised by Marcio Castro (UFSC), François Broquedis, Henrique Cota de Freitas (PUC Minas) and Jean-François Méhaut

## 9.2.3. Juries

### 9.2.3.1. Frédéric Desprez

- Nelson Lossing, reviewer, *Compilation pour machines à mémoire réparties: une approche multi-passe*, PhD, Université de recherche Paris Science, April 3 2017
- Luis Pineda, reviewer, *Efficient Support for Data-Intensive Workflows on Geo-Distributed Clouds*, Université de Rennes, May 24 2017



- Adrien Lebre, member of the committee, *Contributions to Large-scale Distributed Systems The infrastructure Viewpoint*, Nantes, September 1 2017
- Thomas Gonçalves, Advisor with Jean-François Méhaut and Marc Pérache (CEA DAM), *Contributions à la parallélisation de méthodes de type transport Monte-Carlo*, PhD Université de Grenoble Alpes, September 28 2017
- Pierre Ramet, reviewer, *Heterogeneous architectures, Hybrid methods, Hierarchical matrices for Sparse Linear Solvers*, Université de Bordeaux, November 27 2017
- Pedro Silva, advisor with Christian Perez (Avalon), *On the mapping of distributed applications onto multiple Clouds*, ENS Lyon, December 11 2017
- Millian Poquet, chair, *Approche par la simulation pour la gestion de ressources*, Université de Grenoble Alpes, December 19 2017

#### 9.2.3.2. Jean-François Méhaut

- Soraya Zertal, Reviewer, *Contributions to data storage systems: modelling, simulation and evaluation tools*, HDR Université de Versailles, November 2017
- Abdou Guermouche, Reviewer, *Towards Efficient Sparse Direct Solvers for Modern High-Performance Architectures*, HDR Université de Bordeaux, December 2017
- Vanessa Vargas, Advisor with Raoul Velzco (TIMA), *Approche logicielle pour améliorer la fiabilité d'applications parallèles implémentées sur des processeurs multi-cœurs et many-cœurs*, PhD Université de Grenoble Alpes, April 2017
- Thomas Gonçalves, Advisor with Marc Pérache (CEA DAM) and Frédéric Desprez, *Contributions à la parallélisation de méthodes de type transport Monte-Carlo*, PhD Université de Grenoble Alpes, September 2017
- Krishna Singh, Advisor with Stéphane Redon (LJK, Nano-D), *Algorithmes pour la dynamique moléculaire restreinte de manière adaptative*, PhD Université de Grenoble Alpes, November 2017

## CQFD Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

P. Legrand was co-organizer of EA 2017.

F. Dufour has been a member of the Organizing Committee of the SIAM Conference on Control and Its Applications (CT17) in Pittsburgh, USA, 2017.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

P. Legrand was chair for EA 2017.

#### 10.1.2.2. Member of the Conference Program Committees

J. Anselmi has been a member of the TPC of the following international conferences: VALUETOOLS-2017, ASMTA-2017 and IFIP Performance 2017.

P. Legrand has been a member of the PC of the following international conferences: EA 2017.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

P. Del Moral is an associate editor for the journal Stochastic Analysis and Applications since 2001.

P. Del Moral is an associate editor for the journal Revista de Matematica: Teoria y aplicaciones since 2009.

P. Del Moral is an associate editor for the journal Applied Mathematics and Optimization since 2009.

F. Dufour is associate editor of the journal: SIAM Journal of Control and Optimization since 2009.

F. Dufour is the representative of the SIAM activity group in control and system theory for the journal SIAM News since 2014.

J. Saracco is an associate editor of the journal Case Studies in Business, Industry and Government Statistics (CSBIGS) since 2006.

#### 10.1.3.2. Reviewer - Reviewing Activities

All the members of CQFD are regular reviewers for several international journals and conferences in applied probability, statistics and operations research.

### 10.1.4. Invited Talks

Pierrick Legrand was invited to give a talk on IA in Thales center in october.

Pierre del Moral gave several invited talks listed at the following address: <http://people.bordeaux.inria.fr/pierre.delmoral/conf.html>

### 10.1.5. Leadership within the Scientific Community

P. Legrand was the scientific leader of the programs HUMO 3 (with UBX and IMS) and MICRO-DOPPLER (with Thales and IMS) in the context of the GIS ALBATROS.

### 10.1.6. Scientific Expertise

Pierrick Legrand has been reviewer for the ANR generics projects in 2017.

J. Saracco is elected member of the council of the *Société Française de Statistique* (SFdS, French Statistical Society).

J. Saracco was vice president of SFdS from 2014 to 2016.

### 10.1.7. Research Administration

J. Saracco is deputy director of IMB (Institut de Mathématiques de Bordeaux, UMR CNRS 5251) since 2015.

M. Chavent is member of the national evaluation committee of Inria.

M. Chavent and Pierrick Legrand are members of the council of the Institut de Mathématique de Bordeaux.

Pierrick Legrand was the director of the Ressources Center Victoire of the UF Mathematics and interactions until may 2017.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Licence : J. Anselmi, Probabilités et statistiques, 20 heures, L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, fili re T l communications, France.
- Licence : J. Anselmi, Probabilités et statistiques, 16 heures, L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, fili re Electronique, France.
- Licence : J. Anselmi, Probabilités et statistiques, 48 heures, niveau L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, fili re Math matique et M canique, France.
- Licence: M. Chavent, Analyse des donn es, 15 ETD, L3, Bordeaux university, France
- License: M. Chavent, Mod lisation statistique, 15 ETD, niveau L3, Bordeaux university, France
- Master : M. Chavent, Apprentissage automatique, 50 ETD, niveau M2, Bordeaux university, France
- Licence : F. Dufour, Probabilités et statistiques, 70h, first year of  cole ENSEIRB-MATMECA, Institut Polytechnique de Bordeaux, France.
- Master : F. Dufour, M thodes num riques pour la fiabilit , 36h, third year of  cole ENSEIRB-MATMECA, Institut Polytechnique de Bordeaux, France.
- P. Legrand, Alg bre (responsable de l'UE), Licence 1 SCIMS (108 heures)
- P. Legrand, Informatique pour les math matiques (responsable de l'UE), Licence 1 et Licence 2 (36 heures)
- P. Legrand, Espaces Euclidiens. (responsable de l'UE), Licence 2 SCIMS (54 heures)
- Licence: J. Saracco, Probability and Descriptive statistics, 27h, L3, First year of ENSC - Bordeaux INP, France
- Licence: J. Saracco, Mathematical statistics, 20h, L3, First year of ENSC - Bordeaux INP, France
- Licence: J. Saracco, Data analysis (multidimensional statistics), 20h, L3, First year of ENSC - Bordeaux INP, France
- Master: J. Saracco, Statistical modeling, 27h, M1, Second year of ENSC - Bordeaux INP, France
- Master: J. Saracco, Applied probability and Statistics, 40h, M1, Second year of ENSCBP - Bordeaux INP, France
- Master: J. Saracco, Probability and Statistics, 12h, M2, Science Po Bordeaux, France
- A. Genadot, Probabilit s de bases (18h), Licence MIASHS premi re ann e, Universit  de Bordeaux.
- A. Genadot, Statistiques de bases (18h), Licence MIASHS premi re ann e, Universit  de Bordeaux.
- A. Genadot, Probabilit s (36h), Licence MIASHS deuxi me ann e, Universit  de Bordeaux.

- A. Genadot, Processus (18h), Licence MIASHS troisi me ann e, Universit  de Bordeaux.
- A. Genadot, Mod lisation statistique (18h), Licence MIASHS troisi me ann e, Universit  de Bordeaux.
- A. Genadot, Martingales (25h), Master MIMSE premi re ann e, Universit  de Bordeaux.
- A. Genadot, Probabilit s (20h), Master MEEF premi re ann e, Universit  de Bordeaux.

### **10.2.2. Supervision**

- PhD completed : Aliz  Geeraert, Contr le optimal des processus Markoviens d terministes par morceaux et application   la maintenance, University of Bordeaux, supervised by B. de Saporta and F. Dufour (defense in June 2017).
- PhD in progress : Ines Jlassi, Contributions   la r gression inverse par tranches et   l'estimation non para m trique des quantiles conditionnels, University of Monastir (Tunisia), September 2013, supervised by J. Saracco and L. Ben Abdelghani Bouraoui.
- PhD in progress : Hadrien Lorenzo, Analyses de donn es longitudinales de grandes dimensions appliqu es aux essais vaccinaux contre le VIH et Ebola, University of Bordeaux, September 2016, supervised by J. Saracco and R. Thiebaut.
- PhD in progress : Tiffany Cherchi, "Automated optimal fleet management policy for airborne equipment", Montpellier University, since 2017, supervised by B. De Saporta and F. Dufour.
- PhD in progress : Chlo  Pasin, "Modelisation et optimisation de la r ponse vaccinale. Application au VIH et Ebola", Bordeaux University, since 2015, supervised by F. Dufour and R. Thiebaut.
- PhD in progress : Maud Joubaud, "Branching piecewise deterministic Markov processes, applications to cell biology", Montpellier University, since 2016, supervised by B. De Saporta and B. Cloez.
- PhD completed : Emigdio Z. Flores, Human mental states classification using EEG by means of Genetic Programming, ITT Tijuana, supervised by L. Trujillo and P. Legrand (defense in July 2017).

### **10.2.3. Juries**

J. Saracco is vice president of the french statistical society (SFdS).

## CTRL-A Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

Stéphane Mocanu is OC member of RESSI 2017 national meeting (<https://ressi2017.sciencesconf.org/>).

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

Eric Rutten is PC member for :

- international conferences
  - ICAC 2017 (14th IEEE International Conference on Autonomic Computing), Columbus, Ohio, USA on July 17-21, 2017 (<http://icac2017.ece.ohio-state.edu/>)
  - ICCAC 2017 (2017 IEEE International Conference on Cloud and Autonomic Computing), The University of Arizona, Tucson, AZ, USA, September 18-22, 2017 (<http://www.autonomic-conference.org/iccac-2017/>)
  - FACS 2017, 14th International Conference on Formal Aspects of Component Software, 10-13 October 2016, in Braga, Portugal (<http://facs2017.di.uminho.pt/>)
  - 14th Workshop on Discrete Event Systems, WODES'18, Sorrento Coast, Italy, May 30 - June 1, 2018. (<http://wodes2018.unisa.it/>)
  - ICAC 2018 (15th IEEE International Conference on Autonomic Computing), Sept 3-7, 2018, Trento, Italy (<http://autonomic-conference.org>)  
(this conference is the merging of the previous ICAC and ICCAC conferences above)
  - 2nd IEEE Conference on Control Technology and Applications, CCTA 18, Copenhagen, Denmark, August 21-24, 2018 (<http://ccta2018.ieeecs.org/>)
- national conferences
  - workshop Architectures Logicielles et Matérielles pour la Robotique Autonome, les Systèmes Cyber-Physiques et les Systèmes Auto-Adaptables SHARC2017, LAAS Toulouse, 29 et 30 juin 2017, (<https://sharc2017.sciencesconf.org>)
  - 11ème colloque francophone sur la Modélisation des Systèmes Réactifs (MSR'17), 15-17 novembre 2017, Marseille (France) (<http://www.lsis.org/msr2017/>)

#### 9.1.2.2. Reviewer

Stéphane Mocanu and Soguy Gueye are reviewers for ICAC 2017 (14th IEEE International Conference on Autonomic Computing), Columbus, Ohio, USA on July 17-21, 2017 (<http://icac2017.ece.ohio-state.edu/>).

Stéphane Mocanu is reviewer for 11ème colloque francophone sur la Modélisation des Systèmes Réactifs (MSR'17), 15-17 novembre 2017, Marseille (France) (<http://www.lsis.org/msr2017/>).

Gwenaël Delaval is reviewers for FACS 2017, 14th International Conference on Formal Aspects of Component Software, 10-13 October 2016, in Braga, Portugal (<http://facs2017.di.uminho.pt/>)

### 9.1.3. Journal

#### 9.1.3.1. Reviewer - Reviewing Activities

Eric Rutten is invited editor of

- journal on Distributed Computing (Springer)
- Science of Computer Programming
- IEEE TSC Transactions on Services Computing
- IEEE TSE Transactions on Software Engineering
- ACM Transactions on Autonomous and Adaptive Systems
- IEEE Transactions on Industrial Informatics

Stéphane Mocanu is invited editor of journal of Discrete Events Dynamical Systems.

#### 9.1.4. Invited Talks

Gwenaël Delaval was invited to give a talk at journées du LIP "Langage, Sémantique et Compilation", june 2017 (with E. Rutten).

Eric Rutten was invited to give a talk at :

- FETCH 2017, Ecole d'Hiver francophone sur la technologie de conception des systèmes embarqués hétérogènes, 9-11 janvier 2017, Mont Tremblant, Canada <http://fetch-conference.org>
- séminaire de l'équipe ASCOLA, IMT Nantes, 2 mai 2017
- FETCH 2018, Ecole d'Hiver francophone sur la technologie de conception des systèmes embarqués hétérogènes, 24-26 Janvier 2018, Saint Malo <http://fetch-conference.org>

#### 9.1.5. Leadership within the Scientific Community

Eric Rutten is co-chair of the Technical Committee on Discrete Event Systems (DESTC), a part of the IEEE Control Systems Society (CSS) Technical Activities Board (<http://discrete-event-systems.ieeeccs.org/tc-discrete/home>) ; and member of the IFAC Technical Committee 1.3 on Discrete Event and Hybrid Systems, for the 2017-2020 triennum (<http://tc.ifac-control.org/1/3>).

#### 9.1.6. Research Administration

Eric Rutten is member of the LIG laboratory council, and in charge of scientific relations between Inria Grenoble Rhône-Alpes and CEA Tech.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : G. Delaval, Algorithmics and imperative programming, 18h class, 18h lab, L2, Université Grenoble Alpes

Licence : G. Delaval, Basis of software development : modularity, tests, 15h class, 15h lab, L2, Université Grenoble Alpes

Master : G. Delaval, Programming languages and compiler design, 33h, M1, Université Grenoble Alpes

Master : S. Mocanu, Computer Networks and Cybersecurity, 16h class, 34h lab, M1, Grenoble-INP/ENSE3

Master : S. Mocanu, Industriel Computer Networks, 8h class, 8h lab, niveau (M1, M2), M2, Grenoble-INP/ENSE3

Master : S. Mocanu, Reliability, 10h class, 8h lab, M2, Grenoble-INP/ENSE3

### 9.2.2. Supervision

- PhD : Maëlle Kabir-Querrec; Cybersécurité des systèmes de contrôle pour les smart-grids ; 28 juin 2017 ; U. Grenoble Alpes ; co-advised by S. Mocanu with J-M Thiriet (Gipsa-lab).
- PhD : Adja Ndeye SYLLA ; Support intergiciel pour la conception et le déploiement adaptatifs fiables, application aux bâtiments intelligents ; U. Grenoble Alpes ; 18 dec. 2017 ; co-advised by Eric Rutten with M. Louvel (CEA). [11]
- PhD in progress : Neïl Ayeab ; Vers un management des objets de l'IoT de 'centralise' et adaptable ; dec. 2017 ; co-advised by Eric Rutten with S. Bolle, T. Coupaye (Orange labs).
- PhD in progress : Chabha Hireche ; Etude et implémentation d'une approche probabiliste de contrôle de mission de drone autonome ; oct. 2015 ; co-advised by S. Mocanu with Catherine Dezan (U. Bretagne Occidentale), and Jean-Philippe Diguët (U. Bretagne Sud).
- PhD in progress : Ahmed Altaher ; Mise en oeuvre d'un cadre de sureté de fonctionnement pour les systèmes de contrôle industriel : application à des systèmes de distribution d'énergie électrique (smart grids) ; avril 2013 ; co-advised by S. Mocanu with J-M Thiriet (Gipsa-lab).
- Oualid Koucham ; Détection d'intrusions dans les systèmes de contrôle industriels ; oct 2015 ; co-advised by S. Mocanu with J-M Thiriet (Gipsa-lab).

### **9.2.3. Juries**

Eric Rutten was member of the jury for the PhD of Sabbir Hasan Rochi, 3 may 2017, IMT Atlantique campus Nantes, ASCOLA team at Inria Rennes Bretagne Atlantique, dir. Jean-Louis Pizat and Thomas Ledoux.

## DANTE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- Márton Karsai was co-chair of 6th International Conference on Complex Networks and Their Applications (Complex Networks 2017)
- Márton Karsai was co-chair of the Computational Social Science: from social contagion to collective behaviour Satellite meeting of the CCS'17 conference.
- Márton Karsai was the co-chair of the Machine Learning in Networks Science Satellite meeting of the NetSci'17 conference
- Éric Fleury, was sponsor-chair of 6th International Conference on Complex Networks and Their Applications (Complex Networks 2017)
- Isabelle Guérin Lassous was general chair of the 14th ACM International Symposium on Performance Evaluation of Wireless Ad Hoc, Sensor, and Ubiquitous Networks (PE-WASUN 2017).

#### 10.1.1.2. Member of the Organizing Committees

- Éric Guichard was the chair and organiser of the summer school "Cartography and visualisation" <sup>0</sup>.
- Éric Guichard was the scientific organiser of the *LaTeX days: "Édition et typographie numériques, épistémologie"* <sup>0</sup> supported by Enssib and the GUTenberg association <sup>0</sup>.
- Jean-Pierre Chevrot was member of the Organizing Committee of Congress of the International Association for the Study of Child Language (IASCL 2017)

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- Márton Karsai is the Chair of Complex Networks 2017

#### 10.1.2.2. Member of the Conference Program Committees

- Éric Fleury was on the PC of the conference ComplexNet, of the Conference on Complex Networks: From Theory to Interdisciplinary Applications, SensorNet 2017 and CoRes 2016.
- Thomas Begin was on the PC of the 43rd IEEE Conference on Local Computer Networks (LCN).
- Isabelle Guérin Lassous was, in 2017, a member of the program committee of the conferences ACM MSWiM, IEEE ICC and Globecom, and ICNC.
- Márton Karsai was, in 2017, a member of the program committee of the conferences COMPLENET, NetSciCom - IEEE INFOCOM, DAMN! 2017 - IEEE PerCom, MLNS satellite NetSci'17, NetSci'17, CCS'17, Complex Networks 2017
- Jean-Pierre Chevrot was on the PC of the conference Variation in Language Acquisition 3 (ViLA3), Salzburg, Austria.
- Christophe Crespelle was on the PC of DyNo 2017, 3rd International Workshop on Dynamics in and of Networks, Skopje, Macedonia.

<sup>0</sup><http://barthes.enssib.fr/ECV-2017>

<sup>0</sup><http://barthes.enssib.fr/LaTeX-2017>

<sup>0</sup><https://www.pointypo.com/journees-latex-edition-typographie-numeriques-epistemologie/>



### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- Isabelle Guérin Lassous is member of the editorial boards of Computer Communications (Elsevier), Ad Hoc Networks (Elsevier) and Discrete Mathematics & Computer Science.
- Anthony Busson is member of the editorial boards of Computer Communications (Elsevier).
- Márton Karsai is member of the editorial boards of Advances in Complex Systems (World Scientific).
- Philippe Nain is Editor-in-Chief of Performance Evaluation (Elsevier)
- Márton Karsai was acting as a reviewer for the journals of Nature Communications, PNAS, PRL, PRX, PRE, Scientific Reports, EPJ Data Science, SNAM, EPL, EPJ B, PLoS One, Journal of Statistical Mechanics, Physics Letter A, Advanced in Complex Systems, Journal of Physics: Condensed Matter, Complex Networks, New Journal of Physics, Physica Scripta, Network Science; and for project agencies as ANR, FET-H2020 RIA.

#### 10.1.4. Invited Talks

- Éric Fleury gave a talk at the workshop "Trajectoires et dynamiques des réseaux : approches quantitatives" granted by the CNRS GDR Analyse de réseaux en SHS. The report made by Marianne Humblet et Pierre Mercklé is available online: <https://arshs.hypotheses.org/529>.
- Éric Fleury gave a talk at the summer school "Cartography and visualisation".
- Éric Fleury gave a talk at MARAMI 2017.
- Éric Guichard gave a talk at the LaTeX days on "Enjeux épistémologiques de l'écriture numérique".
- Éric Guichard gave a talk at the annual Lidilem seminar on "La culture numérique, une autre culture de l'écrit".
- Éric Guichard gave a talk for the IPL Better-Net on "Expériences géographiques".
- Paulo Gonçalves gave a talk at the Thematic Week on "Graphs, Machine Learning and Signal Processing" (McGill's Bellairs Research Institute).
- Paulo Gonçalves gave a talk at the open days of the *Fédération Rhône-Alpes-Auvergne* on "Statistics and neurosciences".
- Isabelle Guérin Lassous gave a talk at CUST and NUST in Pakistan and a seminar at the LIG laboratory on Wi-Fi association.
- Thomas Begin gave a talk at CUST and NUST in Pakistan on the modeling of DPDK-based virtual switches.
- Jean-Pierre Chevrot gave a talk at the University of Indiana at Bloomington "Interfaces of sociolinguistics: Cognition and massive data".
- Jean-Pierre Chevrot gave a keynote talk at the Language and Perception conference, Bern, Switzerland "Sociolinguistic perception: Linguistic knowledge and social categories".
- Jean-Pierre Chevrot gave a talk at the Laboratoire d'Informatique de Grenoble "Acquisition du langage et usages sociolinguistiques : le social, le cognitif et le réseau"
- Márton Karsai was an invited lecturer at RIO 2017 Summer School on Computer Science, University of Rio Cuarto (13-18 February 2017, Rio Cuarto, Argentina)
- Márton Karsai was an invited lecturer at PhD Course on Network Analysis and Applications, IME Ra – Aix-Marseille University (9 April 2017, Marseille, France)
- Márton Karsai gave an invited talk on Socioeconomic dependencies of linguistic patterns in Twitter, Inria Almanach seminar (13 November 2017, Paris, France)
- Márton Karsai gave an invited talk on Spatial networks and human mobility, GoPro 2017, ENS Lyon (13 December 2017, Lyon, France)

### 10.1.5. Leadership within the Scientific Community

- Éric Fleury is Co-chair of the Networking group ResCom of the CNRS GDR ASR. He is also a member of the scientific committee of the GDR ASR.
- Philippe Nain is the coordinator of the "Strategic Technology Monitoring & Prospective Studies Inria Unit".
- In the context of Inria 50th anniversary, Pascal Guitton, Philippe Nain and François Sillion reflect on Inria's evolution through the decades and present its vision for the future in [19].

### 10.1.6. Scientific Expertise

- Isabelle Guérin Lassous is a member of the research committee of the Milyon labex.
- Éric Fleury is member of the Inria Advanced and starting research position jury and junior research position (CR2/CR1)
- Éric Fleury has been an expert for the Fund for Scientific Research - FNRS.
- Éric Fleury has been a member of evaluation panels as part of the French National Research Agency (ANR) and member of the program committee of the ANR ROSE Challenge (RObotique et Capteurs au Service d'Ecophyto)
- Éric Fleury is member of the Inria Evaluation Committee.
- Éric Guichard is a member of the scientific committee of the 8th Major Societal Challenges: "Innovative, inclusive and adaptive societies" of the French National Research Agency<sup>0</sup>
- Éric Guichard is a member of the scientific committee of LASCO Idea Lab of the IMT (Laboratoire Sens et Compréhension du monde contemporain de l'Institut Mines-Télécom).
- Éric Guichard is a member of the international evaluation board of the doctoral program *Filosofia da Ciencia, Tecnologia, Arte e Sociedade* of the University of Lisbon.
- Éric Guichard is the manager of the RAIL (Réseau de l'Atelier Internet Lyonnais), founded in 2017 and supported by IXXI and Enssib. RAIL<sup>0</sup> is a federative open group of research founded in March, 2017. Its main projects are both theoretical and practical, each part feeding the other : establishing critical thought of the Internet, rethinking epistemology ; and, on the other hand, the measurements and the graphic productions in connection with the Internet. These interactions allow the participants of the RAIL to specify the concepts and practices which help to get a good understanding of the Internet, which is defined as a contemporary form of writing. RAIL's key words are : digital territories, representations and spatial productions, imaginary, scientific and digital culture, literate worlds, links between technique and politics.

### 10.1.7. Research Administration

- Paulo Gonçalves is scientific liaison officer for international relations in Inria Research Centre of Rhône-Alpes.
- Paulo Gonçalves is a member of the executive committee of the Milyon labex and referent for its valorisation committee.
- Isabelle Guérin Lassous is member of the department council of the Computer Science department of Université Lyon 1.
- Isabelle Guérin Lassous is the managing director of the Foundation Blaise Pascal.
- Anthony Busson is member of the Thesis Commission at LIP.
- Anthony Busson is head of the CS department at the IUT.

<sup>0</sup><http://www.agence-nationale-recherche.fr/en/funding-opportunities/work-programme-2017/major-societal-challenges-at-the-frontiers-of-research-components/>

<sup>0</sup><http://barthes.ens.fr/RAIL> or <http://barthes.enssib.fr/RAIL/>

- Anthony Busson was a HCERES expert member (laboratory LMIA-MIPS - Université de Haute Alsace).
- Éric Fleury is Deputy Scientific Delegate for Inria Grenoble Rhône Alpes
- Éric Fleury is in the in the Executive Committee of the IXXI à Rhône-Alpes Complex Systems Institute.
- Éric Fleury is member of the Council of the LIP laboratory.
- Éric Fleury is a member of the executive committee of the Milyon labex.
- Thomas Begin is an elected member of the Council of the LIP laboratory.
- Jean Pierre Chevrot is member of the steering committee of the IXXI - Rhône-Alpes Complex Systems Institute.
- Márton Karsai is the co-responsible for the M2 master program in Modelling of Complex Systems at ENS Lyon
- Márton Karsai is the elected council member of the Complex System Society (2015-)
- Márton Karsai is the elected member of the steering committee of the IXXI Complex System Institute (2017-)
- Éric Guichardt is a member of the steering committee of the IXXI Complex System Institute
- Jean-Philippe Magué is a member of the executive committee of the IXXI Complex System Institute
- Jean-Philippe Magué is a member of the executive committee of the Aslan Labex, in charge of the language complexity work package.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

#### 10.2.1.1. Teaching by Éric Fleury

Éric Fleury is Professor at the Computer Science department of ENS de Lyon and holds a Inria chair.

Master: CR15 - Complex Networks, 18H, M2, ENS de Lyon, France

#### 10.2.1.2. Teaching by Márton Karsai

Márton Karsai is Associate Professor at the Computer Science department of ENS de Lyon and holds a Inria chair.

Master: CR15 - Complex Networks, 21H, M2, ENS de Lyon, France

Master: Dynamical Processes on Networks, 6H, M2, ENS de Lyon, France

Master: Modeling Social Systems, 9H, M2, ENS de Lyon, France

Bachelor: Interdisciplinary Applications of Complex Networks - Non-specialist course, 6H, L3, ENS de Lyon, France

Master: Complex Networks 16H, Collegio Carlo Alberto, Torino Italy (guest lecturer)

#### 10.2.1.3. Teaching by Paulo Gonçalves

Engineering school CPE-Lyon (years 3-5): Signal Processing (80 hours/yr)

#### 10.2.1.4. Teaching by Isabelle Guérin Lassous

Professor at Université Claude Bernard Lyon 1 in the Computer Science department since 2006. She lectures at the University.

Master: "Distributed algorithms", 30h, Master (M1), University Lyon 1, France

Master: "QoS and Multimedia Networks", 20h, Master (M2), University Lyon 1, France

Master: "Wireless Networks", 10h, Master (M2), University Lyon 1, France

#### 10.2.1.5. Teaching by Anthony Busson

Professor at the IUT (Institut Universitaire de Technologie) of Université Claude Bernard Lyon 1 in the computer science department since 2012.

Master: "MPLS", 6h, Master (M2), University Lyon 1, France

DUT: full service (192h) in networking, operating-systems, and programming.

#### 10.2.1.6. Teaching by Thomas Begin

Assistant Professor at Université Claude Bernard Lyon 1 in the Computer Science department since 2009.

Master: "Networking", 20h, Master (M1), University Lyon 1, France

Master: "Advanced networks", 20h, Master (M2 SRIV), University Lyon 1, France

Master: "Computer networks", 20h, Bachelor (L3), University Lyon 1, France

Master: "Introduction to Networking", 30h, Master (M2 CCI), University Lyon 1, France

Master: "Distributed systems", 10h, Master (M1), University Lyon 1, France

#### 10.2.1.7. Teaching by Christophe Crespelle

Associate Professor at Université Claude Bernard Lyon 1 in the Computer Science department since 2010.

Master: "Introduction to Computer Science", 30h, Master (M2), ENS de Lyon, France

#### 10.2.1.8. Teaching by Philippe Nain

Master: "Network Performance Evaluation", 24h, Master (M2), ENS de Lyon, France

### 10.2.2. Supervision

HDR defense: Christophe Crespelle, Structures of Complex Networks and of their Dynamics. September 2017.

PhD defense: Laurent Reynaud, Designing optimized and disruption-tolerant mobility strategies for wireless networks. March 2017, I. Guérin Lassous

PhD defense: Matteo Morini, New tools for understanding the dynamics of social networks, Oct 2017, E. Fleury, P. Jensen and M. Karsai

PhD defense: Huu-Nghi Nguyen, Passive measurement in Software Defined Networks. March 2017, T. Begin and A. Busson and I. Guérin Lassous

Philosophy Master defence: Coline Ferrarato (ENS / EHESS), *Philosophie du logiciel. Dialogue entre Simondon et un objet technique numérique*<sup>0</sup>, Eric Guichard and Mathias Girel.

Master defense: Arthur Perret (ENSIB): *Écrire la carte. Les apports intellectuels de la cartographie numérique*<sup>0</sup>, Eric Guichard.

Master defense: Raimon Fabregat (ENS de Lyon), *Decomposition of dynamic networks via non-negative matrix factorization for the study of neural assemblies in the brains of rats*, Paulo Gonçalves.

Master defense: Louis Duvivier (ENS de Lyon), *Causal correlations in temporal graphs*, Christophe Crespelle and Marton Karsai.

PhD in progress: Sarra Ben Alaya, Multi-scale classification and analysis of data on networks. Nov. 2015, P. Gonçalves (P. Borgnat, co-advisor). Sarra ended prematurely her PhD in Novembre 2017.

PhD in progress: Esteban Bautista Ruiz, Statistical Graph Signal Processing. P. Gonçalves (P. Abry, co-advisor). Started Sept. 1st, 2016.

PhD in progress: Mohammed Amer, WiFi network management: a SDN approach. January 2015, A. Busson and I. Guérin Lassous

<sup>0</sup><http://barthes.enssib.fr/travaux/Coline-Ferrarato-masterphilologiciel.pdf>

<sup>0</sup><http://barthes.enssib.fr/travaux/Epistemo-carto-num-Perret.pdf>

PhD in progress: Lafdal Mohamed Abdelwedoud, Inference of conflict graph in IEEE 802.11 networks. September 2017, A. Busson and I. Guérin Lassous

PhD in progress: Samuel Unicomb, Spreading processes on temporal networks, Oct 2016, E. Fleury and M. Karsai

PhD in progress: Jacobo Levy Abitbol, Information diffusion and language evolution on dynamical social networks, Oct 2016, E. Fleury and M. Karsai

PhD in progress: Marija Stojanova, Performance Modelling of IEEE 802.11 networks, Oct 2016, T. Begin

PhD in progress: Sicheng Dai, Dynamic Multilayer Network Modelling

PhD in progress: Gaetan Frusque, *Modal Decompositions of Dynamic Graphs : Application in Neurosciences*, P. Gonçalves (P. Borgnat, co-advisor). Started October 1st, 2017.

PhD in progress: Rémy Grünblatt, Controlled mobility for UAV networks, October 2017, I. Guérin Lassous and O. Simonin.

### 10.2.3. Juries

- Isabelle Guérin Lassous was a reviewer of the HDR examination boards of Enrico Natalizio (UTC), Sara Alouf (Inria) and Gentian Jakllari (University Toulouse).
- Isabelle Guérin Lassous was a member of the HDR examination boards of Claire Goursaud (Insa Lyon), Christophe Crespelle (University Lyon 1) and Laure Gonnord (University Lyon 1).
- Isabelle Guérin Lassous was a reviewer of the Ph.D thesis examination board of Quentin Vey (University Toulouse), Diego Neves da Hora (UPMC) and Tran Anh Quang Pham (University Rennes 1).
- Isabelle Guérin Lassous was a member of the Ph.D thesis examination board of Su Qiankun (University Toulouse).
- Anthony Busson was member and reviewer of the Ph.D of Mohamed Labraoui entitled “Les réseaux maillés sans fils assistés par le SDN” (LIP-6 December 2017).
- Anthony Busson was member and reviewer of the Ph.D of Luis David Alvarez Corrales “Communications coopératives pour des très grands réseaux cellulaires” (Telecom Paris Tech November 2017).
- Anthony Busson was member and reviewer of the Ph.D of Mandimby Nirina Ranaivo Rakoton-dravelona “Utilisation d’une autostructuration pour un routage hiérarchique géographique dans les réseaux sans fil ad hoc” (Université de la Réunion - Juillet 2017).
- Éric Fleury was member and reviewer of the HdR of Jean-Philippe Cointet titled "La cartographie des traces textuelles comme méthodologie d'enquête en science sociales"
- Éric Fleury was member of the PhD examination board of Mattéo Morini.
- Paulo Gonçalves was reviewer of the PhD dissertation of Lionnel Martin (EPFL) on "Robust and Efficient Data Clustering with Signal Processing on Graphs".
- Christophe Crespelle was member and reviewer of the Ph.D of Kaoutar Ghazi titled "Heuristics and Conjectures about the 2-dimension of partial orders", University Clermont Auvergne, September 2017.
- Márton Karsai was member of the Ph.D of Sebastien Lérique on “Epidemiology of Representations: An Empirical Approach” (École des Hautes Études en Sciences Sociales, Paris, October 2017).
- Márton Karsai was opponent of the Ph.D of Pietro della Briotta Parolo on “Analysis of Cumulative and Temporal Patterns in Science” (Aalto University, School of Science, Espoo Finland, December 2017).

### **10.3. Popularization**

Isabelle Guérin Lassous is the managing director of the Foundation Blaise Pascal. The objectives of the foundation are to promote mathematics and computer science and to attract young people to scientific fields like computer science and mathematics. The actions of the FBP focus on:

- a support to actors that promote mathematics and computer science via allocated funding based on call of proposals;
- a structuring of actors to increase the impacts of their actions, to coordinate the efforts and to share experiences;
- a development of innovative experiences via summer camps and clubs of mathematics and computer science.

## **DATAMOVE Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific Events Organisation**

#### *10.1.1.1. General Chair, Scientific Chair*

President of the steering committee of Edu-Europar.

President of the steering committee of EGPGV (Eurographics Symposium on Parallel Graphics and Visualization).

Member of the steering committee of Europar.

Member of the steering committee of *Journée de visualisation scientifique*.

Member of the steering committee of HeteroPar.

#### *10.1.1.2. Member of the Organizing Committees*

Euro-Par, ,Santiago de Compostela, Spain, August 2017. Topic chairs.

ICPP (46th Internat. Conference on Parallel Processing), August 14-17, Bristol, UK. Track chair.

### **10.1.2. Scientific Events Selection**

#### *10.1.2.1. Member of the Conference Program Committees*

ISAV 2017 (Workshop on In Situ Infrastructures for Enabling Extreme-scale Analysis and Visualization) , November 2017, Denver, USA

EGPGV 2017 (Eurographics Symposium on Parallel Graphics and Visualization), June 2017, Barcelona, Spain.

LADV 2017 (IEEE Symposium on Large Data Analysis and Visualization), October 2017, Phoenix, USA.

ROADEF, Feb. 22-24, Metz, France

CCgrid (17th IEEE/ACM Internat. Symposium on Cluster, Cloud and Grid Computing) May 14-17, Madrid, Spain

COMPAS, June 27-30, Sophia-Antipolis, France

ISPDC (16th Internat Symposium on Parallel and Distributed Computing) July 3-6, Innsbruck, Austria

WAOA (15th workshop on Approximation and Oline Algorithms) Sept. 7-8, Vienna, Austria

PPAM (12th internat. conf. on Parallel Processing and Applied Maths) Sept. 10-13, Lublin, Poland

ParCo, Sept. 12-15, Bologna, Italy

CloudTech (3rd International Conference on Cloud Computing Technologies and Applications) Oct. 24-26, Rabat, Morocco

MISTA (8th edition) Dec. 5-8, Kuala Lumpur, Malaysia

HiPC (23rd IEEE internat. Conf on High Performance Computing, Data and Analytics) Dec. 18-21, Jaipur, India

### **10.1.3. Journal**

#### *10.1.3.1. Member of the Editorial Boards*

Associate Editor of the Parallel Computing journal PARCO.

Member of the Editorial Board of JPDC.

Member of the Editorial Board of Computational Methods in Science and Technology.

Member of the Editorial Board of ARIMA (revue africaine de recherche en informatique et maths appliquées).

#### **10.1.4. Scientific Expertise**

ANR project evaluation expert

Nederlands e-science center expert

#### **10.1.5. Research Administration**

Director of Pôle MSTIC of COMUE Univ. Grenoble-Alpes.

Steering committee of Grid'5000

Steering committee of GRICAD

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

Master: Denis Trystram is responsible of the first year (M1) of the international Master of Science in Informatics at Grenoble (MOSIG-M1).

Master: Pierre-François Dutot. 226 hours per year. Licence (first and second year) at IUT2/UPMF (Institut Universitaire Technologique de Univ. Grenoble-Alpes) and 9 hours Master M2R-ISC Informatique-Systèmes-Communication at Univ. Grenoble-Alpes.

Master: Grégory Mounié. 242 hours per year. Master (M1/2nd year and M2/3rd year) at Engineering school ENSIMAG, Grenoble-INP.

Master: Bruno Raffin. 28 hours per year. Parallel System. International Master of Science in Informatics at Grenoble (MOSIG-M2).

Master: Olivier Richard. 222 hours per year. Master at Engineering school Polytech-Grenoble, Univ. Grenoble-Alpes.

Master: Denis Trystram. 200 hours per year in average, mainly at first level of Engineering School ENSIMAG, Grenoble-INP.

Master: Frédéric Wagner. 220 hours per year. Engineering school ENSIMAG, Grenoble-INP (M1/2nd year and M2/3rd year).

Master: Yves Denneulin. 70 hours per year. Engineering school ENSIMAG, Grenoble-INP (M1/2nd year and M2/3rd year).

### **10.2.2. Supervision**

PhD: Raphaël Bleuse, Affinity Scheduling, Defended November 2017, Univ. Grenoble-Alpes. Adviser: Denis Trystram and Gregory Mounié.

PhD: Millian Poquet, Energy consumption optimization for high performance computing, Defended December 2017, Univ. Grenoble-Alpes. Advisers: Denis Trystram and Pierre-François Dutot

PhD: Abhinav Srivastav, Multi-objective Scheduling, Defended May 2017, Univ. Grenoble-Alpes. Advisers: Denis Trystram and Oded Maler

PhD: Fernando Machado Mendonca, Locality Aware Scheduling, Univ. Grenoble-Alpes, Defended April 2017, Advisers: Frederic Wagner and Denis Trystram.

PhD: Julio Toss, Parallel Algorithms and Data Structures for Physically Based Simulation of Deformable Objects, Univ. Grenoble-Alpes and UFRGS (co-tutelle). Defended October 2015. Advisers: Bruno Raffin and Joao Comba (UFRGS).



PhD in progress : Estelle Dirand, Integration of High-Performance Data Analytics and IOs for Molecular Dynamics on Exascale Computer, Univ. Grenoble-Alpes. Started January 2016. Advisers: Bruno Raffin and Laurent Colombet (CEA).

PhD in progress: Michael Mercier, Resource Management and Job Scheduling in HPC-Cloud environments towards the Big Data era, Univ. Grenoble Alpes. Started October 2016. Advisers: Olivier Richard and Bruno Raffin.

PhD in progress: Valentin Reis, Machine Learning for resource management, Univ. Grenoble-Alpes. Started October 2015. Advisers: Denis Trystram and Eric Gaussier

PhD in progress: Alessandro Kraemer, Scheduling in the Cloud, Univ Grenoble-Alpes and UFPR (co-tutelle). Started October 2014. Advisers: Olivier Richard and Denis Trystram.

PhD in progress: Mohammed Khatiri, Tasks scheduling on heterogeneous Multicore, Univ. Grenoble-Alpes and University Mohammed First (co-tutelle), Advisers: Denis Trystram, El Mostafa DAOUDI (University Mohammed First, Oujda, Morocco)

PhD in progress: Adrien Faure, Advisers: Denis Trystram

PhD in progress: Clément Mommessin, Advisers: Denis Trystram

### 10.2.3. *Juries*

PhD Defense of Jorge F. Fabeiro, Tools for Improving Performance Portability in Heterogeneous Environments, 13th of July 2017. Univesidade da Coruña, Spain. Jury President.

PhD Defense Xavier Martinez, Tracking sans marqueur de modèles physiques modulaires et articulés: vers une interface tangible pour la manipulation de simulations moléculaires, 10th of October 2017. Université Paris-Sud, Paris Saclay. Jury Member.

PhD defense Jérôme Richard, Conception d'un modèle de composants logiciels avec ordonnancement de tâches pour les architectures parallèles multi-cœurs, application au code Gysela, 6th of December 2017. Université de Lyon. Jury President

PhD defense Sébastien Doutreligne, Interactive Molecular Dynamics Software Development: applications to biomolecule folding, 27th of October 2017. UPMC. Reviewer.

PhD defense Suraj Kumar, Scheduling of Dense Algebra Kernels on Heterogeneous Resources , Avril 2017. Univ of Bordeaux . Jury President.

## 10.3. Popularization

Responsible of the workshop *Proof without Words* and participation to the *CS-Unplugged* workshop, Inria, Fête de la Science 2017.

## DATASHAPE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- Frédéric Chazal co-organized, with M. Meila (Univ. of Washington) the NIPS 2017 workshop “Synergies in Geometric Data Analysis”, December 2017.
- Frédéric Chazal co-organized the workshop “Functoriality in Geometric Data”, Schloss Dagstuhl, Germany, January 2017

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

Jean-Daniel Boissonnat is a member of the Editorial Board of *Journal of the ACM*, *Discrete and Computational Geometry*, *International Journal on Computational Geometry and Applications*.

Frédéric Chazal is a member of the Editorial Board of *SIAM Journal on Imaging Sciences*, *Discrete and Computational Geometry (Springer)*, *Graphical Models (Elsevier)*, and *Journal of Applied and Computational Topology (Springer)*.

Steve Oudot is a member of the Editorial Board of *Journal of Computational Geometry*.

### 10.1.3. Invited Talks

Jean-Daniel Boissonnat has been invited and gave a talk at NYU-AD on November 19, 2017.

Frédéric Chazal, Foundations of Computational Mathematics (FoCM'17), Computational Topology and Geometry workshop, Barcelona, Spain, July 2017.

Frédéric Chazal, Applied Topology in Bedlewo 2017 Conference, Bedlewo, Poland, June 2017.

Frédéric Chazal, UC Davis Statistical Sciences Symposium, Davis, USA, May 2017.

Frédéric Chazal, Applied and Computational Algebraic Topology, Hausdorff Institute, Bonn, Germany, April 2017.

Frédéric Chazal, The First International Conference on the Mathematics of Data Science, Hong Kong Baptist University, Hong Kong, March 2017.

Frédéric Chazal, CNA/Ki-Net Workshop: Dynamics and Geometry from High Dimensional Data, Carnegie Mellon University, March 2017.

Frédéric Chazal, Colloquium, collaborative research center Discretization in Geometry and Dynamics, Munich, February 7, 2017.

Frédéric Chazal, Statistics/Learning at Paris-Saclay, workshop at IHES, January 19, 2017.

Mathijs Wintraecken gave an invited talk at the SoCG workshop on Algorithms for the Medial Axis in Brisbane, June 2017.

Steve Oudot, BIRS workshop on Topological Data Analysis: developing abstract foundations, Banff, Canada, August 2017.

Steve Oudot, Mini-Symposium on Computational Topology, Brisbane, Australia, July 2017.

Steve Oudot, Dagstuhl seminar on Topology, computation and data analysis, Dagstuhl, Germany, July 2017.

Steve Oudot, Applied Topology Seminar, Brown University, USA, April 2017.

Steve Oudot, TRIPODS workshop on Geometry and topology for data, ICERM, USA, December 2017.

Steve Oudot, workshop on Mathematical signal processing and data analysis, Bremen University, Germany, September 2017.

Steve Oudot, Conférence de rentrée Maths-Info, ENS Cachan, September 2017.

#### **10.1.4. Leadership within the Scientific Community**

Steve Oudot is co-organizing the monthly seminar on combinatorial and computational geometry at Institut Henri Poincaré.

Steve Oudot is co-head of the GT Géométrie Algorithmique since September 2017.

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

Collège de France : Jean-Daniel Boissonnat, Géométrie algorithmique: données, modèles, programmes, avril-juin 2017.

Master: Frédéric Chazal, Analyse Topologique des Données, 30h eq-TD, Université Paris-Sud, France.

Master: Jean-Daniel Boissonnat and Marc Glisse, Computational Geometry Learning, 36h eq-TD, M2, MPRI, France.

Master: Steve Oudot, Topological Data Analysis, 45h eq-TD, M1, École Polytechnique, France.

Master: Frédéric Cazals and Frédéric Chazal, Geometric Methods for Data Analysis, 30h eq-TD, M1, École Centrale Paris, France.

Master: Frédéric Chazal, Topological Data Analysis, 16h eq-TD, M2, Mathématiques, Vision, Apprentissage (MVA), ENS Paris-Saclay, France.

Winter School on Computational geometry and topology for data analysis, Jean-Daniel Boissonnat, Frédéric Chazal, Sophia-Antipolis, January 2017.

### **10.2.2. Supervision**

PhD: Eddie Aamari, A Statistical Approach of Topological Data Analysis, September 1st, 2017, Frédéric Chazal (co-advised by Pascal Massart).

PhD in progress: Claire Bréchet, Statistical aspects of distance-like functions, started September 1st, 2015, Frédéric Chazal (co-advised by Pascal Massart).

PhD in progress: Bertrand Beauflis, Méthodes topologiques et apprentissage statistique pour l'actimétrie du piéton à partir de données de mouvement, started November 2016, Frédéric Chazal (co-advised by Bertrand Michel).

PhD: Mathieu Carrière, Topological signatures for geometric data, defended November 21st, 2017, Steve Oudot.

PhD in progress: Jérémy Cochoy, Decomposition and stability of multidimensional persistence modules, started September 1st, 2015, Steve Oudot.

PhD in progress: Nicolas Berkouk, Categorification of topological graph structures, started November 1st, 2016, Steve Oudot.

PhD in progress: Théo Lacombe, Statistics for persistence diagrams using optimal transport, started October 1st, 2017, Steve Oudot.

PhD in progress: Alba Chiara de Vitis, Concentration of measure and clustering, Jean-Daniel Boissonnat and David Cohen-Steiner.

PhD in progress: Siargey Kachanovich, Manifold reconstruction in higher dimensions, Jean-Daniel Boissonnat.

PhD in progress: François Godi, Data structures and algorithms for topological data analysis and high dimensional geometry, Jean-Daniel Boissonnat.

PhD in progress: Siddharth Pritam, Approximation algorithms in Computational Topology, Jean-Daniel Boissonnat.

PhD in progress: Raphaël Tinarrage, Persistence and stability of nerves in measured metric spaces for Topological Data Analysis, started September 1st, 2017, Frédéric Chazal and Marc Glisse.

PhD in progress: Vincent Divol, statistical aspects of TDA, started September 1st, 2017, Frédéric Chazal (co-advised by Pascal Massart).

### ***10.2.3. Juries***

Frédéric Chazal was a member of the PhD defense committee of Aruni Choudhary, MPI (reviewer) and Aurelien Vasseur (co-advisor).

Jean-Daniel Boissonnat was a member of the PhD defense committee of Eddie Amari.

Steve Oudot was a member (examiner) of the PhD defence committees of Jérémy Dubut and Nicolas Ninin (Cosynus team, Ecole polytechnique).

## **10.3. Popularization**

### ***10.3.1. Inria-Industry Meeting***

Marc Glisse, Miro Kramar and Steve Oudot held a booth for half a day.

Marc Glisse played for a small video which is now on the InriaInnovation YouTube channel <https://youtu.be/IKNjGk-Z6b4>.

## **DATASPHERE Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

Stéphane Grumbach has been co-director of IXXI since 2014. He is also involved in the Anthropocene Group at ENS Lyon, which promoted interdisciplinary research and teaching activities on issues related to the adaptation to the changes of the natural ecosystem. He is involved in various initiatives to promote scientific knowledge to a wider audience, as well as in cooperation with public administrations (local and national) to face the challenges of the digital revolution.

## **9.2. Teaching - Supervision - Juries**

### **9.2.1. Teaching**

Stéphane Grumbach teaches a new Master course on the Economy of Data at SciPo Paris. He also teaches in several universities including, ENS Lyon, Insa Lyon, etc.

### **9.2.2. Supervision**

PhD : Robert Riemann, Towards Trustworthy Online Voting: Distributed Aggregation of Confidential Data, Université de Lyon, 18 décembre 2017, directeur de thèse Stéphane Grumbach

PhD in progress : Jingxiu Su, DNS data analysis, 2016, directeur de thèse Kave Salamatian

## **DEDUCTEAM Project-Team**

# **8. Dissemination**

## **8.1. Promoting Scientific Activities**

### **8.1.1. Scientific Events Selection**

#### *8.1.1.1. Member of the Conference Program Committees*

G. Burel was a member of the 12th International Workshop on the Implementation of Logics.

#### *8.1.1.2. Reviewer*

G. Burel, S. Martiel, and F. Gilbert reviewed submissions to the Logic In Computer Science conference.

G. Burel reviewed submissions to the Formal Structures for Computation and Deduction conference.

### **8.1.2. Journal**

#### *8.1.2.1. Reviewer - Reviewing Activities*

G. Burel reviewed articles for the Computer Journal and the Journal of Logic and Computation.

### **8.1.3. Invited Talks**

G. Burel gave an invited lecture at the 28th Journées Francophones des Langages Applicatifs, entitled “Exprimer ses théories en Dedukti, le vérificateur de preuves universel”.

### **8.1.4. Scientific Expertise**

G. Dowek is a member of the scientific concil of La Société Informatique de France.

G. Dowek is a member of the scientific concil of La Main à la Pâte.

G. Dowek is a member of the Commission de réflexion sur l'Éthique de la Recherche en sciences et technologies du Numérique d'Allistene.

### **8.1.5. Research Administration**

F. Blanqui is co-director of the pole 4 (programming: models, algorithms, languages and architectures) of Paris-Saclay University's doctoral school on computer science.

F. Blanqui is referent of LSV PhD students.

## **8.2. Teaching - Supervision - Juries**

### **8.2.1. Teaching**

F. Blanqui gave a M1 course (16h) on rewriting theory in the MPRI at the ENS Paris-Saclay.

F. Blanqui gave a M1 course (21h) on language theory at the ENSIIE.

G. Dowek's paper *Rules and derivations in an elementary logic course* has been published in the IfCoLog Journal of Logics and their Applications [11].

### **8.2.2. Supervision**

F. Blanqui supervised the internships of A. Defourné and R. Bocquet.

F. Blanqui and O. Hermant supervised the internship of G. Genestier.

F. Blanqui and O. Hermant supervise the PhD of G. Genestier.

G. Dowek supervises the PhD of G. Férey and F. Gilbert.

G. Dowek and D. Delahaye supervise the PhD of G. Bury.

G. Dowek and S. Graham-Lengrand supervise the PhD of F. Thiré.

### **8.2.3. *Juries***

F. Blanqui was member of the jury for the best scientific production of the year within Paris-Saclay University's doctoral school on computer science.

F. Blanqui has been in the jury for the PhD of R. Lepigre on “Semantics and Implementation of an Extension of ML for Proving Programs”, Chambéry.

## DEFI Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

- G. Allaire is a member of the "comité national" CNRS, section 41 (mathematics). He is a member of the board of the Gaspard Monge program on optimization (PGMO) at the Jacques Hadamard Mathematical Foundation. He is a board member of Institut Henri Poincaré (IHP). He is the chairman of the scientific council of IFPEN (French Petroleum Institute and New Energies).
- L. Chesnel co-organized the Journée de rentrée (2017) of the Centre de Mathématiques Appliquées of École Polytechnique
- L. Chesnel co-organize the seminar of the Centre de Mathématiques Appliquées of École Polytechnique and the joint seminar of the Inria teams Defi-M3DISIM-Poems.
- H. Haddar Co-organized of the third Franco-German Summer School "Inverse Problems and Imaging", University of Bremen, September 18-22, 2017
- DEFI was a sponsor of the conference "Waves diffracted by Patrick Joly", Paris, 2017.
- J.R. Li is organizer of Ecole d'été d'excellence for Chinese Master's students funded by French Embassy in China, 2017.
- J.R. Li is member of Organizing Committee of SIAM Conference on Computational Science and Engineering, 2017

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

- J.R. Li is member of the SIAM Committee on Programs and Conferences 2017-2019
- J.R. Li is responsable for the Ecole Polytechnique part of the French-Vietnam Master Program in Applied Mathematics, 2017
- J.R. Li is reviewer for Millennium Science Initiative, a program of the Government of Chile, 2017.
- H. Haddar is member of the scientific committees of the conferences series TAMTAM, Picof and Waves

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

- G. Allaire is member of the editorial board of
  - book series "Mathématiques et Applications" of SMAI and Springer,
  - ESAIM/COCV, Structural and Multidisciplinary Optimization,
  - Discrete and Continuous Dynamical Systems Series B,
  - Computational and Applied Mathematics,
  - Mathematical Models and Methods in Applied Sciences (M3AS),
  - Annali dell'Universita di Ferrara,
  - OGST (Oil and Gas Science and Technology),
  - Journal de l'Ecole Polytechnique - Mathématiques,
  - Journal of Optimization Theory and Applications.



- H. Haddar is
  - member the editorial advisory board of Inverse Problems
  - Associate Editor of the SIAM Journal on Scientific Computing
  - Guest editor of Computers and Mathematics with Applications for a special issue on "Numerical Methods for PDEs and Inverse Problems"

#### 9.1.3.2. Reviewer - Reviewing Activities

The members of the team reviewed numerous papers for numerous international journals. Too many to make a list.

#### 9.1.4. Invited Talks

- G. Allaire
  - "GAMM-Seminar on Microstructures", Dortmund (January 2017).
  - Workshop on "Shape, Images and Optimization", Münster (March 2017).
  - Interaction of Applied Mathematics and Mechanics Conference, IAMMC2017, Paris (May 2017).
  - Congrès CSMA, Giens (May 2017).
  - New trends in shape optimization, Vosges (May 2017).
  - WCSMO, Braunschweig (June 2017).
  - CEDYA, Cartagena (June 2017).
  - Waves diffracted by Patrick Joly, Gif-sur-Yvette (August 2017).
  - SIM-AM ECCOMAS conference, München (October 2017).
- L. Chesnel
  - Workshop Inverse plasmonic problems-Neumann Poincaré operator, Université de Grenoble-Alpes, November 2017.
  - Séminaire EDP, modélisation et calcul scientifique, UMPA, ENS Lyon, November 2017.
  - Séminaire EDP, analyse et applications, Université de Lorraine, Metz, November 2017.
  - Séminaire EDP/Physique mathématique, Université de Bordeaux, September 2017.
  - Waves diffracted by Patrick Joly, Gif-sur-Yvette, August 2017.
- H. Haddar
  - TamTam' 17, Hammamet, Tunisia, May 2017, Minisymposium, Inverse and imaging problems for PDE with applications
  - Oberwolfach Workshop Computational Inverse Problems for Partial Differential Equations, Oberwolfach, May 2017.
  - Workshop on the occasion of the 75th birthday of Rainer Kress, Goettingen, May 2017
  - Applied Inverse Problems, Hangzhou, May 2017
    - \* Minisymposium on Inverse Spectral Problems
    - \* Minisymposium on Stability and reconstruction in inverse problems and their applications
    - \* Minisymposium on Recent Developments on Computation of Transmission Eigenvalues with Applications
  - Workshop on nonlinear analysis : Recent advances and new trends, Monastir, July 2017
  - Quantitative Tomographic Imaging : Radon meets Bell and Maxwell, RICAM, Linz, July 2017
  - Waves diffracted by Patrick Joly, Gif-sur-Yvette, August 2017.

- Colloquium of the mathematical department, Mainz University, October 2017.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Master : Grégoire Allaire, Approximation Numérique et Optimisation, for students in the second year of Ecole Polytechnique curriculum: 8 lessons of 1h30.
- Master : Housseem Haddar, Approximation Numérique et Optimisation, for students in the second year of Ecole Polytechnique curriculum: 8 TDs of 4h.
- Master : Housseem Haddar, Variational analysis of partial differential equations, for students in the second year of Ecole Polytechnique curriculum: 8 TDs of 4h.
- Master : Lucas Chesnel, “Variational analysis for partial differential equations”, 16 equivalent TD hours, second year (2A), École Polytechnique, Palaiseau, France
- Master : Lucas Chesnel, “Numerical approximation and optimisation”, 14 equivalent TD hours, second year (2A), École Polytechnique, Palaiseau, France
- Master : Lucas Chesnel, “Elementary tools of analysis for partial differential equations”, 25 equivalent TD hours, L3, Ensta ParisTech, Palaiseau, France
- Master : Grégoire Allaire, Optimal design of structures, for students in the third year of Ecole Polytechnique curriculum. 9 lessons of 1h30.
- Master : Grégoire Allaire, Theoretical and numerical analysis of hyperbolic systems of conservation laws, Master M2 ”mathematical modeling”, 8 lessons of 3h.
- Master : Jing Rebecca Li, Mathematical and numerical foundations of modeling and simulation using partial differential equations. French-Vietnam Master Program in Applied Mathematics.
- Doctorat : Housseem Haddar, Lecturer at the Summer School on Quantitative Tomographic Imaging : Radon meets Bell and Maxwell. (2x1h30) July 10-14, RICAM, Linz, 2017.

### 9.2.2. Supervision

- Ph.D. : M. Lakhal, Méthodes d’inversion pour la reconstruction de mines enfouies à partir de mesures d’antennes radar, June 2017, H. Haddar
- Ph.D. : T.P. Nguyen, Direct and inverse solvers for scattering problems from locally perturbed infinite periodic layers, January 2017, H. Haddar
- Ph.D. : K. Van Nguyen, Modeling, simulation and experimental verification of water diffusion in neuronal network of the Aplysia ganglia, March 2017, J.-R. Li and L. Ciobanu
- Ph.D. in progress: B. Charfi, Identification of the sigular support of a GIBC, 2014, H. Haddar and S. Chaabane
- PhD in progress : A. Talpaert, the direct numerical simulation of vapor bubbles at low Mach number with adaptative mesh refinement, 2013, G. Allaire and S. Dellacherie
- PhD in progress : A. Bissuel, linearized Navier Stokes equations for optimization, floating and aeroacoustic, 2014, G. Allaire
- PhD in progress : P. Geoffroy on topology optimization by the homogenization method in the context of additive manufacturing (Safran Tech, to be defended in 2019), G. Allaire.
- PhD in progress : S. Houbar sur la cavitation dans le fluide caloporteur induite par les mouvements des assemblages d’un réacteur (CEA, to be defended in 2020), G. Allaire and G. Campioni
- PhD in progress : M. Boissier sur l’optimisation couplée de la topologie des formes et de la trajectoire de lasage en fabrication additive (to be defended in 2020). G. Allaire and Ch. Tournier.
- PhD in progress : L. Rakotondrainibe sur l’optimisation des liaisons entre pièces dans les système mécaniques (to be defended in 2020), G. Allaire.

- PhD in progress : F. Feppon sur l'optimisation topologique de systèmes couplés fluide-solide-thermique (Safran, to be defended in 2020), G. Allaire and Ch. Dapogny.
- PhD in progress : Q. Feng sur les éléments finis multi-échelles pour Navier Stokes incompressible en milieu encombré (CEA, to be defended in 2019), G. Allaire and A. Cartalade.
- PhD in progress : K. Napal, Transmission eigenvalues and non destructive testing of concrete like materials , 2016, L. Chesnel H. Haddar and L. Audibert
- PhD in progress : M. Kchaou, Higher order homogenization tensors for DMRI modeling, 2016, H. Haddar, J.R Li and M. Moakher
- PhD in progress : H. Girardon, Non destructive testing of PWR tubes using eddy current rotating coils, 2017, H. Haddar and L. Audibert
- PhD in progress : J. Hao, Thesis topic: Algorithm and software development for analysis and classification of EEG measurements during administration of neuropsychological tests for AD/HD, 2017, J.R. Li and H. Rahioui.

## DEFROST Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Selection

#### 10.1.1.1. Member of the Conference Program Committees

Christian Duriez: World Haptic Conference 2017, Pacific Graphics 2017, Soft robotics conference 2018.

#### 10.1.1.2. Reviewer

Alexandre Kruszewski:

- ICRA
- ECC
- ACC
- CDC
- MED
- IFAC World Congress
- ICRA

Olivier Goury:

- IEEE Transactions on Automation Science and Engineering

Damien Marchal:

- Reviewer for VRIPHYS 2017 conference and the Computer & Graphics journal.

Christian Duriez:

- ICRA
- PacificGraphics
- Vriphys

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

Christian Duriez: IEEE Transaction on Haptics

#### 10.1.2.2. Reviewer - Reviewing Activities

Kruszewski:

- IEEE TCST
- IEEE TFS
- Fuzzy Sets and Systems
- Automatica

Christian Duriez:

- SORO (Soft Robotic Journal)
- IEEE Transactions on Robotics
- IEEE Robotic and Automation Letters

### 10.1.3. Invited Talks

- Workshop on Computer Animation, Feb 2017, La Barbade
- Mechatronic Conference, Nov 2017, Paris
- Lagadic Seminar, Nov 2017, Rennes

### 10.1.4. Scientific Expertise

Kruszewski: IDEX project (Univ. Strasbourg)

Duriez:

- ANR project
- EPSRC project (UK)
- Habilitation evaluation (University of Luxembourg)
- IDEX project (Univ. Strasbourg)

### 10.1.5. Research Administration

A. Kruszewski and C. Duriez are members of the Laboratory council (CRISAL)

C. Duriez is vice-president of the "Commission des Emplois de Recherche" of Lille

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Ingénieur : Kruszewski, Automatique 1, 54h, niveau L3, Centrale Lille, France

Ingénieur : Kruszewski, Contrôle des systèmes dynamiques, 12h, niveau L4, Centrale Lille, France

Ingénieur : Kruszewski, Drone, 16h, niveau M1, Centrale Lille, France

Ingénieur : Kruszewski, Systèmes embarqués, 8h, niveau M1, Centrale Lille, France

Ingénieur : Kruszewski, Conception d'un système embarqué, 18h, niveau L3, Centrale Lille, France

Ingénieur : Kruszewski, Automatique 2, 12h, niveau M1, Centrale Lille, France

Ingénieur : Kruszewski, Automatique, 36h, niveau L3, Centrale Lille, France

Ingénieur : Kruszewski, Projets, 50h, niveau L3-M1, Centrale Lille, France

Ingénieur : Kruszewski, Projet recherche, 12h, niveau M1, Centrale Lille, France

Master : Damien Marchal, Reality-Virtual et Interaction, 24h, M2, University of Lille, France

Doctorat : Duriez, Modeling and Simulation, 2H, Summer school on surgical simulation, Montpellier, France

Master : Duriez, Interactive simulation, 24H, M2, University of Lille, France

### 10.2.2. Supervision

HdR: Kruszewski, Are polytopic control design methods suitable for the next robotic control challenges?, Université de Lille, 12/12/2017

PhD: Bieze, Contribution à la modélisation cinématique et au contrôle de manipulateurs déformables, fondée sur la mécanique numérique, Université de Lille, 24/10/2017

PhD in progress: Largilière, Conception de nouvelles interface déformables, contrôlés par une simulation éléments-finis temps-réel, 01/10/2013, C. Duriez, L. Grisoni

PhD in progress: Thieffry, Modélisation et contrôle de robots déformables à grande vitesse, 01/09/2016, C. Duriez, T.M. Guerra, A. Kruszewski

PhD in progress: Zhang, New methods of visual servoing for soft-robots, 01/10/2015, C. Duriez, J. Dequidt, A. Kruszewski

PhD in progress: Coevoet, Méthodes d'optimisation pour la robotique déformable, 01/05/2017, C. Duriez

PhD in progress: Eldiwiny, Modélisation, Simulation et Design de micro robots déformables, 01/09/2017, C. Duriez

### **10.2.3. Juries**

- Benoit Le Gouis, C. Duriez président du jury, Rennes, soutenance novembre 2017
- Renato Torres, C. Duriez rapporteur, Paris, soutenance prévue en janvier 2018

## **10.3. Popularization**

Mario Sanz Lopez, Olivier Goury and Christian Duriez participated in "Fête de la science: Opération Chercheurs itinérants", which involves giving scientific lectures in middle and high schools. Olivier Goury and Bruno Carrez participated in the Numéric'elle event, which involved sensibilising female middle school students to pursue a career in the digital world. Mario Sanz Lopez installed a new demonstrator on Soft Robotics at Plateau Euratechnologies.

Our team has been highlighted in the medias this year: <https://team.inria.fr/defrost/media/>

## DIANA Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

**Chadi Barakat** is on the editorial board of the Computer Networks journal, and was on the Technical Program Committee for the ACM Internet Measurement Conference (IMC) 2017, the International Teletraffic Congress (ITC) 2017 and the IEEE Measurement and Networking (M&N) Workshop 2017. He co-chaired the poster session at the ACM Internet Measurement Conference (IMC) 2017 and was session chair at the same conference. He is currently the scientific referee for international affairs at Inria Sophia Antipolis and member of the Conseil d'Orientation Scientifique et Technologique at Inria within the working group of international affairs (COST-GTRI).

**Walid Dabbous** is member of the scientific council of the Inria Bell-Labs laboratory on Communication networks of the future. He also servers as a chair of the scientific committee of the User Centric Networking (UCN@Sophia) Laroratory of Excellence, and member of the scientific committee of the Academy 1 of the UCAJedi Idex. He is also member of the Ubinet International Master program steering committee. He is member of the Inria Sophia Antipolis project committee's bureau (Bureau du CP).

**Arnaud Legout** is on the editorial board of the Computer Networks journal. Arnaud Legout is the president of the Commission of the users of IT resources of Sophia Antipolis Inria research center.

**Damien Saucez** was TPC member of IEEE ICC 2017, IEEE CCNC 2017. In 2017, Damien Saucez have co-organised the ACM SIGCOMM Reproducibility workshop, as detailed above. He also co-organized the RESCOM 2017 summer school that aimed at gathering French communities working around networking. We were in charge of organizing the student poster sessions [28] and to give labs on computer-network simulations.

**Thierry Turletti**, Senior ACM and IEEE member, served in the program committees of the following international workshops and conferences: the 8th Workshop on ns-3 at Porto, Portugal in June 13-14, 2nd CoRes Workshop at Quiberon, France in May 29-30 2017. He is member of the Editorial Boards of the Journal of Mobile Communication, Computation and Information (WINET) published by Springer Science and of the Advances in Multimedia Journal published by Hindawi Publishing Corporation. Thierry Turletti is president of the Committee for Technological Development (CDT) and member of the committee NICE that studies postdoc and visiting researcher applications at Inria Sophia Antipolis.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master Ubinet: Chadi Barakat and Walid Dabbous, Evolving Internet, 31.5 hours, M2, University of Nice-Sophia Antipolis, France.

Master Ubinet: Chadi Barakat and Walid Dabbous, Internet Measurements and New Architectures, 31.5 hours, M2, University of Nice-Sophia Antipolis, France.

Master Ubinet: Arnaud Legout, From BitTorrent to Privacy, 36 hours, M2, University of Nice-Sophia Antipolis, France.

Master 1 International: Chadi Barakat, Algorithms for Networking, 22.5 hours, M1, University of Nice-Sophia Antipolis, France.

Master 1 International: Arnaud Legout, Oral and written communications, 18 hours, M1, University of Nice-Sophia Antipolis, France.

Master Estel: Chadi Barakat, Voice over IP, 9 hours, University of Nice-Sophia Antipolis, France.

Master IUP GMI: Damien Saucez, Security and privacy in networks, 38h, M2, University of Avignon, France.

IUT : Damien Saucez, Advanced Network Services and Operator Network Technologies, 27h, L1 and L2, University of Nice-Sophia Antipolis, France.

#### **E-learning**

**Python:** Arnaud Legout and Thierry Parmentelat are co-authors of the MOOC Python 3 : "Python 3 : des fondamentaux aux concepts avancés du langage" that lasts 9 weeks on FUN (<https://www.france-universite-numerique-mooc.fr/>), UCA. For the first session there were 11677 registered persons.

This MOOC is a brand new version of the past MOOC "Python: des fondamentaux à l'utilisation du langage" in Python 2. This new MOOC has been funded by UCA.

### **9.2.2. Supervision**

PhD in progress: Yanis Boussad started his PhD on "Large scale characterization of the exposition to microwaves" in October 2017. He is co-supervised with Leonardo Lizzi, LEAT.

PhD in progress: Thibaut Ehlinger: started his PhD on "Mapping Quality of Service metrics to user Quality of Experience in the Internet" in November 2017. He is co-supervised by Chadi Barakat and Vassilis Christophides (EPI MiMove, Inria Paris).

PhD in progress: Karyna Gogunska works on "Empowering Virtualized Networks with Measurement As a Service (MaaS)" since October 2016. Her thesis is co-supervised by Chadi Barakat and Guillaume Urvoy-Keller (I3S).

PhD in progress: Muhammad Jawad Khokhar works on "From Network Level Measurements to Expected Quality of User Experience" since September 2016. His PhD is supervised by Chadi Barakat.

PhD in progress: Mohamed Naoufal Mahfoudi works on cross-layer optimization techniques for next generation MIMO-based networks since November 2015. His thesis is co-supervised by Walid Dabbous and Robert Staraj (LEAT).

PhD in progress: Ghada Moualla works on "the problem of network faults and how to circumvent them by the means of Software Defined Networking, virtualization, and service function chaining" since November 2015. Her thesis is co-supervised by Thierry Turletti and Damien Saucez.

PhD in progress: Vitalii Poliakov works on "the application of Software Defined Networking on 5G networks in order to optimise the Quality of Experience of network services" since November 2015. His thesis is co-supervised by Damien Saucez and Lucile Sassatelli (I3S).

PhD in progress: Hardik Soni works on "Software Defined Networking in challenged environments" since September 2014. His thesis is co-supervised by Thierry Turletti and Walid Dabbous.

PhD in progress: Iman Taibi started his PhD in the Dionysos project-team on "Big data analysis for network monitoring and troubleshooting" in November 2017. She is co-supervised by Gerardo Rubino, Yassine Hadjadj-Aoul and Chadi Barakat.

PhD in progress: Mathieu Thiery started his PhD in the Privatics project-team on "Data protection of connected objects and smartphones" in April 2017. He is co-supervised by Vincent Roca and Arnaud Legout.

PhD in progress: Thibaud Trolliet started his PhD on "Exploring trust on Twitter" in octobre 2017. He is co-supervised with Frederic Giroire.

PhD: Luigi Vigneri defended his PhD on "Vehicles as a Mobile Cloud: Leveraging mobility for content storage and dissemination" in July 2017. His thesis was co-supervised by Chadi Barakat and Thrasyvoulos Spyropoulos (Eurecom).

### **9.2.3. Juries**

Chadi Barakat served as reviewer of Wenqin Shao PhD thesis, "Measurement-based inter-domain traffic engineering: Scalability, data interpretation and network event visibility" defended in November at Telecom ParisTech.



Chadi Barakat served as reviewer of Danilo Giordano PhD thesis, "Machine Learning and Bigdata Methodologies for Network Traffic Monitoring" defended in March at Politecnico di Torino.

Walid Dabbous serves as reviewer of Cédric Baudoin HDR thesis, "Optimisation et intégration des réseaux de télécommunication par satellite", that will be defended on January 2018 Institut National Polytechnique de Toulouse (INP Toulouse).

Walid Dabbous serves as reviewer of Mathieu Bouet HDR thesis, "Software networks : Orchestration, resilience, and programmability concerns", defended in July 2017 at UPMC Sorbonne Universités.

Walid Dabbous serves as jury member of Giovanni Neglia HDR thesis, "Delay Tolerant Networks", defended in February 2017 at University of Nice Sophia Antipolis.

Walid Dabbous served as jury member of Nicolas Huin PhD thesis, "Energy Efficient Software Defined Networks", defended on September 28, 2017 at the University of Nice Sophia Antipolis.

Walid Dabbous served as a jury member for the mid-term review of the Ph.D. thesis of Sumit Kymar (Eurecom).

Arnaud Legout serves as a jury member for the intermediate validation of the Ph.D. thesis of Athanasios Andreou (Eurecom, UPMC)

Thierry Turletti served as reviewer of Mediwaththe Gedara Chathurika Prasadini Mediwaththe PhD thesis, "Game-theoretic Methods for Small-scale Demand-side Management in Smart Grid", defended on January 2017 at the Faculty of Engineering, University of New South Wales, Australia.

Thierry Turletti served as reviewer of Pascal Thubert PhD thesis, "Converging over Deterministic Networks: For an Industrial Internet", defended on March 2017 at the Université Bretagne Loire, France.

Thierry Turletti served as jury member of Myriana Rifai PhD thesis, "Next-Generation SDN Based Virtualized Networks", defended on September 25 2017 at the University of Nice-Sophia Antipolis, France.

Thierry Turletti served as reviewer of Gentian Jaklari HDR thesis, "Thinking Outside the Networking Box for Realizing the Potential of Wireless Networks", defended on November 14 2017 at INP Toulouse, France.

### 9.3. Popularization

Chadi Barakat keeps participating to the organization of the Mediterranean Students Days @ Campus SophiaTech. The fifth edition took place on Feb 28 - March 2, 2017, and the sixth edition will take place on February 12 - 14, 2018. All details on this event can be found at <http://univ-cotedazur.fr/events/meddays>.

Arnaud Legout and Damien Saucez participated in the "fête de la science" event. They presented the ElectroSmart project and the R2lab Testbed.

Walid Dabbous published a popularization article on Network Architecture for Big Data in the book "Les Big Data à découvert" edited by CNRS editions [29].

Damien Saucez is part of the MASTIC<sup>0</sup> group at Inria. MASTIC groups all the activities for scientific dissemination for Inria Sophia Antipolis. Within this activity we visit schools to make conferences on Internet and privacy related matters and Arnaud Legout made a talk during MathC2+. Within the team, we gave a 3h game-based class to Collège interns that made an internship at Inria in November to introduce them to the fundamental algorithms used in the Internet (shortest-path, longest prefix matching, distance-vector, AIMD). We also served on the Inria stand for "fête de la science" to welcome kids and families and present mathematical games, the R2LAB testbed, and Electrosmart. In December 2017 Damien Saucez made a Café-in in Sophia Antipolis which is a 1h informal talk on the presenter's research with all Inria collaborators (administrative, technical, and scientific). In addition to these regional activities, we also took part in the ICN Fun MOOC<sup>0</sup> where Damien Saucez made a 10 minutes explanations of the fundamentals behind Operating Systems. As of today, the video [35] has been watched more than 9k times on YouTube.

<sup>0</sup><https://project.inria.fr/mastic>

<sup>0</sup><https://www.fun-mooc.fr/courses/inria/41014/session01/about>

## DIONYSOS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

Pierre L'Ecuyer is member of the Steering Committee of MCQMC.

G. Rubino and B. Tuffin are members of the Steering Committee of the International Workshop on Rare Event Simulation (RESIM).

Y. Hadjadj-Aoul is co-chairing the Steering Committee of the International Conference on Information and Communication Technologies for Disaster Management (ICT-DM) from December 2016 and member of the steering committee since 2016.

Y. Hadjadj-Aoul is co-chairing **ISNCC'2018**, "*The 5th International Symposium on Networks, Computers and Communications*" (Co-sponsored by IEEE), Roma, Italy (May 2018)

Yann Busnel has been member of the Organization Committee of AlgoTel 2017 (19èmes Rencontres Francophones sur les Aspects Algorithmiques des Télécommunications), which held in Quiberon in June 2017.

#### 10.1.2. Scientific Events Selection

##### 10.1.2.1. Chair of Conference Program Committees

- Patrick Maillé and Bruno Tuffin were co-chairs of the International Workshop on Advanced Internet Charging and QoS technologies (ICQT'17), Tokyo, Japan, in November 2017
- Yassine Hadjadj-Aoul was co-chair of ISNCC'2017, "*The 4th International Symposium on Networks, Computers and Communications*" (Co-sponsored by IEEE), Marrakech, Morocco (May 2017)

##### 10.1.2.2. Member of the Conference Program Committees

Yann Busnel was a member of the Program Committee of the following events:

- NCA 2017: 16th IEEE International Symposium on Network Computing and Applications, Boston, USA, October 2017.
- CoRes 2017: 2èmes Rencontres Francophones sur la Conception de Protocoles, l'Évaluation de Performance et l'Expérimentation des Réseaux de Communication, Quiberon, France, May 2017.

Pierre L'Ecuyer was a member of the Program Committee of the following events:

- MCM'2017: Eleventh International Conference on Monte Carlo Methods and its Applications, Montreal, Canada, July 2017.
- ICORES 2017: International Conference on Operations Research and Enterprise Systems, Porto, Portugal, Feb. 2017.

Patrick Maillé was a member of the Program Committee of the following events:

- 15th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks, Telecom ParisTech, Paris, France, 15th - 19th May, 2017.
- NetEcon 2017: the 12th Workshop on the Economics of Networks, Systems and Computation, Cambridge, MA, USA, June 2017.

Bruno Sericola was a member of the Program Committee of the following event:

- ASMTA 2017: International Conference on Analytical and Stochastic Modelling Techniques and Applications, Newcastle-upon-Tyne, United Kingdom, 10-12 July 2017.

Gerardo Rubino was a member of the Program Committee of the following events:

- 11th International Conference on Monte Carlo Methods and Applications (MCM 2017), Montreal, Canada, July 3-7, 2017.
- XLIII Latin-American Conference in Computer Science (CLEI 2017), Córdoba, Argentina, September 4-8, 2017.
- IX International Congress of Computer Science and Telecommunications (COMTEL 2017), Lima, Peru, October 11-13, 2017.

Bruno Tuffin was a member of the Program Committee of the following events:

- 6th Workshop on Smart Data Pricing (SDP 2017), Workshop of IEEE INFOCOM 2017, Atlanta, GA, USA, May 2017.
- The Third International Symposium on Ubiquitous Networking (UNET 2017), Casablanca, Morocco, May 10-12, 2017.
- NetEcon 2017: the 12th Workshop on the Economics of Networks, Systems and Computation, Cambridge, MA, USA, June 2017.
- 11th International Conference on Monte Carlo Methods and Applications (MCM 2017), Montreal, Canada, July 3-7, 2017.
- 7th International Conference on Simulation and Modeling Methodologies, Technologies and Applications (SIMULTECH), Madrid, Spain, 29-31 July 2017.
- 14th International Conference on Economics of Grids, Clouds, Systems & Services (GECON'2017), Biarritz-Anglet-Bayonne, France, Sept. 19-21, 2017.
- The International Conference on Wireless Networks and Mobile Communications (WINCOM'17), Rabbat, Morocco, November 1-4, 2017.
- IEEE Globecom 2017, Singapore, Dec. 4-8, 2017
- 11th EAI International Conference on Performance Evaluation Methodologies and Tools (Value-Tools 2017), Venice, Italy, December 5-7, 2017

Yassine Hadjadj-Aoul was a member of the Program Committee of the following events:

- IEEE Globecom 2017, Singapore, Dec. 4-8, 2017
- IEEE ICC 2017, Paris, France, May. 21-25, 2017
- IEEE WCNC 2017, San Francisco, USA, March 19-22
- IEEE Symposium on Computers and Communications (ISCC 2017), Heraklion, Crete, Greece, July 3-6, 2017
- IEEE International Symposium on Networks, Computers and Communications (ISNCC 2017), Marrakech, Morocco, May 16-18, 2017

### 10.1.2.3. Reviewer

Yann Busnel served as a reviewer for several major international conferences, such as DaWak 2017 (19th International Conference on Big Data Analytics and Knowledge Discovery).

Bruno Sericola served as a reviewer for several major international conferences.

Yassine Hadjadj-Aoul served as a reviewer for several major international conferences.

Gerardo Rubino served as a reviewer for several major international conferences, including those at which he served as a member of the Committee Program.

## 10.1.3. Journal

### 10.1.3.1. Member of the Editorial Boards

Bruno Tuffin is the Simulation Area Editor for *Inform's Journal on Computing*.

Pierre L'Ecuyer is an associate editor for the following journals:

- ACM Transactions on Mathematical Software, since August 2004.
- Statistics and Computing (Springer-Verlag), since June 2003.
- International Transactions in Operational Research, since May 2007.

Bruno Tuffin is an associate editor for the following journal:

- ACM Transactions on Modeling and Computer Simulation, since November 2008.

Bruno Sericola is an associate editor for the following journals:

- International Journal of Stochastic Analysis, since April 2010.
- Performance Evaluation, since April 2015.

Bruno Sericola is Editor in Chief of the books series “Stochastic Models in Computer Science and Telecommunications Networks”, ISTE/WILEY, since March 2015.

#### 10.1.3.2. Reviewer - Reviewing Activities

Yann Busnel served as a reviewer for several major international journals, such as TPDS (IEEE Transactions on Parallel and Distributed Systems).

In addition to the reports done during his associate editor and conference TPC member duties, Bruno Tuffin has reviewed papers in 2017 for IEEE JSAC, ACM TOIT, Telecom Policy, IEEE/ACM TON.

Bruno Sericola served as a reviewer for several major international journals.

Yassine Hadjadj-Aoul served as a reviewer for several major international journals, such as TVT (IEEE Transaction on Vehicular Technology) and IEEE JSAC.

César Viho reviewed papers for the journals IEEE Transaction on Wireless Communication, IEEE Transactions on Vehicular Communications, IEEE Communications Magazine, and for the following international conferences: IWCNC, Globecom, and CCNC.

Gerardo Rubino served as a reviewer for several major international journals.

#### 10.1.4. Invited Talks

Yann Busnel made several invited and keynote talks in 2017:

- *Analyse et traitement de flux de données à large échelle*, Invited talk at Journées non thématiques RESCOM 2017, Nice, France, January 2017.
- *Analyse et traitement de flux de données à large échelle* Invited talk at Journées ARC du GRD MACS 2017, Paris, France, May 2017.
- *Ordonnancement dynamique pour un équilibrage de charge quasi-optimal dans les systèmes de traitement de flux*, Plenary talk at AlgoTel 2017, Quiberon, France, June 2017.
- *Comment créer un cloud social sécurisé pour ses données ? Le projet SocioPlug !* invited talk at 23ème Technoférence du Pôle Images & Réseaux, Nantes, France, December 2017.

B. Tuffin gave a keynote talk “Network Neutrality: Modeling, Challenges, and its Impact on Clouds” at the 14th International Conference on Economics of Grids, Clouds, Systems & Services (GECON 2017), Keynote talk, Bayonne Anglet, France, September 19-21, 2017.

B. Tuffin gave the following seminar presentation:

- B. Tuffin. Neutralité du Net: introduction, modélisation et défis. ENS Rennes, Feb. 7, 2017.
- B. Tuffin. La fausse neutralité du net ? ENS-ENSSIB, Lyon, Mars 2017.

Yassine Hadjadj-Aoul led a panel on “Intelligence defined network for future smart cities” during the 4th International Symposium on Networks, Computers and Communications (ISNCC 2017).

Raymond Marie gave a seminar at the Polytechnic University of Hong Kong during a two-week stay as a guest.

G. Rubino made several invited and keynote talks in 2017. Two around Monte Carlo techniques:

- “Rare events in simulation: issues and techniques”, plenary talk, for the micro-simulation community (see [36]).
- “Dependability Analysis through Monte Carlo Methods: The Case of Rare Events”, a tutorial (see [33]).

and two around transient analysis of Markovian processes:

- “On the derivation of closed-form expressions of the solutions to (possibly infinite) some simple linear systems of ODEs”, keynote for researchers in dynamical systems and differential equations (see [35]).
- “New results on the transient analysis of some fundamental queuing systems”, keynote oriented to modeling (see [34]).

### **10.1.5. Leadership within the Scientific Community**

Yann Busnel is a member of the CSV (the technical committee) of the Images and Networks Cluster of Brittany, France.

Yann Busnel is a member of the Steering Committee of the RESCOM research group at GDR CNRS RSD.

Yassine Hadjadj-Aoul is a founding member of Special Interests Group “IEEE Sig on Big Data with Computational Intelligence”, under the IEEE COMSOC Big Data TC (since June 2017).

Yassine Hadjadj-Aoul is a member of the GT ARC (Automatique et Réseaux de Communication) scientific committee (since Nov. 2017)

Gerardo Rubino is one of the three French representatives at the Scientific Committee of the IFCAM (Indo-French Centre for Applied Mathematics), managing the cooperation in mathematics of the two countries, and federating at the French side, among several other participants, Inria and CNRS.

Gerardo Rubino is a member of the CSV (the technical committee) of the Images and Networks Cluster of Brittany, France.

### **10.1.6. Scientific Expertise**

César Viho has reviewed project proposals for the ANR and for CIFRE contracts for the ANRT.

Gerardo Rubino has participated as an expert for several institutions abroad, and for different tasks (recruitments, promotions, prizes): the University of Vienna, Austria, the University of New South Wales, Australia, the UTFSM, Chile.

### **10.1.7. Research Administration**

- Bruno Tuffin is the co-director of the common lab ALSTOM-Inria since 2014.
- Bruno Tuffin was a member of Inria-MITACS selection committee.
- Bruno Tuffin was a member of Inria Rennes’ “Inria delegation” selection committee.
- Bruno Tuffin was a member of Inria Rennes’ post-doc selection committee.
- Yann Busnel is head of “Network System, Cybersecurity and Digital law” Research Department at IMT Atlantique.
- Yann Busnel is member of Development Council of Computer Sciences Master at University of Nantes.
- Bruno Sericola is responsible for the Inria Rennes-Bretagne Atlantique budget.
- Bruno Sericola is the leader of the research group MAPI (Math Appli Pour l’Info) the goal of which is to improve the collaboration between computer scientists and mathematicians.
- César Viho is director of the MathSTIC (Mathematics, Electronics and Computer Sciences) doctoral school in charge of managing the recruitment of around 1100 PhD students and their activities during their doctorate, in all the concerned areas of the UBL (Université Bretagne Loire).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Master: Bruno Tuffin, MEPS (performance evaluation), 35h, M1, Univ Rennes, France
- Master: Bruno Tuffin, GTA (Game Theory and Applications), 15h, M2, Univ Rennes, France
- Master: Patrick Maillé, GTA (Game Theory and Applications), 15h, M2, Univ Rennes, France
- Master: Patrick Maillé, Simulation and queuing theory, 25h, M2, IMT Atlantique, France
- Licence: Patrick Maillé, Techniques and models in networks, 20h, L3, IMT Atlantique, France
- Master: Patrick Maillé, Performance Evaluation, 30h, M1, IMT Atlantique, France
- Licence: Yann Busnel, Introduction to Network, 15h, 1st year ENS Rennes, France
- Master: Yann Busnel, Big Data and Stream Processing, 9h, IMT Atlantique, Rennes, France
- Master: Bruno Sericola, Mathematics, 12h, M2, Istic/University of Rennes 1, France.
- Master: Bruno Sericola, Logistic and performance, 12h, M2, Faculté de sciences économiques, Univ of Rennes 1, France
- Master: Bruno Sericola, MEPS (performance evaluation), 36h, M1, Univ Rennes, France
- Master pro 2nd year: Yassine Hadjadj-Aoul, Multimedia streaming over IP (MMR), 48 hours, Esir/University of Rennes 1, France
- Master pro 2nd year: Yassine Hadjadj-Aoul, Multimedia services in IP networks (RSM), 29 hours, Esir/University of Rennes 1, France
- Master pro 2nd year: Yassine Hadjadj-Aoul, Software Defined Networks, 6 hours, Istic/University of Rennes 1, France
- Master 2nd year: Yassine Hadjadj-Aoul, Video streaming over IP, 8 hours, Istic/University of Rennes 1, France
- Master: Yassine Hadjadj-Aoul, Introduction to networking (IR), 26 hours, Esir/University of Rennes 1, France
- Master: Yassine Hadjadj-Aoul, Mobile and wireless networking (RMOB), 20 hours, Esir/University of Rennes 1, France
- Master 2nd year: Yassine Hadjadj-Aoul, Overview of IoT technologies: focus on LPWAN, 2 hours, INSA, France
- Master pro 2nd year: Sofiéne Jelassi, Supervision of heterogeneous networks, 32 hours, Istic/University of Rennes 1, France
- Master pro 2nd year: Sofiéne Jelassi, Cloud & SDN virtualization, 32 hours, Istic/University of Rennes 1, France
- Master pro 2nd year: Sofiéne Jelassi, Multimedia networks, 32 hours, Istic/University of Rennes 1, France
- Master 2nd year: Sofiéne Jelassi, Software defined networking, 6 hours, Istic/University of Rennes 1, France
- Master M1: César Viho, Networks: from Services to protocols, 36 hours, Istic/University of Rennes 1, France
- Master M2: César Viho, Algorithms on graphs, 40 hours, Istic/University of Rennes 1, France
- Bachelor L2: César Viho, Network architecture and components, 16 hours, Istic/University of Rennes 1, France
- Supelec Rennes 3rd year: Gerardo Rubino, Dependability Analysis, 15 hours.
- UDELAR, Uruguay: Gerardo Rubino, post-graduate course on dependability, 21 hours.

### 10.2.2. Supervision

PhD in progress: Ajit Rai, “Availability prediction with logistics”, started in May 2015; advisors: B. Tuffin & G. Rubino, University Rennes 1.

Joshua Peignier, Estelle Varloot. “Game-theoretic tools to analyze classical vs collaborative economies”, Project Master R&I, 2016-2017. Advisors: P. Maillé and B. Tuffin.

PhD in progress: Alassane Samba, “Technologies Big Data et modèles prédictifs pour la QoS des réseaux”, IMT Atlantique. Advisors: Y. Busnel, G. Simon and P. Dooze (Inria). Defense in 2018.

PhD in progress: Richard Westerlynck, “Analyse répartie et extraction de tendances à grande échelle pour les données massives en santé”, IMT Atlantique. Advisors: Y. Busnel and M. Cuggia (PUPH, CHU Rennes). Defense in 2020.

PhD in progress: Vasile Cazacu, “Calcul distribué pour la fouille de données cliniques”, IMT Atlantique. Advisors: E. Anceaume (CNRS Rennes), Y. Busnel and M. Cuggia (PUPH, CHU Rennes). Defense in 2020.

PhD in progress: Corentin Hardy, “Device-Assisted Distributed Machine-Learning on Many Cores”, started in April 2016; advisors: Bruno Sericola and Erwan Le Merrer from Technicolor, University Rennes 1.

PhD in progress: Yves Mocquard, “Analyse de flux de données massifs dans les systèmes distribués large échelle”, started on September 2015; advisors: Bruno Sericola and Emmanuelle Anceaume from team Cidre, University Rennes 1.

PhD in progress: Ali Hodroj, “Enhancing content delivery to multi-homed users in broadband mobile networks”, started in November 2015; advisors: Bruno Sericola, Marc Ibrahim and Yassine Hadjadj-Aoul, University Rennes 1 and St Joseph University of Beyrouth.

PhD in progress: Jean-Michel Sanner; Cifre Grant, Orange Labs, “SDN technologies for network services performances adaptation of carriers networks”; started on January 2013;

PhD in progress: Hamza Ben Ammar, “Socially-aware network and cache resources optimization for efficient media content delivery in Content Centric Networks”, started in October 2015; advisors: Yassine Hadjadj-Aoul, Adlen Ksentini and Soraya Ait Chellouche, University Rennes 1.

PhD in progress: Imad Alawe, “Mobile SDN architecture”, started in October 2015; advisors: César Viho, Yassine Hadjadj-Aoul, University Rennes 1, Philippe Bertin, B-COM and Davy Darche, TDF.

PhD in progress: Jean-Michel Sanner; Cifre Grant, Orange Labs, “SDN technologies for network services performances adaptation of carriers networks”; started on January 2013; Advisors: Y. Hadjadj-Aoul and G. Rubino; University Rennes 1.

PhD in progress: Imane Taïbi, “Big data analysis for network monitoring and troubleshooting”; started on Nov. 2017; Advisors: G. Rubino, Inria, and Yassine Hadjadj-Aoul, University Rennes 1, and Chadi Ibrahim, Inria.

PhD in progress: Mohamed Rahali, “Machine learning-based monitoring and management for hybride SDN networks”; started on Oct. 2017; Advisors: G. Rubino, Inria, and Sofiène Jelassi, University of Rennes 1.

PhD in progress: Nicolás Jara, “Fault tolerant design of dynamic WDM optical networks”, Technical University Federico Santa María (UTFSM) and university of Rennes 1, France. Advisors: R. Vallejos (Chile) and G. Rubino (France). Defense in 2018.

PhD in progress: Laura Aspirot, “Fluid Approximations for Stochastic Telecommunication Models”, University of the Republic, Uruguay. Advisors: E. Mordecki (Uruguay) and G. Rubino (France). Defense in 2018.

PhD in progress: Jorge Graneri, “Mathematical Models for Semantic Memory”, University of the Republic, Uruguay. Advisors: E. Mizraji (Uruguay) and G. Rubino (France). Started end 2016.

### 10.2.3. Juries

Bruno Tuffin was a member of the following PhD defense committee:

- Kodjo Séna Apeke. Modélisation ubiquiste pour l’interaction d’échelles. Application à la prédiction de la réponse d’une tumeur sous traitement en radiothérapie. Université de Bretagne Occidentale, 2017.

Bruno Sericola was member of the final selecting board for the recruitment of CNRS researchers in 2017.

Yassine Hadjadj-Aoul was a member of the PhD defense committee of Souheir Eido, IMT Atlantique, Brest (2017)

Yassine Hadjadj-Aoul and Gerardo Rubino were members of the PhD jury of Yue Li. Title: “Elaboration d’une architecture réseau unifiée, ouverte et flexible”. Defense: September 29, 2017.

César Viho was a member of the following juries:

- Recruitment of young graduate scientists and senior researchers at Inria.
- Recruitment of young Associate Professors and senior Professors at ISTIC-Université Rennes 1.

### **10.3. Popularization**

- B. Tuffin. La simulation de Monte-Carlo. Interstices. 2017. [https://interstices.info/jcms/int\\_69164/la-simulation-de-monte-carlo](https://interstices.info/jcms/int_69164/la-simulation-de-monte-carlo)
- G. Rubino makes regular presentations to high school students about the research work in general, and specific technical topics in particular. Current talks:
  - Randomness as a tool
  - Internet as a research problem
  - Great challenges in maths: the Riemann Hypothesis
  - Great challenges in math/computer science: the “P versus NP” problem



## DISCO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- Frederic Mazenc has organized with Pablo Monzon, Alvaro Castaneda and Gonzalo Robledo the "Workshop and Spring School on Stability and Dichotomies on Differential and Delay Equations" of the Universidad de Chile, Facultad de Ciencias, October 17-26, 2017.

#### 10.1.2. Scientific Events Selection

- Frederic Mazenc and Ali Zemouche were Associate Editor for the conferences 2018 American Control Conference, Milwaukee, USA, and the 56th IEEE Conference on Decision and Control, Melbourne, USA, (2017).
- Frederic Mazenc was Associate Editor for the European Control Conference, Limassol, Cyprus (2018).
- Ali Zemouche has co-organized three invited sessions in international conferences (*IEEE-ACC 2018, Workshop on Advanced Control and Diagnosis, ACD 2017, International Conference on Systems and Control, ICSC 2017*).

#### 10.1.2.1. Chair of Conference Program Committees

- Ali Zemouche was an invited session chair of the "14th International Workshop on Advanced Control and Diagnosis, ACD 2017", which was held at Politehnica University of Bucharest, Romania, from 16 to 17 November 2017.
- International Society of Difference Equations (ISDE) Board of Directors has favorably voted for the proposal submitted by Sorin Olaru to organize the International Conference on Difference Equations and Applications (ICDEA) in 2021 in Paris Saclay.
- Guillaume Sandou is a member of the Program Committee of the IEEE Symposium on Computational Intelligence in Production and Logistics Systems, 2017, Hawaii, USA

#### 10.1.2.2. Member of the Conference Program Committees

- Catherine Bonnet was a member of the *Comité International Scientifique* de MADEV17, Rabat, Morocco.
- Frederic Mazenc is member (Associate Editor) of the *Control Editorial Board - IEEE - CSS*.
- Ali Zemouche is member (Associate Editor) of the *Control Editorial Board - IEEE - CSS*.
- Ali Zemouche was involved in the Technical Program Committee and International Program Committee of the following international conferences:
  - IEEE American Control Conference, ACC 2017;
  - Workshop on Advanced Control and Diagnosis, ACD 2017;
  - International Conference on Systems and Control, ICSC 2017;
  - Australian and New Zealand Control Conference, ANZCC 2017;
  - International Conference on Electrical Engineering and Control Applications, ICEECA 2017.

#### 10.1.2.3. Reviewer

The team reviewed papers for several international conferences including IEEE Conference on Decision and Control, IEEE American Control Conference, European Control Conference, IFAC World Congress.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

Frederic Mazenc is member of the editorial boards (Associate Editor) of the following journals:

- IEEE Transactions on Automatic Control;
- European Journal of Control;
- Journal of Control and Decision.

Sorin Olaru is member of the editorial boards (Associate Editor) of the following journals:

- IMA Journal of Mathematical Control and Information;
- IEEE CSS-Letters.

Ali Zemouche is member of the editorial boards (Associate Editor) of the following journals:

- SIAM Journal on Control and Optimization;
- European Journal of Control;
- Cogent Engineering.
- Managing Guest Editor for a **Special Issue** in European Journal of Control
  - *Title:* Advanced Control and Observers for Complex Systems via LMIs
  - *Organizers:* Ali Zemouche et al.
  - *url:* <https://www.journals.elsevier.com/european-journal-of-control/call-for-papers/special-issue-on-advanced-control-and-observer-design-for-no>

#### 10.1.3.2. Reviewer - Reviewing Activities

The team reviewed papers for several journals including SIAM Journal on Control and Optimization, Automatica, IEEE Transactions on Automatic Control, IEEE Control Systems Magazine, Systems and Control Letters.

### 10.1.4. Invited Talks

Stefanella Boatto gave a talk entitled '*Modeling epidemics dynamics due to Aedes mosquitoes : the example of Rio de Janeiro and how to approximate an epidemic attractor*', Université de Bordeaux, 22 Dec 2017, a talk entitled '*The N-body problem on surfaces, Maxwell laws and the axioms of Mechanics*', Fluid mechanics seminar, Dept. Mechanical Engineering, Universitat Rovira i Virgili, Tarragona, Spain, 30 June 2017, a talk entitled '*SIR-Network model : epidemics dynamics in a city & climate variations*', Seminar of Analysis and Differential Equations, Dept. of Mathematics, University of Lisbon, Portugal, 20 June 2018, a talk entitled '*The N-body problem on surfaces, Maxwell laws and the axioms of Mechanics*', IA Seminar, Physics Dept., University of Lisbon, Portugal 22 June 2017, Vortex Dynamics Group, a talk entitled '*N-body on surfaces of revolution: the rôle played by curvature and topology*', School of Mathematics and Statistics, University of St. Andrews, UK, February 2017.

Catherine Bonnet and Frédéric Mazenc gave a talk entitled '*Modeling and Analysis of Cell Dynamics in Acute Myeloid Leukemia*', Institute of Disease Modeling, Seattle, USA, 30 May 2017.

Ali Zemouche gave a talk entitled '*Nonlinear observer design for Lipschitz systems*', University of Toulon (IUT de Toulon, France).

Ali Zemouche gave a talk entitled '*Observer-based stabilization of uncertain nonlinear systems via LMIs*', Deakin University (Geelong, Australia).

Frédéric Mazenc gave a talk entitled '*Model reduction and predictor control*', the Departamento de Ingeniería de Control y Robotico of the Universidad Nacional Autónoma de México, Mexico-city, August 2017.

Frédéric Mazenc gave several talks and lectures to the "Workshop and Spring School on Stability and Dichotomies on Differential and Delay Equations" of the Universidad de Chile, Facultad de Ciencias, Santiago de Chile, October 17-26, 2017.

Frédéric Mazenc was one of the speakers of the tutorial session entitled "Tutorial on time-delay and sampled-data systems" organized by Alexandre Seuret and Emilia Fridman in the IFAC World Congress of Toulouse, 9-14 July 2017. The title of his talk was *Model reduction and predictor control*.

### 10.1.5. Leadership within the Scientific Community

Catherine Bonnet is a member of the IFAC Technical Committees *Distributed Parameter Systems* and *Biological and Medical Systems*. She is a member of the SIAG/CST (SIAM Activity group Control System Theory) steering committee (2015-2017) and a member of the management committee of the COST Action FRACTAL (2016-2020).

Sorin Olaru is a member of the IFAC Technical Committees *Robust Control* and the IFAC CSS TC on *hybrid systems*.

Ali Zemouche is member of the IFAC Technical Committee *Non-Linear Control Systems*.

### 10.1.6. Scientific Expertise

Catherine Bonnet is a member of the Evaluation Committee of Inria since September 2015.

Since 2014, Frédéric Mazenc is an expert for the FNRS (Belgium). His mission consists in evaluating research projects funded by this institution.

Since 2012, Frédéric Mazenc is a, expert for the ANVUR (National Agency for the Evaluation of Universities and Research Institutes, Italy). His mission consists in evaluating the contribution of Italian scientists.

Since 2011, Frédéric Mazenc is a, expert for the Romanian National Council for Development and Innovation (Romania). His mission consists in evaluating research projects funded by the this institution.

### 10.1.7. Research Administration

Catherine Bonnet is a member of the administration council of the association *Femmes et Mathématiques*, of the Parity Committee of Inria and of the *Cellule veille et prospective* of Inria (both created in 2015).

In 2017, Frédéric Mazenc was president of the commission scientifique du CRI Saclay-Ile-de-France. In 2017, Frédéric Mazenc was member of the Bureau du Comité des Projets du CRI Saclay-Ile-de-France. Since October 2017, he is Correspondant Inria Saclay A.M.I.E.S., <http://www.agence-maths-entreprises.fr/>

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : Stefanella Boatto, Challenges in Biomathematical Modelling, 3h, M1, CentraleSupélec

Licence : Walid Djema, Computer Architecture and Assembly Programming, 40h, L1, University Paris-Saclay

Licence : Walid Djema, Computer Sciences project, 24h, L1, University Paris-Saclay

Master : Dina Irofti, Industrial IT services, Java, Networks, 64h, M1 and M2 University Paris-Sud

Master : Dina Irofti, Control Theory, Mathematics and Numericam Analysis, M1, 54h, ESIEE

Doctorat : Frederic Mazenc, introduction to the ordinary differential equations, Lypunov design, control and observation of nonlinear dynamical systems, 21h, PhD, International Graduate School on Control of the EECI, CentraleSupelec

Doctorat : Frederic Mazenc, Stability and Dichotomies on Differential and Delay Equations, 3 h, PhD, Universidad de Chile, Facultad de Ciencias

Licence : Sorin Olaru, Automatic Control, 8h , M1, SUPELEC, France

Licence : Sorin Olaru, Signals and systems, 8h , L3, SUPELEC, France

Licence : Sorin Olaru, Embedded systems, 8h , M1, Centrale Paris, France

Licence : Sorin Olaru, Numerical methods and Optimization, 24h, niveau M1, SUPELEC, France

Licence : Sorin Olaru, Hybrid systems, 16h, M2, SUPELEC, France  
 Licence : Guillaume Sandou, Signals and Systems, 87h, L3, CentraleSupélec  
 Licence : Guillaume Sandou, Mathematics and programming, 18h, L3, CentraleSupélec  
 Master : Guillaume Sandou, Automatic Control, 8h, M1, CentraleSupélec  
 Master : Guillaume Sandou, Numerical methods and optimization, 28h, M1 and M2, Centrale-Supélec  
 Master : Guillaume Sandou, Modelling and system stability analysis, 21h, M2, CentraleSupélec  
 Master : Guillaume Sandou, Control of energy systems, 22h, M2, CentraleSupélec  
 Master : Guillaume Sandou, Robust control and mu-analysis, 9h, M2, CentraleSupélec  
 Master : Guillaume Sandou, Systems identification, 32h, M2, ENSTA  
 Master : Guillaume Sandou, System Analysis, 22h, M2, Ecole des Mines de Nantes  
 DUT : Ali Zemouche, Java Programming, 24 HTD, 2<sup>ème</sup> année DUT (Bac + 2), University of Lorraine, France

### 10.2.2. Supervision

PhD in progress : Saeed Ahmed, Bilkent University, Stability analysis and control of switched systems with time-delay. Supervisor : Hitay Ozbay. Co-supervisor : Frédéric Mazenc.

PhD in progress : Nadine Aoun, Modélisation de réseaux de chaleur et gestion avancée multi-échelles de la production, de la distribution et de la demande. Modeling and multi-scale advanced management of production, distribution and demand in district heating networks. Supervisor: Guillaume Sandou.

PhD in progress : Caetano Cardeliquio, Stability and stabilization of (possibly fractional) systems with delays. French Supervisor : Catherine Bonnet, Brazilian Supervisor : André Fioravanti.

PhD : Walid Djema, Understanding Cell Dynamics in Cancer from Control and Mathematical biology Standpoints - Particular Insights in the Modeling and Analysis Aspects in Hematopoietic Systems and Leukemia, Université Paris-Saclay, 21 November 2017. Supervisor : Catherine Bonnet. Co-supervisors : Jean Clairambault and Frédéric Mazenc.

PhD : Dina Irofti, Delay effects: a journey from multi-agent systems to genetic networks, Université Paris-Saclay, 18 July 2017. Supervisor : Silviu Niculescu. Co-supervisor : Islam Boussaada.

PhD in progress : Mohamed Lotfi Derouiche, Sur l'optimisation par métaheuristiques avancées de lois de commande prédictive non linéaire. On the optimization of nonlinear predictive control laws using advanced metaheuristics algorithms. Supervisor: Soufienne Bouallegue, Joseph Haggège et Guillaume Sandou.

PhD in progress : Nicolo Gionfra, Optimisation du pilotage d'un parc d'énergies renouvelables avec stockage et du réseau de distribution sous-jacent. Optimization of the control of a park of renewable sources considering storage means and distribution network. Supervisors: Houria Siguerdidjane et Guillaume Sandou.

PhD in progress : Juliette Pochet, Analyse de performance et de résilience d'une ligne de type RER équipée d'un automatisme CBTC. Analysis of the performance of a RER line with CBTC trains. Supervisor: Guillaume Sandou.

PhD in progress : Jean Mercat, Modele predictif des objets d'une scene routiere ; application à la sélection robuste des cibles pour les ADAS. Supervisor: Guillaume Sandou.

PhD in progress : Maxime Pouilly-Cathelain, Commande adaptative temps réel vis-a-vis de critères multiples de haut niveau. Supervisor : Guillaume Sandou.

### 10.2.3. Juries

Catherine Bonnet was a member of several recruiting committees: Junior Researcher competition in Inria Grenoble - Rhône-Alpes and Bordeaux - Sud-Ouest and Professor competition at Université de Nancy.

Catherine Bonnet was the President of the PhD Defense juries of Yacine Boukal '*Observation et commande des systèmes dynamiques d'ordre non entier*', 16 October 2017, Université de Nancy and of Jin Chi '*Stability analysis of systems with delay-dependant coefficients*', L2S, CentraleSupélec, 21 November 2017.

Sorin Olaru was a reviewer for the PhD thesis of JULIAN BARREIRO GOMEZ at Universiy of Catalunya in Barcelona.

Sorin Olaru was a reviewer of the HDR thesis of Christophe Louembet.

Guillaume Sandou was a reviewer of Khaleb Laib PhD, *Analyse hierarchisee de a robustesse des systemes incertains de grade dimension*.

Guillaume Sandou was a reviewer of Damien Casetta PhD, *Modele d'aide à la conduite de réseaux de froid*.

Frederic Mazenc was a reviewer of the PhD thesis of Mohamed Maghenem, '*Commande en formation de véhicules autonomes*' 05 July 2017, L2S, Centralesupelec.

Frederic Mazenc was a reviewer of the PhD thesis of Luis Borja Rosales, '*Stabilization of a class of nonlinear systems with passivity properties*', 06 July 2017, L2S, Centralesupelec.

Frederic Mazenc was a reviewer of the PhD thesis of first half of the Phd ("suivi mi-parcours") of Mohamed Kahelras, '*Observation Problem for Different Classes of Nonlinear Delayed Systems*', 9 October 2017, L2S, Centralesupelec.

### 10.3. Popularization

Catherine Bonnet gave a talk in the *Promenades Mathématiques* series of the event *Femmes en maths : une équation lumineuse* for female high school students, IHP, Paris, 19 december 2017. She met several groups of female high school students at the event *Femmes en maths : une équation lumineuse* IHP, Paris, january 2017. She met several groups of high school students at the event *Forum des métiers* in Lycée Hoche, Versailles, February 2017.

## **DIVERSE Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific Events Organisation***

#### *10.1.1.1. General Chair, Scientific Chair*

- Benoit Combemale has been general chair for SLE 2017, the major international conference in the area of software language engineering.
- Benoit Combemale has been main organizer of the Dagstuhl Seminar #17342 on “The Software Language Engineering Body of Knowledge” (SLEBoK).
- Mathieu Acher has been program committee co-chair of SPLC 2017, the major international conference in the area of variability and software product line engineering.

#### *10.1.1.2. Member of the Organizing Committees*

Arnaud Blouin:

- Publicity co-chair, EICS’17, 2017

Mathieu Acher:

- Publicity chair, ICSR’18
- Co-organizer of REVE’17 (international workshop on reverse engineering variability)

### ***10.1.2. Scientific Events Selection***

#### *10.1.2.1. Member of the Conference Program Committees*

Mathieu Acher:

- PC member ICSR 2017
- PC member VaMoS 2017
- PC member SAC 2017
- PC member SEAA 2017
- PC member GramSec’17

Olivier Barais:

- PC member SEAA 2017
- PC member SAC 2017
- PC member ICWE 2017

Benoit Baudry:

- PC member ICSE 2017
- PC member ASE 2017

Arnaud Blouin:

- PC member of the ACM Student Research Competition (SRC) at MODELS 2017

Benoit Combemale:

- PC member for MODELS'17
- PC member for ICMT'17
- PC member for the GEMOC'17 workshop at MODELS'17
- PC member for the MDEbug'17 workshop at MODELS'17
- PC member for the EXE'17 workshop at MODELS'17
- PC member for the MiSE'17 workshop at ICSE'17
- PC member for the MoMo'17 workshop at Modularity'17

Jean-Marc Jézéquel:

- PC member ICSE 2017
- PC member SPLC 2017 Vision track
- PC member SEAMS 2017

Johann Bourcier:

- PC member for the SEsCPS'17 workshop at ICSE'17

#### *10.1.2.2. Reviewer*

Arnaud Blouin was an external reviewer for ICSE 2017, EICS 2017, MODELS 2017, ICSA 2017, SEAMS 2017. Olivier Barais was a reviewer for ICSE 2017, Sosym 2017, JSS, JISA.

Johann Bourcier was a reviewer for ASE 2017, ICSE 2017 and Models 2017.

### **10.1.3. Journal**

#### *10.1.3.1. Member of the Editorial Boards*

Benoit Baudry:

- SOSYM
- STVR

Benoit Combemale:

- Springer Journal on Software and System Modeling (SoSYM),
- Elsevier Journal on Computer Languages, Systems and Structures (COMLAN),
- Elsevier Journal on Science of Computer Programming (SCP), Advisory Board member of the Software Section.

Jean-Marc Jézéquel is Associate Editor in Chief of the Journal of Software and Systems Modeling: SoSyM, and member of the Editorial Board of:

- IEEE Computer
- Journal of Systems and Software: JSS
- Journal of Object Technology: JOT

#### *10.1.3.2. Reviewer - Reviewing Activities*

Arnaud Blouin: JSS, Ingénierie des Systèmes d'Information

Johann Bourcier was reviewer for the following magazine : IEEE Communication Magazine.

### **10.1.4. Invited Talks**

Benoit Baudry:

- Software technology and DevOps. Scientific days of Orange
- Reconciling Diversity and Privacy at the Dagstuhl Seminar on Online Privacy and Web Transparency
- Software diversification as an obfuscation technique, at the International Workshop on Obfuscation: Science, Technology, and Theory

Benoit Combemale:

- From Model (driven) Engineering, to Language (driven) Engineering. Invited talk at CEA DAM, France.
- Towards Language-Oriented Modeling. Invited talk at UQAM (Montreal, Canada).
- Sound, yet Flexible, Modeling: A Language Engineering Point Of View. Keynote at FlexMDE'17.
- Modeling For Sustainability – Or How to Make Smart CPS Smarter? Invited talk at CWI (Amsterdam, The Netherlands).
- Model Simulation, Graphical Animation, and Omniscient Debugging with Sirius Animator. Invited talk at SiriusCon'17.

### **10.1.5. Leadership within the Scientific Community**

Benoit Baudry:

- Steering committee member for the ACM/IEEE MODELS conference

Benoit Combemale:

- Steering committee member for the ACM SLE conference
- Founding member and member of the advisory board of the GEMOC initiative.

Arnaud Blouin:

- Founding member and member of the GL-IHM (software engineering and human-computer interaction) working group (action spécifique GDR-GPL 2017)

### **10.1.6. Scientific Expertise**

Arnaud Blouin: external ANR (French national research agency) reviewer 2017 Olivier Barais: International collaborations foreign minister. Expert Olivier Barais: AutoActive proposal board of expert (Norwegian project) Olivier Barais: AutoActive proposal board of expert (Norwegian project)

Johann Bourcier : scientific reviewer for CIR (Credit Impot Recherche).

### **10.1.7. Research Administration**

Benoit Baudry is in the scientific advisory board of the SVV lab, University of Luxembourg.

Jean-Marc Jézéquel is the Director of IRISA, a 800+ people joint labs of CNRS, ENS Rennes, INSA Rennes, Inria, Telecom Bretagne, CentraleSupélec, the University of Rennes 1 and the University of South Brittany. He is also the head of Research of the French CyberSecurity Excellence Cluster, as well as the EIT Digital Rennes Satellite Node Director.

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

The DIVERSE team bears the bulk of the teaching on Software Engineering at the University of Rennes 1 and at INSA Rennes, for the first year of the Master of Computer Science (Project Management, Object-Oriented Analysis and Design with UML, Design Patterns, Component Architectures and Frameworks, Validation & Verification, Human-Computer Interaction) and for the second year of the MSc in software engineering (Model driven Engineering, Aspect-Oriented Software Development, Software Product Lines, Component Based Software Development, Validation & Verification, *etc.*).

Each of Jean-Marc Jézéquel, Noël Plouzeau, Olivier Barais, Johann Bourcier, Arnaud Blouin, Mathieu Acher and Benoit Combemale teaches about 200h in these domains, with Benoit Baudry and teaching about 50h, for a grand total of about 1500 hours, including several courses at ENSTB, Supélec, and ENSAI Rennes engineering school.



Olivier Barais is deputy director of the electronics and computer science teaching department of the University of Rennes 1. Mathieu Acher is in charge of teaching duties management of this department. Noël Plouzeau is the head of the final year of the Master in Computer Science at the University of Rennes 1. Johann Bourcier is at the board of the ESIR engineering school.

The DIVERSE team also hosts several MSc and summer trainees every year.

### 10.2.2. Supervision

- PhD : Mohamed Boussaa, *Automatic non-functional testing and tuning of configurable generators*, 06/09/2017, B. Baudry, O. Barais
- PhD : Marcelino Rodriguez Cancio, *Automatic computation diversification*, 19/12/2017, B. Baudry and B. Combemale
- PhD: Pierre Laperdrix, *Browser Fingerprinting: Exploring Device Diversity to Augment Authentication and Build Client-Side Countermeasures*, 03/11/17, B. Baudry, G. Avoine
- PhD in progress: Alejandro Gomez Boix, *Distributed counter-measure against browser fingerprinting*, 2016, B. Baudry, D. Bromberg
- PhD in progress: Nicolas Harrant, *Automatic diversity for code obfuscation*, 2016, B. Baudry
- PhD in progress: Johan Pelay, *Langage pour une programmation incrémentale de réseau*, 2016, O. Barais, F. Guillemin
- PhD in progress: Quentin Plazar, *Bridging the gap between SAT and SNP*, 2015, M. Acher, A. Goetib
- PhD in progress: Paul Temple, *Leraning variability models*, 2015, M. Acher, J.-M. Jézéquel
- PhD in progress: Manuel Leduc, *Formal and Executable Specification of domain-specific language families*, 2016, O. Barais, B. Combemale
- PhD in progress: Youssou NDiaye, *Modelling and evaluating security in user interfaces*, 2016, N. Aillery, O. Barais, A. Blouin, A. Bouabdallah
- PhD in progress: Jean-Émile Dartois, *Performance resources modeling for container based applications*, 2016, O. Barais
- PhD in progress: Oscar Luis, *Automatic test amplification*, 2016, B. Baudry
- PhD in progress: Alexandre Rio, *Activity modeling for better renewable energy usage*, 2016, O. Barais, Y. Morel
- PhD: in progress, Kevin Corre, *Modélisation de la confiance dans les services sociaux et conversationnels*, 2014, O. Barais, G. Sunye
- PhD: in progress, Gwendal Le Moulec, *Towards the automatic synthesis of virtual reality applications*, 2015, B. Arnaldi, A. Blouin, V. Gouranton
- PhD: in progress, Ludovic Mouline, *A modeling Framework for context representation*, 2015, J. Bourcier, O. Barais, F. Fouquet, Y. Le Traon
- PhD: in progress, Erwan Picard, *Legal aspect of online profiling*, 2015, M.Boizard, B. Baudry

### 10.2.3. Juries

#### 10.2.3.1. Benoit Baudry

was in the examination committee of the following PhD thesis:

- Pierre Laperdrix, September 2017, Univ Rennes I, Supervisor
- Marcelino Rodriguez-Cancio, December 2017, Univ Rennes I, Supervisor
- Xavier Devroey, June 2017, Univ Namur, Referee

### 10.2.3.2. Olivier Barais

was in the examination committee of the following HDR:

- Mohammed Boussa, 2017, Univ RennesI, Supervisor
- hamza ouarnoughi, 2017, Univ Brest, Reviewer
- Ternava Xhevahire, 2017, Univ Nice, Reviewer
- Colin AYGALINC, 2017, Univ Grenoble, Reviewer
- Fadwa Rekik, May 2017, Univ Paris Saclay, Reviewer

### 10.2.3.3. Benoit Combemale

was in the examination committee of the following PhD thesis:

- Ulyana Tikhonova, November 2017, TU/e, The Netherlands, Reviewer
- Cyril Cecchinel, November 2017, Univ. Nice, Examiner
- Rodriguez Cancio, December 2017, Univ Rennes 1, Supervisor

## 10.3. Popularization

IT industry forums . Pierre Laperdrix presented his work on the mitigation of browser fingerprinting at the Mozilla Festival <sup>0</sup>. The results of STAMP <sup>0</sup> have been presented at EclipseCon <sup>0</sup>, the Paris Open Source Summit <sup>0</sup>, OW2'con <sup>0</sup> and the cloud computing world expo <sup>0</sup>.

Science festivals . Jean-Marc Jézéquel and Benoit Baudry have presented overviews of research issues in Cybersecurity to general public audiences in several events, such as the 2017 Pint of Science <sup>0</sup> and the science en bobine festival <sup>0</sup>.

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<sup>0</sup><https://mozillafestival.org/>

<sup>0</sup><https://www.stamp-project.eu>

<sup>0</sup><https://www.eclipsecon.org/europe2017/>

<sup>0</sup><http://www.opensourcesummit.paris/>

<sup>0</sup><https://www.ow2con.org>

<sup>0</sup><http://www.cloudcomputing-world.com/>

<sup>0</sup><https://pintofscience.fr/>

<sup>0</sup><https://sciencesenbobines.org/rennes-35/>

## **DOLPHIN Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific Events Organisation***

#### *10.1.1.1. General Chair, Scientific Chair*

- E-G. Talbi (steering committee): PDCO'2017 7th IEEE Workshop Parallel Distributed Computing and Optimization, Orlando, USA, May 2017
- N. Melab: Chair of 5 simulation and HPC-related seminars at Lille 1 oct-dec. 2017 (CENAERO, Intel, e-xstream, CRISAL, Labs of mechanics at Lille)
- L. Jourdan et al.: Summer school ATOM 2017, June 2017, Lille, France

### ***10.1.2. Scientific Events Selection***

#### *10.1.2.1. Chair of Conference Program Committees*

- E-G. Talbi: Track chair "Metaheuristics and machine learning", MIC'2017 Metaheuristics International Conference, Barcelona, Spain, July 2017

#### *10.1.2.2. Member of the Conference Program Committees*

- IEEE Congress on Evolutionary Computation (CEC), San Sebastián, Spain, June 5-8, 2017
- The ACM Genetic and Evolutionary Computation Conference (GECCO), Berlin, Germany, July 15-19, 2017
- 12th Metaheuristics International Conference (MIC), Barcelona, Spain, July 4-7, 2017
- The 2017 International Conference on High Performance Computing & Simulation (HPCS), Genoa, Italy, July 17-21, 2017
- IEEE Intl. Workshop on Parallel/Distributed Computing and Optimization (IPDPS/PDCO), Orlando, Florida, USA, May 23-27, 2017
- 9th Intl. Conf. on Intelligent Networking and Collaborative Systems (INCoS), Track: Nature-inspired parallel collaborative systems, Ryerson University, Canada, August 24-26, 2017
- Colloque sur l'Optimisation et les Systèmes d'information (COSI), Bouira, Algérie, May 14-16, 2017
- The 3rd Intl. Conf. on Cloud Computing Technologies and Applications (CloudTech), Rabah, Morocco, Oct 24-26, 2017
- 6th Int. Conf. on Advances in Computing Communication and Informatics ICACCI'17, Manipal, India, Sept 2017
- ROADEF'2017 18ème Conférence de la Société Française de Recherche Opérationnelle et Aide à la Décision, Metz, France, Fev 2017
- EvoCOP'2017, European Conference on Evolutionary Computation in Combinatorial Optimization, Amsterdam, Netherlands, Apr 2017
- ACM GECCO'2017 (Genetic and Evolutionary Computation Conference), Berlin, Germany, July 2017
- IEEE PDCO Parallel and Distributed Computing and Optimization in IPDPS'2017, Orlando, USA, May 2017
- MIC'2017, Metaheuristics International Conference, Barcelona, Spain, July 2017

- IJCCI'2017 8th International Joint Conference on Computational Intelligence, Madeira, Portugal, Nov 2017
- EvoCOP'2017, European Conference on Evolutionary Computation in Combinatorial Optimization, Amsterdam, Netherlands, Apr 2017
- ACM Student Workshop in GECCO'2017 (Genetic and Evolutionary Computation Conference), Berlin, Germany, July 2017
- IESM'2017 Int. Conf. on Industrial Engineering and Systems Management, Saarbrücken, Germany, Sept 2017
- EA'2017 Int. Conference on Artificial Evolution, Paris, France, Nov 2017
- MOPGP'2017 Int. Conference on Multiple objective Programming and Goal Programming, Metz, France, 2017
- IEEE CEC 2017

### **10.1.3. Journal**

#### *10.1.3.1. Member of the Editorial Boards*

- E-G. Talbi : Editor of the Journal « Computers and Industrial Engineering (CAIE, Elsevier)» Area «Computational Intelligence»
- N. Melab: Guest and Managing Editor (in collaboration with A. Zomaya and I. Chakroun) of a special on Parallel Optimization using/for Multi and Many-core High Performance Computing in Journal of Parallel and Distributed Computing (JPDC), 2016-2017
- L. Jourdan: Review Editor Frontiers in Big Data

#### *10.1.3.2. Reviewer - Reviewing Activities*

- IEEE Transactions on Evolutionary Computation, Evolutionary Computation, Journal of Heuristics, Artificial Intelligence Journal
- Applied Soft Computing
- Computers in Biology and Medicine
- Computers & Industrial Engineering
- Computers & Operations Research
- EJOR European Journal of Operational Research
- IEEE Transaction on Evolutionary Computation
- International Journal of Metaheuristics
- International Journal of Molecular Sciences
- International Journal of Production research
- International Transactions in Operational
- JOH Journal of Heuristics
- JOCO Journal of Combinatorial Optimization
- JPDC Journal of Parallel and Distributed Computing
- Nature Scientific Report
- Soft Computing (SOCO)
- Transactions on Computational Biology and Bioinformatics
- ACM Computing Surveys
- Computation and Concurrency: Practice and Experience (CCPE)
- Parallel Processing Letters
- Parallel Computing

- Journal of Parallel and Distributed Computing (JPDC)
- 4OR: A Quarterly Journal of Operations Research (Springer)
- ASOC: Applied Soft Computing (Elsevier)
- CAIE: Computers & Industrial Engineering (Elsevier)
- ITOR: International Transactions in Operational Research (Wiley)
- NEUCOM: Neurocomputing (Elsevier)
- Discrete Optimization
- Annals of Operations Research
- RAIRO - Operations Research

#### **10.1.4. Invited Talks**

- E-G. Talbi: Multi-objective optimization under uncertainty, Keynote presentation, Business Clouds'2017, Luxembourg, Jan 2017.
- E-G. Talbi: Matheuristics, Invited presentation, Universidad Elche, Spain, April 2017
- E-G. Talbi: Multi-objective metaheuristics, Invited presentation, University of Catania, Catania, Italy, April 2017
- E-G. Talbi: Optimization of smart grids: opportunities and directions, Keynote speaker ICOA'2017, International Workshop on Optimization and Applications, Kenitra, Morocco, April 2017
- E-G. Talbi: Parallel and distributed metaheuristics, Invited tutorial, IEEE CEC Congress on Evolutionary Computation, San Sebastian, Spain, June 2017
- E-G. Talbi: Evolutionary multi-objective algorithms under uncertainty, Invited seminar, Jozef Stefan Institute, Ljubljana, Slovenia, Oct 2017
- E-G. Talbi: Smart grids: challenges and opportunities, Invited seminar, Ecole Centrale de Casablanca, Casablanca, Morocco, Nov 2017
- E-G. Talbi: Complex optimization problems in smart grids, Keynote speaker, Workshop MOSSYS'2017 Modélisation, Optimisation et Simulation des Systèmes, Rabat, Morocco, Oct 2017
- E-G. Talbi: Optimization of smart grids, Invited seminar, Jozef Stefan Institute, Ljubljana, Slovenia, Nov 2017

#### **10.1.5. Leadership within the Scientific Community**

- L. Jourdan : Co-president of the working group “ATOM: Multi-objective optimization”, GDR RO
- L. Jourdan, A. Liefooghe : Secretary of the association “Artificial Evolution” (EA)
- L. Jourdan: nominated member of CNU 27
- C. Dhaenens: member of the scientific council of GDR RO (Operations research)
- C. Dhaenens: nominated member at Co-NRS, section 6 (National committee of CNRS)
- N. Melab: scientific leader of Grid'5000 (<https://www.grid5000.fr>) at Lille, since 2004
- N. Melab: Chargé de Mission of High Performance Computing and Simulation at Université Lille 1, since 2010
- E-G. Talbi : Co-president of the working group “META: Metaheuristics - Theory and applications”, GDR RO and GDR MACS
- E-G. Talbi : Co-Chair of the IEEE Task force on Cloud Computing within the IEEE Computational Intelligence Society

#### **10.1.6. Scientific Expertise**

- E-G. Talbi: QS respondents (Novosibirsk State University, Russia, 2014-2017)

- E-G. Talbi: Reviewer de projets de recherche, National Science Center, Pologne (2017)
- E-G. Talbi: Dutch NOW council (Innovative Research Incentive Scheme) project, Netherlands, 2017
- E-G. Talbi: Reviewer de dossiers de qualification de Professeurs, University of Portsmouth, UK, 2017
- E-G. Talbi: Expertise projets ERC Consolidator Grant (2017)
- E-G. Talbi: Expertise projets STIC/Math Amérique du Sud – Chili et Argentine (2017)
- E-G. Talbi: Expertise projets COFECUB - Brésil (2017)
- N. Melab: Member of the advisory committee for the IT and management engineer training at Faculté Polytechnique de Mons
- N. Melab: Reviewer for the COFECUB scientific evaluation committee (Comité Français d’Evaluation de la Coopération Universitaire et scientifique avec le Brésil), 2017
- N. Melab: Expert for two government research agencies: CONICYT (Chile) and NCN (Poland), 2017

### **10.1.7. Research Administration**

- C. Dhaenens: Vice-head of CRIStAL laboratory (Centre de Recherche en Informatique, Signal et Automatique de Lille), common to CNRS, University of Lille and Ecole Centrale de Lille, 430 people
- L. Jourdan: member of the Bureau du Département de domaine Informatique pour l’école doctorale SPI, University of Lille
- N. Melab: Member of the steering committee of “Maison de la Simulation” at Université Lille 1
- E-G. Talbi, Coordinator of the International Relationships of Inria Lille Nord Europe

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

- Master: Laetitia Jourdan, Business Intelligence, 30h, M1, University of Lille 1, France
- Master : Laetitia Jourdan, Datamining, 60h , M1, University of Lille 1, France
- Master: Laetitia Jourdan, Datawarehouse, 30h, M1, University of Lille 1, France
- Licence: Laetitia Jourdan, Informatique, 48h, L1 University of Lille 1, France
- Master: Laetitia Jourdan, Responsible of Master MIAGE Formation en Alternance, University of Lille 1, France
- Licence: Laetitia Jourdan, Co-responsible of Licence 1 Computer Science, University of Lille 1, France
- Engineering school: Clarisse Dhaenens, Graphs and Combinatorics, 80 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school: Clarisse Dhaenens, Operations Research, 70 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school: Clarisse Dhaenens, Algorithmics and programming, 45 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school: Clarisse Dhaenens, responsible of the 5th year of statistics and computer science department.
- Engineering school: Marie-Eléonore Kessaci, Graphs and Combinatorics, 44 HeqTD, Polytech Lille, University Lille 1, France

- Engineering school: Marie-Eléonore Kessaci, Algorithmics and programming, 51 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school: Marie-Eléonore Kessaci, Databases, 71 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school: Marie-Eléonore Kessaci, Mathematics, 20 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school: Marie-Eléonore Kessaci, responsible of the 3th year of statistics and computer science department
- Master lecture: N. Melab, Supercomputing, 24h, Master 2, University Lille 1, France
- Master lecture: N. Melab, Operations Research, 78h, Master 1, University Lille 1, France
- Master leading: N. Melab, Co-head (with B. Merlet) of the Master 2 of advanced scientific computing, U. Lille 1
- Licence: A. Liefoghe, Algorithmic and Data structure, 36h ETD, L2, Université de Lille 1, France
- Licence: A. Liefoghe, Algorithmic for Operations Research, 36h ETD, L3, Université de Lille 1, France
- Master: A. Liefoghe, Databases, 30h ETD, M1, University Lille 1, France
- Master: A. Liefoghe, Advanced Object-oriented Programming, 53h ETD, M2, University Lille 1, France
- Master: A. Liefoghe, Combinatorial Optimization, 10h ETD, M2, University Lille 1, France
- Master: A. Liefoghe, Multi-criteria Decision Aid and Optimization, 25h ETD, M2, University Lille 1, France
- A. Liefoghe is supervising the Master 2 MIAGE IPI-NT
- Master: Bilel Derbel, Combinatorial Optimization, 35h, M2, University Lille 1, France
- Master: Bilel Derbel, Grid Computing, 16h, M2, University Lille 1, France
- Master: Bilel Derbel, Parallel and Distributed Programming, 35h, M1, University Lille 1, France
- Master: Bilel Derbel, Algorithms and Applications, 28h, M1, University Lille 1, France
- Engineering school: El-Ghazali Talbi, Advanced optimization, 36h, Polytech'Lille, University Lille 1, France
- Engineering school: El-Ghazali Talbi, Data mining, 36h, Polytech'Lille, University Lille 1, France
- Engineering school: El-Ghazali Talbi, Operations research, 60h, Polytech'Lille, University Lille 1, France
- Engineering school: El-Ghazali Talbi, Graphs, 25h, Polytech'Lille, University Lille 1, France

### 10.2.2. Supervision

- PhD in progress: Maxence Vandromme, Datamining et optimisation combinatoire adaptés à la prévention et à l'orientation de patients, starting: 1/06/2014, CIFRE with Alicante co-supervision: Clarisse Dhaenens and Laetitia Jourdan
- PhD in progress: Aymeric Blot, Réagir et s'adapter à son environnement : Concevoir des méthodes autonomes pour l'optimisation combinatoire à plusieurs objectifs, September 2015, co-directed Laetitia Jourdan and Marie-Eléonore Marmion
- PhD in progress : Lucien Mousin, Exploiter la connaissance pour mieux optimiser, October 2015, co-directed Clarisse Dhaenens and Marie-Eléonore Marmion
- PhD in progress: AnneLise Bedenel, Classification supervisée et non supervisée en présence de descripteurs évoluant dans le temps. Application à la comparaison d'assurances en ligne, co-directed Laetitia Jourdan and Christophe Biernacki (Modal Inria Team)

- PhD defense: Sylvain Dufourny, Optimisation de décisions économiques concurrentielles dans un simulateur de gestion d'entreprise, Clarisse Dhaenens - Defended in October 2017
- PhD defense: Jan Gmys, Parallel Branch-and-Bound for solving permutation problems on multi- and many-core clusters, Nouredine Melab and Daniel Tuyttens (UMONS, Belgium), 12/2017
- PhD in progress: Sohrab Faramarzi, Optimization of medical laboratories, 02/2016, El-Ghazali Talbi
- PhD in progress: Z. Garroussi, Demand side management in smart grids: Multi-objective models, El-Ghazali Talbi and Rachid Ellaia (EMI, Morocco)
- PhD in progress: J. Pelamatti, Multi-disciplinary design of aerospace vehicles, Jan 2017, El-Ghazali Talbi
- PhD in progress: Ali Hebbal, Surrogate-assisted multi-objective evolutionary algorithms, Oct 2017, El-Ghazali Talbi and Nouredine Melab.
- PhD defense: A. Q. Nguyen, Cloud broker optimization for energy-aware in multi-clouds system, 01/2017, El-Ghazali Talbi and Pascal Bouvry (Univ. Luxembourg)
- PhD defense: Oumayma Bahri, Fuzzy multi-objective optimization, 05/2017, El-Ghazali Talbi and Nahla Ben-Omar (Univ. Tunis, Tunisia)

### 10.2.3. Juries

- E-G. Talbi: Phd Thesis: Urrego Agudelo Lilliam, A novel method for the approximation of risk of blackout in operational conditions, Université Paris-Est, Créteil, France, Jan 2017
- E-G. Talbi: Phd Thesis: Jonathan Oesterle, Holistic approach to designing hybrid assembly lines, Université de Technologie de Troyes, France, Apr 2017
- E-G. Talbi: Phd Thesis: Birsen Irem Selamoglu, The plant propagation algorithm for discrete optimization, University of Essex, Colchester, UK, June 2017
- E-G. Talbi: Phd Thesis: Omer Yusuf Adam Mohamed, Resource allocation for improved performance and resource efficiency in cloud computing, University of Sydney, Australia, July 2017
- E-G. Talbi: Phd Thesis: Nhan Quy Nguyen, Electric vehicle charging scheduling optimization, UTT Troyes, France, Sept 2017
- E-G. Talbi: Phd Thesis: Mohamed Afilal, Optimisation de la prévision et de la planification des activités d'un centre d'urgence hospitalier, UTT Troyes, France, Dec 2017
- E-G. Talbi: Phd Thesis: Sara Tfaili, Contribution aux graphes creux pour le problème de tournées sur arcs déterministe et robustes: théorie et algorithmes, Normandie Université, Havre, France, Dec 2017
- N. Melab: PhD thesis: Escobar Fernando, Vers une nouvelle génération d'outils d'aide à la décision s'appliquant à la prévention des risques lors de la prescription des antibiotiques : Combinaison des technologies Web sémantique et de l'aide multicritère à la décision, University of Mons, October 13th, 2017
- N. Melab: PhD thesis, GPU-based backtracking strategies for solving permutation combinatorial problems, Federal University of Cerea, Brazil, December 5th, 2017
- C. Dhaenens: PhD Thesis: Nawal Benabbou, Procédures de décision par élicitation incrémentale de préférences en optimisation multicritère, multi-agents et dans l'incertain, Université Paris 6, May 2017
- L. Jourdan: PhD Thesis: Pauline Wauquiez, Task driven representation learning, Université de Lille - May 29th 2017 (Présidente de Jury)
- L. Jourdan: PhD Thesis: Labib Yousef, Contribution à la résolution des problèmes de placement en trois dimensions, Université Picardie Jules Verne, June 29th 2017



- L. Jourdan: HDR: Karine Deschinkel, Nouveaux modèles de programmation linéaire et de flots pour la résolution de problèmes d'optimisation difficiles, Université de Belfort Franche Comté - June 6th 2017

### **10.3. Popularization**

- E-G. Talbi: Organization of a R&D day for all students and lecturers of Polytech'Lille engineering school on "Big data and machine learning" (22/03/2018).

## DRACULA Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Scientific Events Organisation

##### 8.1.1.1. Member of the Organizing Committees

- Session of GDR “Mathématiques de la Modélisation du Vivant (Mamovi)”, Lyon (France), 27 - 29 Septembre 2017 (<https://gdr-mamovi-2017.sciencesconf.org/>). Organizer: Thomas Lepoutre.
- Conference “LyonSysBio/Meet the Industry” (Lyon Systems Biology), Lyon (France), 15-17 November 2017 (<https://mti2017.sciencesconf.org/>). Co-organizers: Fabien Crauste and Olivier Gandrillon.
- Journée Scientifique "Modelisation du Vivant" de la Faculté des Sciences et Technologies de l'Université Lyon 1, Lyon (France), 22 June 2017 (<https://jsf2017.sciencesconf.org/>). Co-organizers: Fabien Crauste.
- Semaine Etudes Mathématiques Entreprises (SEME) 2017, Lyon (France), 30 January - 3 February 2017 (<https://semelyon2017.sciencesconf.org/>). Co-organizers: Fabien Crauste and Céline Vial.
- Workshop “Population effects on languages (PopLang)”, Lyon (France), 20 November 2017 (<https://poplang.sciencesconf.org/>). Co-organizers: Laurent Pujo-Menjouet and Léon Tine.

#### 8.1.2. Journal

##### 8.1.2.1. Member of the Editorial Boards

- Mostafa Adimy: Journal of Nonlinear Systems and Applications; Chinese Journal of Mathematics.
- Olivier Gandrillon: BMC research Notes.
- Laurent Pujo-Menjouet: Journal of Theoretical Biology; Mathematical Modeling of Natural Phenomena.

##### 8.1.2.2. Reviewer - Reviewing Activities

- Thomas Lepoutre: Nonlinear Analysis; Computational and Applied Mathematics; M2AN; Journal of Biological Dynamics.
- Samuel Bernard: Journal of Theoretical Biology.
- Fabien Crauste: Journal of Biological Systems; Journal of Theoretical Biology; Mathematical Methods in Applied Sciences; Plos One; Royal Society Open Science.
- Olivier Gandrillon: Plos Computational Biology; Progress in Biophysics and Molecular Biology; Journal of the Royal Society Interface; Journal of theoretical biology; Genes and npj Systems Biology and Applications.
- Mostafa Adimy: Journal of European Mathematical Society; Mathematical Methods in the Applied Sciences; Mathematical Modeling of Natural Phenomena.
- Léon Tine: Mathematical Modelling and Numerical Analysis.

#### 8.1.3. Invited Talks

- Thomas Lepoutre: International conference on “PDMPs, theory and applications”, Seillac (France), May 29-June 2 2017; Workshop “Cross diffusion and kinetic equations for biology”, Vienna (Austria), 10-12 May 2017.
- Samuel Bernard: “Journée Scientifique de la faculté des Sciences et technologies de l'UCBL”, Lyon (France), 22 June 2017.

- Fabien Crauste: GDR Mamovi “Mathématiques de la Modélisation du Vivant”, Lyon (France), 27 - 29 Septembre 2017.
- Olivier Gandrillon: Workshop “Modelling, Noise and Development”, Bath (UK), 18-19 Mai 2017.
- Chloé Audebert: GDR Mamovi “Mathématiques de la Modélisation du Vivant”, Lyon (France), 27 - 29 Septembre 2017.
- Laurent Pujo-Menjouet: “ARC6 day”, Grenoble (France), 4 July 2017; “BIOMIM EXPO 2017”, Senlis (France), 29 - 30 June; “5ème édition des Congrès PSYRENE (PSYchologie, REcherche, NEurosciences)”, Lyon (France), 7 July 2017; “ECAL2017 (European Conference on Artificial Life)”, Lyon (France), 4-8 September; Workshop “Protein Aggregation: Biophysics and Mathematics”, Vienna (Austria), 6-8 June 2017.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

- Licence:
  - Thomas Lepoutre, Groupe de lecture, L3, ENS, Lyon.
  - Samuel Bernard, Linear and matrix algebra, 30h ETD, INSA, Lyon.
  - Samuel Bernard, ODEs for neuroscience, 10h ETD, INSA Lyon.
  - Laurent Pujo-Menjouet, Fondamentaux des mathématiques, 138h ETD, L1, UCBL, Lyon.
  - Laurent Pujo-Menjouet, Bio-mathématiques et modélisation, 10.5h ETD, L3, UCBL, Lyon.
  - Laurent Pujo-Menjouet, Introduction à l’analyse numérique, 60h ETD, L2, UCBL, Lyon.
  - Léon Tine, Fondamentaux des mathématiques, 80h ETD, L1, UCBL, Lyon.
  - Léon Tine, Techniques mathématiques de base, 70h ETD, L1, UCBL, Lyon.
  - Léon Tine, Maths pour enseignement, 10h ETD, 10h ETD, L3, UCBL, Lyon.
- Master:
  - Thomas Lepoutre, Agrégation, 30h ETD, M2, UCBL, Lyon.
  - Samuel Bernard, Cell population dynamics, 15h ETD, UCBL, Lyon.
  - Fabien Crauste, Population Dynamics, 9h ETD, M2, UCBL, Lyon.
  - Laurent Pujo-Menjouet, Systèmes Dynamiques, 72h ETD, M1, UCBL, Lyon.
  - Laurent Pujo-Menjouet, Network Algorithms for Molecular Biology, 7.5h ETD, Master 2 IXXI, ENS, Lyon.
  - Léon Tine, Épidémiologie, 30h ETD, M2, UCBL, Lyon.

### 8.2.2. Supervision

- PhD in progress: Simon Girel, “Multiscale modeling of the immune response”, Université Lyon, since September 2015, supervisor: Fabien Crauste.
- PhD in progress: Aurélien Canet, “Contribution à l’étude de la quantification de la réponse d’une tumeur solide après un traitement par radiothérapie”, Université Lyon, since January 2016, supervisors: Larry Bodgi, Nicolas Foray and Laurent Pujo-Menjouet.
- PhD in progress: Loïs Boullu, “Modélisation de la mégacaryopoïèse et applications aux maladies liées à la production des plaquettes”, Université Lyon 1, October 2014, supervisors: Laurent Pujo-Menjouet and Jacques Bélair (co-tutelle avec l’Université de Montréal).
- PhD: Loïc Barbarroux, “Contributions to the multiscale modeling of the CD8 immune response : design, analysis, simulation and calibration of mathematical models”, Université de Lyon 1, July 2017, supervisors: Mostafa Adimy and Phillipe Michel.

- PhD: Apollos Besse, “Mathematical Modeling of Chronic Myelogenous Leukemia”, Université de Lyon, July 2017, supervisors: Samuel Bernard and Thomas Lepoutre.
- PhD in progress: Ulysse Herbach, “Modèles graphiques probabilistes pour l’inférence de réseaux de gènes”, Université Lyon 1, since October 2015, supervisors: Olivier Gandrillon, Thibault Espinasse (ICJ) and Anne-Laure Fougères (ICJ).
- PhD in progress: Arnaud Bonnafoux, “Vers une inférence automatique de réseaux de gènes dynamiques à partir de “mégadonnées” temporelles discrètes acquises sur cellules uniques”, Université Lyon 1, since November 2015, supervisors: Olivier Gandrillon (CIFRE with the COSMO company).
- PhD in progress: Ronan Duchesne, “Vers un modèle multi-échelle de la différenciation cellulaire : Application à la différenciation érythrocytaire”, École normale supérieure de Lyon and Université Lyon 1, since September 2016, supervisors: Olivier Gandrillon and Fabien Crauste.
- PhD: Anass Bouchnita, “Mathematical modeling of blood coagulation and thrombus formation under flow in normal and pathological conditions”, Université Claude Bernard Lyon, Ecole Mohammadia d’Ingénieurs and Université Mohammed V de Rabat (Maroc), December 2017, supervisor: Vitaly Volpert.
- PhD: Tatiana Galochkina, “Mathematical modeling of blood inflammation processes and the problem of blood purification”, Université Claude Bernard Lyon and Moscow State University, November 2017, supervisor: Vitaly Volpert.
- HDR: Samuel Bernard, “Structured differential equations and multiscale approaches for human cell population dynamics”, Université Claude Bernard Lyon, June 2017.
- HDR: Thomas Leoutre, “Contributions en dynamique de populations”, Université Claude Bernard Lyon, April 2017.

### 8.2.3. *Juries*

- Thomas Lepoutre was reviewer and member of the PhD of Athmane Bakhta (Université Paris Est), “Modèles mathématiques et simulation numérique de dispositifs photovoltaïques”.
- Samuel Bernard was member of Charles Rocabert PhD defense committee (INSA Lyon), “Etude de l’évolution des micro-organismes bactériens par des approches de modélisation et de simulation numériques”.
- Samuel Bernard was member of Apollos Besse PhD defense committee (INSA Lyon), “Modélisation Mathématique de la Leucémie Myéloïde Chronique”.
- Olivier Gandrillon was president of the jury for the PhD of Alice Moussy (École Pratique des Hautes Études, Paris), “Caractérisation des premières étapes de différenciation des cellules hématopoïétiques à l’échelle de la cellule unique” and for the PhD of Coraline Petit (ENS Lyon), “Évolution et Développement d’un organe sériel : la molaire. Transcriptomique comparée des bourgeons de molaires chez les rongeurs”.
- Laurent Pujo-Menjouet was a jury member of the Habilitation thesis of Samuel Bernard (Université Claude Bernard Lyon 1), “Structured differential equations and multiscale approaches for human cell population dynamics”. He was also a jury member of the PhD of Tatiana Galochkina (université de Lyon et Université d’état de Moscou), “Structure spatiale des lipopolysaccharides et son rôle dans la coagulation sanguine”.
- Mostafa Adimy was member of Loïc Barbarroux PhD defense committee (École Centrale de Lyon), “Contributions to the multiscale modeling of the CD8 immune response : design, analysis, simulation and calibration of mathematical models” and Walid Djema PhD defense committee (Université Paris-Sud), “Understanding Cell Dynamics in Cancer from Control and Mathematical Biology Standpoints Particular Insights into the Modeling and Analysis Aspects in Hematopoietic Systems and Leukemia”.

### 8.3. Popularization

- Thomas Lepoutre is coorganizer of the scientific exhibition Mathalyon.
- Samuel Bernard: Conference “L’âge de nos cellules par tests nucléaires”, Université Ouverte Lycée Charles Foucault, Lyon, January 23, 2017.
- Olivier Gandrillon participated in the Declics 2017 activities (Lycée Jean Perrin and Lycée Juliette Récamier).
- Laurent Pujon-Menjouet: Conferences “Les langues en danger: les maths sur le bout de la langue”, Lycée Jean Puy, Roanne, March, 16, 2017; “Epidémies, quand les maths viennent en aide” , St Bonnet le château, April, 10, 2017; “Mathématiques et relations amoureuses: les jeux de l’amour sans le hasard, St Bonnet le château, April, 10, 2017; “Espèces en danger: quand les maths viennent à la rescousse”, Université ouverte, Lyon, January, 5, 2017; Animation of a stand on the “Salon des jeux mathématiques, Paris, May 27 to 30, 2017.

## DYLISS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Selection

#### 10.1.1.1. Member of the Conference Program Committees

- SWAT4HCLS (2017) Semantic Web and Tools for Health Care and Life Sciences (O. Dameron)
- BBCC (2017): Bioinformatica e Biologia Computazionale in Campania (O. Dameron)
- JOBIM (2017): French conference of Bioinformatics (A. Siegel)
- SIIM (2017) Symposium sur l'Ingénierie des Informations Médicales (O. Dameron)

#### 10.1.1.2. Review

- ISMB/ECCB 2017.

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

- O. Dameron is an associate editor of the Journal of Biomedical Semantics
- J. Bourdon in an academic editor of PLoS One

#### 10.1.2.2. Reviewer - Reviewing Activities

- Briefings in Bioinformatics, (O. Dameron)
- Journal of Biomedical Semantics (O. Dameron)
- Journal on Data Semantics (O. Dameron)
- Molecular Cancer (J. Nicolas),
- Plos One (J. Nicolas)

### 10.1.3. Invited Talks

#### 10.1.3.1. French seminars

Paris, Hopital Lariboisière (Seminar, 2017) – SANOFI (Gentilly, 3 Invited seminars, 2017) – Clermont-Ferrand (Insect team, 2017) – Nantes (Université of Nantes, 2017).

#### 10.1.3.2. Workshops and meetings

Conference on Boolean networks (Marseille, 2017) – BioSS Meeting on artificial intelligence (Gif, 2017)

#### 10.1.4. Leadership within the Scientific Community

- Member of the steering committee of the International Conference on Grammatical Inference.
- The team was involved in the foundation of a national working group on the symbolic study of dynamical systems named *bioss* [[web access](#)]. The group gathers more than 170 scientists, from computer science to biology. Three meetings were organized this year. The group is supported by two French National Research Networks: bioinformatics (GDR BIM : bioinformatique moléculaire) and informatics-mathematics (GDR IM : Informatique Mathématique). It gathered twice in 2017: for a general meeting in Montpellier (Mar. 2017) and for a workshop focused on links between systems biology and artificial intelligence in Orsay (June 2017).

#### 10.1.5. Scientific Expertise

##### 10.1.5.1. International responsibilities

- Evaluation panel of the "Europe-USA Call Strengthening Transnational Research in Molecular Plant Sciences" launched by ERA-CAPS.

##### 10.1.5.2. National responsibilities

- **Institutional boards for the recruitment and evaluation of researchers.** Inria National evaluation board (A. Siegel, nominated member). National Council of Universities, section 65 (O. Dameron, nominated member).
- **Evaluation committees of French laboratories or doctoral schools.** Bioinformatics groups of Institut Curie (Paris, presidency of the committee, A. Siegel) – Doctoral school of Nice University (N. Théret).
- Presidency of the expert panel for the call *Systems biology applied to Cancer* of the National Cancer Plan 2017 (A. Siegel).
- **Recruitment committees.** Inria Senior Researchers (national committee, A. Siegel) – Inria Junior Researchers (Nice, National Committee, A. Siegel)
- **Scientific Advisory boards** GDR BIM "Molecular Bioinformatics" (J. Nicolas).

##### 10.1.5.3. National scientific boards

- Scientific Advisory Board of the French National Research Network GDR BIM *Molecular Bioinformatics* (J. Nicolas).
- Operational Legal and Ethical Risk Assessment Committee (COERLE) at Inria (J. Nicolas).
- Animation of the *Bioss* working group (A. Siegel).
- Board of directors of the French Society for biology of the extracellular matrix (N. Théret).

##### 10.1.5.4. Prospective working groups

- "Big & Open Data" foresight working group of PROSPER network (F. Coste).
- "Prospectives in predictive toxicology" working group at INRA (A. Siegel)

##### 10.1.5.5. Local responsibilities

- Scientific Advisory Board of Biogenouest (J. Bourdon, N. Théret)
- IRISA laboratory (computer science department of Univ. Rennes 1) council (A. Siegel)
- Responsibility of the IRISA laboratory "Health-biology" cross-cutting axis (O. Dameron)<sup>0</sup>
- SCAS (Service Commun d'Action Sociale) of Univ. Rennes 1 (C. Belleannée)
- Scientific committee of Univ. Rennes 1 school of medicine (O. Dameron, A. Siegel).

<sup>0</sup><http://www.irisa.fr/en/page/crosscutting-axis>

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching track responsibilities

- Coordination of the doctoral school "Life, Agronomy and Health" of University of Rennes 1 [N. Th  ret]
- Coordination of the master degree "Bioinformatics and genomics", Univ. Rennes1 [O. Dameron]
- Coordination of the sub-domain "From Data to Knowledge: Machine Learning, Modeling and Indexing Multimedia Contents and Symbolic Data", Master in Computer Science, University of Rennes 1, France [F. Coste].

### 10.2.2. Course responsibilities

- "Atelier bioinformatique", Licence 2 informatique, Univ. Rennes 1 [O. Dameron]
- "Bioinformatique pour la g  nomique", 2nd year school of medicine, Univ. Rennes 1 [O. Dameron]
- "Bases de math  matiques et probabilit  " and "M  thodes en informatique", Master1 in public health, Univ. Rennes 1 [O. Dameron]
- "Big data and Semantic Web", Master 2 in public health, Univ. Rennes 1 [O. Dameron]
- "Int  gration: Remise    niveau en informatique", Master 1 in bioinformatics, Univ. Rennes 1 [O. Dameron]
- "Programmation en Python", Master 1 in Public Health, Univ. Rennes 1 [O. Dameron]
- "Programmation imp  rative en Python", Master 1 in bioinformatics, Univ. Rennes 1 [O. Dameron]
- "Syst  me informatique GNU/Linux", Master 1 in bioinformatics, Univ. Rennes 1 [O. Dameron]
- "Semantic Web and bio-ontologies", Master 2 in bioinformatics, Univ. Rennes 1 [O. Dameron]
- "e-Sant   et r  seaux hospitaliers", last year in engineering school ESIR, Univ. Rennes 1, [O. Dameron]
- "Equilibre Dynamique de la communication Cellulaire" Master 2 in Sciences cellulaire et Mol  culaire du Vivant, Univ. Rennes 1 [N. Theret]

### 10.2.3. Teaching

Licence: C. Belleann  e, Langages formels, 20h, L3 informatique, Univ. Rennes1, France.

Licence: C. Belleann  e, Algorithmique et Programmation Fonctionnelle, 60, L1 informatique, Univ. Rennes1, France.

Licence: J. Coquet, Module Programmation Scientifique 1, 20h, L1 informatique, Rennes1, France.

Licence: O. Dameron, Biostatistiques, 12h, 1st year school of medicine, Univ. Rennes 1, France

Licence: O. Dameron, C2i niveau 2, 2.5h, 2nd year school of medicine, Univ. Rennes 1, France

Licence: O. Dameron, Bioinformatique pour la g  nomique, 5h, 2nd year school of medicine, Univ. Rennes 1, France

Licence: C. Frioux, Programmation scientifique Python, 12h, L1, Rennes1, France.

Licence: C. Frioux, LaTeX, 12h, L3 ENSAI, France.

Licence: C. Frioux, Outils bureautiques pour le statisticien , 6h, L3 ENSAI, France.

Licence: C. Frioux, Algorithmique et programmation Python, 6h, L3 ENSAI, France.

Licence: L. Bourneuf, Ing  nieurerie Syst  mes et R  seaux, 10h, L3 INFO, France.

Licence: L. Bourneuf, Algorithmique des graphes, 8h, L3 INFO, France.

Licence: L. Bourneuf, Algorithmique des graphes, 2h, L3 MIAGE, France.

Master: L. Bourneuf, Principes de Programmation et d'Algorithmique, 6h, M1 BIG, France.

Master: L. Bourneuf, Projet, 10h, M1 BIG, France.



Master: C. Belleannée, Programmation logique avec contraintes et algorithmes génétiques, 40h, M1 informatique, Univ. Rennes1, France.

Master: C. Belleannée, Algorithmique du texte et bioinformatique, 10h, M1 informatique, Univ. Rennes1, France

Master: F. Coste, Apprentissage Automatique Supervisé, 10h, M2 Informatique, Univ. Rennes 1, France

Master: O. Dameron, Object-oriented programing, 20h, M1 bioinformatique et génomique, Univ. Rennes 1, France

Master: O. Dameron, Gestion de projet en informatique, 12h, M1 bioinformatique et génomique, Univ. Rennes 1, France

Master: O. Dameron, Ontologies biomédicales, 6h, Engineering school Institut Mines-Télécom Bretagne-Atlantique Brest, France

Master: O. Dameron, Internship jury, 25h, M1 bioinformatique et génomique, Univ. Rennes 1, France

Master: O. Dameron, Internship jury, 7.5h, M2 bioinformatique et génomique, Univ. Rennes 1, France

Master: O. Dameron, Intégration : remise à niveau en informatique, 14h, M1 bioinformatique, Univ. Rennes 1, France

Master: O. Dameron, Programmation impérative en Python, 39.5h, M1 bioinformatique, Univ. Rennes 1, France

Master: O. Dameron, Système informatique GNU/Linux, 12h, M1 bioinformatique, Univ. Rennes 1, France

Master: O. Dameron, Programmation en Python, 24h, M1 in Public Health, Univ. Rennes 1 [O. Dameron]

Master: O. Dameron, Semantic Web and bio-ontologies, 14h, M2 bioinformatique, Univ. Rennes 1, France

Master: O. Dameron, Bases de mathématiques et probabilités, 15h, M1 santé publique, Univ. Rennes 1, France

Master: A. Siegel, Integrative and Systems biology, 20h, M2, Univ. Rennes 1, France

Master: A. Siegel, Introduction to integrative biology, 2h, M2, Univ. Rennes 1, France

#### 10.2.4. Supervision

PhD : Victorien Delannée, *Intégrer les échelles moléculaires et cellulaires dans l'inférence de réseaux métaboliques. Application aux xénobiotiques.*, started in Oct. 2014, defended in Nov. 2017, supervised by A. Siegel and N. Théret [14].

PhD : Julie Laniau, *Structure de réseaux biologiques : rôle des noeuds internes vis-à-vis de la production de composés*, started in Oct. 2013, defended in Oct. 2017, supervised by A. Siegel and D. Eveillard. [15]

PhD : Jean Coquet, *Semantic-based reasoning for biological pathways analysis*, started in Oct. 2014, defended in Dec. 2017, supervised by O. Dameron and N. Théret [12]

PhD in progress : Lucas Bourneuf, *Justifiable graph decomposition to assist biological network understanding*, started in Oct. 2016, supervised by J. Nicolas.

PhD in progress : Clémence Frioux, *Using preferences in Answer Set Programming to decipher interactions within the species of an ecosystem at the genomic scale*, started in Oct. 2015, supervised by A. Siegel.

PhD in progress : Yann Rivault, *Analyse de parcours de soins à partir de bases de données médico-administratives en utilisant des outils du Web Sémantique: identification de complications et de leurs déterminants suite à la pose chirurgicale de dispositif médical implantable en ambulatoire*, started in Oct. 2015, supervised by O. Dameron and N. Lemeur.

PhD in progress : Juliette Talibart, *Learning grammars with long-distance correlations on proteins*, started in Nov. 2017, supervised by F. Coste and J. Nicolas.

PhD in progress : Mael Conan, *Predictive approach to assess the genotoxicity of environmental contaminants during liver fibrosis*, started in Oct. 2017, supervised by S. Langouet and A. Siegel.

PhD in progress: Marine Louarn, *Intégration de données génomiques massives et hétérogènes, application aux mutations non-codantes dans le lymphome folliculaire*, started in Oct. 2017, supervised by A. Siegel, T. Fest (CHU) and O. Dameron.

PhD in progress : Méline Wery, *Methodology development in disease treatment projects.*, started in Oct. 2017, supervised by O. Dameron, C. Bettembourg (Sanofi) and A. Siegel.

### 10.2.5. Juries

- *Member of Ph-D thesis juries.* J. Mercier, Univ. Evry/CEA [A. Siegel, reviewer]. C. Franay, INRA Toulouse [A. Siegel, reviewer]. W Bedhiafi, Univ. Pierre et Marie Curie Paris + UTM Tunis [O. Dameron]. V. Delannée, Univ. Rennes 1 [N. Theret, O. Dameron]. J. Coquet, Univ. Rennes 1 [O. Dameron, N. Theret]. P. Finet, Univ. Rennes 1 [O. Dameron]
- *Member of habilitation thesis juries.* E. Remy, Univ. Marseille [A. Siegel, president].
- *Member of medicine doctorate juries* G. Lebailly, Univ. Rennes 1 [O. Dameron].

### 10.2.6. Internships

- Internship, from Jun 2017 until Jul 2017. Supervised by J. Nicolas. Student: Alexis Baudin. Subject: Recherche d'attracteurs dans les réseaux booléens synchrones en ASP.
- Internship, from Jan until Jun 2017. Supervised by A. Siegel. Student: Mael Conan. Subject: Modélisation et caractérisation de la réponse au stress de la cyanobactérie marine *Synechococcus* sp. WH7803.
- Internship, from from Apr 2017 until Jul 2017. Supervised by Nathalie Théret and Olivier Dameron. Student: Kevin Courtet. Subject: Integration of genic regulatory interaction network by miRNAs from patients' macrophages with cystic fibrosis.
- Internship, from Apr 2017 until Jul 2017. Supervised by J. Got. Student: Nicolas Guillaudeux Subject: Vérifications du réseau métabolique entier de *Tisochrysis lutea*.
- Internship, from Apr 2017 until Jul 2017. Supervised by J. Nicolas and F. Coste. Student: AliHassan Kachalo Subject: Annotation automatique en familles des séquences d'une superfamille d'enzymes, les HAD (haloacides déhalogénases) par Analyse de Concepts Formels (FCA).
- Internship, from from Apr 2017 until Jul 2017. Supervised by C. Frioux and C. Trottier. Student: Claire Lippold. Subject: Exploration et caractérisation du microbiome associé à *Ectocarpus subulatus* str. BFT.
- Internship, from Jan 2017 until Jun 2017. Supervised by O. Dameron and A. Siegel. Student: Marine Louarn. Subject: Analysis and integration of heterogeneous large-scale genomics data.
- Internship, from Apr 2017 until Jul 2017. Supervised by . Théret and J. Nicolas. Student: Aurelie Nicolas. Subject: Modeling of interaction networks from extracellular matrix components using formal concept analyses.
- Internship, from Apr 2017 until Jul 2017. Supervised by C. Belleannée. Student: Dimitri Pedron. Subject: Annotation et prédiction de transcriptome: validation d'ORF alternatifs prédits. Application au gène CREM chez l'humain, la souris et le chien.
- Internship, from Feb 2017 until Jun 2017. Supervised by F. Coste. Student: Manon Ruffini, Subject: Better scoring schemes for the recognition of functional proteins by protomata

- Internship, from Feb 2017 until Jun 2017. Supervised by J. Nicolas. Student: MarieSalmon, Subject: Biclustering: quantitative formal concept analysis in Answer Set Programming
- Internship, from Jan 2017 until Jun 2017. Supervised by A. Siegel and O. Dameron. Student: Meline Wery Subject: Formalizing and computing signatures of phenotypes within a biological network
- Internship, from May 2017 until Jul 2017. Supervised by C. Belleannée. Student: Mohamed Zemmouri Subject: Analyse de texte en bioinformatique : Modélisation grammaticale d'un site ADN, et recherche du site, même dégénéré, sur l'intégralité du génome humain

## 10.3. Popularization

### 10.3.1. General audience paper

We have written a contribution to the collaborative book edited by CNRS on the main issues of data-mining. Our contribution was specifically related to modeling issues arising in ecology with the development of NGS technologies [32].

### 10.3.2. Science en Cour[t]s

(<http://sciences-en-courts.fr/>) Many of our on-going and former Ph-D students (A. Antoine-Lorquin, C. Bettembourg, J. Coquet, V. Delannée, G. Garet, S. Prigent) have been heavily involved in organization of a local Popularization Festival where Ph.D. students explain their thesis via short movies. The movies are presented to a professional jury composed of artists and scientists, and of high-school students. Previous years films can be viewed on the festival web-site<sup>0</sup> In this context, the following scientific film has been created by the team members in 2017 *Helene et les cartons*<sup>0</sup>.

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<sup>0</sup><https://www.youtube.com/embed/3DRgLLITKuc>

<sup>0</sup><https://www.youtube.com/embed/yheO8Y0nWu0>

## DYOGENE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Conference Program Committees

- Ana Busic: QEST 2017.

#### 10.1.1.2. Reviewer

All members of the team act as reviewers for numerous conferences.

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

François Baccelli: Bernoulli, Queueing Systems.

#### 10.1.2.2. Reviewer - Reviewing Activities

All members of the team act as reviewers for numerous scientific journals.

### 10.1.3. Invited Talks

- François Baccelli
  - WiOpt, Paris, May 2017, keynote speaker,
  - WITMSE, Paris, September 2017; plenary speaker.
  - 2nd Symposium on Spatial Networks, Oxford, September 2017; invited talk.
- Bartek Blaszczyszyn
  - LINCOS Scientific Committee Workshop, Paris, June 2017; invited talk.
  - Tokyo Institute of Technology, November 2017; invited talk.
  - Kyushu University, November 2017, invited talk.
- Ana Busic
  - Tutorial speaker at YEQT XI: “Winterschool on Energy Systems”, December, 2017; <https://www.eurandom.tue.nl/event/yeqt-xi-winter-school-on-energy-systems/>
  - Inviter speaker at Second Conference on the Mathematics of Energy Markets Wolfgang Pauli Institute, Vienna, July, 2017; <https://www.mn.uio.no/math/english/research/groups/store/events/conferences/second-conference-on-the-mathematics-of-energy-mar.html>
  - Inviter speaker at PDE and Probability Methods for Interactions, Sophia Antipolis (France), March 2017; <https://project.inria.fr/pde2017/>

### 10.1.4. Leadership within the Scientific Community

Since 2014: A. Busic is leading (with E. Hyon, Univ. Paris Ouest Nanterre et LIP6) the working group GdT COSMOS (Stochastic Control and Optimization, Modeling, and Simulation) of CNRS research network GdR RO; <http://gdrro.lip6.fr/?q=node/78>. This includes scientific organization of 2 one-day workshops per year (30-50 participants).

### 10.1.5. Research Administration

A. Busic : Member of the Conseil du DI ENS.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence: A. Busic (Cours) and Sébastien Samain (TD) **Structures et algorithmes aléatoires** 80heqTD, L3, ENS, France.

Licence: B. Blaszczyszyn (Cours) **Théorie de l'information et du codage** 24 heqTD, L3, ENS, France.

Master: A. Busic (Cours + TD) **Fondements de la modélisation des réseaux** 18 heqTD, L3, ENS, France.

Master: Bartłomiej Blaszczyszyn (Cours) **Processus ponctuels, graphes aléatoires et géométrie stochastique** 39heqTD, M2 Probabilités et Modèles Aléatoires, UPMC, France

Master: Ana Busic and Marc Lelarge (Cours) et Rémi Varloot (TD) **Modèles et algorithmes de réseaux**, 50 heqTD, M1, ENS, Paris, France.

Master: B. Blaszczyszyn **Introduction to Spatial Stochastic Modeling: Random Graphs, Point Processes and Stochastic Geometry** (School of Computing, Tokyo Institute of Technology), 15 lessons 1h30.

### 10.2.2. Supervision

PhD: Lennart Gulikers “Trouver des algorithmes permettant de détecter des communautés dans des réseaux sociaux. Analyse de *Stochastic Block Model* et ses extensions” since 2015, defense 13 November 2017, going to Safran, supervised by Marc Lelarge with Laurent Massoulié.

PhD: Christelle Rovetta “Applications of perfect sampling to queuing networks and random generation of combinatorial objects”, since December 2013, defense 20 June 2017, co-advised by Anne Bouillard and Ana Busic.

PhD in progress: Léo Miolane, since 2016, supervised by Marc Lelarge

PhD in progress: Dalia-Georgiana Herculea, since October 2016 co-advised by B. Blaszczyszyn, E. Altman and Ph. Jacquet

PhD in progress: Md Umar Hashmi, Decentralized control for renewable integration in smartgrids, from December 2015, co-advised by A. Busic and M. Lelarge

PhD in progress: Alexandre Hollocou, since December 2015, supervised by Marc Lelarge with Thomas Bonald

PhD in progress: Sébastien Samain, Monte Carlo methods for performance evaluation and reinforcement learning, from November 2016, supervised by A. Busic

PhD in progress: Quentin Le Gall, since October 2017, co-supervised by B. Blaszczyszyn and E. Cali (Orange).

PhD in progress: Arnaud Cadas [PSL] “Dynamic matching models”, since 2017, supervised by A. Busic.

### 10.2.3. Juries

- B. Blaszczyszyn, PhD defense of Frederik Mallmann-Trenn (ENS).
- A. Busic
  - Co-president of the Commission Emplois Scientifiques (CES) at Inria Paris (hiring committee for PhD, post-doc and visiting professor positions);
  - Member of the hiring committee for Assistant Professor at Ecole Normale Supérieure and IUT Orsay.

## ECUADOR Project-Team

### 9. Dissemination

#### 9.1. Promoting Scientific Activities

##### 9.1.1. Scientific events organisation

###### 9.1.1.1. Member of the organizing committees

- Laurent Hascoët was the local organizer, and one of the speakers/teachers during the 2-days training of the Marie Curie FP7 programme “IODA” on Algorithmic Differentiation, <http://ioda.sems.qmul.ac.uk/events/nice2017>, february 13-14.
- Laurent Hascoët is on the organizing committee of the EuroAD Workshops on Algorithmic Differentiation. This year, the team organized the 20th EuroAD workshop at Inria Sophia-Antipolis, <http://www.autodiff.org/?module=Workshops&submenu=EuroAD/20/main>, february 16-17.
- Alain Dervieux organized two workshops for the ANR project MAIDESC, on may 11th and november 16th.

#### 9.2. Teaching - Supervision - Juries

##### 9.2.1. Teaching

Master : Laurent Hascoët, Optimisation avancée, 15 h, M2, University of Nice

##### 9.2.2. Supervision

PhD : Ala Taftaf, “Extensions of Algorithmic Differentiation by Source Transformation to meet some needs of Scientific Computing”, defended january 17, advisor L. Hascoët

PhD in progress : Éléonore Gauci, “Norm-oriented criteria for CFD and coupled CSM-CFD systems”, started october 2014, advisor A. Dervieux

PhD : Emmanuelle Itam, “Simulation numérique d’écoulements autour de corps non profilés par des modèles de turbulence hybrides et un schéma multi-rate”, defended november 30, co-advisor A. Dervieux

##### 9.2.3. Juries

- Stephen Wornom, jury, PhD defense of Emmanuelle Itam, Université Montpellier II, november 30.

## ERABLE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- Giuseppe Italiano is member of the Steering Committee Member of the Workshop on Algorithm Engineering and Experimentation (ALENEX), the International Conference on Algorithms and Complexity (CIAC), and the Workshop/Symposium on Experimental Algorithms (SEA).
- Alberto Marchetti-Spaccamela is a member of the Steering committee of *Workshop on Graph Theoretic Concepts in Computer Science (WG)*, and of *Workshop on Algorithmic Approaches for Transportation Modeling, Optimization, and Systems (ATMOS)*.
- Marie-France Sagot is member of the Steering Committee of *European Conference on Computational Biology (ECCB)* and *International Symposium on Bioinformatics Research and Applications (ISBRA)*.

#### 9.1.1.2. Member of the Organising Committees

- Alexander Schönhuth was main organiser of “Data Structures in Bioinformatics”, Amsterdam, 21-22/02/2017, and publicity chair of RECOMB 2017.
- Fabrice Vavre was member of the Organisation Committee of the Colloquium Immuninv (“Immunité des invertébrés”) in 2017.
- Cristina Vieira co-organised the Symposium “Evolutionary implications of transposable elements, epigenetics, and non-genetic inheritance” at the biennial ESEB (European Society for Evolutionary Biology) congress in 2017.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

- Leen Stougie was Chair of the Program Committee of *MAPSP* in 2017.

#### 9.1.2.2. Member of the Conference Program Committees

- Pierluigi Crescenzi was a member of the Program Committee of *ICTCS* in 2017.
- Roberto Grossi was a member of the Program Committee of *ICALP* in 2017.
- Vincent Lacroix was a member of the Program Committee of *JOBIM* in 2017.
- Giuseppe Italiano was a member of the Program Committee of *SPIRE*, *FAW*, and *STACS* in 2017.
- Nadia Pisanti was a member of the program committee of *WALCOM*, *BIOINFORMATICS*, *CPM*, *ISBRA*, *CIBB*, *Hi BI BI*, *emphWABI*, and *ICCABS* in 2017.
- Marie-France Sagot was a member of the Program Committee of *ISMB/ECCB*, *PSC*, *RECOMB-CG*, and *WABI* in 2017.
- Alexander Schönhuth was a member of the Program Committee of *RECOMB*, *ISMB*, *ACM-BCB*, *GCB* (German bioinformatics conference), and *BioSB* (Dutch bioinformatics conference) in 2017.
- Leen Stougie was member of the Program Committee of *RECOMB* in 2017.

#### 9.1.2.3. Reviewer

Besides the above, various other members of ERABLE have been reviewer for other international conferences, such as *SODA* etc.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

- Pierluigi Crescenzi is member of the Editorial Board of *Journal of Computer and Systems Science and Electronic Notes on Theoretical Computer Science*.
- Roberto Grossi is member of the Editorial Board of *Theory of Computing Systems (TOCS)* and pf *RAIRO – Theoretical Informatics and Applications*.
- Giuseppe Italiano is member of Editorial Board of *Algorithmica* and *Theoretical Computer Science*.
- Alberto Marchetti-Spaccamela is member of the Editorial Board of *Theoretical Computer Science*.
- Arnaud Mary is Editor-in-Chief of a special issue of *Discrete Applied Mathematics* dedicated to WEPA 2016.
- Nadia Pisanti is since 2012 member of Editorial Board of *International Journal of Computer Science and Application (IJCSA)* and since 2017 of *Network Modeling Analysis in Health Informatics and Bioinformatics*.
- Marie-France Sagot is member of the Editorial Board of *BMC Bioinformatics*, *Algorithms for Molecular Biology*, *Journal of Discrete Algorithms*, and *Lecture Notes in Bioinformatics*.
- Leen Stougie is member of the Editorial Board of *Surveys in Operations Research and Management Science* since 2011, and of *Journal of Industrial and Management Optimization* since 2013.
- Cristina Vieira is Executive Editor of *Gene*, and since 2014 member of the Editorial Board of *Mobile DNA*.

#### 9.1.3.2. Reviewer - Reviewing Activities

Members of ERABLE have reviewed papers for the following journals: *Theoretical Computer Science*, *Algorithmica*, *IEEE/ACM Transactions in Computational Biology and Bioinformatics (TCBB)*, *Algorithms for Molecular Biology*, *Scientific Reports*, *Journal of Computational Biology*, *BMC Bioinformatics*, *Computing and Informatics*, *BMC Evolutionary Biology*, *Genetica*, *Gene*, *Genome Biology and Evolution*, *Genetical Research*, *Genome Research*, *Molecular Biology and Evolution*, *Insect Biochemistry and Molecular Biology*, *PLoS Genetics*, *Mutation research*, *mBio*, *Frontiers in Microbiology*, *Infection*, *genetics and evolution*, *PLoS Biology*. *Nature Communications*.

### 9.1.4. Invited Talks

Giuseppe Italiano gave talks at the 4th Workshop on Graph Theory, Algorithms and Applications, Erice, Italy, 5-13 May, 2017 on “2-Connectivity in Directed Graphs”, and at the 10th International Conference on Algorithms and Complexity (CIAC 2017), Athens, Greece, May 24-26, 2017 (<http://www.corelab.ntua.gr/ciac2017/>) on “2-Edge- and 2-Vertex- Connectivity in Directed Graphs”.

Vincent Lacroix gave talks at the MIAT INRA Seminar, Toulouse, Feb 2017 on “De novo identification of SNPs from RNA-seq data in non-model species”, and at the Aviesan ITMO Santé 9th annual meeting (<https://its.aviesan.fr/index.php?pagendx=1046>), Lyon, Nov 2017 on “Complementarity of assembly-first and mapping-first approaches for alternative splicing annotation and differential analysis from RNA-seq data”.

Alexander Schönhuth gave talks at the FCHealth Meeting, Helsinki (organiser: Veli Mäkinen) on “Disentangling the genetic diversity of pathogens at the strain level using overlap graphs”, the Computational Genomics Summer Institute (<http://computationalgenomics.bioinformatics.ucla.edu>), University of California at Los Angeles on “Polyploid Genome Assembly”, and the Bertinoro Computational Biology (BCB) 2017 (<https://bertinoro2017.wordpress.com>), organisers: Sohrab Shah, UBC Vancouver; Jens Lagergren, Stockholm), on “Discovering somatic variants in single cells”.

Leen Stougie gave a talk at the Workshop on Stochastic Programming Honoring Maarten van der Vlerk, Groningen, The Netherlands, 10-11 August 2017, on “Stochastic and Robust Scheduling”.

### 9.1.5. Leadership within the Scientific Community

Giuseppe Italiano is Member of the Council of EATCS, the European Association for Theoretical Computer Science.



Leen Stougie is Member of the general board of the Dutch Network on the Mathematics of Operations Research (Landelijk Netwerk Mathematische Besliskunde (LNMB)). He is also Chairman Program Committee Econometrics and OR, VU Amsterdam and Member of the Board of the research school ABRI-VU, Amsterdam.

Marie-France Sagot and Fabrice Vavre are members of the Steering Committee of the LabEx Ecofect (<http://ecofect.universite-lyon.fr/>).

### 9.1.6. Scientific Expertise

Marie-France Sagot is member of the Advisory Board of the CWI, Amsterdam, The Netherlands, and chair of the “Commissions Scientifiques Spécialisées” (CSS) of the INRA for the Department of Applied Mathematics and Computer Science.

Fabrice Vavre is president of the Section 29 of the Comité National de la Recherche Scientifique (CoNRS).

### 9.1.7. Research Administration

Hubert Charles is director of the Biosciences Department of the Insa-Lyon and co-director of studies of the “Bioinformatique et Modélisation (BIM)” track.

Giuseppe Italiano is member of the Advisory Board of MADALGO - Center for MASSive Data ALGORithmics, Aarhus, Denmark.

Alberto Marchetti-Spaccamela is Director of the Department of Computer Engineering and Management Antonio Ruberti at Sapienza University since 2013.

Nadia Pisanti was since 2013 and until October 31st 2017 member of the Board of the Regional PhD School of Computer Science at the University of Pisa, Italy. Since November 1st 2017, she is member of the Board of the PhD School in Data Science (University of Pisa jointly with Scuola Normale Superiore Pisa, Scuola S. Anna Pisa, IMT Lucca).

Alexander Schönhuth is member of the Scientific Board of BioSB (the Dutch organisation for bioinformatics) since May 2017.

Leen Stougie is since April 2017 Leader of the Life Science Group at CWI.

Alain Viari is since 2012 Deputy Scientific Director at Inria responsible for the ICST for Life and Environmental Sciences. He thus represents Inria at several national instances related to Life Sciences and Health (Allenvi, Aviesan, Ibis, etc.). He is member of a number of scientific advisory boards (IRT (Institut de Recherche Technologique) BioAster; Centre Léon Bérard). He also coordinates together with J.-F. Deleuze (CNRGH-Evry) the Research & Development part (CRefIX) of the “Plan France Médecine Génomique 2025”.

Cristina Vieira is member of the “Conseil National des Universités” (CNU) 67 (“Biologie des Populations et Écologie”), and since 2017 member of the “Conseil de la Faculté des Sciences et Technologies (FST)” of the University Lyon 1.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

#### 9.2.1.1. France

The members of ERABLE teach both at the Department of Biology of the University of Lyon (in particular within the BISM (BioInformatics, Statistics and Modelling) specialty, and at the department of Bioinformatics of the Insa (National Institute of Applied Sciences). Cristina Vieira is responsible for the Master Biodiversity, Ecology and Evolution (<https://www.bee-lyon-univ.fr/>). She teaches genetics 192 hours per year at the University and at the ENS-Lyon. Hubert Charles is responsible for the Master of Modelling and Bioinformatics (BIM) at the Insa of Lyon (<http://biosciences.insa-lyon.fr/>). He teaches 192 hours per year in statistics and biology. Vincent Lacroix is responsible for several courses of the newly created Master in Bioinformatics (<https://www.bioinfo-lyon.fr/>) (L3: Advanced Bioinformatics, M1: Methods for Data Analysis in Genomics,

M1: Methods for Data Analysis in Transcriptomics, M1: Bioinformatics Project, M2: Ethics). He teaches 192 hours per year in bioinformatics. Arnaud Mary is responsible for two courses of the Bioinformatics Curriculum at the University (L2: Introduction to Bioinformatics and Biostatistics, M1: Object Oriented Programming) and one at Insa (Discrete Mathematics). He has been teaching 150 hours per year for his three first years as Assistant and then as Associated Professor, and will now, as of September 2017, teach 192 hours per year. Blerina Sinimeri taught 30 hours per year in graph algorithms for the M1 students of the Master in Bioinformatics, and approximately 12h per year (Discrete Mathematics) at Insa. In 2017, she also taught 24h per year at the Master in Computer Science of the ENS-Lyon.

The ERABLE team regularly welcomes M1 and M2 interns from the bioinformatics Master.

Vincent Lacroix was an instructor in NGS data analysis training for the CNRS Formation in the last 3 years since 2015, a course coordinated by Eric Rivals from the LIRMM, Montpellier.

Alain Viari was a lecturer at the 3rd International School on Breast Cancer organised at the Curie Institute in June 2017. Together with Vincent Lacroix, he participated to a transdisciplinary module for PhDs on Ethics organised by the University of Lyon.

All French members of the ERABLE team are affiliated to the doctoral school E2M2 (Ecology-Evolution-Microbiology-Modelling, <http://e2m2.universite-lyon.fr/>).

#### 9.2.1.2. Italy & The Netherlands

Italian researchers teach between 90 and 140 hours per year, at both the undergraduate and at the Master levels. The teaching involves pure computer science courses (such as Programming foundations, Programming in C or in Java, Computing Models, Distributed Algorithms) and computational biology (such as Algorithms for Bioinformatics).

Dutch researchers teach between 40 and 270 hours per year, again at the undergraduate and Master levels, in pure computer science (*e.g.* Algorithm Engineering, Randomised Algorithms), applied mathematics (*e.g.* Operational Research, Advanced Linear Programming) and computational biology (*e.g.* Biological Network Analysis).

#### 9.2.2. Supervision

The following PhDs were defended in ERABLE in 2017:

- Hélène Lopez-Maestre, University of Lyon 1, Feb 2017, supervisors: V. Lacroix, C. Vieira.
- Laura Urbini, University of Lyon 1, October 2017, supervisors: C. Matias, M.-F. Sagot, B. Sinimeri.
- Martin van Ee, December 2017, supervisor: L. Stougie.

The following are the PhDs in progress:

- Audric Cologne, University of Lyon 1 (funded by Inserm and Inria, co-supervisors: Patrick Edery – Federation of Health Research of Lyon-Est, Vincent Lacroix)
- Mattia Gastaldello, Sapienza University of Rome and University of Lyon 1 (funded by “Vinci Program-Université Franco-Italienne”, co-supervisors: Tiziana Calamoneri, Sapienza University of Rome; Marie-France Sagot)
- Leandro Ishi Soares de Lima, University of Lyon 1 (funded by the Brazilian “Science without Borders” program, co-supervisors: Giuseppe Italiano, Vincent Lacroix, Marie-France Sagot)
- Carol Moraga Quinteros, University of Lyon 1 (funded by Conicyt Chile, co-supervisors: Rodrigo Gutierrez – Catholic University of Chile, Marie-France Sagot)
- Henri Taneli Pusa, University of Lyon 1 (funded by H2020-MSCA-ETN-2014 project MicroWine, co-supervisors: Alberto Marchetti-Spaccamela, Arnaud Mary, Marie-France Sagot)
- Camille Sessegolo, University of Lyon 1 (funded by ANR Aster; co-supervisors: Vincent Lacroix, Arnaud Mary)
- Irene Ziska, University Lyon 1 (funded by Inria Cordi-S, co-supervisors: Susana Vinga – Instituto Superior Técnico at Lisbon; Marie-France Sagot)

Besides the PhD students indicated above, who are physically located within one of the premises of ERABLE, the project-team has PhD students in co-supervision who spend the majority or the whole of their time in the premises of other teams. These include: Scheila G. Mucha (funded by Brazil, co-supervisors: Arnaldo Zaha – Federal University of Rio Grande do Sul in Brazil, Marie-France Sagot), Rita Ramos (funded by Portuguese FCT, co-supervisors: Claudia Nunes dos Santos – ITQB Lisbon, Marie-France Sagot), André Veríssimo (funded by Portuguese FCT, co-supervisors: Susana Vinga – Instituto Superior Técnico in Lisbon, Marie-France Sagot). Furthermore, ERABLE had for 18 months a “sandwich” (meaning part-time) PhD student in the team, Alex di Genova, whose supervisor is Gonzalo Ruz from the University Adolfo Ibañez in Santiago, Chile (A. di Genova defended his PhD on November 14 2017 and has since joined ERABLE as a postdoc).

### 9.2.3. *Juries*

The following are the PhD or HDR juries to which members of ERABLE participated in 2017.

- Giuseppe Italiano: External Examiner of the PhD of Mathias baek Tejs Knudsen, DIKU, Copenhagen University, August 4, 2017.
- Nadia Pisanti: External Reviewer of the PhD of Mika Amit, University of Haifa, Israel, July 3rd 2017.

## 9.3. Popularisation

- Ricardo Andrade participated to the “Fête de la Science” at Inria.
- Vincent Lacroix co-organised with Nicolas Lechopier a conference on synthetic biology followed by a live radio session involving the speaker Catherine Bourgain, and the students from the Master in Bioinformatics <http://sciencespourtous.univ-lyon1.fr/sciences-lemission-science-democratie-parole-aux-etudiants/>.
- Blerina Sinimeri participated to the Conference “Filles et mathématiques : Une équation lumineuse !” (see <https://filles-et-math.sciencesconf.org/program>) and to the “Fête de la Science” at Inria.
- Alain Viari as Deputy Scientific Director for Life Sciences at Inria regularly gives talks to external partners and general audiences to present the Life Sciences topics at Inria.

## EVA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organization

#### 10.1.1.1. General Chair, Scientific Chair

- **Thomas Watteyne** co-chaired the IOT2SUSTAIN invited workshop (<https://tinyurl.com/iot2sustain>), which brought together 22 researcher (half UCL, half Inria) to brainstorm on the state of IoT research today, and identify research directions. This event was organized on the UCL campus in London, 6-7 July 2017.
- **Thomas Watteyne** co-chaired the IETF98 (Chicago, remotely), IETF99 (Prague) and IETF100 (Singapore) 6TiSCH Working group meetings.
- **Pascale Minet** was general co-chair with Leila Saidane from ENSI (Tunisia) of the PEMWN 2017 conference, the 6th IFIP international conference on Performance Evaluation and Modeling of Wired and Wireless Networks, technically co-sponsored by IFIP WG6.2 and IEEE ComSoc (see <https://sites.google.com/site/pemwn2017/>). This conference was held at CNAM in Paris, the 28th, 29th and 30th of November 2017. It was sponsored by Inria, CNAM and ENSI. The organization co-chairs were Samia Bouzefrane and Selma Boumerdassi. Three tutorials were given:
  - *Dynamic Resource Allocation and Network Optimization in C-RAN* by Rami Langar, University of Paris-Est Marne-la vallée, (UPEM), France.
  - *Getting your Hands Dirty With the Industrial IoT!* by Thomas Watteyne, Inria, France.
  - *Machine learning: From supervised to unsupervised* by Francis Bach, Inria, France.

Twenty papers have been selected by the technical program committee and presented during the three days of the PEMWN 2017 conference.

- **Samia Bouzefrane** was general co-chair with Mehammed Daoui (University of Tizi-Ouzou, Algeria) and Damien Sauveron (University of Limoges, France) of the MSPN 2017 conference, the 3rd IFIP international conference on Mobile and Secure Programming Networks, technically co-sponsored by IFIP WG 11.2 (see <http://cedric.cnam.fr/workshops/mspn2017/>). This conference was held at CNAM in Paris, the 29th and 30th of June 2017. It was sponsored by CNAM, University of Limoges and SAFRAN. Two tutorials were given:
  - *Enabling emergent mobile systems in the IoT: Functional and QoS interoperability aspects at the middleware layer* by Nikolaos Georgantas, MIMOVE team (Inria, Paris), France.
  - *Identity Management for Internet connected objects* by Hanene Maupas, SAFRAN, France.

Seventeen papers have been selected by the technical program committee and presented during the two days of the MSPN 2017 conference

#### 10.1.1.2. Member of the Organizing Committees

- **Paul Muhlethaler** organized the DGA Inria workshop on Telecommunication and networking “Cloud, cloudlet & MANET” in May 2017. The EVA team presented its activities: Remy Leone the results of the project F-Interop, Malisa Vucinic the results of the project ARMOUR, **Pascale Minet** the model and simulation results on collision avoidance on shared slots in TSCH, **Thomas Watteyne** presented the standardization issues in 6TiSCH, **Paul Muhlethaler** presented results on adaptive CSMA techniques.

- **Kevin Bonny** was member of the organizing committee of the international conference PEMWN 2017.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- **Paul Muhlethaler** was in Steering committee member of MobileHealth Workshop 2017.
- **Samia Bouzefrane** was track chair of ANT, The 8th International Conference on Ambient Systems, Networks and Technologies, May 2017.
- **Anis Louiti** was in Steering committee member of MobileHealth Workshop 2017.

#### 10.1.2.2. Member of the Conference Program Committees

- **Paul Muhlethaler:**
  - ITST 2017,
  - Mownet 2017, International Conference on Selected Topics in Mobile & Wireless Networking, May 2017.
  - PEMWN 2017, 6th International Conference on Performance Evaluation and Modeling in Wired and Wireless Networks, November 2017.
  - Wireless Days, IFIP/IEEE Wireless Days 2017, 29 - 31 March 2017 Porto, Portugal.
  - WiOpt 2017, Paris, France, 15th - 19th May, 2017.
- **Pascale Minet:**
  - CoRes 2017, May 2017.
  - ETFA 2017, 22th IEEE International Conference on Emerging Technologies & Factory Automation, September 2017.
  - IINTEC 2017, the IEEE International Conference on Internet of Things, Embedded Systems and Communications, October 2017.
  - IUCC 2017, the 16th IEEE International Conference on Ubiquitous Computing and Communications, December 2017.
  - MoWNet 2017, International Conference on Selected Topics in Mobile & Wireless Networking, May 2017.
  - PEMWN 2017, 6th International Conference on Performance Evaluation and Modeling in Wired and Wireless Networks, November 2017.
  - PECCS 2017, 7th International conference on Pervasive and Embedded Computing and Communication Systems, July 2017.
  - WINCOM 2017, 3rd International Conference on Wireless Networks and Mobile Communications, October 2015.
  - Wireless Days, IFIP/IEEE Wireless Days 2017, 29 - 31 March 2017 Porto, Portugal.
  - WiSEE 2017, 5th IEEE International Conference on Wireless for Space and Extreme Environments, October 2017.
- **Thomas Watteyne:**
  - IFIP/IEEE International Symposium on Integrated Network Management, workshop on Future Networks for Secure Smart Cities (FNSSC), 2017.
  - IEEE International Conference on Communications (ICC), Selected Areas in Communications (SAC), 2015, 2016, 2017.
- **Samia Bouzefrane:**
  - PEMWN, 6th International Conference on Performance Evaluation and Modeling in Wired and Wireless Networks, November 2017.

- VECoS, 11th International Conference on Verification and Evaluation of Computer and Communication Systems, August 2017.
- MobiSecServ, the third International Conference On Mobile And Secure Services, February 2017.
- EUSPN, The 8th International Conference on Emerging Ubiquitous Systems and Pervasive Networks, September 2017.
- **Anis Louiti:**
  - AIST 2017,
  - ITST 2017,
  - Mownet 2017,
  - PEMWN 2017,
  - SMARTCOMP 2017
  - Aintec 2017

#### 10.1.2.3. Member of the Editorial Boards

**Nadjib Achir** was guest editor of the special issue “Planning and Deployment of Wireless Sensor Networks”, of the International Journal of Distributed Sensor Networks.

#### 10.1.2.4. Reviewer (Journals)

- **Paul Muhlethaler**
  - Reviewer Annals of telecommunications
  - Reviewer IEEE Transactions on Wireless Communications
  - Reviewer IEEE Transactions on Vehicular Technology
  - Reviewer IEEE Transactions on Information Theory
  - Reviewer International Journal of Distributed Sensor Networks. Hindawi.
- **Pascale Minet**
  - Annals of Telecommunications,
  - Ad Hoc Networks,
  - Computer Communications,
  - Computer Networks,
- **Thomas Watteyne**
  - ACM Transactions on Sensor Networks, 2017.
- **Nadjib Achir**
  - Reviewer Sensor Networks (MDPI)
  - Reviewer Wireless Communications and Mobile Computing (Wiley)
  - Reviewer Internet of Things Journal (IEEE)
  - Reviewer Ad Hoc Networks Journal (Elsevier)
- **Selma Boumerdassi**
  - Reviewer Ad Hoc Networks Journal (Elsevier);
  - Reviewer The journal of Future Generation Computer Systems (Elsevier).
- **Samia Bouzefrane**
  - The International Journal of Computer and Telecommunications Networking (Elsevier),
  - The IEEE Transactions on Mobile Computing,
  - The Information and Software Technology Journal (Elsevier)
  - The Springer Multimedia Tools and Application Journal
  - The ACM Transaction on Internet Technology
  - The Concurrency and Computation Practice and Experience Journal
  - the Journal of Systems and Software (Elsevier)

#### 10.1.2.5. Reviewer (Book proposals)

**Samia Bouzefrane** was reviewer for the two book proposals in the CRC Press Taylor and Francis.

### 10.1.3. Invited Talks

- (tutorial) **Thomas Watteyne**. Getting your Hands Dirty With the Industrial IoT! International Conference on Performance Evaluation and Modeling in Wired and Wireless Networks (PEMWN), Paris, France, 28 November 2017.
- (talk) **Thomas Watteyne**. Construire son Reseau IoT en 10min. Inria-Paris, 12 March 2018.
- (talk) **Thomas Watteyne**. Exciting Developments in Industrial IoT, and its Potential Applications to Smart Agriculture. INRA-Inria Workshop, Rennes, France, 19 December 2017
- (talk) **Thomas Watteyne**. Low Power Wireless Solutions for Industry 4.0: Products, Standardization, Research and Example Deployments. Industry 4.0 Predictive Analytics and Forecasting: Research and Applications. Siemens Corporate Technology, Munich, Germany, 14-15 September 2017.
- (tutorial) **Thomas Watteyne** and Sami Malek. Wireless Bootcamp with NoeMote and SolSystem. UC Berkeley, 22-23 August 2017.
- (talk) **Thomas Watteyne**. OpenWSN Fresh: the 6TiSCH Reference Protocol Stack. Journees Scientifiques Inria, Sofia Antipolis, 15 June 2017.
- (panel) **Thomas Watteyne**. “Enough with the visions, Industrial IoT is here Today!”, on the panel “the path to successful IoT: from need of standards to security threads”. IEEE ICC, Paris, France, 22 May 2017.
- (talk) **Thomas Watteyne**. Building the Internet of (Important) Things, Universidad Diego Portales, Santiago, Chile, 5 May 2017.
- (talk) **Thomas Watteyne**. Researching and Deploying 6TiSCH Networks, Inria-Chile, 5 May 2017.
- (talk) **Thomas Watteyne**. Deploying 6TiSCH Networks. RIOT seminar, 13 April 2017.

### 10.1.4. Leadership within the Scientific Community

**Thomas Watteyne** co-chairs the IETF 6TiSCH standardization group.

### 10.1.5. Scientific Expertise

**Thomas Watteyne** regularly consults with major player in the (Industrial) IoT space.

### 10.1.6. Research Administration

**Thomas Watteyne** is of the Inria-Paris “Comite de Centre”, since 2016, where we work on making sure Inria-Paris will always remain one of the greatest places to work at!

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Intensive 1-week course on IoT, with associated hands-on labs. ENSTA ParisTech. Graduate level. **Thomas Watteyne** and Ziran Zhang. 9-12 October 2017.
- 1/2-day crash course on the Industrial IoT. Telecom ParisTech. Graduate level. **Thomas Watteyne**. 28 September 2017..
- 6-week course on IoT, with associated hands-on labs. ENSTA ParisTech. Undergraduate level. **Thomas Watteyne**, Keoma Brun-Laguna and Dominique Barthel. Spring 2017.

### 10.2.2. Supervision

- PhD : Nesrine Ben Hassine : Machine learning techniques for network resource allocation. University of Paris Saclay. **Pascale Minet** and Dana Marinca.
- PhD : Younes Bouchaala : Handling Safety Messages in Vehicular Ad-hoc NETworks. University of Paris Saclay. **Paul Muhlethaler**.

- PhD (in progress) : Keoma Brun-Laguna : Deterministic networking for the Industrial Internet of Things. Sorbonne University. **Thomas Watteyne** and **Pascale Minet**.
- PhD (in progress) : Jonathan Munoz. Time slotted systems for long range communications. Sorbonne University. **Thomas Watteyne** and **Paul Muhlethaler**.
- PhD (in progress) : Amar Abane : Name Data Networks in the Internet of Things. CNAM. Samia Bouzefrane and **Paul Muhlethaler**.
- PhD (in progress) : Abdallah Soheby : Etude et évaluation de la dissémination des informations dans la 5G. Eric Renault and **Paul Muhlethaler**.

### 10.2.3. Juries

- HdR:
  - Riadh Dhaou, “IoT composé de réseaux terrestres et par satellite au service des Smart Cities : mobilité et hétérogénéité”, Institut National Polytechnique de Toulouse, November 2017, **Pascale Minet** reviewer.
  - Hanen Hidoudi, “Contributions à l’amélioration des communications dans les réseaux sans fil multi-sauts”, University of Toulouse, November 2017, **Pascale Minet** examiner.
- PhD:
  - Alexandre Laubé, “Agrégation de trafic pour réduire la consommation énergétique globale dans les réseaux sans fil multi-sauts”, University of Paris Saclay, September 2017, Anis Laouiti examiner.
  - Bilal M. Maaz, “Allocation des ressources radio dans les réseaux sans-fil de la 5G”, University of Paris-Saclay, prepared at the University of Versailles-Saint Quentin, March 2017, **Pascale Minet** examiner.
  - Laurent Reynaud, “Stratégie de mobilité optimisée pour la tolérance aux perturbations dans les réseaux sans fil”, University of Lyon, March 2017, **Pascale Minet** examiner.
  - Ahmed Amari, “Specification and analysis of AeroRing - a full duplex Ethernet ring network for new generation avionics systems”, University of Toulouse - ISAE, September 2017, **Pascale Minet** reviewer.
  - Florian Grandhomme, “Etudes de protocoles de routage dynamique externe de type BGP dans un environnement réseaux tactiques ad hoc mobiles : faisabilité et performances”, University of Rennes 1, November 2017, **Pascale Minet** reviewer.
  - Moussa Déthié Sarr, “Spécification d’un mécanisme de construction automatique de topologies et d’adressage permettant la gestion dynamique de réseaux de capteurs sans fil linéaires”, University of Clermont, December 2017, **Pascale Minet** reviewer.
  - Aravinthan Gopalasingham, “SDN Based Service Oriented Control Approach For Future Radio Access Networks”, Télécom Sud-Paris, June 2017, **Paul Muhlethaler** examiner,
  - Boutheina Dab, “Optimization of Routing and Wireless Resource Allocation in Hybrid Data Center Networks”, Paris VI, July 2017, **Paul Muhlethaler** examiner.
  - David Alvarez Corrales, “Cooperative Communications in very large cellular Networks”, Télécom ParisTech, November 2017, **Paul Muhlethaler** examiner.
  - Younes Bouchaala, “Handling Safety Messages in Vehicular Ad-hoc NETWORKS”, UVSQ, December 2017, **Paul Muhlethaler** examiner.

## 10.3. Popularization

Outreach is very important for Inria-EVA, and it brings enormous visibility to the research done in the team. We use it to target a audience different that the one targetted through purely scientific publications.



### 10.3.1. Web presence

Within the Inria-EVA team, we are regular Twitter contributor through a dozen Twitter accounts, promoting the activities of Inria and Inria-Paris.

Inria-EVA also maintains the following Inria websites:

- <https://team.inria.fr/eva/>
- <http://www.openwsn.org/>
- <http://smartmarina.org/>
- <http://www.savethepeaches.com/>
- <http://www.snowhow.io/>
- <http://www.solsystem.io/>
- <http://www.headsup.tech/>

### 10.3.2. Tradeshows

- **Thomas Watteyne**, Ziran Zhang, Felipe Moran. IoT Solutions World Congress 2017, Barcelona, presenting SolSystem.
- **Thomas Watteyne**, Ziran Zhang. VIVATech 2017, Paris, Inria booth, presenting SolSystem.

### 10.3.3. In The News

- (French) SolSystem : une solution “sensor-to-cloud” clés en main, InriaInnovation, 10 November 2017 (**Thomas Watteyne**).
- Interview by L’Esprit Sorcier about SmartMarina, Fete de la Science, 8 October 2017 (**Thomas Watteyne**).
- Presenting the Smart Marina project at the VIVA Tech trade-show, Inria@Silicon Valley Newsletter, 19 September 2017 (**Thomas Watteyne**).
- (French, TV) Cap d’Agde : Une puce innovante pour gérer le port de plaisance, TV Sud, aired 20 June 2017 (**Thomas Watteyne**).
- (French) 1ère mondiale au Cap d’Agde, des capteurs détectent les entrées les sorties de bateaux, Atout Nautic, 20 June 2017 (**Thomas Watteyne**).
- (French) Le port du Cap d’Agde connecté, une première mondiale, France Bleu, 20 June 2017 (**Thomas Watteyne**).
- Interview with Thomas Watteyne “The new use of marinas requires rethinking their operation and imagining a new offer of services”, Marine & Oceans, June 2017 (**Thomas Watteyne**).
- (Spanish) Experto en IoT de Inria visita Inria Chile, Inria Chile, 9 May 2017 (**Thomas Watteyne**).
- (Spanish) Proyecto SmartMarina reinventa los puertos utilizando IoT, Inria Chile, 5 May 2017 (**Thomas Watteyne**).
- The EVA team reinvents the Smart Marina, Inria.fr, 26 April 2017 (**Thomas Watteyne**).
- FBF supports SmartMarina project in Cap d’Agde, France. France Berkeley Fund new, 21 April 2017 (**Thomas Watteyne**).
- (French) Le Cap d’Agde – le Port en Passe d’Etre Connecte ! Herault Tribune, 19 April 2017 (**Thomas Watteyne**).
- (French, video) Objets connectés : des capteurs intelligents pour mesurer l’environnement, YouTube InriaChannel, March 2017 (**Thomas Watteyne**).
- (French) Le numérique peut-il sauver l’agriculture? Inriality, February 2017 (**Thomas Watteyne**).

### 10.3.4. Miscellaneous Activities

The Inria-EVA team is running a permanent demo in the Inria-Paris demo showroom.

We worked together with the A/V team on the following videos:

- SmartMarina [English] <https://www.youtube.com/watch?v=LUcLE8D0RbM>
- SmartMarina [French] <https://www.youtube.com/watch?v=CwgyCmJvyuw>
- interview [French] <https://www.youtube.com/watch?v=zsbS310YVe0>
- SolSystem [French] <https://www.youtube.com/watch?v=juQGnGX5OGs>
- SaveThePeaches [English] [https://www.youtube.com/watch?v=\\_qGSH810Vkk](https://www.youtube.com/watch?v=_qGSH810Vkk)
- SaveThePeaches [French] <https://www.youtube.com/watch?v=cZvGw7DyIzI>
- HeadsUp! [English] <https://www.youtube.com/watch?v=51mIibi-tDs>

The Inria-EVA team very regularly hosts visiting companies interested in using the technology developed.

## EX-SITU Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

- ACM CHI 2017, *Video-Previews* Chair: Carla Griggio
- ACM CHI 2018, *ACM Conference on Human Factors in Computing*, Web Co-Chair: Ignacio Avellino

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

- ACM CHI 2017, *Late-Breaking Work* Co-Chair: Theophanis Tsandilas
- ACM/ISMIR 2018, *Music and Technology* Co-Chair: Wendy Mackay

#### 9.1.2.2. Member of the Conference Program Committees

- ACM CHI 2018, *ACM CHI Conference on Human Factors in Computing Systems*: Michel Beaudouin-Lafon, Wendy Mackay, Theophanis Tsandilas
- ACM CHI 2017, *ACM CHI Conference on Human Factors in Computing Systems*: Michel Beaudouin-Lafon, Wendy Mackay
- ACM UIST 2017, *ACM Symposium on User Interface Software and Technology*: Michel Beaudouin-Lafon, Wendy Mackay
- IUI 2018, *ACM IUI Conference on Intelligent User Interfaces*: Wendy Mackay
- MOCO 2017, *International Conference on Movement and Computing*: Sarah Fdili Alaoui
- EuroVR 2017, *European Virtual Reality Conference*: Cédric Fleury
- ACM C&C 2017, *Creativity and Cognition*: Andrew Webb

#### 9.1.2.3. Reviewer

- ACM CHI 2017-18, *ACM CHI Conference on Human Factors in Computing Systems*: Andrew Webb, Carla Griggio, Nolwenn Maudet, Wanyu Liu, Sarah Fdili Alaoui, Cédric Fleury, Theophanis Tsandilas, Michael Wessely, Ignacio Avellino
- ACM UIST 2017 *ACM Symposium on User Interface Software and Technology*: Andrew Webb, Marianela Ciolfi Felice, Theophanis Tsandilas, Michael Wessely, Wanyu Liu, Nolwenn Maudet, Sarah Fdili Alaoui, Cédric Fleury
- ACM DIS 2017, *ACM Conference on Designing Interactive Systems*: Nolwenn Maudet, Sarah Fdili Alaoui, Wendy Mackay
- ACM ISS 2017, *ACM International Conference on Interactive Surfaces and Spaces*: Ignacio Avellino, Philip Tchernavskij
- IEEE InfoVis 2017: Theophanis Tsandilas
- IEEE VR 2018, *Virtual Reality Conference*: Cédric Fleury
- IEEE 3DUI 2017, *Symposium on 3D User Interfaces*: Cédric Fleury
- GI 2017, *Graphics Interface Conference*: Theophanis Tsandilas
- Interaction 18: Carla Griggio, Germán Leiva
- ACM C&C 2017, *Creativity and Cognition*: Sarah Fdili Alaoui

- Mobile HCI '17 Late Breaking, *19th International Conference on Human-Computer Interaction with Mobile Devices and Services*: Germán Leiva, Philip Tchernavskij
- IHM 2017, *Conférence Francophone d'Interaction Homme-Machine*: Theophanis Tsandilas, Cédric Fleury
- Salon des Refusés 2017, workshop at <PROGRAMMING> 2017, *The International Conference on the Art, Science, and Engineering of Programming*: Philip Tchernavskij

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

- Editor for the Human-Computer Interaction area of the ACM Books Series (published with Morgan & Claypool Publishers): Michel Beaudouin-Lafon (2013-)
- CACM, *Communications of the ACM Web Editorial Board*, ACM: Wendy Mackay (2008-)
- ACM, *ACM New Publications Board*, ACM: Wendy Mackay (2015-)
- TOCHI, *Transactions on Computer Human Interaction*, ACM: Michel Beaudouin-Lafon (2009-), Wendy Mackay (2016-)
- JIPS, *Journal d'Interaction Personne-Système*, AFIHM: Michel Beaudouin-Lafon (2009-)

#### 9.1.3.2. Reviewer - Reviewing Activities

- IHCS, *International Journal of Human-Computer Studies*, Elsevier: Theophanis Tsandilas
- TVCG, *Transactions on Visualization and Computer Graphics*, IEEE: Cédric Fleury
- MTI, *Journal of Multimodal Technologies and Interaction*, MDPI: Sarah Fdili Alaoui
- JHT, *Journal Human Technology*, special issue "the Human-Technology Choreographies: Body, movement, and space in expressive interactions", EBSCO Publishing: Sarah Fdili Alaoui
- JEP, *Journal of Experimental Psychology*: Michel Beaudouin-Lafon

### 9.1.4. Invited Talks

- Ecole Normale Supérieure de Lyon, Cultures numériques, éducation aux médias et à l'information, "Créer des Partenariats Humaine-Machine", 09 January 2017: Wendy Mackay
- Lyon Culture Numériques Table Ronde, "Créer des Partenariats Humaine-Machine", 11 January 2017: Wendy Mackay
- Invited conference, World Information Architecture Day (WIAD), Lyon, "Interfaces du futur : Unifier pour diversifier", 18 février 2017: Michel Beaudouin-Lafon
- Invited seminar, CIRMMT (Montreal, Canada), "Crafting movement in Digital Art and Human Computer Interaction", 22 March 2017: Sarah Fdili Alaoui
- Colloquium d'Informatique UPMC Sorbonne Universités, Paris, "Interfaces Homme-Machine : Unifier les principes pour diversifier l'interaction", 28 February 2017: Michel Beaudouin-Lafon
- Inria 50 years, ERC 10 years, "ERC CREATIV : Créer des Partenariats Humain-Machine", 13 March 2017: Wendy Mackay
- IFIP TC13 & TC14 Open symposium (Paris) *Crafting movement in Digital Art and Human Computer Interaction*, 22 March 2017: Sarah Fdili Alaoui
- Wellesley College (Wellesley, MA, USA), "Towards a Unified Theory of Interaction", 20 April 2017: Wendy Mackay & Michel Beaudouin-Lafon
- Massachusetts Institute of Technology (Cambridge, MA, USA), "Towards a Unified Theory of Interaction", 20 April 2017: Wendy Mackay
- 10Pines (Buenos Aires, Argentina), "Design and Development of Interactive Systems", 20 April 2017: Germán Leiva

- 10Pines (Buenos Aires, Argentina), “*Designing cross-application instruments for supporting user appropriation*”, 20 April 2017: Carla Griggio
- Participatory Design Workshop, Olin College (Needham, MA, USA), “*Apps for Activists?*”, 21 April 2017: Wendy Mackay
- CITEP UBA (Buenos Aires, Argentina) “*Introduction to HCP*”, 25 April October 2017: Germán Leiva
- CITEP UBA (Buenos Aires, Argentina) “*Designing cross-application instruments for supporting user appropriation*”, 25 April October 2017: Carla Griggio
- Atelier Unibail-Rodamco, “*Créer des Partenariats Humain-Machine*”, 02 May 2017: Wendy Mackay
- CHI Stories, Invited Address, ACM CHI’17, “*Creating the First Interactive Video*”, 09 May 2017: Wendy Mackay
- Invited Address, University of British Columbia, “*Towards Unified Principles of Interaction*”, 09 May 2017: Wendy Mackay
- Dagstuhl Seminar, “*Computational Interactivity*”, 5 - 8 June 2017: Wanyu Liu (<http://www.dagstuhl.de/en/program/calendar/semhp/?semnr=17232>)
- Colloque 10 ans de l’ERC, Université Paris-Saclay, “*ONE: Unified Principles of Interaction*”, 9 June 2017: Michel Beaudouin-Lafon
- ERC CREATIVE Workshop, “*Towards a Unified Theory of Interaction*”, 13 June 2017: Wendy Mackay
- University of British Columbia (Canada), “*Towards Unified Principles of Interaction*”, 15 June 2017: Michel Beaudouin-Lafon
- Rencontres Jeunes Cherchers, Interaction Homme-Machine, “*Ethics and Experimental Protocols*”, 04 July 2017: Wendy Mackay
- Participatory Information Technology group, Aarhus University, “*Untangling Interactive Systems*”, 14 September 2017: Philip Tchernavskij
- Honoris Causa Invited Address, Aarhus University (Denmark), “*Human-Computer Partnerships*”, 14 September 2017: Wendy Mackay
- Aarhus University (Denmark), “*Towards Unified Principles of Interaction*”, 14 September 2017: Michel Beaudouin-Lafon
- Opening Keynote, 12th Biannual Conference of the Italian SIGCHI Chapter (CHIItaly 17), “*Towards Unified Principles of Interaction*”, 19 September 2017: Michel Beaudouin-Lafon
- Journées sur la Dynamique Interactionnelle du Geste DIG, CNRS, *Applying Laban Movement Analysis to craft movement in Digital Art and Human Computer Interaction*, 22 septembre 2017: Sarah Fdili Alaoui
- Journée LTCI , “*Bayesian Information Gain for Multiscale Navigation*”, 10 October 2017: Wanyu Liu
- Les object communicants dans l’écologie des enfants de 0 à 12 ans, MENESR-EHESS, “*Entre les enfants et les ordinateurs: Human Computer Interaction*”, 11 October 2017: Wendy Mackay
- ETH Zurich and University of Zurich, “*Understanding and Designing Interaction from an Information-Theoretic Perspective*”, 24 November 2017: Wanyu Liu
- Inria 50 Years Celebration, Robotics panel, 8 November 2017: Wendy Mackay
- Remise des Prix Doctorants, “*Bayesian Information Gain for Multiscale Navigation*”, 30 November 2017: Wanyu Liu
- Colloque “*Corps et Mobiles*”, Sorbonne Nouvelle, *Radical Choreographic Object*, 4-5 December 2017: Sarah Fdili Alaoui

- Meeting on Global Research Network, Casa Paganini Infomuse, Genova, 2017: Sarah Fdili Alaoui

### 9.1.5. Scientific Expertise

- European Research Council, Panel member for Starting Grants: Michel Beaudouin-Lafon
- CNRS Mission pour l'Interdisciplinarité, Panel member for the call "Sciences Sociales et Cognitives des Comportements Collectifs": Michel Beaudouin-Lafon
- CNRS INS2I, member of "Cellule ERC": Michel Beaudouin-Lafon
- ACM "Policy Award" committee member: Michel Beaudouin-Lafon
- ACM SIGCHI "Lifetime Service Award" committee member: Wendy Mackay

### 9.1.6. Research Administration

- CNRS INS2I, "Conseil Scientifique de l'Institut": Michel Beaudouin-Lafon (member)
- Telecom ParisTech "Comité de la recherche": Michel Beaudouin-Lafon (member)
- IRCAM Scientific Committee: Michel Beaudouin-Lafon (member)
- "Institut de la Société Numérique", IDEX Laboratory of Université Paris-Saclay: Michel Beaudouin-Lafon (member of steering committee)
- Pôle Systematic, Working group on Information Systems: Michel Beaudouin-Lafon (member of steering committee)
- Département STIC, Université Paris-Saclay: Wendy Mackay (member)
- "Conseil de Laboratoire", LRI: Wendy Mackay, Cédric Fleury (members)
- "Conseil Scientifique", LRI: Michel Beaudouin-Lafon (member)
- COERLE "Comité Operationnel d'Evaluation des Risques Légaux et Ethiques", Inria: Wendy Mackay
- CERNI "Comité d'Ethique pour les Recherches Non Interventionnelles", Université Paris-Sud: Wendy Mackay
- CCSU, "Commission Consultative de Spécialistes de l'Université", Université Paris-Sud: Michel Beaudouin-Lafon, Wendy Mackay (members)
- "Commission de Qualification pour Promotion et Changement, Professeur", Télécom Paris-Tech: Wendy Mackay (member)
- "Comité de sélection, Professeur", Université Paris-Sud: Wendy Mackay (member)
- "Comité de sélection, Maître de Conférences", Université Paris-Sud: Michel Beaudouin-Lafon (member)
- "Commission Locaux", LRI: Theophanis Tsandilas (member)
- "Commission Scientifique", Inria: Theophanis Tsandilas (member), since March 2017
- "User board" of the European project Wholodance: Sarah Fdili Alaoui, since June 2017

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : Sarah Fdili Alaoui, *Programmation des interfaces interactives avancées*, 22.5h, L3, Univ. Paris-Sud

International Masters: Theophanis Tsandilas, *Probabilities and Statistics*, 32h, M1, Univ. Paris-Saclay

HCID Masters: Sarah Fdili Alaoui, *Business Development Labs*, 30h, M1, Univ. Paris-Sud

HCID Masters: Sarah Fdili Alaoui, *Innovation & Entrepreneurship thesis*, 3h, M2, Univ. Paris-Sud

HCID Masters: Sarah Fdili Alaoui, *Design Project*, 36h, M1 et M2, Univ. Paris-Sud

HCID Masters: Michel Beaudouin-Lafon, Wendy Mackay, *Fundamentals of Situated Interaction*, 21 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Sarah Fdili Alaoui, *Stage en entreprise*, 2h, M2, Univ. Paris-Sud

Interaction & HCID Masters: Sarah Fdili Alaoui, *Creative Design*, 27h, M1 et M2, Univ. Paris-Sud

Interaction & HCID Masters: Sarah Fdili Alaoui, *Digital Fabrication*, 13,5h, M1 et M2, Univ. Paris-Sud

Interaction & HCID Masters: Michel Beaudouin-Lafon, *Fundamentals of Human-Computer Interaction*, 21 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Michel Beaudouin-Lafon & Cédric Fleury, *Groupware and Collaborative Interaction*, 31.5 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Wendy Mackay, *Career Seminar* 6 hrs, M2, Univ. Paris-Sud

Interaction & HCID Masters: Wendy Mackay, *Design of Interactive Systems*, 21 hrs, M1/M2, Univ. Paris-Sud

Interaction & HCID Masters: Wendy Mackay, *Advanced Design of Interactive Systems*, 21 hrs, M1/M2, Univ. Paris-Sud

Polytech: Sarah Fdili Alaoui, *Graphisme et Visualisation*, 18h, “Apprentis” 5th year, Univ. Paris-Sud

Polytech: Cédric Fleury, *Introduction à l’Informatique*, 71 hrs, 1st year, Univ. Paris-Sud

Polytech: Cédric Fleury, *Projet Java-Graphique-IHM*, 24 hrs, 3rd year, Univ. Paris-Sud

Polytech: Cédric Fleury, *Interaction Homme-Machine*, 18 hrs, 3rd year, Univ. Paris-Sud

Polytech: Cédric Fleury, *Réalité Virtuelle et Interaction*, 48 hrs, 5th year, Univ. Paris-Sud

### 9.2.2. Supervision

#### PhD students

PhD: Ignacio Avellino, *Supporting Collaborative Practices Across Wall-Sized Displays with Video-Mediated Communication*, Université Paris-Saclay, 12 December 2017. Advisors: Michel Beaudouin-Lafon & Cédric Fleury

PhD: Jessalyn Alvina, *Increasing The Expressive Power of Gesture-based Interaction on Mobile Devices*, Université Paris-Saclay, 13 December 2017. Advisor: Wendy Mackay

PhD: Nolwenn Maudet, *Designing Design Tools*, Université Paris-Saclay, 11 December 2017. Advisors: Wendy Mackay & Michel Beaudouin-Lafon

PhD in progress: Marianela Cioffi Felice, *Substrates and Co-adaptive Instruments for Creativity*, September 2015. Advisors: Wendy Mackay & Sarah Fdili Alaoui

PhD in progress: Carla Griggio, *Interactive Human-Machine Learning*, September 2015. Advisor: Wendy Mackay

PhD in progress: Germán Leiva, *Interaction-driven Software Development*, September 2015. Advisor: Michel Beaudouin-Lafon

PhD in progress: Wanyu Liu, *Modeling the speed-accuracy trade-off of pointing tasks using the tools of information theory*, October 2015. Advisors: Olivier Rioul (Institut Mines Telecom) & Michel Beaudouin-Lafon

PhD in progress: Yujiro Okuya, *Sensorimotor interface for Collaborative Virtual Environments based on heterogeneous interactive devices: application to industrial design*, October 2015. Advisors: Patrick Bourdot (LIMSI-CNRS) & Cédric Fleury

PhD in progress: Michael Wessely, *Sketching and Physical Prototyping for Creative Fabrication Design*, November 2015. Advisors: Theophanis Tsandilas & Wendy Mackay

PhD in progress: Stacy (Shu-Yuan) Hsueh, *Embodied design for Human-Computer Co-creation*, November 2015. Advisors: Wendy Mackay & Sarah Fdili Alaoui

PhD in progress: Philip Tchernavskij, *Towards Unified Principles of Interaction*, October 2016. Advisor: Michel Beaudouin-Lafon

PhD in progress: Jean-Philippe Rivière, *Embodied Design for Human-Computer Partnership in Learning Contexts*, October 2017. Advisors: Wendy Mackay & Sarah Fdili Alaoui

*Masters students*

Jiali Liu, Telecom ParisTech, “Cross-Surface Interaction”: Michel Beaudouin-Lafon & Philip Tchernavskij

Linghua Lai, Univ. Paris-Saclay, “VideoBoard: Video for Interaction Design”: Wendy Mackay & Germán Leiva

Chengcheng Qu, Univ. Paris-Saclay, “Animated Emojis: Creating Dynamic Expressions with Expressive Keyboards”: Wendy Mackay & Jessalyn Alvina

Jean-Philippe Rivière, Univ. Toulouse, “MoveOn: Understanding and Supporting Dance Skill Acquisition through Multimodal Interactive Technology”: Wendy Mackay & Sarah Fdili Alaoui

**9.2.3. Juries**

## PhD theses:

- Andrew Bluff, University of Technology Sydney (advisor: Andrew Johnston): Sarah Fdili Alaoui.
- Bart Potsma, LIMSI-CNRS, April 2017 (advisor: Brian Katz): Michel Beaudouin-Lafon, president.
- Samuel Delalez, Université Paris-Saclay, November 2017 (advisor: Christophe d’Alessandro): Wendy Mackay, president
- Maxime Guillon, LIG, November 2017 (advisor: Laurence Nigay): Michel Beaudouin-Lafon, reviewer.
- Hèlene Unaninski, Université de Toulouse, December 2017 (advisor: Stéphane Conversy): Wendy Mackay, reviewer

## Habitations:

- Caroline Appert, LRI, juin 2017: Michel Beaudouin-Lafon, examiner.
- Gilles Bailly, ISIR, octobre 2017: Michel Beaudouin-Lafon, examiner.
- Jean-Julien Aucouturier, IRCAM, novembre 2017: Michel Beaudouin-Lafon, president.

**9.3. Popularization**

- Interviews on France Culture, LCI, TV5 Monde on the standardization of the AZERTY and BEPO keyboards, June-July 2017, Michel Beaudouin-Lafon
- ACM UIST 17 Demonstration, “*CommandBoard: Creating a General-Purpose Command Gesture Input Space for Soft Keyboard*”, Jessalyn Alvina, Carla Griggio, Xiaojun Bi, Wendy Mackay
- Interview à France Culture, 22 Février 2017 @ France Culture *Machines au croisement du design et du numérique*: Nolwenn Maudet
- Demonstration at CEA Digital Days: Data Intelligence, CEA List, “*StickyLines*”, March 2017, Marianela Cioffi Felice & Wendy Mackay
- Demonstration at CEA Digital Days: Data Intelligence, CEA List, “*Expressive Keyboard*”, March 2017, Jessalyn Alvina & Wendy Mackay
- ACM SCF 2017 Poster Demonstration *Stretchis: Fabricating Highly Stretchable User Interfaces*: Michael Wessely
- Colloque l’Université Paris-Saclay fête les 10 ans de l’ERC, “*ONE - Unified Principles of Interaction*”, 9 June 2017: Michel Beaudouin-Lafon (presentation) and Philip Tchernavskij (poster)
- Presentation of the performance *Radical Choreographic Object*, April 2017 in Theatre de Villeneuve tolosane, September 2017 in Centre de développement Choreographique, October 2017 in Centre Bellegarde, November 2017 in Le 104 and December 2017 in Centre Bellegarde: Sarah Fdili Alaoui
- Presentation of the Performance *SKIN*, April 2017 in Scene 44 Pole Media, La friche de la belle, May 2017 in festival Curiositas, November 2017 in Attention Travaux, Culture en Essonne: Sarah Fdili Alaoui



- Scaling up for the Internet of Things, Workshop at Inria Silicon Valley, Berkeley, CA, USA: Wendy Mackay & Theophanis Tsandilas
- Intersections in Music, Movement, and Technology, 17–19 August 2017 *Workshop held at UC Berkeley*: John MacCallum (co-facilitator).
- Relational Listening, 8 July 2017 *Workshop presented at the Conference of Dance and Somatic Practices*: John MacCallum (co-facilitator).
- Relational Listening, 1–30 April 2017 *Workshop*: John MacCallum (co-facilitator).
- Relational Listening, 26 February 2017 *Workshop held at CLOUD/Danslab*: John MacCallum (co-facilitator).

## FLOWERS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- PY. Oudeyer has been general co-chair of the "Designing for curiosity" workshop at CHI 2017, Denver, Colorado, US;
- PY. Oudeyer has co-organized the 3rd International Symposium on Intrinsically Motivated Open-Ended Learning, Rome, Italy;
- PY. Oudeyer has co-organized the IEEE IJCNN 2017 Special Session on COGNITION AND DEVELOPMENT;
- D. Roy was general chair for the conference "Robotique et Education", Bordeaux, France.

#### 10.1.1.2. Member of the Organizing Committees

- PY. Oudeyer has been "Robotics Liaison" of IJCNN 2017, Anchorage, Alaska.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

- PY. Oudeyer has been in the conference program committee of IEEE ICDL-Epirob conference.

#### 10.1.2.2. Reviewer

- David Filliat was reviewer for the IROS, ECMR, ICDL, HRI, ICRA conferences.
- Sébastien Forestier was reviewer for IEEE ICDL-Epirob, ICRA
- Natalia Díaz Rodríguez was reviewer for JAIR 2017 (Journal of AI Research) and Area Chair (meta-reviewer) for WIML 2017 (Women in Machine Learning Workshops at NIPS 2017).

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- PY. Oudeyer was associate editor of IEEE Transactions on CDS and Frontiers in Neurorobotics.

#### 10.1.3.2. Reviewer - Reviewing Activities

- David Filliat was reviewer for IEEE Transaction on Robotics, IEEE Transactions on Cognitive and Developmental Systems, Robotics and Automation Letters.
- O. Sigaud has been a reviewer for the Autonomous Robots journal and for the ICLR and the NIPS conferences
- PY. Oudeyer has been a reviewer for the journals IEEE Transactions on CDS and Child and Development Perspectives.

### 10.1.4. Invited Talks

- David Filliat gave an invited presentation "Autonomous Learning and AI for interactive Robotics" during the 50 years of Inria event on november 8th.
- O. Sigaud gave an invited presentation "Deep Learning for Robotics: Promises and Issues" at the Journées Nationales de la Recherche en Robotique on november 16th.
- O. Sigaud gave an invited presentation "Towards developmental discovery of objects in dynamical scenes" at the workshop on Intrinsically Motivated Open-Ended Learning, Rome, Italy, 9th october

- PY. Oudeyer gave an invited presentation "Intrinsically Motivated Goal Exploration Processes" at the workshop on Intrinsically Motivated Open-Ended Learning, Rome, Italy, 9th October;
- PY. Oudeyer gave an invited presentation "Computational Models of Human Cognitive Development" at the 29th Eleanor Gibson lecture, Cornell Univ., US, April,
- PY. Oudeyer gave an invited presentation "Models of curiosity-driven learning" at Univ. Rochester, US, April.
- PY. Oudeyer gave an invited presentation "Curiosity-driven learning and language acquisition" at the workshop on language acquisition at IEEE ICDL-Epirob, Lisbon, Portugal, Sept.;
- PY. Oudeyer gave an invited presentation "Robotique Pédagogique" at the Journées Nationales de la Recherche en Robotique on November 16th.
- PY. Oudeyer gave an invited presentation "Intrinsically motivated learning and curiosity in humans and robots" at the "Designing for curiosity" workshop at CHI 2017, Denver, US;

### 10.1.5. Leadership within the Scientific Community

- Natalia Díaz Rodríguez attended and organized a workshop within the Heidelberg Laureate Forum Sept. 2017 on Machine learning and Human-Computer Interaction.
- PY. Oudeyer co-organized the "Designing for curiosity" workshop at CHI 2017 (Denver, US), the IMOL 2017 workshop (Rome, Italy), and was co-editor of the special issue on "Modeling play in early infant development" in *Frontiers in Psychology*.
- PY. Oudeyer has been editor of the IEEE CIS Newsletter on Cognitive and Developmental systems, organizing two interdisciplinary dialogs, see <https://openlab-flowers.inria.fr/t/ieee-cis-newsletter-on-cognitive-and-developmental-systems/129>.

### 10.1.6. Scientific Expertise

- PY. Oudeyer has been a reviewer for the European Commission (FET program).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

License: Introduction to Matlab, 21 heures. L3, ENSTA - ParisTech (David Filliat).

Master: Robotique Mobile, 21 heures. M2, ENSTA - ParisTech (David Filliat).

Master: Perception pour la Robotique, 6 heures. M2, ENSTA - ParisTech (David Filliat).

Master: Perception pour la robotique, 12 heures. M2 Systemes Avances et Robotique, University Pierre et Marie Curie (David Filliat)

Master: Perception pour la Robotique Développementale, 3 hours, CogMaster (David Filliat)

Licence Informatique, 64h Bordeaux University (Sébastien Forestier)

Master: Perception pour les systemes autonomes (ROB313), 7.50 h. Natalia Díaz Rodríguez

Master: Projet Informatique (IN104), 18.25h. Natalia Díaz Rodríguez.

Master: Cours de robotique développementale, option robot, ENSEIRB (2h), PY. Oudeyer

### 10.2.2. Supervision

PhD in progress: Cédric Colas, Algorithms for intrinsically motivated goal exploration (superv. P-Y. Oudeyer)

PhD in progress: Sébastien Forestier, Models of curiosity-driven learning of tool use and speech development, started in sept. 2015 (superv. P-Y. Oudeyer)

PhD in progress: William Schueller, Study of the impact of active learning and teaching in naming games dynamics, started in sept. 2015 (superv. P-Y. Oudeyer)

PhD in progress: Thibault Desprez, Design and study of the impact of educational robotic kits in computer science education, started in dec. 2016 (superv. P-Y. Oudeyer)

PY. Oudeyer supervised a team of computer and pedagogical engineers and researchers for the project Poppy Education (Didier Roy, Stéphanie Noirpoudre, Théo Segonds, Damien Caselli)

PhD in progress: Benjamin Clement, Intelligent Tutoring Systems, started oct 2015 (superv. Manuel Lopes and Pierre-Yves Oudeyer).

PhD: Thibaut Munzer, Learning from Instruction, defended (superv. Manuel Lopes).

PhD in progress: Baptiste Busch, Interactive Learning, started oct 2014 (superv. Manuel Lopes).

PhD in progress: Alexandra Delmas, Auto-Apprentissage Auto-Adaptable pour la compliance au traitement, started oct 2014 (superv. Manuel Lopes).

PhD: Yuxin Chen, Interactive learning of objects and names on a humanoid robot, defended 02/2017 (superv. David Filliat).

PhD: Celine Craye, Curiosity and visual attention for the guidance of an exploration robot, defended 04/2017 (superv. David Filliat).

PhD: Joris Guery, Robust visual recognition by artificial neural networks in robotic exploration scenarios, defended 11/2017 (superv. David Filliat and Bertrand Le Saulx (ONERA))

PhD in progress: Adrien Matricon : Task dependent visual feature selection for optimising and generalizing robotics skills (superv. David Filliat, Pierre-Yves Oudeyer).

PhD in progress: José Magno Mendes Filho, Planning and control of an autonomous AGV in environment shared with humans, started Oct. 2015 (superv. David Filliat and Eric Lucet (CEA))

PhD in progress: Timothée Lesort, Incremental Deep Learning for Detection and Classification in a Robotic Context. started june 2017 (superv. David Filliat and Jean-Francois Goudou (THALES)).

PhD in progress: Vyshakh Palli Thazha, Data fusion for autonomous vehicles. started sept 2017 (superv. David Filliat and Hervé Illy (Renault)).

### 10.2.3. Juries

David Filliat was in the jury of Housseem Nouira (20/04/2017, Examineur) : Affinement de relevés laser mobiles issus de Lidars multi-couches

David Filliat was in the jury of Quan Nguyen (06/10/2017, Rapporteur) : Mapping of a sound environment by a mobile robot

David Filliat was in the jury of Vijaya kumar Ghorpade (20/12/2017, Examineur) : 3D Semantic mapping for indoor navigation

PY. Oudeyer was in the PhD juries of Céline Craye (ENSTA), Gabriel Sulem (ENS), Arthur Prat-Carrabin (ENS), Miquel Cornudella (ENS)

PY. Oudeyer was in the HdR jury of Alexandre Pitti (Univ. Cergy Pontoise)

## 10.3. Popularization

### 10.3.1. Duties

D. Roy is member of the Class'code team (Inria is member of the consortium of this project) <https://pixees.fr/classcode/accueil/>. Class'code is a blended formation for teachers and animators who aim to initiate young people to computer science and robotics. D. Roy has in charge the robotics module of the project.

D. Roy is adviser of the organization of computer science exhibition in "Palais de la découverte" which will begin on 2018 March. He helps for robotics part.

D. Roy is member of the team "Education en Scène" which organize educational activities with robotics in Bordeaux Digital City.

D. Roy is member of the scientific committee of "Didapro Didastic" Conference which will be held in Lausanne (Switzerland) on 2018 February.

D. Roy is member of the Robocup Junior French committee, an international robotics challenge <http://rcj.robocup.org/>.

D. Roy is member of the scientific committee of "Ludovia CH" Conference which will be held in Yverdon (Switzerland) on 2018 March.

D. Roy is project leader of Thymio Simulator for Classcode project. Specifications and coordination of work.

D. Roy is project leader of Thymio Scratch and Thymio Snap! development, with D. Sherman. Inria, EPFL and Mobsya collaboration.

PY. Oudeyer continued to be the PI of the Poppy Education project.

### 10.3.2. Online content

Stephanie Noirpoudre. Atelier Poppy Ergo Jr au CERN. Description and feedback of a workshop on the construction and programming of the robotic arm Poppy Ergo Jr as part of the Coding Pi Science Event. [83]

Stephanie Noirpoudre. Robotic workshop at CERN. Description and feedback of a workshop on the construction and programming of the robotic arm Poppy Ergo Jr as part of the Coding Pi Science Event. [84]

Stephanie Noirpoudre, Kelian Schindowsky. Poppy Education présent à la journée EIDOS 64 : Le forum des pratiques numériques pour l'éducation. Description and feedback of the 9th edition of the EIDOS64 day (the digital practice forum for education). [85]

Sylvain Soulard, Kelian Schindowsky. Description of activity "Modeling of the Port of Rotterdam" using the robot arm Poppy Ergo Jr and created by Sylvain Soulard, middle school teacher in technology. He started the problem: how to optimize and secure the transport of containers in a commercial port? [88]

Kelian Schindowsky. Un projet étudiant : des mains pour Poppy Torso ! Utilisation de la plateforme Poppy pour un projet étudiant. A use of the Poppy platform for a student project: 4 Poppy Torso robots modified by the students of the Bordeaux-Talence campus clashed in the large amphitheater. A competition of a new kind including free figures and imposed figures. [87]

Kelian Schindowsky. Des roues pour le robot Poppy Torso : New Bachelor of Technology students from ENSAM (Talence) worked on the Poppy Torso robot, the goal this time was to equip it with a mobile platform. [86]

### 10.3.3. Teaching and Education

#### 10.3.3.1. Poppy Education

January 2017, meeting with partner teachers

March 2017, meeting with partner teachers

March 2017, training day with new teachers partners - Building and programming the robot Poppy Ergo Jr

May 2017, meeting with partner teachers

September 2017, meeting with partner teachers

June 2017, training day with workers from Cap'Metier and Cultures électroniques (for scientific mediation purpose) to initiate to robotic - Building and programming the robot Poppy Ergo Jr

#### 10.3.3.2. Inirobot

May 2017, Plan national de formation organised by La main à la pâte (Paris): D. ROY - Train future trainers to inirobot curriculum

April 2017, Training days organized by Main à la pâte for National Education (CEA Saclay): T. Desprez, S. Noirpoudre, D. Roy, Théo Segonds - Train a group of teachers to inirobot

### 10.3.4. Talks and Hands-on

#### 10.3.4.1. KidBreath

Ma Thèse en 180 secondes, March 2017, Bordeaux, France, A. Delmas (oral presentation),  
La nuit européenne des chercheurs, September 2017, Bordeaux, France, A. Delmas (oral presentation).

#### 10.3.4.2. Poppy Education

January 2017, Eidos64 event - Le forum des pratiques numériques pour l'éducation (Lons): S. Noirpoudre, K. Schindowsky - Talk to present Poppy Education

Janvier 2017, Visit organized by Le Conseil Départemental des Jeunes (Inria Bordeaux Sud-Ouest): S. Noirpoudre - Programming workshops (for middle school students) to initiate in programmation with Poppy Ergo Jr robot

January 2017, Robotics training day organised by Maison pour la Science (Inria Bordeaux Sud-Ouest): S. Noirpoudre, T. Desprez - Programming workshop (for futur trainers) to initiate in programmation with Poppy Ergo Jr robot

January 2017, R2T2 AmeriCarabean (island of Martinique) : D. Roy - Co-organization with EPFL and ESPE of Martinique - International event (Mexico, Quebec, Guyane, Sainte Lucie) about robotics for education <http://www.reseau-espe.fr/actualites/espe-de-martinique-le-defi-r2t2-americaire-ete-releve>

March 2017, Education exhibition Eduspot (Paris): S. Noirpoudre - Exhibition stand to present the robotic platform Poppy and the use in Education

March 2017, Le printemps de la mixité event (Inria Bordeaux Sud-Ouest): S. Noirpoudre - Robotics workshops (for high school students) to initiate in programmation with Poppy Ergo Jr robot

April 2017, Training days organized by Main à la pâte for National Education (CEA Saclay): T. Desprez, S. Noirpoudre, D. Roy, Théo Segonds - Train a group of teachers to robotics and programmation with Poppy Ergo Jr robot

May 2017, Plan national de formation organised by La main à la pâte (Paris): S. Noirpoudre - Talk to present Poppy Education project and Poppy Ergo Jr

May 2017, Innorobo (Paris): S. Noirpoudre, K. Schindowsky, T. Segonds, D. Roy: Exhibition stand to present the robotics platform Poppy and the use in Education

May 2017, Innorobo Robotics and Education Forum (Paris): S. Noirpoudre - Talk to present Poppy Education and the robot Poppy Ergo Jr

May 2017, Robot makers'day (Talence): K. Schindowsky - Exhibition stand to present Poppy Education and Poppy robots

May 2017, RII Santiago (Santiago de Chile, Chile): T. Segonds - Exhibition stand to present Poppy Education and Poppy robots - Event organized by Inria Chile

May 2017, Bordeaux Geek Festival (Bordeaux): K. Schindowsky - Workshops to initiate in programming

May 2017, P.Y. Oudeyer gave an invited presentation on "Robotics and cognitive sciences" at Festival Filosofia, St. Emilion, France

June 2017, Internships: observation Sequence for Grade 3 Students (Inria Bordeaux Sud-Ouest - Welcomed two students from middle-school during a week to discover the working environment and to introduce them to robotics

June 2017, Robotics workshop for a primary class (Inria Bordeaux Sud-Ouest): S. Noirpoudre, T. Desprez - Poppy Education and inirobot workshops

- June 2017, EIAH : Environnements informatiques pour l'apprentissage humain (Strasbourg): S. Noirpoudre, T. Desprez - Talk to present the article "Poppy Education : un dispositif robotique open source pour l'enseignement de l'informatique et de la robotique"
- June 2017, EIAH : Environnements informatiques pour l'apprentissage humain (Strasbourg): T. Desprez, S. Noirpoudre - Exhibition stand to present the robotics platform Poppy and the use in Education
- June 2017, Rencontre avenir numérique alsace (strasbourg): S. Noirpoudre - Talk in videoconference to present Poppy Education and the robot Poppy Ergo Jr
- June 2017, Playback of "Poppy entre dans la danse" project (Le Cuvier, Artigues-près-Bordeaux): T. Depez, T. Segonds - Technical assistance of a secondary school performance melting danse and robotics
- July 2017, Symposium Education and Robotics (Bordeaux): D. Roy (coordinator) and Flowers Team Members - Organization of the colloquium
- July 2017, Symposium Education and Robotics (Bordeaux): S. Noirpoudre - Talk to present Poppy Education project
- July 2017, Symposium Education and Robotics (Bordeaux): P.Y. Oudeyer - Talk to present Flowers educational robotics projects
- July 2017, Symposium Education and Robotics (Bordeaux): S. Noirpoudre - Exhibition stand to present the robotics platform Poppy and the use in Education
- July 2017, 10th International Scratch conference (Bordeaux): D. Roy - Member of the Scratch organizing committee, member of the scientific committee - the conference organization begun on december 2017
- July 2017, 10th International Scratch conference (Bordeaux): T. Segonds - Talk to present Poppy Education project
- July 2017, 10th International Scratch conference (Bordeaux): S. Noirpoudre - Exhibition stand to present the robotics platform Poppy and the use in Education
- August 2017, Fab13 Fabricating Society Conference (Santiago de Chile, Chile): T. Segonds - Talk on Poppy Education - Two days workshop on using and modifying Poppy robots
- August 2017, Ludovia Conference (Ax-Les-Thermes): D. Roy - PArtnership with Region Nouvelle Aquitaine and Académie of Bordeaux for an exhibition stand with Poppy Education - Exhibitions, demos, talks
- October 2017, Coding Pi Science Days (CERN and Hepia engineering school at Geneva): T. Segonds, T. Desprez - Talk to present the robotics platform Poppy and the use in Education - Three days robotics workshops on building and programming a Poppy Ergo Jr robot
- October 2017, Fête de la science (Inria Bordeaux Sud-Ouest): D. Roy - special event with a robotics workshop and several demos at Inria Center, with members of staff of Bordeaux Metropole and polotical actors
- October 2017, Fête de la science (Inria Bordeaux Sud-Ouest): T. Segonds, T. Desprez - 8 programming workshop in 2 days (with middle school students) using Snap! and the robot Poppy Ergo Jr
- November 2017, JNRR (National Days of Robotics Reseach, Biarritz): D. Roy (moderator), P.-Y. Oudeyer (speaker) - Talk on Educational Robotics -
- December 2017, Digital Tech Rennes (Rennes): T. Segonds, B. Busch - Talk on Poppy Education - Poppy Ergo Jr programming workshop
- December 2017, Aperobot Bordeaux (Bordeaux): T. Segonds - Poppy Ergo Jr programming workshop
- December 2017, Internships: observation Sequence for Grade 3 Students (Inria Bordeaux Sud-Ouest) - Welcomed three students from middle-school during a week to discover the working environment and to introduce them to robotics

#### 10.3.4.3. Other

Members of the Flowers team participated to many interviews and documentaries for the press, the radio and television.

### 10.3.5. Popularizing inside Inria

- March 2017, training day with Inria workers from scientific mediation - Building and programming the robot Poppy Ergo Jr
- October 2017, DevDays (Inria Bordeaux Sud-Ouest): D. Caselli - Presentation of the hotspot tool used in Poppy Ergo Jr robot
- December 2017, Séminaire de la médiation Inria (CNAM, Paris): T. Segonds, S. Noirpoudre, D. Roy - Poppy Ergo Jr programming workshop for people involving in scientific outreach of Inria

### 10.3.6. Creation of Material for Popularization

As part of the Poppy Education project, thanks the robotic platform Poppy we created pedagogical kits open-source and low cost for teaching computer science and robotics. It is designed to help young people to take ownership with concepts and technologies of the digital world.

The Pedagogical kits includes robots and pedagogical resources. They have been co-created directly with users (mainly high schools teachers) and evaluated in real life by experiments in classrooms [81].

The activities were designed with the visual programming language Snap! (Scratch like) and Python, but some are in Java / Processing (thanks the robot API you can use the language of your choice).

Most activities are using the robot Poppy Ergo Jr, but some use Poppy Torso (mostly in higher school because of its cost) and Poppy Humanoid (in kinder-garden for dance projects) :

- The Poppy Ergo Jr robot is a small and low cost 6-degree-of-freedom robot arm. It consists of simple shapes which can be easily 3D printed. It has several 3D printed tools extending its capabilities (there are currently the lampshade, the gripper and a pen holder but you can design new ones). They are assembled via rivets which can be removed and added very quickly with the OLLO tool. Each motor has LEDs on (8 different color can be activated). The electronic card (raspberry Pi) is visible next to the robot, that allow to manipulate, and plug extra sensors.
- The Poppy Torso robot is an open-source humanoid robot torso which can be installed easily on tabletops. More affordable than the robot Poppy Humanoid, it is an ideal medium to learn science, technology, engineering and mathematics.

We continued to improve the robots functionalities and you can see below the resources we created :

- A website have been created to present the project and to share all resources and activities.  
<https://www.poppy-education.org/>
- To complete the pedagogical booklet [48] that provides guided activities and small challenges to become familiar with Poppy Ergo Jr robot and the Programming language Snap! (<https://drive.google.com/file/d/0B2jV8VX-IQHwTUxXZjF3OGxHVGGM/view>) we provided a list of Education projects. Educational projects have been written for each activity carried out and tested in class. So each projects have its own web page including resources allowing any other teacher to carry out the activity (description, pedagogical sheet, photos / videos, pupil's sheet, teacher's sheet with correction etc.). Their is now 32 activities documented available on Poppy Education website.

You can see the activities on this links (in french):

- Introduction to Ergo Jr and Snap! :  
<https://www.poppy-education.org/activites/initiation-ergo-jr-et-snap>
- Ergo Jr and Python tutorials :  
<https://www.poppy-education.org/activites/tuto-python-robot-ergojr>
- High-school levels :  
[www.poppy-education.org/activites/activites-lycee](http://www.poppy-education.org/activites/activites-lycee)
- Middle-school level :  
[www.poppy-education.org/activites/activites-college](http://www.poppy-education.org/activites/activites-college)
- Primary Schools level :



<https://www.poppy-education.org/activites/activites-primaire/>

- Demonstrations (just videos to show the possibilities) :  
<https://www.poppy-education.org/activites/demos/>
- We continued to improve the documentation of the robotic platform Poppy (<https://docs.poppy-project.org/en/>) and the documentation has been translated into French (<https://docs.poppy-project.org/fr/>).
- A FAQ have been written with the most frequents questions to help users: <https://www.poppy-education.org/aide/>

### ***10.3.7. Innovation and transfer***

- Since 1 september 2017 until february 2019, PerPoppy and Poppy Station Projects : D. Roy, P.-Y. Oudeyer. These projects aim to perpetuate the Poppy robot ecosystem by creating an external structure from outside Inria, with various partners. After the Poppy Robot Project, the Poppy Education Project is ending and Inria doesn't

Many exchanges have already taken place with potential partners such as the EPFL, the ENSAM network, the «Ligue de l'Enseignement», Génération Robots, the French Institute of Education, several academies, the direction of digital education of the Ministry of Education, ... PerPoppy is the project which is building the new structure, and Poppy Station is the name of the new structure. Poppy Station, which will include Poppy robot ecosystem (hardware, software, community) from the beginning, will be a place of excellence to build future educational robots and to design pedagogical activities to teach computer science, robotics and Artificial Intelligence.

## FLUMINANCE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- J. Erhel organizes with J-R. de Dreuzy and T. Le Borgne the international conference CWMR (Saint-Malo, France, June 2018).
- E. Mémin organizes the national colloquium on data assimilation (Rennes, september 2018).

#### 10.1.1.2. Member of the Organizing Committees

Jocelyne Erhel

- organizes with J-R. de Dreuzy and T. Le Borgne (OSUR) the international conference CWMR (Saint-Malo, France, June 2018).
- organizes with T. Faney and A. Michel (IFPEN) a workshop on reactive transport (Paris, France, February 2018).

Etienne Mémin

- "Data Science & Environment", workshop + summer school, 3-7 July 2017, Brest, France

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

Jocelyne Erhel

- international advisory committee of the parallel CFD conferences (Glasgow, UK, May 2017).
- program committee of the international conference PARENG 2017 (Pecs, Hungary, May 2017).
- program committee of the workshop Visualization in Environmental Sciences 2017 (co-event of EuroVis)

Cedric Herzet

- Co-organisateur & co-chair of the special session: « Compressed sensing et inversion » of the Grestsi 2017

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

Jocelyne Erhel

- member of the editorial board of ETNA.
- member of the editorial board of ESAIM:Proceedings and Surveys.

Etienne Mémin

- Associate editor for the Int. Journal of Computer Vision (IJCV)
- Associate editor for the Image and Vision Computing Journal (IVC)

#### 10.1.3.2. Reviewer - Reviewing Activities

Jocelyne Erhel: Reviewer for the journals ADWR, ARIMA, JCAM, MATCOM

Dominique Heitz: Reviewer for Exp. in Fluids, SIGGRAPH, ICPMS, Im. Vis. Comp.

Cédric Herzet: Reviewer for IEEE Tr. on Signal Processing, IEEE Tr. on Information Theory, Grestsi 2017, ICASSP 2017

Etienne Mémin: Reviewer for Tellus-A, Journ. of Fluid Mech., Im. Vis. Comp., Exp. in Fluids, Nonlinear Proc. in Geophysics., Journ. of Comp. Phys.

#### **10.1.4. Invited Talks**

Dominique Heitz

- 2nd Workshop on Data Assimilation & CFD Processing for PIV and Lagrangian Particle Tracking, Delft, Nederland, 13-14, December, 2017.
- Journée Technique 41- Association Française de Vélométrie Laser, Meudon, France, May 11, 2017.

Cédric Herzet

- Séminaire, LIMSI Model Reduction from Partial Observations Jan. 2017
- Séminaire, IMT Atlantique, nov. 2017
- Séminaire, UMR Lab-sticc, Brest, avril 2017

Roger Lewandowski

- Colloquium Univ. Pisa, May 2017.

Etienne Mémin

- AFVL, Meudon, Stratégies d'assimilation de données pour la reconstruction d'écoulements, France, March 2017
- Imperial College, Math. for Planet Earth Centre for doctoral training, Stochastic representation of fluid flow dynamics, November 2017.
- Imperial College, London (UK), Math. for Planet Earth Centre for doctoral training, Stochastic representation of fluid flow dynamics, Nov. 2017.
- Center for Earth System Research and Sustainability, Hamburg (Ger.), Stochastic representation of fluid flow dynamics, Dec. 2017.
- Université de Grenoble, Comodo workshop, Stochastic representation of fluid flow dynamics, Dec. 2017.

#### **10.1.5. Leadership within the Scientific Community**

- J. Erhel is scientific coordinator of the website Interstices (since June 2012). <https://interstices.info>.

#### **10.1.6. Scientific Expertise**

- J. Erhel is a member of the scientific council of IFPEN, since April 2016.
- C. Herzet was reviewer for ANR.

#### **10.1.7. Research Administration**

Jocelyne Erhel

- correspondent of Maison de la Simulation for Inria Rennes.
- correspondent of AMIES for Inria Rennes, from September 2015.
- member of the Inria national committee for secondment, 2016.
- coordination of the working group for a team creation at Inria Rennes.
- member of the Inria local committee for health and safety (réfèrent chercheur) from January 2016.
- member of the Inria administrative commission (CAP) for researchers, from January 2016.

Dominique Heitz

- Responsible of the Irstea ACTA Team
- Member of Pôle Cristal scientific council
- Member of Irstea OPAALE research unit Executive Committee
- Member of Irstea center of Rennes Executive Committee

Roger Lewandowski

- Elected president of the SMAI-GAMNI thematic group on Advances of Engineering Numerical Methods
- Correspondant SMAI

Etienne Mémin

- Responsible of the "Commission Développement Technologique" Inria Rennes
- Member of the "Commission Personnel" Inria-IRISA Rennes

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence: Jocelyne Erhel, Optimisation, 24h, niveau L3, ENSAI Rennes

Licence : Dominique Heitz, Mécanique des fluides, 30h, niveau L2 INSA Rennes

Master: Jocelyne Erhel, arithmétique flottante, 4h, niveau M1, INSA Rennes

Master : Dominique Heitz, Mécanique des fluides, 25h, niveau M1, Dep GMA INSA Rennes

Master : Cédric Herzet, « Smart Sensing », 24h, master international « Smart Sensing and Big Data », ENSAI

Master : Cédric Herzet, Représentations parcimonieuses et compressed sensing, niveau M2, niveau M2, INSA, 10h

Master: Roger Lewandowski, Euler and the Navier-Stokes equations, M2, master « fondamentale mathematics ».

Master : Etienne Mémin, Analyse du mouvement, Mastere Informatique, 15h, niveau M2, Université de Rennes 1.

Master : Etienne Mémin, Vision par ordinateur , 15h, niveau M2, ESIR Université de Rennes 1.

### 10.2.2. Supervision

PhD in progress: Pierre-Marie Gibert, University of Lyon, October 2015, co-advisors D. Tromeur-Dervout and Jocelyne Erhel.

PhD in progress: Bastien Hamlat, University of Rennes 1, October 2016, co-advisors Jocelyne Erhel and A. Michel.

PhD in progress : Benoit Pinier, Scale similarity and uncertainty for Ocean-Atmosphere coupled models, started 01/10/2014, supervisors: Roger Lewandowski, Etienne Mémin

PhD in progress : Musaab Khalid Osman Mohammed, Motion analysis techniques for flood images, started february 2015, Lionel Penard (Irstea/Lyon) and Etienne Mémin

PhD in progress : Pranav Chandamouli, Turbulent complex flows reconstruction via data assimilation in large eddy models, started october 2015, Dominique Heitz, Etienne Mémin.

PhD in progress : Romain Schuster, Large-scale fluid motion estimation, started october 2016, Dominique Heitz, Etienne Mémin.

PhD in progress : Long Li, Data assimilation and stochastic transport for the upper ocean dynamics, started november 2017, Etienne Mémin.

PhD in progress : Yacine Ben Ali, Variational assimilation of RANS models for wind engineering, started november 2017, Dominique Heitz, Etienne Mémin.

PhD in progress : Dinh Duong Nguyen, Regular and singular solutions of Navier-Stokes equations with eddy viscosity, started in september 2017 , Roger Lewandowski.

### 10.2.3. Juries

Johan Carlier

- Kevin Chatelain, PhD, Polytech'Orléans, (examineur)

Jocelyne Erhel

- Martin Bachet, PhD, Univ. PSL Mines ParisTech (rapporteur)
- Daniel Jara Heredia, PhD, Univ. Rennes (présidente)
- Antoine Plet, PhD, ENS Lyon (présidente)
- Tangi Migot, PhD, INSA Rennes (examinatrice)

Dominique Heitz

- Robin Yegavian, PhD Ecole Polytechnique (Rapporteur)

Cédric Herzet

- Jean-François Determe PhD université catholique de Louvain, Belgique( Examineur)

Roger Lewandowski

- Charles Pelletier, PhD Univ. Grenoble Alpes( Rapporteur)

Etienne Mémin

- Olivier Barrois, PhD Univ. Grenoble Alpes( Rapporteur)
- Jean-Matthieu Haussaire, PhD Univ. Paris-Est (Examineur),

### **10.3. Popularization**

Jocelyne Erhel

- présidente du jury du rallye de mathématiques du CNED, 2017 and 2018.
- First prize of the second Mathematics of Planet Earth international competition. Module "Simulating the melting of ice caps", authors M. Nodet and J. Erhel.

Dominique Heitz

- Interview dans L'Usine Nouvelle, No 3479, pp. 30-31, 2016

## FOCUS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

I. Lanese: Scientific coordinator of the International Training School on Reversible Computation (28-31/8/2017, Torun, Poland), organized by the COST Action IC1405 on Reversible Computation - Extending Horizons of Computing

#### 9.1.1.2. Member of the Organizing Committees (conferences and schools)

S. Giallorenzo: Publicity Chair for 1st Conference on Microservices 2017 (Microservices 2017)

I. Lanese: Publicity Chair for 12th International Federated Conference on Distributed Computing Techniques (DisCoTec 2017)

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

M. Bravetti: 15th International Conference on Software Engineering and Formal Methods (SEFM 2017); 2017 IEEE International Conference on Big Data (IEEE BigData 2017); 29th IFIP International Conference on Testing Software and Systems (ICTSS 2017).

U. Dal Lago: 26th Annual Conference of the European Association for Computer Science Logic (CSL 2017); 2nd International Conference on Formal Structures for Computation and Deduction (FSCD 2017).

S. Giallorenzo: 32nd Annual ACM/SIGAPP Symposium On Applied Computing (SAC 2017)

I. Lanese: 14th International Conference on Formal Aspects of Component Software (FACS 2017); 9th Conference on Reversible Computation (RC 2017); 10th Interaction and Concurrency Experience (ICE 2017).

S. Martini: 14th Annual Conference on Theory and Applications of Models of Computation (TAMC 2017); Fourth International Conference on History and Philosophy of Computing (HAPOC 2017); DIDAMATICA - Informatica per la Didattica (DIDAMATICA 2017).

D. Sangiorgi: 11th edition A.P. Ershov Informatics Conference (PSI Conference Series); 11th Int. Conference on Language and Automata Theory and Applications (LATA); 28th International Conference on Concurrency Theory (CONCUR 2017); 18th Italian Conference on Theoretical Computer Science (ICTCS 2017); 45th ACM SIGPLAN Symposium on Principles of Programming Languages (POPL).

G. Zavattaro: 5th International Workshop on Foundations of Coordination Languages and Self-Adaptive Systems (FOCLASA 2017), Trento, Italy, 6–10 September, 2017; 6th European Conference on Service-oriented and Cloud Computing (ESOCC'17), Oslo, Norway, 27–29 September, 2017; 28th International Conference on Concurrency Theory (CONCUR'17), Berlin, Germany, 5–8 September 2017.

#### 9.1.2.2. Member of the Editorial Boards

U. Dal Lago: Logical Methods in Computer Science; Mathematical Structures in Computer Science.

M. Gabbrielli: Int. Journal Theory and Practice of Logic Programming.

C. Laneve: Frontiers in ICT (Section Formal Methods).

I. Lanese: Editor in chief of the Open Journal of Communications and Software (Scientific Online).

D. Sangiorgi: Acta Informatica, Distributed Computing, RAIRO Theoretical Informatics and Applications.

### 9.1.3. Invited Talks

U. Dal Lago: lecturer at the International School “A Brief Introduction to Probabilistic and Quantum Programming”, Universidade do Minho.

I. Lanese: lecturer at the International Training School on Reversible Computation (28-31/8/2017, Torun, Poland), organized by the COST Action IC1405 on Reversible Computation - Extending Horizons of Computing

D. Sangiorgi: invited talk at the event “Celebrating 20 years of IRAFS (The International Research Area on Foundations of the Sciences)”, Pontifical Lateran University, Rome.

G. Zavattaro: Invited talk at ‘15th International Workshop on Foundations of Coordination Languages and Self-Adaptative Systems (FOCLASA’17)’.

### 9.1.4. Leadership within the Scientific Community

U. Dal Lago has been elected member of the Scientific Council of the Italian Chapter IC-EATCS (November 2017).

S. Martini is a member of the Executive Board of EQANIE (European Quality Assurance Network for Informatics Education); he has been nominated vice-president, starting 1 January 2018.

S. Martini is a member of the Council of the Commission on History and Philosophy of Computing, an organism of the International Union for History and Philosophy of Science, 2017-2021.

S. Martini is a member of the Board of CINI (Italian National Interuniversity Consortium for Informatics), designated by the Ministry for Semplificazione e Pubblica Amministrazione, from 2015.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Mario Bravetti
  - Master: “Linguaggi, Compilatori e Modelli Computazionali”, 120 hours, 1st year, University of Bologna, Italy.
- Ugo Dal Lago
  - Undergraduate: “Introduction to Programming in Python”, 20 hours, 1st year, University of Bologna, Italy.
  - Undergraduate: “Optimization”, 36 hours, 2nd year, University of Bologna, Italy.
  - Master: “Foundations of Logic for Computer Science”, 24 Hours, 2nd year. University of Bologna, Italy.
  - Master: “Cryptography”, 36 Hours, 2nd year, University of Bologna, Italy.
- Maurizio Gabbrielli
  - Undergraduate: “Programming languages”, 40 hours, 2nd year, University of Bologna, Italy.
  - Master: “Artificial Intelligence”, 60 hours, 2nd year, University of Bologna, Italy.
- Saverio Giallorenzo
  - Undergraduate: “Laboratorio di Operating Systems”, 40 hours, 2nd year, University of Bologna, Italy.
- Ivan Lanese
  - Undergraduate: “Architettura degli Elaboratori”, 56 hours, 1st year, University of Bologna, Italy.

Master: “Ingegneria del Software Orientata ai Servizi”, 22 hours, 2nd year, University of Bologna, Italy.

- Cosimo Laneve
  - Undergraduate: “Programmazione”, 70 hours, 1st year, University of Bologna, Italy.
  - Master: “Analisi di Programmi”, 42 hours, 1st year, University of Bologna, Italy.
- Simone Martini
  - Undergraduate: “Introduction to programming in Python”, 78 hours, 1st year, University of Bologna, Italy.
  - Undergraduate: “Programming in Python”, 72 hours, 1st year, University of Bologna, Italy.
  - Undergraduate: “Computer abilities for biologists”, 8 hours, 1st year, University of Bologna, Italy.
- Davide Sangiorgi
  - Undergraduate: “Operating Systems”, 110 hours, 2nd year, University of Bologna, Italy.
- Gianluigi Zavattaro
  - Undergraduate: “Computer Architectures”, 60 hours, 1st year, University of Bologna, Italy
  - Undergraduate: “Algoritmi e strutture dati”, 60 hours, 2nd year, University of Bologna, Italy

### 9.2.2. Supervision

PhD thesis completed in 2016:

- Abel Garcia Celestrin, “Analysis of Cloud Computing Systems”. Supervisor C. Laneve.
- Vincenzo Mastandrea, “Deadlock analysis in ASP”. Supervisors: Cosimo Laneve and Ludovic Henrio (CNRS Sophia Antipolis).
- Valeria Vignudelli, “Behavioral Equivalences for Higher-Order Languages with Probabilities”. Supervisor D. Sangiorgi.

Below are the details on the PhD students in Focus: starting date, topic or provisional title of the thesis, supervisor(s). These are all PhDs in progress.

- Raphaëlle Crubillé, October 2015, “Bisimulation Metrics and Probabilistic Lambda Calculi”, Université Denis Diderot and University of Bologna. Supervisors Thomas Ehrhard and Ugo Dal Lago.
- Adrien Durier, September 2016, "Proving behavioural properties of higher-order concurrent languages", ENS de Lyon and University of Bologna. Supervisors: Daniel Hirschhoff and Davide Sangiorgi.
- Francesco Gavazzo, October 2015, “Coinductive Techniques for Effectful Lambda Calculi”. Supervisors U. Dal Lago and D. Sangiorgi.
- Michael Lodi, January 2017, “Growth Mindset and Computational Thinking”. Supervisor: S. Martini.
- Tong Liu, November 2015, “Constraint based languages for Software Defined Networks”. Supervisor: Maurizio Gabbrielli.
- Stefano Pio Zingaro, November 2016, “High level languages for Internet of Things applications”. Supervisors: Maurizio Gabbrielli and Ivan Lanese.

### 9.2.3. Juries

M. Bravetti has been member of the PhD jury of Federica Panarotto, University of Verona, Italy, May 2017.  
 U. Dal Lago has been member of the PhD jury of Pierre Vial, Université Denis-Diderot, December 2017.  
 D. Hirschhoff has been member of the PhD evaluation committee for Yannick Zakowski, ENS Rennes, December 2017.



### 9.3. Popularization

Michael Lodi and Simone Martini have carried out extended work of scientific popularization, including the following.

- They are members of the technical committee of Olimpiadi del Problem Solving (at Italian Ministry of Education), <http://www.olimpiadiproblemsolving.com>;
- S. Martini has given various talks at institutes and workshops on the teaching methods for Computer Science, including a talk on “Educare all’informatica nella scuola?”, working day on “La cultura informatica come fattore di sviluppo” Roma, Camera dei Deputati, December 2017.
- S. Martini is coordinator of some initiatives for the ‘Hour of Code’ (see e.g., <http://www.programmailfuturo.it>). M. Lodi is also involved.
- M. Lodi is in charge of preparing material “unplugged” to teach the principles of computational thinking in elementary schools.
- M. Lodi has been involved in meetings aimed at forming teachers of elementary and high schools in the Bologna province. These include a 15-hour course “Coding e robotica: tecnologie e metodologie per una didattica integrata nella scuola secondaria di I grado”, and a 12-hour course “Scratch avanzato: funzionalità e applicazione alla didattica”, both organised by Fondazione Golinelli (Bologna).
- M. Lodi has given talks on computational thinking and programming languages for teaching computer science to children, including: “Coding - Che cosa è e perché?” and “Coding con Scratch”, at Mathesis Piacenza; “CoderDojo: Pensiero computazionale e informatica creativa... anche a scuola?”, Convention Dienne; introduction to computer science for high school students, as part of an event of introduction to management (“Giardino delle imprese”), Fondazione Golinelli, Bologna; “L’illusione del coding” and “TeacherDojo”, at the contest “CoderDojo Coolest Projects Milano”, Milan; “Ragazze, siate coraggiose: la vostra intelligenza puo’ crescere (ma il “coding” non basta!)”, at “Festival della Cultura Tecnica 2017”, Bologna; a talk and youtube video “Quattro domande sul pensiero computazionale” (<https://www.youtube.com/watch?v=ANlwOckhcVU>).
- M. Lodi has been member of the evaluation commission for the awards “Programma le Regole”, set by Italian Ministry of Education and Research (MIUR) and “Programma il Futuro”.

D. Hirschhoff takes part in several popularization activities in schools, in Lyon (association “Maths en Jeans”).

#### 9.3.1. Other duties

S. Martini is Head of the Department of Computer Science and Engineering, University of Bologna, for the term 2015-2018.

G. Zavattaro is coordinator of undergraduate studies at the Department of Computer Science and Engineering, University of Bologna (Informatica per il Management).

## FUN Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- Nathalie Mitton is a member of the Steering committee of CIoT
- Nathalie Mitton is symposium chair of Wireless Ad hoc and Sensor Networks symposium ICNC 2017
- Farouk Mezghani was publicity chair for Pe-wasun 2017

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- Valeria Loscri is/was (co)-program chair for IoT and SmartCities MMSys 2017 and 2018, CITS 2018, Globecom 2017, NDIDO 2017 (Nouveaux Defis de l'Internet des Objets - 2017)
- Valeria Loscri is a Member of the Scientific Committee for the Conference Challenges of IoT in Digital Tools & Uses Congress
- Nathalie Mitton is/was (co)-program chair for WSCP 2017, TENCOOn 2017, VTC2017, SWC 2017, Globecom 2017, IINTEC 2017, WiMob 2017 and Pe-Wasun 2017. She will be (co-)program chair for CCNC 2018, ICT 2018, CIoT 2018, ICC 2018

#### 10.1.2.2. Member of the Conference Program Committees

- Valeria loscri is/was member in the Technical Program Committee (TPC) CoRES 2018, IoT Global Innovation Forum 2017, ICNSC 2017, NTMS 2017 and 2018, GIOTS 2017 and 2018, WF-5G'18 (2018 IEEE 1st 5G World Forum 2018), CSCN 2017, MoWNet 2017, VTC 2017, VTC 2018 - Spring, WPMC 2017, NEW2AN WSMART 2017, WiMob 2017, WPMC 2017, IoTGIF 2017
- Nathalie Mitton is/was in the Technical Program Committee (TPC) ICC 2017, VTC 2017, CSCN 2017, Cores 2017, Algotel 2017, Globecom 2017, CIoT 2017, ICT2018, ICNC 2018
- Farouk Mezghani was in the TPC of ISNCC 2017
- Antoine Gallais was/is in the TPC of ICNC 2017, GIIS 2017 and ICNC 2018

### 10.1.3. Journal

#### 10.1.3.1. Guest editorial activities

- Valeria Loscri and Nathalie Mitton were co-editor of MMTc COM-SOC letter of issue on Visible Light Communications
- Nathalie Mitton was co-editor of MMTc COM-SOC letter of November issue on Industrial Wireless Sensor Networks
- Valeria Loscri is a member of the 'Research Group on IoT Communications and Networking Infrastructure' at ComSoc Communities
- Valeria Loscri was co-editor of IEEE Access journal special issue on Body Area Networks
- Valeria Loscri edited the book "Vehicular Social Networks", Taylor and Francis Group, 2017
- Valeria Loscri participated to the revue "Internet des Objets" iSTE OpenScience

#### 10.1.3.2. Member of the Editorial Boards

- Nathalie Mitton is editorial board members of AHSWN since 2011

- Nathalie Mitton is editorial board member of Adhoc Networks since 2012
- Nathalie Mitton is editorial board member of IET-WSS since 2013
- Nathalie Mitton is editorial board member of ComSoc MMTTC e-letter since 2014
- Nathalie Mitton is editorial board member of Wiley Transactions Emerging Telecommunications Technologies since 2016
- Nathalie Mitton is editorial board member of Wireless Communications and Mobile Computing since 2016
- Valeria Loscri is editorial board member of IEEE Transactions on Nanobioscience journal since 2017
- Valeria Loscri is editorial board member of Elsevier Computer Networks journal since 2016
- Valeria Loscri is editorial board member of Robotics Software Design and Engineering of the International Journal of Advanced Robotic Systems since 2016
- Valeria Loscri is editorial board member of Elsevier Journal of Networks and Computer Applications (JNCA) journal since 2016

#### **10.1.4. Invited Talks**

- Valeria Loscri was invited speaker at Smart City Communication day in Sophia-Antipolis on January 2017
- Valeria Loscri was invited speaker at FET-European CIRCLE Workshop, Dublin - May 2017
- Valeria Loscri was invited speaker at Workshop on Retrofitting London and Paris via the Internet of Things - London, July 2017
- Valeria Loscri was invited speaker at IoT Week on December 2017
- Julien Vandaele was invited speaker at JDEV 2017 in Marseille in July 2017
- Antoine Gallais was invited speaker at the "Workshop sur l'IoT" in Sfax, Tunisia, in November 2017
- Nathalie Mitton was invited speaker at SOSI at INSA Rouen in September 2017
- Nathalie Mitton was invited speaker at Chile delegation in Lille in September 2017
- Nathalie Mitton was invited speaker at Journées Logistiques in Lille, September 2017
- Nathalie Mitton was invited speaker at Inria Chile - Universidad Católica Seminar in Santiago de Chile, November 2017

#### **10.1.5. Leadership within the Scientific Community**

- Nathalie Mitton is a member of the Steering Committee of the GDR Rescom
- Valeria Loscri is a Member of Social Network Technical Committee
- Valeria Loscri is a Member of Emerging Technologies Initiatives for Molecular, Biological and Multi-Scale Communications (ETI-MBMC)
- Valeria Loscri is a Member of Social Network Technical Committee

#### **10.1.6. Scientific Expertise**

Nathalie Mitton is an elected member of the evaluation community of Inria. She has acted as a reviewer for ANRT and ANR project submissions. She is also member of the scientific committees of the competitiveness cluster of MATIKEN and for CITC (International Contactless Technologies Center).

Valeria Loscri is Scientific European Responsible for Inria Lille - Nord Europe. She has been reviewer in the context of 2017 Air Force Young Investigator Research Program. She is reviewer in the context of ERC Consolidator Grant. She is reviewer for Equipes Associées. She has been involved as digital communication expert in the activities of "Convergences du Droit et du Numérique" - Bordeaux, February and September 2017.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

#### E-learning

Mooc, Nathalie Mitton, "Villes intelligentes : défis technologiques et sociétaux" , 5-week mooc by the IPL CityLab@Inria team, FUN, Inria, in March and November 2017

SPOC, EIT Digital "Technological challenges of participatory Smart cities", 5-week by the IPL CityLab@Inria team in November 2017

Master: Valeria Loscri, Objets Communicants, 24h (Mineure Habitat Intelligent), Ecole des Mines de Douai, France

Master: Nathalie Mitton, Wireless sensor networks, 16h eqTD (Master MINT), Université Lille 1 and Telecom Lille 1, France

Bsc: Farouk Mezghani, Contactless technologies, 20h eqTD, Université de Valenciennes, France

Licence: Jean Razafimandimby, Algorithms and Programming, 30h eqTD, Université Lille 1, France

### 10.2.2. Supervision

PhD defended on January 24th 2017: Viktor Toldov, Interférence et consommation dans les réseaux de capteurs, Université Lille 1, 2013-2016, Nathalie Mitton and Laurent Clavier

PhD defended on October 18th 2017: Jean Razafimandimby, Distributed Cooperation and Communication among Heterogeneous Devices, Université Lille 1, 2014-2017, Nathalie Mitton and Valeria Loscri

PhD in progress: Aziz Mbacke, Smart Deployment of heterogeneous sensors and RFID in a Smart City, Université Lille 1, 2015-2018, Nathalie Mitton and Hervé Rivano (Urbanet)

PhD in progress: Jad Nassar, Ubiquitous networks for smart grids, Université Lille 1, 2015-2018, Nathalie Mitton and Nicolas Gouvy (HEI)

### 10.2.3. Juries

- PhD/HDR committees:
  - Valeria Loscri is/was reviewer of the PhD thesis of Jorge Herrera, Universidade Politecnica Valencia, Spain May 2017.
  - Nathalie Mitton is/was reviewer of the following PhD thesis:
    - \* Patrick Olivier Kamgueu, Univ. de Yaounde - Univ. de Lorraine, January 2018
    - \* Carlos Gonzales, Université de Reims, December 2017
    - \* Dareen Shehadeh, Telecom Bretagne, December 2017
    - \* Arbia Sfar, UTC, November 2017
    - \* Faycal Ait Aoudia, Université de Rennes 1, September 2017
    - \* Laurent Reynaud, Univ. Lyon 1, March 2017
    - \* Jean-Gabriel Krieg, EINSEITH, February 2017
  - Nathalie Mitton was a member of the HDR defense committee
    - \* Antoine Gallais, Université de Strasbourg, November 2017
    - \* Gentian Jakllari, EINSEIHT, November 2017
- Researcher selection committees:
  - Nathalie Mitton was member of the Inria CR2 Lille competition selection committee
  - Nathalie Mitton was member of the Professor competition selection committee at UPMC and ENSEITH

- Nathalie Mitton was member of the Assistant Professor (MdC) at Universités de Marseille, Valenciennes and Strasbourg and INSA Lyon
- Nathalie Mitton is a member of the scientific committee of "Convergences du Droit et du Numérique"

### **10.3. Popularization**

- Simon Duquennoy and Nathalie Mitton gave a talk at "30 min de Sciences" in June and December 2017 resp.
- Valeria Loscri, Antonio Costanzo and Nathalie Mitton gave a talk in the context of Nuneriqu'elle - Euratechnologies, November 2017
- Matthieu Berthome, Jad Nassar, Ibrahim Amadou, Antonio Costanzo, Antoine Gallais, Nathalie Mitton, Farouk Mezghani and Julien Vandaele gave some talks in high schools for the "Fête de la Science" in October 2017
- Nathalie Mitton gave an interview for France Info on connected objects

## GALEN Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

E. Chouzenoux (co-organizer). Organization of the special session “Interactions entre méthodes d’optimisation et algorithmes de simulation stochastique” in the conference GRETSI 2017, Juan-les-Pins, 5-8 sep. 2017.

E. Chouzenoux and J.C. Pesquet. Organization of the special session “Advanced optimization methods for solving inverse problems at a large scale” in the International Biomedical and Astronomical Signal Processing Frontiers workshop (BASP 2017), Villars-sur-Ollon, Suisse, 29 jan.- 3 feb. 2017.

E. Belilovsky. Co-Organizer of Learning with Limited Labeled Data Workshop, in conjunction with Conference on Neural Information Processing Systems (NIPS).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

E. Chouzenoux. Member of the technical committee “Signal Processing Theory and Methods” of the IEEE Signal Processing Society.

F. Malliaros. Member of the program committee at: International Conference on World Wide Web (WWW), Conference on Artificial Intelligence (AAAI), International Joint Conference on Artificial Intelligence (IJCAI).

#### 10.1.2.2. Reviewer

The members of the team reviewed numerous papers for several international conferences, such as for the annual conferences on Computer Vision and Pattern Recognition (CVPR), Medical Image Computing and Computer Assisted Intervention (MICCAI), Neural Information Processing Systems (NIPS) and International Conference on Learning Representations (ICLR), IEEE International Conference and Acoustics Speech and Signal Processing (ICASSP), IEEE International Conference on Image Processing (ICIP), IEEE Statistical Signal Processing workshop (SSP), European Signal Processing Conference (EUSIPCO).

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

Zacharaki, Evangelia I.: Medical Physics (guest editor), International Journal of Radiology, Dataset Papers in Science (Radiology), International Journal of Biostatistics & Computational Biology

#### 10.1.3.2. Reviewer - Reviewing Activities

E. I. Zacharaki: IEEE Trans. on Medical Imaging (T-MI), Medical Image Analysis (MedIA), Trans. on Biomedical Engineering, Neuroimage, Artificial Intelligence in Medicine, Expert Systems with Applications, Bioinformatics, European Radiology

M. Vakalopoulou: International Journal of Computer Assisted Radiology and Surgery (IJCARS), IEEE Trans. on Geoscience and Remote Sensing (TGRS), Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS), ISPRS Journal of Photogrammetry and Remote Sensing, Computer Methods and Programs in Biomedicine (CMPB), Pattern Recognition Letters

E. Chouzenoux: IEEE Trans. on Image Processing, IEEE Trans. Signal Processing, SIAM Journal on Imaging Science, Journal of Optimization Theory and Applications, Journal of Global Optimization.

J.-C. Pesquet: IEEE Trans. on Signal Processing, IEEE Trans. on Image Processing, IEEE Trans. on Information Theory (IEEE-TI), Signal Processing, SIAM Journal on Optimization, SIAM Journal on Imaging Sciences, Journal of Mathematical Imaging and Vision, Journal of Optimization Theory and Applications.

F. Malliaros: Data Mining and Knowledge Discovery (DAMI), ACM Transactions on Knowledge Discovery from Data (TKDD).

#### **10.1.4. Invited Talks**

J.-C. Pesquet:

Villars sur Oulon (International Biomedical and Astronomical Signal Processing Frontiers workshop, Feb. 2017)

Taras Shevchenko National University of Kiev (Feb. 2017)

Politecnico di Milano (Apr. 2017)

Gdansk University (Mar. 2017)

Juans-les-Pins (Colloque GRETSI, Sep. 2017)

Polytechnic University of Warsaw (Oct. 2017)

Université Libre de Bruxelles (Nov. 2017)

E. Chouzenoux:

Invited seminar, LCS, Saclay, 8 décembre 2017.

Invited seminar, IFPEN, Rueil Malmaison, 6 décembre 2017.

Invited seminar, S3, CentraleSupélec, 24 novembre 2017.

Invited seminar, IIIT Delhi, 8 novembre 2017.

Journées annuelles 2017 des GdR MOA et MIA, Talence, 18 octobre 2017.

Journées Franco-Chiliennes d'Optimisation, Toulouse, 6 juillet 2017

Ecole d'été "Structured Regularization for High-Dimensional Data Analysis", IHP, 21 juin 2017.

Invited seminar, Université de Modène, 3 avril 2017.

Journée GDR ISIS, Inversion et problèmes multi-\*, IAP, Paris, 20 mars 2017.

#### **10.1.5. Leadership within the Scientific Community**

J.-C. Pesquet is senior member of the Institut Universitaire de France and a Fellow of IEEE.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : Corbineau, Marie-Caroline and Pesquet, Jean-Christophe. Advanced course on Optimization, 33h, M1, CentraleSupélec, FR

Master : Chouzenoux Emilie and Pesquet, Jean-Christophe. Foundations of Distributed and Large Scale Computing, 26h, M.Sc. in Data Sciences and Business Analytics, CentraleSupélec and ESSEC Business School, FR

Master: Zacharaki, Evangelia I. Foundations in Machine Learning, 36, M2 DataScience, Centrale-Supélec , FR

Master: Malliaros, Fragkiskos. Machine Learning, 30h, M.Sc. in Data Sciences and Business Analytics, CentraleSupélec and ESSEC Business School, FR

Master: Kannan, Hariprasad and Sahasrabudhe, Mihir: Programming and Languages, 24h, M.Sc. in Data Science and Business Analytics, CentraleSupélec and ESSEC Business School, FR

### 10.2.2. Supervision

PhD in progress : Mihir Sahasrabudhe, Understanding Correlations in High-Dimensional Spaces and their Applications in Medical Imaging and Computer Vision, 2015-2019, Nikos Paragios

PhD in progress : Siddhartha Chandra, Deep Structured Prediction for Dense Labeling Tasks in Computer Vision, 2014-2018, Iasonas Kokkinos

PhD in progress : Marie-Caroline Corbineau, Fast online optimization algorithms for machine learning and medical imaging, 2016-2019, supervised by Emilie Chouzenoux and J.-C. Pesquet

PhD in progress : Loubna El Gueddari, Parallel proximal algorithms for compressed sensing MRI reconstruction - Applications to ultra-high magnetic field imaging, 2016-2019, supervised by J.-C. Pesquet and Ph. Ciuciu (Inria PARIETAL)

PhD in progress: Arthur Marmin, Rational models optimized exactly for chemical processes improvement, supervised by Marc Castella (Telecom Paristech) and J.-C. Pesquet

PhD in progress: Maïssa Sghaier, clinical Task-Based Reconstruction in tomosynthesis, supervised by E. Chouzenoux, J.-C. Pesquet and G. Palma (GE Healthcare)

PhD in progress : Evgenios Kornaropoulos, Diffusion Coefficient: a novel computer aided biomarker, 2013-2017, N. Paragios

PhD in progress: Guillaume Chassagnon, Development of new quantitative imaging biomarkers for obstructive and interstitial lung diseases, 2016-2019, N. Paragios

PhD in progress: Roger Sun, Deep learning and computer vision approaches on medical imaging and genomic data to improve the prediction of anticancer therapies' efficacy, 2017-2020, N. Paragios

PhD in progress: Théo Estienne, Improving anticancer therapies efficacy through Machine Learning on Medical Imaging & Genomic Data, 2017-2020, N. Paragios

PhD in progress: Abdulkadir Celikkanat, Representation learning methods on graphs, 2017-2020, N. Paragios and F. Malliaros

### 10.2.3. Juries

The faculty members of the team (N. Paragios, J.-C. Pesquet, E. Chouzenoux and F. Malliaros) participated to numerous PhD Thesis Committees, HDR Committees and served as Grant Reviewers.

Emilie Chouzenoux, Mihir Sahasrabudhe, Jean-Christophe Pesquet, Marie-Caroline Corbineau and Nikos Paragios were part of the jury committee for several end-of-course internship presentations in CentraleSupélec.



## GALLIUM Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Selection

#### 10.1.1.1. Member of the Conference Program Committees

Xavier Leroy participated in the program committee of the ACM symposium on Principles of Programming Languages (POPL 2018), of the European Symposium on Programming (ESOP 2018), and of the second Principles of Secure Compilation workshop (PRISC 2018).

Jean-Marie Madiot was a member of the program committee of the Interaction and Concurrency Experience Workshop (ICE 2017).

Michel Mauny was a member of the program committee for Trends in Functional Programming in Education (TFPIE 2017).

François Pottier was program chair of the ACM SIGPLAN Workshop on Higher-Order Programming with Effects (HOPE 2017) and a member of the program committee of the Journées Françaises des Langages Applicatifs (JFLA 2018).

Mike Rainey was a member of the program committee for the IEEE International Parallel and Distributed Processing Symposium (IPDPS 2018).

Didier Rémy was a member of the program committee of the International Symposium on Functional and Logic Programming (FLOPS 2018).

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

Xavier Leroy is area editor (programming languages) for Journal of the ACM. He is a member of the editorial board of Journal of Automated Reasoning. Until June 2017, he was on the editorial board for the Research Highlights column of Communications of the ACM.

Michel Mauny is a member of the steering committee of the OCaml workshop.

François Pottier is a member of the ICFP steering committee and a member of the editorial boards of the Journal of Functional Programming and the Proceedings of the ACM on Programming Languages.

Didier Rémy is a member of the steering committee of the ML Family workshop.

### 10.1.3. Research Administration

Until September 2017, Xavier Leroy was an appointed member of Inria's *Commission d'Évaluation*. He participated in the following Inria hiring committees: *jury d'admissibilité DR2* and *jury d'admissibilité CRI*.

François Pottier is a member of Inria Paris' *Commission de Développement Technologique* and the president of Inria Paris' *Comité de Suivi Doctoral*.

Didier Rémy is *Deputy Scientific Director (ADS)* in charge of *Algorithmics, Programming, Software and Architecture*.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Didier Rémy is Inria's delegate in the pedagogical team of the MPRI (*Master Parisien de Recherche en Informatique*).

Master: Luc Maranget, "Semantics, languages and algorithms for multi-core programming", 18 HETD, M2 (MPRI), Université Paris Diderot, France.

Master: Michel Mauny, "Principles of Programming Languages", 32 HETD, M1, ENSTA-ParisTech, France.

Master: François Pottier and Didier Rémy, "Functional programming and type systems", 18 + 18 HETD, M2 (MPRI), Université Paris Diderot, France.

Licence: Armaël Guéneau, "Initiation à la programmation" (TP), "Projet informatique" (TP), "Concepts informatiques" (TD), "Langages et automates" (TD), 64 HETD, L1 and L2, Université Paris Diderot, France.

Licence: Thomas Williams, "Projet informatique" (TD), "Programation orientée objet et interfaces graphiques" (TD/TP), 64 HETD, L2, Université Paris Diderot, France.

### 10.2.2. Supervision

M1: Danny Willems, Université de Mons, supervised by François Pottier.

PhD in progress: Vitalii Aksenov, "Parallel Dynamic Algorithms", Université Paris Diderot, since September 2015, supervised by Umut Acar (co-advised with Anatoly Shalyto, ITMO University of Saint Petersburg, Russia).

PhD in progress: Pierrick Couderc (ENSTA-ParisTech & OCamlPro), "Typage modulaire du langage intermédiaire du compilateur OCaml," Université Paris-Saclay, since December 2014, supervised by Michel Mauny, Grégoire Henry (OCamlPro) and Fabrice Le Fessant.

PhD in progress: Albin Coquereau (ENSTA-ParisTech), "Amélioration de performances pour le solveur SMT Alt-Ergo: conception d'outils d'analyse, optimisations et structures de données efficaces pour OCaml," Université Paris-Saclay, since October 2015, supervised by Michel Mauny, Sylvain Conchon (LRI, Université Paris-Sud) and Fabrice Le Fessant.

PhD in progress: Armaël Guéneau, "Towards Machine-Checked Time Complexity Analyses", Université Paris Diderot, since September 2016, supervised by Arthur Charguéraud and François Pottier.

PhD in progress: Naomi Testard, "Reasoning about Effect Handlers and Cooperative Concurrency", Université Paris Diderot, since January 2017, supervised by François Pottier.

PhD in progress: Thomas Williams, "Putting Ornaments into practice", Université Paris Diderot, since September 2014, supervised by Didier Rémy.

### 10.2.3. Juries

Xavier Leroy was on the Ph.D. committees of Quentin Carbonneaux (Yale University, August 2017) and of Gabriel Radanne (University Paris Diderot, November 2017).

François Pottier was a reviewer for the Ph.D. thesis of Sandro Stucki (École Polytechnique Fédérale de Lausanne, September 2017). He was a member of the jury for the GDR GPL dissertation award (*prix de thèse du GDR GPL*).

## 10.3. Popularization

Xavier Leroy wrote a popularization article describing the hunt for a hardware bug in Intel processors, which was published by the Web news site *The Next Web* [32].

## GAMBLE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

Sylvain Lazard organized with S. Whitesides (Victoria University) the **16th Workshop on Computational Geometry** at the Bellairs Research Institute of McGill University in Feb. (1 week workshop on invitation).

Monique Teillaud co-organized with Claire Mathieu **Celebrating Claude Puech's birthday**, Paris, June 12.

Monique Teillaud co-organized the workshop **Geometric Aspects of Materials Science** with Vanessa Robins and Ileana Streinu, Brisbane, Australia, July 4–5.

Monique Teillaud co-organized with the Astonishing partners the **Astonishing workshop** at Loria/Inria nancy, September 25–26.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

Sylvain Lazard was a member of the program committee of SoCG, *Symposium on Computational Geometry*.

Monique Teillaud was a member of the program committee of WADS, *Algorithms and Data Structures Symposium*.

#### 10.1.2.2. Reviewer

All members of the team are regular reviewers for the conferences of our field, namely the *Symposium on Computational Geometry* (SoCG) and the *International Symposium on Symbolic and Algebraic Computation* (ISSAC) and also SODA, CCCG, EuroCG.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

Monique Teillaud is a managing editor of JoCG, *Journal of Computational Geometry* and a member of the editorial board of IJCGA, *International Journal of Computational Geometry and Applications*.

Marc Pouget and Monique Teillaud are members of the CGAL editorial board.

#### 10.1.3.2. Reviewer - Reviewing Activities

All members of the team are regular reviewers for the journals of our field, namely *Discrete and Computational Geometry* (DCG), *Computational Geometry. Theory and Applications* (CGTA), *Journal of Computational Geometry* (JoCG), *International Journal on Computational Geometry and Applications* (IJCGA), *Journal on Symbolic Computations* (JSC), *SIAM Journal on Computing* (SICOMP), *Mathematics in Computer Science* (MCS), etc.

### 10.1.4. Invited Talks

Monique Teillaud was an invited speaker of CATS, *Computational & Algorithmic Topology*, Sydney, Australia, June 27 – July 1st.

Guillaume Moroz was invited to give a talk at the Effective Geometry and Algebra seminar at IRMAR.

### 10.1.5. Leadership within the Scientific Community

#### 10.1.5.1. Steering Committees

Monique Teillaud is chairing the Steering Committee of the Symposium on Computational Geometry (SoCG). She was a member of the Steering Committee of the European Symposium on Algorithms (ESA) until September.

#### 10.1.5.2. Learned societies

Monique Teillaud is a member of the Scientific Board of the *Société Informatique de France* (SIF).

### 10.1.6. Scientific Expertise

Monique Teillaud acted as a reviewer for the DFG, *Deutsche Forschungsgemeinschaft* (German Research Foundation).

### 10.1.7. Research Administration

#### 10.1.7.1. Hiring committees

Olivier Devillers was the representative of LORIA in the hiring committee for an Associate Professor (MCF) position (IUT St Dié/LORIA) and composed the committee with the president.

#### 10.1.7.2. National committees

L. Dupont is the secretary of *Commission Pédagogique Nationale Carrières Sociales / Information-Communication / Métiers du Multimédia et de l'Internet* (since May).

M. Teillaud is a member of the working group for the BIL, *Base d'Information des Logiciels* of Inria.

#### 10.1.7.3. Local Committees and Responsibilities

O. Devillers: Elected member to *Pole AM2I* the council that gathers labs in mathematics, computer science, and control theory at *Université de Lorraine*.

L. Dupont Instigator (June 2016) and head of the Bachelor diploma *Licence Professionnelle Animation des Communautés et Réseaux Socionumériques*, Université de Lorraine.

S. Lazard: Head of the PhD and Post-doc hiring committee for Inria Nancy-Grand Est (since 2009). Member of the *Bureau de la mention informatique* of the *École Doctorale IAE+M* (since 2009). Head of the *Mission Jeunes Chercheurs* for Inria Nancy-Grand Est (since 2011). Head of the Department Algo at LORIA (since 2014). Member of the *Conseil Scientifique* of LORIA (since 2014).

G. Moroz is member of the Mathematics Olympiades committee of the Nancy-Metz academy. G. Moroz is member of the *Comité des utilisateurs des moyens informatiques*

M. Pouget is elected at the *Comité de centre*, and member of the board of the Charles Hermite federation of labs. M. Pouget is secretary of the board of *AGOS-Nancy*.

M. Teillaud is a member of the BCP, *Bureau du Comité des Projets* and of the CDT, *Commission de développement technologique* of Inria Nancy - Grand Est.

#### 10.1.7.4. Websites

M. Teillaud is maintaining the Computational Geometry Web Pages <http://www.computational-geometry.org/>, hosted by Inria Nancy - Grand Est since December. This site offers general interest information for the computational geometry community, in particular the Web proceedings of the Video Review of Computational Geometry, part of the Annual/international Symposium on Computational Geometry.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Olivier Devillers, *Synthèse, image et géométrie*, 12h (academic year 2017-18), IPAC-R, Université de Lorraine. <https://members.loria.fr/Olivier.Devillers/master/>

Master: Olivier Devillers and Monique Teillaud, *Computational Geometry*, 24h (academic year 2017-18), Master2 Informatique, ENS Lyon <https://members.loria.fr/Monique.Teillaud/Master2-ENS-Lyon/>.

Licence: Sény Diatta, *Algorithme et Programmation*, 54h, L1, Université de Lorraine, France.

Licence: Sény Diatta, *Outils Informatiques et Internet*, 42h, L1, Université de Lorraine, France.

Licence: Charles Duménil, *Mathématiques*, 42h, L2, Université de Lorraine, France.

Licence: Charles Duménil, *Logiciel*, 20h, L2, Université de Lorraine, France.

Licence: Charles Duménil, *Algorithmique et programmation avancée*, 34h, M2, Université de Lorraine, France.

Licence: Laurent Dupont, *Algorithmique*, 78h, L1, Université de Lorraine, France.

Licence: Laurent Dupont, *Web development*, 75h, L2, Université de Lorraine, France.

Licence: Laurent Dupont, *Traitement Numérique du Signal*, 10h, L2, Université de Lorraine, France.

Licence: Laurent Dupont *Databases* 30h L3, Université de Lorraine, France,

Licence: Laurent Dupont *Web development and Social networks* 80h L3, Université de Lorraine, France.

Licence: Iordan Iordanov, *Algorithmique et Programmation*, 64h, L1, Université de Lorraine, France.

Licence: Iordan Iordanov, *Systèmes de gestion de bases de données*, 20h, L2, Université de Lorraine, France.

Licence: Iordan Iordanov, *Algorithmique et développement web*, 28h, L2, Université de Lorraine, France.

Licence: Iordan Iordanov, *Programmation objet et événementielle*, 16h, L3, Université de Lorraine, France.

Licence: Sylvain Lazard, *Algorithms and Complexity*, 25h, L3, Université de Lorraine, France.

Master: Marc Pouget, *Introduction to computational geometry*, 10.5h, M2, École Nationale Supérieure de Géologie, France.

### 10.2.2. Supervision

PhD in progress: Sény Diatta, Complexité du calcul de la topologie d'une courbe dans l'espace et d'une surface, started in Nov. 2014, supervised by Daouda Niang Diatta, Marie-Françoise Roy and Guillaume Moroz.

PhD in progress: Charles Duménil, Probabilistic analysis of geometric structures, started in Oct. 2016, supervised by Olivier Devillers.

PhD in progress: Iordan Iordanov, Triangulations of Hyperbolic Manifolds, started in Jan. 2016, supervised by Monique Teillaud.

PhD in progress: George Krait, Topology of singular curves and surfaces, applications to visualization and robotics, started in Nov. 2017, supervised by Sylvain Lazard, Guillaume Moroz and Marc Pouget.

Postdoc: Vincent Despré, Triangulating surfaces with complex projective structures, started in Nov. 2017, supervised by Monique Teillaud.

### 10.2.3. Internships

Jian Qian, from École Normale Supérieure Paris, did a L3 internship from Jul 2017 until Aug 2017 co-advised by Guillaume Moroz and Marc Pouget on a topic of ANR SingCAST.

Guillermo Alfonso Reyes Guzman, from Université de Lorraine, did a Master internship from March 2017 until July 2017 advised by O. Devillers on deletion in 3D Delaunay triangulation.

Camille Truong-Allie (Master 1, “research path”, École des Mines de Nancy), Lloyd algorithm in the flat torus, started in October, supervised by Monique Teillaud.

### **10.3. Popularization**

L. Dupont participated to several days of popularization of computerscience: Open Bidouille Camp March, 26th 2017, popularization of programming, general audience ; ISN day March, 30th 2017, popularization of computerscience for high-school teachers ; Fête de la Science 14th October 2017 Inria event, general audience, and Google Day in Nancy 21st October 2017, general audience.

**GAMMA3 Project-Team (section vide)**

## **GANG Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific Events Selection**

#### *9.1.1.1. Member of Conference Program Committees*

- Adrian Kosowski: ICALP 2017, MFCS 2018, SIROCCO 2018.
- Carole Delporte-Gallet: ICDCN 2017, PODC 2017, IPDPS 2017, OPODIS 2017
- Pierre Fraigniaud: WWW 2017, SPAA 2017, DISC 2017.
- Hugues Fauconnier: SSS 2017, Algotel 2017
- Michel Habib: WG 2018
- Amos Korman: ICALP 2017
- Laurent Viennot: FCT 2017

#### **9.1.2. Journal**

##### *9.1.2.1. Member of Editorial Boards*

- Pierre Fraigniaud is a member of the Editorial Board of Distributed Computing (DC).
- Pierre Fraigniaud is a member of the Editorial Board of Theory of Computing Systems (TOCS).
- Pierre Fraigniaud is a member of the Editorial Board of Fundamenta Informaticae (FI).
- Adrian Kosowski is a member of the Editorial Board of Mathematical Foundations of Computing (AIMS MFOC)

#### **9.1.3. Invited Talks**

Carole Delporte, The Basics of Distributed Computing: consensus. 9th edition of the International Spring School on Distributed Systems(METIS 2017), May 2017.

Hugues Fauconnier, The Basics of Distributed Computing: Shared Memory. 9th edition of the International Spring School on Distributed Systems (METIS 2017), May 2017.

Carole Delporte: Workshop IWDCMR 2017 in honor of Michel Raynal, Détecteurs de défaillance, May 2017.

Michel Habib: IPM Combinatorics and Computing Conference 2017 (IPMCCC2017), Téhéran, May 2017

Michel Habib: Journée Charles Hermite Complexité : Théorie des graphes et théorie des nombres, Nancy, November 2017.

Adrian Kosowski: ADGA 2017 workshop (co-located with DISC 2017), Vienna, October 2017.

#### **9.1.4. Scientific Expertise**

Adrian Kosowski was an expert panel member for grant panel PE6 of the National Science Center, Poland (Spring 2017).

Carole Delporte-Gallet was in the recruiting jury of "Informaticien" at Assemblée Nationale.

Michel Habib was member of the COS (Comité d'Orientation Stratégique) of the Labex Archimede Marseille. One meeting in April 2017.

#### **9.1.5. Research Administration**

Pierre Fraigniaud is director of the Institute de Recherche en Informatique Fondamentale (IRIF).



Hugues Fauconnier is director of the UFR d'informatique of Université Paris Diderot.

Carole Delporte-Gallet is deputy director of the UFR d'informatique of Université Paris Diderot.

Michel Habib is member of the Administration Council of University Paris Diderot.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master: Carole Delporte and Hugues Fauconnier, Algorithmique distribuée avec mémoire partagée, 6h, M2, Université Paris Diderot

Master: Hugues Fauconnier, Cours programmation répartie, 33h, M2, Univ. Paris Diderot

Master: Carole Delporte, Cours et TP Protocoles des services internet, 44h, M2, Univ. Paris Diderot

Master: Carole Delporte, Cours Algorithmes répartis, 33h, M2, Univ. Paris Diderot

Master: Carole Delporte and Hugues Fauconnier, Théorie et pratique de la concurrence, 48h, M1, Université Paris Diderot

Licence: Carole Delporte and Hugues Fauconnier, Sécurité informatique, 36h, L3, Univ. Paris Diderot

Licence: Carole Delporte and Hugues Fauconnier, Culture informatique, 16h, L2, Univ. Paris Diderot

Licence: Boufkhad Yacine, Algorithmique et Informatique, 132h, L1, IUT de l'Université Paris Diderot

Licence: Boufkhad Yacine, Programmation Orientée Objet, 60h, L2, IUT de l'Université Paris Diderot

Licence: Boufkhad Yacine, Traitement de données, 16h, L2, IUT de l'Université Paris Diderot

Master: Pierre Fraigniaud, Algorithmique avancée, 24h, Ecole Centrale Supélec Paris, M2

Master: Pierre Fraigniaud, Algorithmique parallèle et distribuée, 24h, Ecole Centrale Supélec Paris, M2

Master: Adrian Kosowski, Randomization in Computer Science: Games, Networks, Epidemic and Evolutionary Algorithms, 18h, M1, École Polytechnique

Licence: Adrian Kosowski, Design and Analysis of Algorithms, 32h, L3, École Polytechnique

Master: Pierre Fraigniaud and Adrian Kosowski, Algorithmique distribuée pour les réseaux, 24h, M2, Master Parisien de Recherche en Informatique (MPRI)

Master: Fabien de Montgolfier and Michel Habib, Grand Réseaux d'Interaction, 44h, M2, Univ Paris Diderot

Licence: Fabien de Montgolfier, Protocoles Réseau (TP/TD), 24h, M1, Univ Paris Diderot

Licence: Fabien de Montgolfier, Programmation avancée (cours/TD/projet, bio-informatique), 52h, L3, Univ. Paris Diderot

Master: Fabien de Montgolfier, Algorithmique avancée (bio-informatique), 26h, M1, Univ Paris Diderot

Licence: Fabien de Montgolfier, Algorithmique (TD), 26h, L3, Ecole d'Ingénieurs Denis Diderot

Master : Laurent Viennot, Graph Mining, 3h, M2 MPRI, Univ. Paris Diderot

Licence: Michel Habib, Algorithmique, 45h, L, ENS Cachan

Master: Michel Habib, Algorithmique avancée, 24h, M1, Univ. Paris Diderot

Master: Michel Habib, Mobilité, 33h, M2, Univ. Paris Diderot

Master: Michel Habib, Méthodes et algorithmes pour l'accès à l'information numérique, 16h, M2, Univ. Paris Diderot

Master: Michel Habib, Algorithmique de graphes, 12h, M2, Univ. Paris Diderot  
 Licence: Pierre Charbit, Elements d'Algorithmique, 24h, L2, Université Paris Diderot, France  
 Licence: Pierre Charbit, Automates finis, 36h, L2, Université Paris Diderot, France  
 Licence: Pierre Charbit, Internet et Outils, 52h, L1, Université Paris Diderot, France  
 Master: Pierre Charbit, Programmation Objet, 60h, M2Pro PISE, Université Paris Diderot, France  
 Master: Pierre Charbit, Algorithmique de Graphes, 12h, M2 MPRI, Université Paris Diderot, France

### 9.2.2. Supervision

PhD in progress: Simon Collet (co-advised by Amos Korman and Pierre Fraigniaud). Title of thesis is: "Algorithmic Game Theory Applied to Biology". Started September 2015.

PhD in progress: Lucas Boczkowski (co-advised by Amos Korman and Iordanis Kerenidis). Title of thesis is: "Computing with Limited Resources in Uncertain Environments". Started September 2015.

PhD in progress: Brieuc Guinard (advised by Amos Korman). Title of thesis is: "Algorithmic Aspects of Random Biological Processes". Started October 2016.

PhD in progress: Laurent Feuilloley (advised by Pierre Fraigniaud). Title of thesis is: "Synchronous Distributed Computing". Started September 2015.

PhD in progress: Mengchuan Zou (co-advised by Adrian Kosowski and Michel Habib). Title of thesis is: "Local and Adaptive Algorithms for Optimization Problems in Large Networks". Started October 2016.

PhD in progress: Léo Planche (co-advised by Étienne Birmelé and Fabien de Montgolfier). Title of thesis is: "Classification de collections de graphes". Started October 2015.

PhD in progress: Alkida Balliu and Dennis Olivetti (PhD students from L'Aquila University and Gran Sasso Science Institute) are supervised by Pierre Fraigniaud.

PhD in progress: Lucas Hosseini (co-advised by Pierre Charbit, Patrice Ossona de Mendez and Jaroslav Nešetřil since Sept. 2014). Title : Limits of Structures.

Master internship (MPRI): Emmanuel Arrighi (advised by Laurent Viennot). (March-August 2017)  
 Title of report: "Schéma d'étiquetage de graphe pour le pré-calcul de plus courts chemins".

### 9.2.3. Juries

Laurent Viennot was on the jury committee of the HDR thesis of Mauro Sozio (Telecom Paristech) "Algorithms for Making Sense of Massive Dynamic Graphs" at Paris-Saclay University, July 2017.

Michel Habib was referee and on the jury committee of the HDR thesis of Mauro Sozio (Telecom Paristech) "Algorithms for Making Sense of Massive Dynamic Graphs" at Paris-Saclay University, July 2017.

Michel Habib was on the jury committee of the HDR thesis of Reza Naserasr "Projective Cubes, a coloring point of view" at Paris Diderot University, July 2017.

Michel Habib was referee and on the jury of the PhD thesis of Kaoutar Ghazi "Heuristiques et conjectures à propos de la 2-dimension des ordres", Clermont-Ferrand, October 2017.

Michel Habib was referee and on the jury of the HDR thesis of Phan Thi Ha Duong "Chip Firing Game and related models: algebraic structures and enumerative combinatorics" at Paris Diderot University, December 2017.

Carole Delporte-Gallet was on the jury committee of the thesis of Florent Chevrou "Formalisation of Asynchronous Interactions" Toulouse University, November 2017.

Hugues Fauconnier was referee and on the jury of the PhD thesis of Matoula Petrolia "Distribuer Shared memory in failure prone message passing systèmes", Nantes University, October 2017.

### 9.3. Popularization

- Amos Korman wrote the article “Conseils d’une fourmi: Ne me prenez pas trop au sérieux !” published in the French journal *interstices* in 10.7.2017.
- An article about a paper by Amos Korman, Adrian Kosowski and Lucas Boczkowski was published in *CNRS news* in 10.1.2017.
- An article called “Les fourmis, génies de l’orientation” about a paper by Amos Korman, Adrian Kosowski and Lucas Boczkowski was published in *Le Monde* in 30.1.2017.
- Laurent Viennot is “commissaire d’exposition” for the permanent exposition on “Informatique et sciences du numérique” at Palais de la découverte in Paris (opening in February 2018).

## GECO Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

Ugo Boscain was organizer of the conference “Mathematical Control Theory, with a special session in honor of Gianna Stefani”, Porquerolles, 27–30 June.

### 9.1.2. Journal

#### 9.1.2.1. Member of the Editorial Boards

- Ugo Boscain is Associate Editor of SIAM Journal of Control and Optimization
- Ugo Boscain is Managing Editor of Journal of Dynamical and Control Systems
- Mario Sigalotti is Associate Editor of Journal of Dynamical and Control Systems
- Mario Sigalotti is Associate Editor of ESAIM Control, Optimisation and Calculus of Variations
- Ugo Boscain is Associate Editor of Mathematical Control and Related Fields
- Ugo Boscain is Associate editor of Analysis and Geometry in Metric Spaces

### 9.1.3. Invited Talks

- Mario Sigalotti gave an invited talk at the conference “Mathematical Control Theory, with a special session in honor of Gianna Stefani”, Porquerolles, France, June 2017.
- Mario Sigalotti gave an invited talk at groupe de travail “Contrôle”, Laboratoire Jacques-Louis Lions, Paris, France, January 2017.

### 9.1.4. Research Administration

- Mario Sigalotti is member of the IFAC technical committee “Distributed Parameter Systems”.
- Mario Sigalotti was member of the steering committee of the *Institut pour le Contrôle et la Décision* of the Idex Paris-Saclay up to June 2017.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Supervision

- PhD in progress: Ludovic Sacchelli, “Sub-Riemannian geometry, hypoelliptic operators, geometry of vision”, started in September 2015, supervisors: Ugo Boscain, Mario Sigalotti.
- PhD in progress: Nicolas Augier, “Contrôle adiabatique des systèmes quantiques”, started in September 2016, supervisors: Ugo Boscain, Mario Sigalotti.
- PhD in progress: Mathieu Kohli, “Volume and curvature in sub-Riemannian geometry”, started in September 2016, supervisors: Davide Barilari, Ugo Boscain.
- PhD in progress: Jakub Orłowski, “Modeling and steering brain oscillations based on in vivo optogenetics data”, started in September 2016, supervisors: Antoine Chaillet, Alain Destexhe, and Mario Sigalotti.

## GENSCALE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- RCAM 2017: Workshop "Recent Computational Advances in Metagenomics" [P. Peterlongo]

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

- JOBIM 2017: French symposium of Bioinformatics [C. Lemaitre, P. Peterlongo]
- BIBM 2017: IEEE International Conference on Bioinformatics and Biomedicine [D. Lavenier]
- BIOKDD 2017: Workshop on Biological Knowledge Discovery and Data Mining [D. Lavenier]
- IWBBIO 2017: International Work-Conference on Bioinformatics and Biomedical Engineering [D. Lavenier]

#### 10.1.2.2. Reviewer

- RECOMB 2017 [R. Andonov, C. Lemaitre, P. Peterlongo]
- ECCB 2017 [P. Peterlongo]

### 10.1.3. Journal

#### 10.1.3.1. Reviewer - Reviewing Activities

- Bioinformatics [D. Lavenier]
- BMC Bioinformatics [D. Lavenier, C. Marchet]
- Briefing in Bioinformatics [D. Lavenier]
- Plos One [C. Lemaitre]
- Transactions on Computational Biology and Bioinformatics [C. Lemaitre]
- Genomics [F. Legeai]

### 10.1.4. Invited Talks

- D. Lavenier, *Dealing with mass of genomic data. From optimized data structures to advanced memory architectures*, BIATA 2017, Bioinformatics: from algorithms to application, St. Petersburg, Russia, Aug. 2017
- D. Lavenier, *DNA Mapping using Processing-in-Memory Architecture*, Cristal, Univ. Lille, Oct 2017
- C. Lemaitre, *Looking for genomic variants in the De Bruijn Graph.*, Institute for Advanced Biosciences, University of Grenoble Alpes, Grenoble, France, Dec. 2017
- C. Marchet, *De novo Clustering of Gene Expressed Variants in Transcriptomic Long Reads Data Sets*, at From RNA-Seq data to bioinformatics analysis using Nanopore sequencers, Evry, Dec 2017.

### 10.1.5. Leadership within the Scientific Community

- P. Peterlongo. Animator of the metagenomic scientific axes of the GDR BIM (National Research Group in Biology, Informatic and Mathematic)
- P. Peterlongo. Member of the SFBI board.

### 10.1.6. Scientific Expertise

- Expert for the MEI (International Expertise Mission), French Research Ministry [D. Lavenier]
- Member of the Scientific Council of BioGenOuest [D. Lavenier]
- Member of the Scientific Council of the Computational Biology Institute of Montpellier [D. Lavenier]

### 10.1.7. Research Administration

- Member of the CoNRS, section 06, [D. Lavenier]
- Member of the CoNRS, section 51, [D. Lavenier]
- Member of the steering committee of the INRA BIPAA Platform (BioInformatics Platform for Agroecosystems Arthropods) [D. Lavenier]
- Member of the steering committee of The GenOuest Platform (Bioinformatics Platform of BioGenOuest) [D. Lavenier]
- Representative of the environmental axis of UMR IRISA [C. Lemaitre]
- AGOS first secretary [P. Peterlongo]
- Organisation of the weekly seminar "Symbiose" [P. Peterlongo]
- In charge of the bachelor's degree in the computer science department of University of Rennes 1 (90 students) [R. Andonov]
- Member of the Council of Administration of ISTIC [R. Andonov]
- Representative of non-permanent members in the Inria Rennes center committee [S. Letort]

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : C. Lemaitre, Statistics for biology, 30h, L3, Univ. Rennes 1, France.

Licence : R. Andonov, S. Francois, Graph Algorithms, 80h, L3, Univ. Rennes 1, France.

Licence : L. Lecompte, Systems, 16h, L3, Univ. Rennes 1, France.

Licence : S. Francois, Programming, 22h, L3 Miage, Univ. Rennes 1, France.

Master : R. Andonov, S. Francois, Operational research, 82h, M1 Miage, Univ. Rennes 1, France.

Master : L. Lecompte, Python for ecologists, 21h, M1, Univ. Rennes 1, France.

Master : C. Lemaitre, P. Peterlongo, Algorithms on Sequences, 52h, M2, Univ. Rennes 1, France.

Master : L. Lecompte, C. Lemaitre, P. Peterlongo, Algorithms on Sequences for Bioinformatics, 50h, M1, Univ. Rennes 1, France.

Master : C. Lemaitre, P. Peterlongo, Experimental Bioinformatics, 24h, M1, ENS Rennes, France.

Master : C. Guyomar, Statistical learnings, 30h, M2, Univ. Rennes, France.

Master : F. Legeai, RNA-Seq, Metagenomics and Variant discovery, 12h, M2, AgroCampusOuest, National Superior School Of Agronomy, Rennes, France.

Master : R. Andonov, Advanced Algorithmics, 25h, Univ. Rennes 1, France.

Training : P. Durand, G. Rizk, GATB Programming Day, 16h (April 26-27), Grenada, Spain.

Training : P. Durand, G. Rizk, GATB Programming Day, 8h (June 6), Montpellier, France.

Training : G. Rizk, GATB Programming Day, 8h (October 24), Rennes, France.

### 10.2.2. Supervision

PhD : G. Benoit, Large scale de novo comparative metagenomics, Univ Rennes, 29/11/2017, D. Lavenier and C. Lemaitre. [11]

PhD : A. Limasset, Nouvelles approches pour l'exploitation des données de séquençage haut débit, Univ Rennes, 12/07/2017, D. Lavenier and P. Peterlongo. [12]

PhD : P. Hoan Son, Novel Pattern Mining Techniques for Genome-wide Association Studies, 22/12/2017, D. Lavenier and A. Termier.

PhD in progress : C. Guyomar, Bioinformatic tools and applications for metagenomics of bacterial communities associated to insects, 01/10/2015, J.C. Simon, C. Mougel, C. Lemaitre and F. Legeai.

PhD in progress : C. Marchet, Nouvelles méthodologies pour l'assemblage de données de séquençage polymorphes, 01/10/2015, P. Peterlongo.

PhD in progress : S. François, Combinatorial Optimization Approaches for Bioinformatics, 01/10/2016, R. Andonov.

PhD in progress : L. Lecompte, Structural Variant detection in long-read sequencing data, 01/09/2017, D. Lavenier and C. Lemaitre.

PhD in progress : W. Delage, Assemblage de novo local pour la détection de variations complexes pour le diagnostic des maladies rares, 01/10/2017, J. Thévenon and C. Lemaitre.

### 10.2.3. Juries

- *Member of Ph-D thesis juries.* Arnaud Meng, University Pierre et Marie Curie [C. Lemaitre], Damien Courtine, University of Brest [D. Lavenier].
- *Referee of Ph-D thesis.* Pierre Pericard, University of Lille [D. Lavenier], Louise-Amelie Schmitt, Bordeaux University [P. Peterlongo], Kamil Salikov, University Paris Est [P. Peterlongo]
- *Member of Ph-D thesis comitees.* L. Ishi Soares de Lima, University of Lyon [C. Lemaitre], Cervin Guyomar, University of Rennes [P. Peterlongo], Pierre Marijon, University of Lille [P. Peterlongo], Pierre Charrier, Oniris Nantes [P. Peterlongo], Victor Gaborit, Inserm Nantes [P. Peterlongo], Guillaume Gautreau, University Paris Saclay [P. Peterlongo].
- *President of a jury for the recruitment of a INRA bioinformatics engineer* [Fabrice Legeai].

### 10.3. Popularization

- Participation to operation "A la découverte de la recherche" in high schools [P. Peterlongo]
- Intervention for "Imagine For Margo" [P. Peterlongo]
- Bioinformatics introduction to secondary school pupils [F. Legeai]

## GEOSTAT Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- H. Yahia with S. Bontemps (Bordeaux Astrophysics Laboratory) and N. Schneider (Cologne University): GENESIS/MOBS kick-off meeting 28. and 29.9.2017 in Bordeaux, <https://hera.ph1.uni-koeln.de/~nschneid/genesis-meeting-sep2017.html>.

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

H. Yahia is a review editor of *Frontiers in Fractal Physiology*.

#### 10.1.2.2. Reviewer - Reviewing Activities

H. Yahia: *Frontiers in Physiology*.

### 10.1.3. Invited Talks

- N. Brodu: Presentation given to the 8<sup>th</sup> *École Interdisciplinaire sur les Systèmes Complexes : « Extraction de données et information: applications à l'imagerie, à l'environnement et à la physique »*. 11-13 october 2016, Rennes.
- K. Daoudi has been invited to the Wolrd Voice Consortium 2017 to present the project on differential diagnosis in Parkinsonism.
- H. Yahia: presentation given to the Laboratoire d'Astrophysique de Bordeaux on March 8, 2017.
- H. Yahia is invited to the TOSCA (<http://www.tosca2017.fr/>) group in march 2017.
- A. Tamim is invited in June 2017 for the reception of his PHC Hubert Curien PhD gold medal.
- K. Minaoui is invited in GEOSTAT in July 2017.
- Visit of D. Singh in GEOSTAT in August 2017 on the co-supervision of G. Singh PhD thesis.
- Invitation of H. Badri in the framework of I2S kickoff meeting, on Inria funding.

### 10.1.4. Research Administration

- H. Yahia participated in the first scientific meeting of "Centre d'Excellence sur les Maladies Neurodégénératives", projet « Bordeaux Initiative for Neurodegenerative Disorders », May 11 2017, Bordeaux (NEUROCAMBUS auditorium building).
- Participation of H. Yahia, H. Badri, K. Daoudi and N. Brodu to the I2S-GEOSTAT kickoff meeting in September 2017.
- Participation of K. Daoudi to the SABOR project organization.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Supervision

PhD in progress : B. Das, supervised of H. Yahia in the framework of the Toubkal project (starts 01/01/18).

PhD in progress : A. El Aouni, co-supervised by K. Daoudi, H. Yahia and K. Minaoui in the framework of the Toubkal project.



PhD in progress : G. Singh, co-supervised by N. Brodu in the framework of OPTIC associated team and IFCAM collaboration.

PhD in progress : C. Artana, co-supervised by H. Yahia in a collaboration with LOCEAN team (Univ. Paris 6).

### **10.3. Popularization**

Diffusion of the GENESIS project in the magazine Inria PLUGIN (published beginning 2018) and in the Inria website (national and INRIA BSO), see <https://www.inria.fr/centre/bordeaux/actualites/lancement-du-projet-genesis>.

## GRACE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

B. Smith was a member of the organizing committee and Short Talk Chair for IEEE EuroS&P 2017 (Paris, April 2017)

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

- D. Augot was co-chair of Workshop on Coding and Cryptography (WCC) 2017 at St Petersburg (Russia).

#### 9.1.2.2. Member of the Conference Program Committees

B. Smith: Latincrypt 2017, ECC (International Workshop on Elliptic Curve Cryptography) 2017.

D. Augot and A. Couvreur : Fifth Code-based Cryptography Workshop 2017, Tenerife, Spain.

A. Couvreur: WCC 2017 (Workshop on Coding and Cryptography 2017, St Petersburg, Russia).

A. Couvreur : AGC<sup>2</sup>T 2017 (Arithmetic Geometry Cryptography and Coding Theory 2017, Marseille, France).

D. Augot: International Conference on Mathematical Aspects of Computer and Information Sciences <https://macis2017.sba-research.org/>

#### 9.1.2.3. Reviewer

B. Smith: IFIPSEC2017, Africacrypt 2017, WCC 2017, Asiacrypt 2017, Eurocrypt 2017, MACIS 2017, PKC 2018

J. Lavauzelle: MACIS 2017

A. Couvreur: Crypto 2017, Eurocrypt 2017, ISIT 2017.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

F. Morain is member of the editorial board of the *Applicable Algebra in Engineering, Communication and Computing*, Springer.

#### 9.1.3.2. Reviewer - Reviewing Activities

B. Smith: Theory of Computing Systems, Springer Women in Mathematics, Research in Number Theory, IEEE Transactions on Information Theory, Journal of Cryptographic Engineering.

A. Couvreur: IEEE Transactions on Information Theory, IEEE Transactions on Communication, Journal of Number Theory, SIAM Journal on Applied Algebra and Geometry.

### 9.1.4. Invited Talks

B. Smith was an invited speaker at the annual FMF Symposium, a public science event at Universiteit Groningen (Groningen, NL, November 2017)

B. Smith was an invited speaker in the SIAM Applied Algebraic Geometry minisymposium on Applications of Computational Algebraic Geometry to Cryptology (Atlanta, USA, August 2017).

B. Smith was an invited speaker at the FoCM workshop on Computational Number Theory (Barcelona, ES, July 2017)

B. Smith was an invited speaker at the Summer School on Real-World Crypto and Privacy (Sibenik, HR, June 2017)

B. Smith was an invited speaker at JeudiX, a public science outreach event of École polytechnique (Paris, January 2017)

### 9.1.5. Animation of Seminars

- D. Augot is member of the scientific committee of the CCA seminar, “Codage, Cryptographie et Algorithms”, <https://cca.inria.fr>
- D. Augot, with Bernadette Charron-Bost, is heading the scientific committee of the Blocksem seminar at Polytechnique, on blockchains, <http://www.lix.polytechnique.fr/blocksem>
- D. Augot, with Fabrice Le Fessant, organised the Open Source Spring on blockchains <http://www.open-source-innovation-spring.org/>

### 9.1.6. Research Administration

F. Morain is vice-head of the Département d’informatique of Ecole Polytechnique.

F. Morain is member of the Board of Master Parisien de Recherche en Informatique (MPRI).

A. Couvreur is member of LIX’s *Conseil de laboratoire*.

B. Smith was the International Correspondant for CRI Saclay.

B. Smith was a member of the COST-GTRI.

D. Augot is elected member of the “conseil académique consultatif” de Paris-Saclay.

D. Augot was in the “comité de sélection” for a “maître de conférences” position in Grenoble

D. Augot was heading the “comité de sélection” for a “maître de conférences” position in Rouen

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence:

B. Smith, Computer Programming (CSE101), 23h EqTD, L1, École polytechnique, France

J. Lavauzelle, 1I001, *Éléments de programmation*, tutorial class (17.5h equiv TD), L1, Université Pierre et Marie Curie

J. Lavauzelle, 2I003, *Initiation à l’algorithmique*, tutorial class (47.5h equiv TD), L2, Université Pierre et Marie Curie

A. Couvreur and E. Barelli, INF411, “Les bases de la programmation et de l’algorithmique“, 21.3h (equiv TD), 2nd year (L3), Ecole Polytechnique, France.

E. Barelli, INF311, “Introduction à l’informatique“, 26.7h(equiv TD), 1st year, Ecole Polytechnique, France.

Master:

B. Smith, Advanced Cryptology (INF568), 55h EqTD, M1, École polytechnique, France

B. Smith and F. Morain, Algorithmes Arithmétiques pour la Cryptologie (2-12-2), 20h EqTD, M2, Master Parisien de Recherche en Informatique (MPRI), France

A. Couvreur and F. Morain, Introduction to Cryptology (INF558), 40h, M1, École polytechnique, France

A. Couvreur, Error Correcting Codes and Applications to Cryptography, (2-13-2), 15h, M2, MPRI, FRANCE

Master 2 intern

- D. Augot was the director of Rémi Clarisse internship on the Chor-Rivest cryptosystem

Students project

- D. Augot was managing two groups of polytechniques students on their own project: one about a voting system based on homomorphic encryption (with CEA List), the second about a medical kidney exchange scheme secured and enforced by the Hyperledger/fabric blockchain (with Orange)

### 9.2.2. Supervision

PhD : Cyril Hugounenq, Volcans et calcul d'isogénies, Université Paris Saclay, 25/09/2017, F. Morain & L. Goubin & L. De Feo.

### 9.2.3. Juries

- D. Augot
  - examiner of the PhD defense of Sarah Kamel, “Sécurité pour les réseaux sans fil”, le 10 mars 2017 (Télécom Paris Tech)
  - examiner of the PhD defense of Francisco Vial-Prado, “Contributions to the design and analysis of fully homomorphic encryption schemes”, le 12 juin 2017 (Université Versailles Saint-Quentin)
  - examiner of the PhD defense of Vlad Dragoi “Approche algébrique pour l'étude et la résolution de problèmes algorithmiques issus de la cryptographie et de la théorie des codes”, le 6 juillet 2017 (University of Rouen).
  - examiner of the PhD defense of Mohamed A. M. Saeed Taha “Algebraic Approach for Code Equivalence”, le 18 décembre 2017 (University of Rouen).
- A. Couvreur
  - PhD : Hervé Talé Kalachi (University of Rouen).
  - Agrégation de Mathématiques.

## 9.3. Popularization

- A. Couvreur gave the *Conférence inaugurale* of the *Semaine des mathématiques* in the académie de Créteil: *Cryptographie, le langage des secrets*.

## **GRAPHDECO Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific Events Organisation**

#### *9.1.1.1. Member of the Organizing Committees*

G. Drettakis was a member of the ACM SIGGRAPH 2017 papers advisory board.

### **9.1.2. Scientific Events Selection**

#### *9.1.2.1. Member of the Conference Program Committees*

G. Cirio was on the program committee of IEEE World Haptics 2017. A. Bousseau was a Papers Committee member of Eurographics 2018 and SIGGRAPH Asia 2017 technical briefs and posters, and a member of Eurographics STAR committee. G. Drettakis was a member of the ACM SIGGRAPH 2017 papers committee and of the Eurographics STAR committee.

#### *9.1.2.2. Reviewer*

A. Bousseau was a reviewer for ACM Transactions on Graphics, SIGGRAPH, SIGGRAPH Asia, Eurographics, ACM CHI Gabriel Cirio was reviewer for Eurographics, ACM SIGGRAPH, IEEE World Haptics, IEEE Transactions on Haptics, ACM UIST, IEEE 3DUI, IEEE VR. Y. Gryaditskaya was a reviewer for SIGGRAPH Asia 2017, Eurographics 2018, ACM TOG and JEI.

### **9.1.3. Journal**

#### *9.1.3.1. Member of the Editorial Boards*

A. Bousseau is an Associate Editor of The Visual Computer journal (Springer) G. Drettakis is Associate Editor of ACM Transactions on Graphics (TOG) and of Computational Visual Media (CVM).

### **9.1.4. Invited Talks**

Y. Gryaditskaya visited the Charles University of Prague in May 2017. Adrien Bousseau gave a talk about 3D reconstruction of design drawings at Delft University.

### **9.1.5. Leadership within the Scientific Community**

G. Drettakis chairs the Eurographics working group on Rendering. G. Drettakis chairs the local “Jacques Morgenstern” Colloquium organizing committee.

## **9.2. Teaching - Supervision - Juries**

### **9.2.1. Teaching**

Licence : J. Delanoy, TP Bases de donnees and personal project, niveau L1, IUT - Université Nice Sophia Antipolis, 64h

Licence : S. Rodriguez, niveau L1, 64h as a DCCE in Polytech’Nice (UCA).

Licence : J. Philip, Introduction au Web & Application du Web, niveau L2, Polytech Nice-Sophia - Université Côte d’Azur, 64h

Licence: T. Thonat, Informatique Theorique, niveau L3, Polytech Nice, Sophia-Antipolis, 64h

Master : G. Drettakis, Computer Graphics, 12h, CentraleSupélec; 6h Université Nice Sophia Antipolis, 64h

Master : A. Bousseau, Computer Graphics, 9h, CentraleSupélec; 9h Université Nice Sophia Antipolis, 64h

### **9.2.2. Others**

Y. Gryaditskaya and V. Deschaintre attended MAM and EGSR 2017 V. Deschaintre, S. Rodriguez, J. Philip and T. Thonat attended UCA Deep Learning School, 12-15 June 2017, Sophia-Antipolis, France. S. Rodriguez, J. Delanoy, T. Thonat and J. Philip attended Eurographics 2017, 24-28 April 2017, Lyon, France. Johanna Delanoy participated in the Doctoral Consortium at Eurographics 2017. Johanna Delanoy was a Student Volunteer at Siggraph 2017.

### **9.2.3. Presentations**

Theo Thonat presented his 3DV-2016 multi view inpainting work at the AFIG French conference.

#### *9.2.3.1. Supervision*

PhD defended: Rodrigo Ortiz-Cayon, Mixed image-based rendering, Nice Sophia Antipolis University, started Dec. 2013, defended in Feb. 2017, advisor: G. Drettakis

PhD in progress: Théo Thonat, Multi-view image processing for image-based rendering, Nice Sophia Antipolis University, started Oct. 2015, advisor: G. Drettakis

PhD in progress: Johanna Delanoy, Data-driven sketch-based modeling, Nice Sophia Antipolis University, started Oct. 2015, advisor: A. Bousseau

PhD in progress: Jean-Dominique Favreau, geometric analysis of line drawings, Nice Sophia Antipolis University, started Oct. 2014, advisors: A. Bousseau and F. Lafarge (Titane)

PhD in progress: Valentin Deschaintre, lightweight material capture, Nice Sophia Antipolis University, started Nov. 2016, advisors: A. Bousseau and G. Drettakis

PhD in progress: Julien Philip, Mixed rendering for cultural heritage, Nice Sophia Antipolis University, started Nov. 2016, advisor: G. Drettakis

PhD in progress: Simon Rodriguez, Combining image-based and procedural modeling, Nice Sophia Antipolis University, started Nov. 2016, advisor: G. Drettakis

#### *9.2.3.2. Juries*

A. Bousseau was a reviewer for the PhD of Yulia Gryaditskaya (MPI Saarbruecken), Benoit Arbelot (Inria Rhône Alpes) and T. Stanko (Inria Rhône Alpes).

## **9.3. Popularization**

Theo Thonat gave demos of Image Based Renderings during the 2017 "Fete de la science" at the Inria stand (Oct. 7.) for school children and adults audience.

## GRAPHIK Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

- **Organization of DL 2017 (30th Workshop on Description Logics)**, Montpellier, July 2017. The DL workshop is the major annual event of the Description Logic research community. It is the forum at which those interested in description logics, both from academia and industry, meet to discuss ideas, share information and compare experiences. Meghyn Bienvenu and Marie-Laure Mugnier were general co-chairs and the team GraphIK was in charge of the local organisation (Jean-François Baget, Pierre Bisquert, Stathis Delivourias, Abdelraouf Hecham, Federico Ulliana, Bruno Yun, and the team assistant, Annie Aliaga, were members of the organisation committee).  
<https://project.inria.fr/dl2017>
- **Co-organization of the Graph Based Knowledge Representation and Reasoning Workshop** associated with the **IJCAI 2017** international conference. Madalina Croitoru, with Sebastian Rudolph (Univ Dresden), Pierre Marquis (Univ Artois) and Gem Stapleton (Univ Brighton), organized this event. This is the 5th edition of this workshop series that Madalina Croitoru initiated for IJCAI 2011.  
<http://www.lirmm.fr/~hecham/GKR/index.html>
- **Co-organization of the Workshop Reasoning on Data** associated with **The Web 2018** international conference (Lyon, March 2018). Marie-Laure Mugnier, with Catherine Roussey (Irstea) and Pierre Senellart (ENS Paris, Inria Valda team), are chairs of this workshop linked to the French national action 'Reasoning on Data' common to GDR MaDICS and IA.  
<https://sites.google.com/site/2018rod/>
- **Co-organization of the International Workshop on ASP technologies for Querying large scale multisource heterogeneous web information (WASPIQ 2017)** associated with the **IEA/AIE 2017** conference (30th International Conference on Industrial, Engineering and Other Applications of Applied Intelligent Systems). M.-L. Mugnier, with Odile Papini (LSIS), Salen Benferhat (CRIL) and Laurent Garcia (LERIA), organized this workshop linked to the ANR ASPIQ project.  
<http://waspiq2017.lsis.org>.
- **Organization of a Special Track on "Agronomy and Artificial Intelligence"** associated with the **IEA/AIE 2017** conference (30th International Conference on Industrial, Engineering and Other Applications of Applied Intelligent Systems). M. Croitoru and P. Bisquert organized this event.  
<http://www.cril.univ-artois.fr/ieaaie2017/main/specialtracks>

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- Meghyn Bienvenu will be tutorial co-chair for the International Joint Conference on Artificial Intelligence (IJCAI) 2018.

#### 10.1.2.2. Member of the Conference Program Committees

We are regularly members of the program committees of major conferences in AI or in databases (i.e., IJCAI, AAAI, ECAI, AAMAS, ICDT, PODS) and more focused conferences and workshops (such as RuleML+RR—Web reasoning and Rule Systems— and Description Logics). We also take part in the animation of the national community (JIAF, EGC, IC, BDA).

For 2017, we served in the following program committees:

**International**

- IJCAI 2017 (International Conference on Artificial Intelligence) : 1 Senior PC + 2 PC
- AAAI 2017 (AAAI Conference on Artificial Intelligence) : 2 PC
- PODS 2017 (ACM SIGMOD-SIGACT-SIGAI Symposium on Principles of Database Systems) : 1 PC
- ICDT 2017 (International Conference on Database Theory) : 1PC
- ISWC 2017 (International Semantic Web Conference) : 1 PC
- AAMAS 2017 (International Conference on Autonomous Agents and Multiagent Systems) : 1 PC
- RuleML+RR 2017 (International Joint Conference on Rules and Reasoning) : 2 PC
- EFITA 2017 (European Federation for Information Technology in Agriculture, Food and the Environment) : 2 PC
- IEA/AIE 2017 (International Conference on Industrial, Engineering, Other Applications of Applied Intelligent Systems) : 1 PC
- FQAS 2017 (International Conference on Flexible Query Answering Systems) : 1 PC

**National**

- JIAF 2017 (Journées Françaises d'Intelligence Artificielle Fondamentale) : 1 PC
- EGC 2017 (Extraction et Gestion des Connaissances) : 2 PC
- IC 2017 (Ingénierie des Connaissances) : 1 PC
- BDA 2017 (Conférence sur la gestion de données) : 1 PC

For 2018, we will serve in the following international program committees (list not exhaustive yet):

- IJCAI-ECAI 2018 (International Joint Conference on Artificial Intelligence joint with the the 23rd European Conference on Artificial Intelligence) : 2 Senior PC + 2 PC
- AAAI 2018 (AAAI Conference on Artificial Intelligence) 1 Senior PC + 1 PC
- RuleML+RR 2018 (International Joint Conference on Rules and Reasoning) : 1PC
- FOIKS 2018 (International Symposium on Foundations of Information and Knowledge Systems) : 1 PC
- ROD 2018 (Reasoning on Data Workshop) @ The Web 2018 : 1 PC

**10.1.3. Journal***10.1.3.1. Member of the Editorial Boards*

- ARIMA : “Revue africaine de la recherche en informatique et mathématiques appliquées” (P. Buche)

*10.1.3.2. Reviewer - Reviewing Activities*

- Journal of Artificial Intelligence Research (JAIR)
- ACM Transactions on Computational Logics (ToCL)
- Information Systems Journal
- Distributed and Parallel Databases Journal (DAPD)
- EURO Journal on Decision Processes (EJPD) : Special issue on Supporting and Explaining Decision Processes by means of Argumentation

**10.1.4. Invited Talks and Seminars**

- J.-F. Baget, “Computing repairs (and more) with Answer Set Programming”, Workshop on ASP technologies for Querying large scale multisource heterogeneous web information (WASPIQ 2017) June 2017.
- F. Ulliana, “Ontology-Mediated Query Answering and Heterogeneous Data” 1ère journée ROD (Reasoning on Data), June 2017.



- M. Bienvenu, "Query Rewriting: Limits and Possibilities", KR seminar, Department of Computer Science of the University of Toronto, December 2017.
- R. Thomopoulos, "Science for Food and Bioproduct Engineering at INRA: a knowledge engineering perspective", Seminar at ATEI Thessaloniki, Greece (November 2017).
- P. Buche, "Ingénierie des connaissances pour l'aide à la décision dans la filière agroalimentaire", 6ème rencontre ESOF (EuroScienceOpen Forum) sur la transformation numérique des agrochaînes, Toulouse, October 2017.
- M.-L. Mugnier, "Accès aux données médiatisé par une ontologie", 25th Anniversary of the LIRMM laboratory, November 2017.
- Marie-Laure Mugnier, "Accès aux données médiatisé par des connaissances", First seminar of the axis "Système d'information, stockage et transfert de données" of #DigitAg, November 2017
- P. Buche, "Retour d'expérience d'une pratique Open Science au sein du département CEPIA", Séminaire annuel du département INRA CEPIA à Magny-le-Hongre, Session Open Science, Octobre 2017.
- J. Fortin, "Capitaliser l'expertise et la rendre accessible : la démarche Docamex", Séminaire INRA/CEPIA, 2017.

### 10.1.5. Leadership within the Scientific Community

- Marie-Laure Mugnier, together with Marie-Christine Rousset (LIG), Véronique Bellon (ITAP, IRSTEA/SupAgro) and Olivier Palombi (LDAF-CHU Grenoble-Alpes) launched a national action (2017-2018, 2 years), named Reasoning on Data (Rod), common to CNRS research groups ('GDR') IA (formal and algorithmic aspects of artificial intelligence) and MaDICS (Big Data, Data Science). The aim of this action is to build a national community on the issue of knowledge representation and reasoning oriented towards better exploiting data. The first meeting was held in June 2017 within the MaDICS annual workshop. The second meeting will be held in March 2017 in association with the RoD workshop at the conference The Web 2018. For more detail, see <http://www.lirmm.fr/rod/>
- Patrice Buche he coordinates both the CATI (Ingénierie des Connaissances et Analyse Textuelle) INRA group (<https://www6.inra.fr/cati-icat>) and the INRA IN-OVIVE group ([www6.inra.fr/reseau-in-ovive](http://www6.inra.fr/reseau-in-ovive)) for which he organized an invited session at EFITA'2017.
- Rallou Thomopoulos is coordinator of the INRA-CEPIA transversal programs on knowledge and model integration, multiperformance design, and ethical issues.
- Marie-Laure Mugnier is member of the animating committee of the GDR IA (formal and algorithmic aspects of artificial intelligence).

### 10.1.6. Scientific Expertise

- Rallou Thomopoulos has been elected member of the Scientific Committee of the INRA-CEPIA research division for the period 2016-2020.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

The six faculty members teach at all university levels (IUT, Licence, Master). The main courses they are in charge of are: Logics (L), Databases (M), Web Technologies (IUT), Artificial Intelligence (M), Knowledge Representation and Reasoning (M), Social and Semantic Web (M). Concerning full-time researchers in 2017, Jean-François Baget gave Master courses (40 h) and Rallou Thomopoulos was instructor for "Participative modelling and simulation", a one week full time training school for INRA-CIRAD researchers (which is held once to twice a year, since 2016).

Moreover, faculty members have some specific responsibilities in the Computer Science Licence and Master:

- Michel Leclère (Faculty): from 2011 to 2017, he managed the program “Data, Knowledge and Natural Language Processing” (DECOL), part of the Master of Computer Science (about 30 students). This program was co-managed with Federico Ulliana (Faculty) 2016, which became the coordinator for 2017.
- Marie-Laure Mugnier (Faculty): from 2011 to 2017, she was (co)-director of the Master in Computer Science, which gathers 6 programs (about 250 students). She also led the Master project for the next four years (LMD4, from 2015/16 to 2018/2019).
- Madalina Croitoru (IUT): since Sept. 2014, she manages the “année spéciale” (about 25 students).

### **10.2.2. Involvement in University Structures**

- Michel Leclère: since Sept. 2015, he is deputy manager of the Computer Science teaching Department from the Science Faculty, University of Montpellier. He is also coordinator for the Information Systems (“sytèmes d’Informations et salles informatiques”) for the Science Faculty, University of Montpellier.
- Marie-Laure Mugnier: since 2016, she is member of the Council of the Scientific Department MIPS (Mathematics Informatics Physics and Systems) of the University of Montpellier - Marie-Laure Mugnier.

### **10.2.3. Supervision**

PhD in progress are:

- Stathis Delivorias. Supervisors: Federico Ulliana, Michel Leclère and Marie-Laure Mugnier. “Boundedness and Module extraction in Existential Rules KBs”. Started Oct. 2015.
- Abdelraouf Hecham. Supervisors: Madalina Croitoru and Pierre Bisquert. “Logical argumentation with dual cognitive systems”. Algerian National Ministry Grant 2015-2018.
- Bruno Yun. Supervisors: Madalina Croitoru, Rallou Thomopolous, Srdjan Vesic. “Decision Making and Ranking Semantics in Logical Argumentation Frameworks”. French National Ministry Grant 2016-2019.

### **10.2.4. Juries**

- Marie-Laure Mugnier was reviewer for the HDR of Mantas Šimkus - TU Wien (Vienna University of Technology).
- Rallou Thomopoulos was jury member of Jérémy Bénard’s PHD thesis “Exploitation of an ontology of knowledge representation languages for the semantic and generic import, export and translation of knowledge representations”, Université de La Réunion, June 2017.

## **10.3. Popularization**

- M. Chein, "Sur la science informatique et son installation à Montpellier" Association Française pour l’Avancement des Sciences, Montpellier, April 2017.
- M. Chein, "L’informatique : la science au coeur du numérique", Académie des Sciences et Lettres de Montpellier, May 2017.
- J.-F. Baget, Animation of a panel on "Artificial Intelligence", Lycée Jean Monnet, Montpellier, December 2017.

## HEPHAISTOS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- J-P. Merlet is a member of the scientific committee of the European Conference on Mechanism Science (EUCOMES), chairman of the scientific Committee of the Computational Kinematics workshop, a member of the steering Committee of IROS
- Y. Papegay is a permanent member of the International Steering Committee of the International Mathematica Symposium conferences series. He is a member of the OpenMath Society, building an extensible standard for representing the semantics of mathematical objects

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Reviewer

- J-P. Merlet has been reviewing Editor for IROS 2017 and was a member of ICRA 2017 IPC.
- The members of the team reviewed numerous papers for numerous international conferences.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- J-P. Merlet is board member of the Journal of Behavioral Robotics

### 10.1.4. Invited Talks

- J-P. Merlet was invited by the Royal Society of Edinburgh for a talk on robotics

### 10.1.5. Leadership within the Scientific Community

- J-P. Merlet is Inria representative to the PPP Eurobotics aisbl. He is a member of the IFToMM (International Federation for the Promotion of Mechanism and Machine Science) Technical Committees on History and on Computational Kinematics and has been re-elected as one of the 10 members of IFToMM Executive Council, the board of this federation. He is a member of the scientific committee of the CNRS GDR robotique.

### 10.1.6. Scientific Expertise

- J-P. Merlet was involved in project evaluations for several foreign funding agencies (Israel, Austria, Finland). He was also appointed as *Nominator* for the Japan's Prize.

### 10.1.7. Research Administration

- J-P. Merlet is an elected member of the Academic Council of UCA COMUE and member of the Research, Ethical Committees of UCA
- O. Pourtallier is a board member of SeaTech, an Engineering School of University of Toulon.

#### 10.1.7.1. Inria activities

- J-P. Merlet is an elected member of Inria Scientific Committee
- O. Pourtallier is responsible of the NICE committee (long term invited scientists and post-doctoral student selection).
- Y. Papegay is a member of the Inria CUMIR and of the ADT committee

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : O. Pourtallier lectured 6 hours on game theory to Master OSE (M2), at École des Mines de Paris, Sophia Antipolis, France.

### 10.2.2. Supervision

PhD in Progress : A. Massein, Design of Smart Environment for Human Behaviour Recognition, 2013-2018, supervisors: D.Daney, Y.Papegay

### 10.2.3. Juries

- J-P. Merlet has been a member of 5 PhD juries
- Y. Papegay has been a member of 1 PhD jury

## 10.3. Popularization

- J-P. Merlet and A. Coulbois participated to Inorobot and several other events, exhibiting a cable-driven parallel robot for education
- J-P. is a member of the Scientific Committee managing the future permanent exhibition on robotics at the Cité des Sciences, Paris
- Y.Papegay is actively participating to the Math.en.Jeans initiative for Mathematics teaching for undergraduate students.
- Y.Papegay organized and animated summer schools in experimental mathematics and computer sciences. Several one week sessions have been held in Oxford in June, July, August and November gathering more than 70 high-school students - most of them were awardees in Mathematics Olympiads.

## HIEPACS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Member of the Conference Program Committees

SC'17 (E. Agullo, A. Guermouche), ICPP'17 (A. Guermouche), HiPC'17 (A. Guermouche), IEEE PDP'17 (J. Roman), PDSEC'17 (O. Coulaud, L. Giraud).

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

L. Giraud is member of the editorial board of the SIAM Journal on Matrix Analysis and Applications (**SIMAX**).

#### 10.1.2.2. Reviewer - Reviewing Activities

ACM Trans. on Mathematical Software, Advances in Computational Mathematics, Computing and Fluid, IEEE Trans. on Parallel and Distributed Systems, International Journal of High Performance Computing Applications, Journal of Computational Physics, Journal of Scientific Computing, Linear algebra with applications, Mathematics and Computers in Simulation, Parallel Computing, SIAM J. Matrix Analysis and Applications, SIAM J. Scientific Computing, Theory of Computing Systems.

### 10.1.3. Scientific Expertise

- Emmanuel Agullo: US Department of Energy's (DOE's) Exascale Computing Project (ECP) reviewing for research and development in Software Technology, specifically in the area of Math Libraries.
- Luc Giraud is member of the board on Modelisation, Simulation and data analysis of the **Competitiveness Cluster for Aeronautics, Space and Embedded Systems**.
- Pierre Ramet is "Scientific Expert" at the CEA-DAM CESTA since Oct. 2015.
- Jean Roman is member of the "Scientific Board" of the CEA-DAM. As representative of Inria, he is member of the board of ETP4HPC (European Technology Platform for High Performance Computing), of the French Information Group for PRACE, of the Technical Group of GENCI and of the Scientific Advisory Board of the Maison de la Simulation.

### 10.1.4. Research Administration

- Emmanuel Agullo and Luc Giraud are the scientific correspondents of the European and International partnership for Inria Bordeaux Sud-Ouest.
- Olivier Coulaud is the coordinator of the **PLAFRIM** platform for Inria Bordeaux Sud-Ouest.
- Jean Roman is a member of the Direction for Science at Inria : he is the Deputy Scientific Director of the Inria research domain entitled *Applied Mathematics, Computation and Simulation* and is in charge at the national level of the Inria activities concerning High Performance Computing.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

We indicate below the number of hours spent in teaching activities on a yearly basis for each scientific staff member involved.

Undergraduate level/Licence

- A. Esnard: System programming 36h, Computer architecture 40h, Network 23h at Bordeaux University.
- M. Faverge: Programming environment 26h, Numerical algorithmic 30h, C projects 24h at Bordeaux INP (ENSEIRB-MatMeca).
- P. Ramet: System programming 24h, Databases 32h, Object programming 48h, Distributed programming 32h, Cryptography 32h at Bordeaux University.

#### Post graduate level/Master

- E. Agullo: Operating systems 24h at Bordeaux University ; Dense linear algebra kernels 8h, Numerical algorithms 30h at Bordeaux INP (ENSEIRB-MatMeca).
- O. Coulaud: Paradigms for parallel computing 24h, Hierarchical methods 8h at Bordeaux INP (ENSEIRB-MatMeca).
- A. Esnard: Network management 27h, Network security 27h at Bordeaux University; Programming distributed applications 35h at Bordeaux INP (ENSEIRB-MatMeca).
- M. Faverge: System programming 74h, Load balancing and scheduling 13h at Bordeaux INP (ENSEIRB-MatMeca).  
He is also in charge of the master 2 internship for the Computer Science department at Bordeaux INP (ENSEIRB-MatMeca).
- L. Giraud: Introduction to intensive computing and related programming tools 20h, INSA Toulouse; Introduction to high performance computing and applications 20h, ISAE; On mathematical tools for numerical simulations 10h, ENSEEIHT Toulouse; Parallel sparse linear algebra 11h at Bordeaux INP (ENSEIRB-MatMeca).
- A. Guermouche: Network management 92h, Network security 64h, Operating system 24h at Bordeaux University.
- P. Ramet: Load balancing and scheduling 13h, Numerical algorithms 30h at Bordeaux INP (ENSEIRB-MatMeca). He also gives classes on Cryptography 30h, Ho Chi Minh City in Vietnam.
- J. Roman: Parallel sparse linear algebra 10h, Algorithmic and parallel algorithms 22h at Bordeaux INP (ENSEIRB-MatMeca).  
He is also in charge of the last year “Parallel and Distributed Computing” option at ENSEIRB-MatMeca which is specialized in HPC (methodologies and applications). This is a common training curriculum between Computer Science and MatMeca departments at Bordeaux INP and with Bordeaux University in the context of Computer Science Research Master. It provides a lot of well-trained internship students for Inria projects working on HPC and simulation.

Summer School: on an annual basis, we run a three day advanced training (lecture and hands on) on parallel linear algebra in the framework of the European PRACE PATC (PRACE Advanced Training Centres) initiative. This training has been organized in many places in France and Europe.

### 10.2.2. Supervision

HdR : Abdou Guermouche, Towards efficient sparse direct solvers for modern high-performance architectures, Université de Bordeaux, 27 novembre 2017.

HdR : Pierre Ramet, Hierarchical matrices, Hybrid methods, Heterogeneous architectures in sparse linear solvers, Université de Bordeaux, 27 novembre 2017.

PhD in progress : Nicolas Bouzat; Fine grain algorithms and deployment methods for exascale plasma physic applications ; M.Mehrenberger (TONUS project-team), J.Roman, G. Latu (CEA-IRFM).

PhD in progress : Arnaud Durocher; High performance Dislocation Dynamics simulations on heterogeneous computing platforms for the study of creep deformation mechanisms for nuclear applications; O. Coulaud, L. Dupuy (CEA).

PhD in progress : Aurélien Falco; Data sparse calculation in FEM/BEM solution; E. Agullo, L. Giraud, G. Sylvand.

PhD in progress : Grégoire Pichon; Utilisation de techniques de compression  $\mathcal{H}$ -matrices pour solveur direct creux parallèle dans le cadre des applications FEM; M. Faverge, P. Ramet.

PhD in progress : Louis Poirel; Algebraic coarse space correction for parallel hybrid solvers; E. Agullo, L. Giraud.

### **10.2.3. Juries**

- Vanessa C. Vargas Vallejo, "Approche logicielle pour améliorer la fiabilité d'applications parallèles implémentées sur des processeurs multi-cœur et many-cœur", referee: L. Giraud, O. Romain, Université Joseph-Fourier de Grenoble, spécialité: nano électronique et nano technologie, 28 April 2018.
- Roberto Molina, "Hybridation of FETI methods", referee: L. Giraud, D. J. Rixen; Université Pierre et Marie Curie, spécialité: mathématiques appliquées, 19 Décembre 2017.
- Krishna Kant Singh, "Algorithms for Adaptively Restrained Molecular Dynamics", referee: O. Coulaud, K. Hinsen. Université Joseph-Fourier de Grenoble, spécialité: informatique , 8 Novembre 2017.

## HYBRID Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, Scientific chair

- Bruno Arnaldi was General Chair of IGRV 2017 (journées du GDR IG-RV, Journées de l'AFRV, Journées de l'AFIG), Rennes, France.
- Anatole Lécuyer and Guillaume Moreau were General co-Chairs of IEEE Symposium on Mixed and Augmented Reality 2017 (IEEE ISMAR), Nantes, France.
- Maud Marchal was Program Chair of IEEE Symposium on 3D User Interfaces 2017 (IEEE 3DUI).
- Jean-Marie Normand was Deputy General Chair of IEEE Symposium on Mixed and Augmented Reality 2017 (IEEE ISMAR), Nantes, France.

#### 10.1.1.2. Member of the organizing committees

- Anatole Lécuyer was Member of the organization committee of IGRV 2017.
- Ferran Argelaguet was Member of the organization committee of ISMAR 2017 and IGRV 2017.
- Ronan Gaugne was Member of the organization committee of ISMAR 2017 and IGRV 2017.
- Valérie Gouranton was Member of the steering committee of ISMAR 2017 and IGRV 2017.
- Maud Marchal was Member of the organization committee of IGRV 2017.
- Florian Nouviale was Member of the organization committee of ISMAR 2017 and IGRV 2017.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Member of the conference program committees

- Anatole Lécuyer was Member of the conference program committee of IEEE Conference on Virtual Reality 2017.
- Ferran Argelaguet was Member of the conference program committee of IEEE Symposium on 3D User Interfaces 2017, and ACM Symposium on Spatial User Interfaces 2017 and IHM 2017.
- Maud Marchal was Member of the conference program committee of Eurographics 2017, the best paper committee of "Journées Françaises de l'Informatique Graphique" 2017, the best Phd award committee of GDR-IGRV/EGFR/AFRV.
- Guillaume Moreau was Member of the program committee of IEEE Symposium on 3D User Interfaces 2017, Area Chair of IAPR Machine Vision Applications 2017.
- Jean-Marie Normand was Member of the program committee of Augmented Human 2017, Area Chair of IAPR Machine Vision Applications 2017.

#### 10.1.2.2. Reviewer

- Ferran Argelaguet was Reviewer for IEEE VR 2017, ACM CHI 2017, ACM VRST 2017, ACM UIST 2017, WorldHaptics 2017.
- Maud Marchal was Reviewer for IEEE VR 2017, Eurographics 2017, IEEE ICRA 2017.
- Valérie Gouranton was Reviewer for IEEE VR 2017.
- Guillaume Moreau was Reviewer for IEEE 3DUI 2017, IEEE VR 2017, ACM AH 2017.
- Jean-Marie Normand was Reviewer for IEEE 3DUI 2017, IEEE VR 2017, IEEE ISMAR 2017, ACM CHI 2017, ACM MM 2017.



### **10.1.3. Journal**

#### *10.1.3.1. Member of the editorial boards*

- Anatole Lécuyer is Associate Editor of the IEEE Transactions on Visualization and Computer Graphics (since Dec 2017), Frontiers in Virtual Environments, and Presence journals. He is also Guest Editor of a Special Issue of IEEE Computer Graphics and Applications on "Virtual and Augmented Reality".
- Ferran Argelaguet is Review Editor of Frontiers in Virtual Environments.
- Maud Marchal is Review Editor of Frontiers in Virtual Environments.
- Guillaume Moreau is Associate Editor of a Special Issue of the Transactions of the Institute of Electronics, Information and Communication Engineers and for Applied Sciences.
- Jean-Marie Normand is Review Editor of Frontiers in Virtual Environments.

#### *10.1.3.2. Reviewer - Reviewing activities*

- Ferran Argelaguet was Reviewer for ACM Transactions on Graphics, IEEE Transactions on Visualization and Computer Graphics, International Journal on Human Computer Studies.
- Ronan Gaugne was Reviewer for Digital Applications in Archaeology and Cultural Heritage.
- Maud Marchal was Reviewer for IEEE Transactions on Visualization and Computer Graphics, IEEE Transactions on Haptics, The Visual Computer and Computers and Graphics Journal.
- Guillaume Moreau was reviewer for IEEE Transactions on Visualization and Computer Graphics and Computers, Environments and urban Systems.
- Jean-Marie Normand was Reviewer for Frontiers in Robotics and AI, IEEE Computer Graphics and Applications, IEEE Transactions on Visualization and Computer Graphics.

### **10.1.4. Invited talks**

- Anatole Lécuyer was Keynote Speaker at EuroVR 2017.
- Guillaume Moreau was Keynote Speaker at "Journées de l'Association Française d'Histotechnologie".

### **10.1.5. Leadership within the scientific community**

- Bruno Arnaldi is Member of Executive Committee of AFRV (French Association for Virtual Reality).
- Ronan Gaugne is Member of the Selection and Validation Committee for the French cluster "Pôle Images et Réseaux"
- Valérie Gouranton is Member of Executive Committee of AFRV.
- Maud Marchal is Member of Executive Committee of Eurographics French Chapter.

### **10.1.6. Scientific expertise**

- Valérie Gouranton was Member of a selection committee for French ANR.
- Ronan Gaugne was Expert for "Atlantisc2020 Région Pays de la Loire".
- Maud Marchal was Expert for "Haute Ecole Spécialisée de Suisse Occidentale" (Switzerland).
- Jean-Marie Normand was Expert for French ANR.

### **10.1.7. Research administration**

- Bruno Arnaldi is Deputy Director of IRISA, and co-Head of the Scientific Council of University of Rennes (ENS Rennes, ENSC Rennes, IEP Rennes, INSA Rennes, University Rennes 1, and University Rennes 2).
- Maud Marchal is Co-Head of the Master of "Research in Computer Science" (SIF) at University Rennes 1.

- Valérie Gouranton is Head of cross-cutting Axis "Art, Heritage & Culture" at IRISA.
- Jean-Marie Normand is Head of the Minor "Virtual Reality" at ECN.

## 10.2. Teaching - Supervision - Juries

Anatole Lécuyer:

Master MNRV: "Haptic Interaction", 9h, M2, ENSAM, Laval, FR

Ecole Centrale de Nantes : "Haptic Interaction and Brain-Computer Interfaces", 4.5h, M1-M2, Ecole Centrale de Nantes, FR

Master SIBM: "Haptic and Brain-Computer Interfaces", 4.5h, M2, University of Rennes 1, FR

Master CN: "Haptic Interaction and Brain-Computer Interfaces", 9h, M1 and M2, University of Rennes 2, FR

Master VRI: "Pseudo-Haptics and Brain-Computer Interfaces", 6h, M2, University of Rennes 1, FR

Bruno Arnaldi:

Master INSA Rennes: "VRI: Virtual Reality and Multi-Sensory Interaction Course", 4h, M2, INSA Rennes, FR

Master INSA Rennes: "CG: Computer Graphics", 10h, M2, INSA Rennes, FR

Master INSA Rennes: "Virtual Reality", courses 6h, projects 16h, M1 and M2, INSA Rennes, FR

Master INSA Rennes: Projects on "Virtual Reality", 20h, M1, INSA Rennes, FR

Ferran Argelaguet:

Master STS Informatique MITIC: "Techniques d'Interaction Avancées", 26h, M2, ISTIC, University of Rennes 1, FR

Master INSA Rennes: "Modeling and Engineering for Biology and Health Applications", 12h, M2, INSA Rennes, FR

Maud Marchal:

Master of Research in Computer Science: "Haptic rendering and physically-based simulation", 4h, M2, University of Rennes 1, FR

Master INSA Rennes: "Computer Graphics", 26h, M1 and responsible of this lecture, INSA Rennes, FR

Master INSA Rennes: "Modeling and Engineering for Biology and Health Applications", 48h, M2 and responsible of this lecture, INSA Rennes, FR

Master SIBM: "Biomedical simulation", 3h, M2, University of Rennes 1, FR

Valérie Gouranton:

Licence: "Introduction to Virtual Reality", 22h, L2 and responsible of this lecture, INSA Rennes, FR

Licence: Project on "Virtual Reality", 16h, L3 and responsible of this lecture, INSA Rennes, FR

Master INSA Rennes: "Virtual Reality", 16h, M2, INSA Rennes, FR

Master INSA Rennes: Projects on "Virtual Reality", 20h, M1, INSA Rennes, FR

Master CN: "Virtual Reality", 6h, M1, University of Rennes 2, FR

Ronan Gaugne:

INSA Rennes: Projects on "Virtual Reality", 47h, L3/M1/M2, Insa Rennes, FR

Master CN: "Virtual Reality", 3h, M1, University of Rennes 2, FR

Jean-Marie Normand:

Virtual Reality Minor, "Computer Graphics", 24h, M1/M2, Ecole centrale de Nantes, FR

Virtual Reality Minor, "Fundamentals of Virtual Reality", 14h, M1/M2, Ecole centrale de Nantes, FR

Virtual Reality Minor, "Computer Vision and Augmented Reality", 24h, M1/M2, Ecole centrale de Nantes, FR

Virtual Reality Minor, "Projects on Virtual Reality", 20h, M1/M2, Ecole centrale de Nantes, FR

### **10.2.1. Supervision**

#### *10.2.1.1. PhD (defended)*

- Jean-Baptiste Barreau, "Techniques of production, exploration and analysis of virtual archaeological environments", INSA Rennes, July 10th 2017, Supervised by Valérie Gouranton and Bruno Arnaldi
- Lorraine Perronnet, "Combining electroencephalography and functional magnetic resonance imaging for neurofeedback", University of Rennes 1, January 8th, 2017, Supervised by Anatole Lécuyer, Fabien Lotte (Potioc, Inria), Maureen Clerc (Athena, Inria) and Christian Barillot (Visages, Inria)
- Benoit Le Gouis, "Contribution to the study of haptic rendering and perception of virtual deformable objects", INSA Rennes, November 21th 2017, Supervised by Bruno Arnaldi, Maud Marchal and Anatole Lécuyer

#### *10.2.1.2. PhD (in progress)*

- Gwendal Le Moulec, "Automatic generation of VR applications", Started in October 2015, Supervised by Valérie Gouranton, Bruno Arnaldi and Arnaud Blouin (Diverse, Inria)
- Anne-Solène Dris-Kerdreux, "Training in virtual reality for construction applications", Started in November 2015, Supervised by Valérie Gouranton and Bruno Arnaldi
- Antoine Costes, "Haptic texturing", Started in November 2015, Supervised by Anatole Lécuyer, Philippe Guillotel (Technicolor), Fabien Danieau (Technicolor) and Ferran Argelaguet
- Guillaume Cortes, "Improving tracking in VR", Started in November 2015, Supervised by Anatole Lécuyer and Eric Marchand (Lagadic, Inria)
- Hakim Si-Mohammed, "BCI and HCI", Started in October 2016, Supervised by Anatole Lécuyer, Géry Casiez (Mjолnir, Inria), Nicolas Roussel (Mjолnir, Inria) and Ferran Argelaguet
- Gautier Picard, "Collaborative VR", Started in October 2016, Supervised by Valérie Gouranton, Bernard Gibaud (Inserm) and Bruno Arnaldi
- Hadrien Gurnel, "Prise en compte de la déformation d'organe pour l'assistance robotisée d'insertion d'aiguille", Started in October 2016, Supervised by Alexandre Krupa (Lagadic, Inria) and Maud Marchal
- Rebecca Fribourg, "Perception and interaction with and via avatars", Started in September 2017, Supervised by Ferran Argelaguet, Ludovic Hoyet (Mimetic, Inria) and Anatole Lécuyer
- Guillaume Bataille, "Natural interactions with IoT using VR/AR", Started in October 2017, Supervised by Valérie Gouranton, Danielle Pelé (Orange Labs) and Bruno Arnaldi
- Xavier de Tinguy, "Haptic manipulation in virtual environments", Started in September 2017, Supervised by Maud Marchal, Claudio Pacchierotti (Lagadic, Inria) and Anatole Lécuyer
- Flavien Lecuyer, "Interactive digital introspection methods for archeology", Started in September 2017, Supervised by Valérie Gouranton, Grégor Marchand (CNRS) and Bruno Arnaldi
- Etienne Peillard, "Improving Perception and Interaction in Augmented Reality", Started in October 2017, Supervised by Guillaume Moreau, Ferran Argelaguet, Anatole Lécuyer and Jean-Marie Normand

- Antonin Bernardin, "Interactive physically-based simulation of dexterous manipulation for robot understanding", Started in September 2017, Supervised by Maud Marchal and Christian Duriez (Defrost, Inria)
- Romain Lagneau, "Data-driven models for dexterous manipulation of robots", Started in Septembre 2017, Supervised by Maud Marchal and Alexandre Krupa (Lagadic, Inria)
- Romain Terrier, "Presence of self and others in a collaborative virtual environment", Started in October 2017, Supervised by Valérie Gouranton, Thomas Boggini (b<>com) and Bruno Arnaldi
- Mathis Fleury, "Neurofeedback based on fMRI and EEG", Started in November 2017, Supervised by Anatole Lécuyer and Christian Barillot (Visages, Inria)

### 10.2.2. Juries

#### 10.2.2.1. Selection committees

- Anatole Lécuyer was Member of selection committee of Assistant Professor Position at Ecole Centrale de Nantes.
- Valérie Gouranton was Member of selection committee of Assistant Professor Position at INSA Rennes, of Inria Junior Research Scientist (CR2 Inria) at Inria Rennes-Bretagne Atlantique
- Maud Marchal was Member of selection committee of Assistant Professor Position at Ecole Centrale de Nantes.
- Guillaume Moreau was Member of selection committee at Ecole Centrale de Nantes: Assistant Professor (2x), Full Professor (2x).

#### 10.2.2.2. PhD and HDR juries

- Anatole Lécuyer was Referee of PhD theses of Paul Issartel (Univ Paris Saclay), Cephise Louison (Univ Méditerranée) and Joan Sol Roo (Univ Bordeaux).
- Bruno Arnaldi was Referee of PhD thesis of Damien Clergeaud (Univ Bordeaux).
- Maud Marchal was Referee of PhD thesis of Fanny Morin (Univ Grenoble Alpes).
- Guillaume Moreau was Referee of PhD thesis of Judicaël Menant (INSA Rennes), and Member of PhD committee of Abdelkader Bellarbi (Univ Paris-Saclay).
- Jean-Marie Normand was Member of the committee of Barteld Postma (Univ. Paris Saclay).

## 10.3. Popularization

The results of the team have been disseminated in various media coverages in 2017:

- "XENIUS" TV channel Arte (02/17) : presentation of Immersia activity in Cultural Heritage applications
- "Sciences et Avenir" magazine (02/17) : article on "BCI, VR and videogames"
- France-Info radio (07/17) : 4-min interview of Anatole Lécuyer on Virtual Reality
- 20-minutes magazine (10/17) : article on Immersia activity
- Virgin Radio (10/17) : interview of Ronan Gaugne on Immersia
- France 3 Bretagne (10/17) : presentation of "Journée Science et Musique" in Immersia
- France 3 Centre (11/17) : presentation of INTROSPECT project

The team has also participated to several dissemination events in 2017 (chronological order):

- "Ma Thèse en 180 secondes" (Rennes, 03/17) : Lorraine Perronnet presented her PhD.
- "Semaine du Cerveau 2017" (Rennes, 03/17) : presentation and demo of BCI by Nataliya Kosmyna.
- Pint of Science (05/17): presentation on virtual incarnation by Ferran Argelaguet.
- "Journées Science et Musique 2017" (Rennes, 10/17) : co-organization of this event, and presentation of several demos.
- "Journées du Pôle Aerospace Valley" (Agen, 12/17) : presentation by Guillaume Moreau.

## HYCOMES Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. General Chair, Scientific Chair

Benoît Caillaud has organized the Synchron'17 open workshop on *Synchronous Programming Languages*<sup>0</sup> that took place at Inria Rennes from November 27th-30th 2017.

### 8.1.2. Scientific Events Selection

#### 8.1.2.1. Member of the Conference Program Committees

Khalil Ghorbal served as a PC member in the Repeatability Evaluation Committee of HSCC (Hybrid Systems: Computation and Control) 2017.

Albert Benveniste served as a PC member of the International Modelica Conference 2017.

Benoît Caillaud has served on the Steering and Programme Committees of the ACSD'17 conference.

#### 8.1.2.2. Reviewer

Khalil Ghorbal reviewed a paper for the IEEE Conference on Decision and Control 2017.

Albert Benveniste reviewed a paper for FoSSaCS (International Conference on Foundations of Software Science and Computation Structures) 2017.

Benoît Caillaud has reviewed one paper for the LICS'17 conference.

### 8.1.3. Journal

#### 8.1.3.1. Reviewer - Reviewing Activities

Khalil Ghorbal reviewed a journal paper for the IEEE Transactions on Automatic Control.

Albert Benveniste reviewed a journal paper for the Science of Computer Programming journal.

Benoît Caillaud has reviewed papers for the IEEE Transactions on Control Systems Technology.

### 8.1.4. Invited Talks

Khalil Ghorbal was invited by Saman Zonouz. Rutgers University, NJ, USA.

Albert Benveniste gave an invited talk at the Laboratory for Information & Decision Systems, MIT, Cambridge, MA, USA.

### 8.1.5. Scientific Expertise

Albert Benveniste was a reviewer for the ERC Advanced Grant proposals 2017.

### 8.1.6. Research Administration

Benoît Caillaud is head of the *Language and Software Engineering Department* of IRISA (UMR 6074). The department is composed of 9 research teams and about 120 researchers and students, in Brest, Rennes and Vannes.

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<sup>0</sup><https://synchron17.inria.fr>

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master : Benoît Caillaud is teaching with Marc Pouzet a first year master degree course on *hybrid systems modeling*. The course is open to the students registered to the computer science research and innovation curriculum of the university of Rennes 1 and ENS Rennes, France.

Master : Khalil Ghorbal, *Analyse et Conception Formelles*, M1, (chargé de TD), 22h EqTD, University Rennes 1 and ENS Rennes, France

Master : Khalil Ghorbal, *Solvers Principle and Architectures*, M2, (enseignant principal), 30h EqTD, ENS Rennes, France

Master : Khalil Ghorbal, *Modeling Physics with Differential-Algebraic Equations*, M2, (enseignant principal), 25h EqTD, Ecole Polytechnique, Palaiseau, France

### 8.2.2. Supervision

PhD : Ayman Aljarbough, *Accelerated Simulation of Hybrid Systems: Method combining static analysis and runtime execution analysis*, University of Rennes 1, defended 13/09/2017, supervised by Benoît Caillaud.

PhD : Guillaume Baudart, *A Synchronous Approach to Quasi-Periodic Systems*, Ecole Normale Supérieure (Paris), defended 13/03/2017, co-supervised by Albert Benveniste.

### 8.2.3. Juries

Benoît Caillaud has been president of PhD defence jury of Mohamed Amine Aouadhi, on 29 September 2017, at LS2N, the University of Nantes, France.

Albert Benveniste participated in the jury of the PhD thesis of Guillaume Baudart.

## I4S Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Selection

#### 10.1.1.1. Member of the Conference Program Committees

J. Dumoulin is

- member of the scientific committee of the GI Division (Geosciences Instrumentation and Data Systems) of EGU (European Geosciences Union) for infrastructure instrumentation and monitoring since April 2013. (<http://www.egu.eu/gi/structure/>)
- member of the scientific committee of QIRT (quantitative Infrared Thermography) since February 2014 (<http://www.qirt.org/>)
- organizer and chair of a session at EGU 2017 (<http://www.egu2017.eu/>).

Q. Zhang is

- member of the international program committee of the 18th IFAC Symposium SYSID that will take place in Stockholm, Sweden, July 9-11, 2018.
- member of the international program committee of the 10th IFAC Symposium SAFEPROCESS that will take place in Warsaw, Poland, 29-31 August 2018.
- member of IFAC Technical Committee on Modelling, Identification and Signal Processing.
- member of IFAC Technical Committee on Fault Detection, Supervision and Safety of Technical Processes.
- member of IFAC Technical Committee on Adaptive and Learning Systems.

L. Mevel is

- member of the EWSHM scientific committee.
- member of the IOMAC scientific committee.

V. Le Cam is

- member of the IWSHM scientific committee.
- head and general secretary of the EWSHM scientific committee.

M. Doehler is member of IFAC Technical Committee on Modelling, Identification, and Signal Processing.

#### 10.1.1.2. Reviewer

V. Le Cam was session chairman for IWSHM 2017 in Stanford

L. Mevel was session chairman for IWSHM 2017 in Stanford

Q. Zhang was reviewer for CDC 2017, ACC 2018.

M. Doehler was session organizer at a COST workshop (<http://www.cost-tu1402.eu/>), session chairman at IOMAC 2017, and reviewer for ACC 2018.

J. Dumoulin was reviewer for QIRT ASIA 2017 and session chairman at EGU 2017 in GI division

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

L. Mevel is member of the editorial board of the journal *Mathematical Problems in Engineering*, and of the journal *Shock and Vibration*.

Q. Zhang is member of the editorial board of the journal of *Intelligent Industrial Systems*.

J. Dumoulin is member of the editorial board of the journal Quantitative Infrared Thermography, and of the journal Geoscientific Instrumentation and Data Systems.

#### 10.1.2.2. Reviewer - Reviewing Activities

L. Mevel was reviewer for Mechanical Systems and Signal Processing, journal of Sound And Vibration, Sensors, Advanced Engineering Informatics, Structural Control and Health Monitoring, Advances in Structural Engineering

M. Doehler was reviewer for Automatica, Mechanical Systems and Signal Processing, Journal of Sound and Vibration, Journal of Testing and Evaluation

J. Dumoulin was reviewer for Quantitative Infrared Thermography Journal, GI Journal (EGU), SFT conference, ASME New NDE Journal

F. Gillot was reviewer for Structural and Multidisciplinary Optimization, Applied Mathematical Modelling, Shock and Vibration, Applied Sciences

#### 10.1.3. Invited Talks

M. Doehler and L. Mevel, "Méthodes statistiques pour l'analyse vibratoire des structures," Journée scientifique Évaluation non destructive dans le génie civil de l'énergie, Nantes, France

M. Doehler, "Subspace-based methods for damage assessment," Wölfel Engineering, Würzburg, Germany

J. Dumoulin, "Infrared thermography in civil engineering: from non destructive testing in laboratory to outdoor thermal monitoring", QIRT ASIA 2017, Daejeon, South Korea

N. Le Touz, J. Dumoulin and J-M. Piau, " Etude et développement d'un modèle EF de transfert de chaleur multi-physique : application à l'étude de routes solaires hybrides", Journée thématique du groupe rayonnement de la société Française de Thermique sur "Méthodes numériques pour la résolution de l'équation de transfert radiatif : développements récents, modèles, et objectifs", Paris, France

V. Le Cam, "Internet of Things and new challenges for Transportation and Structural Monitoring", plenary talk given to Committee of Transport Ministry, on 25 January 2017, to CEA List, on 16th March 2017, and to assembly of COFREND (500 people) on 30th May 2017

#### 10.1.4. Research Administration

V. Le Cam is member of the scientific council of WEN (West Electronic Network) since 2014, which is a cluster of about 200 companies, academics and research laboratories active in electronics. During 2017, he has been involved amongst others in meetings and selection of R&D projects, PhD and post-doc funding, international mobility.

M. Doehler was reviewer of a research proposal submitted to the Polish National Science Centre (national research agency).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

J. Dumoulin

- Licence Professionnelle TAM : thermographie infrarouge active, 16h, Université Paris-Est, France
- Master 2 MMMRI (Maintenance et Maîtrise des Risques Industriels), contrôle non destructif par thermographie infrarouge active, 12h, Université Paris-Est, France
- Master 2 ITII, BTP, module Maintenance et réhabilitation des ouvrages, Transferts thermiques dans les Structures : Des principes physiques à l'application sur site réel, 12 h, Ecole Centrale de Nantes(ECN), France.
- Conference course, 2h, IR inspection of infrastructures: Scope of application, technical solutions and analysis methods, QIRT ASIA 2017, Daejeon, South Korea



## V. Le Cam

- Master 2 Civil engineering, Structural Monitoring, 4h, Université de Nantes, France
- Licence 3 Professional SEICOM, 3h of theoretical lessons and 20H of practical lessons on Embedded and Smart Systems, Université de Nantes, France
- ESEO, 16h, practical lessons on embedded and smart systems under Linux, France
- Master 2 Electrical Engineering (GEII), 4h on electronic systems and Structural Monitoring, Université Bretagne Sud, France

## M. Doehler

- Master 1 informatique, 24 TD projet recherche, Université de Rennes 1 & ENS Rennes, France
- Cycle préparatoire intégré, STPI, mathématiques, 96h TD, INSA Rennes, France
- Conference course, 2h, Advanced Operational Modal Analysis using Stochastic Subspace Identification and its Applications, IOMAC 2017, Ingolstadt, Germany

## X. Chapeleau

- Licence Pro Mesures physiques, Mesures optiques, 15h, IUT de St Nazaire, Université de Nantes, France

## T. Toullier

- Master 1, TP Capteurs (12h), contrôle, commandes, École Centrale de Nantes, France
- Foundation Master, TD Programming and Data Analysis (14h), École Centrale de Nantes, France

## F. Gillot

- Master 1, Conception optimale robuste de systèmes mécaniques (10h), École Centrale de Lyon, France
- Master 1, Dynamique des systèmes biologiques humains (4h), École Centrale de Lyon, France
- Formation initiale des ingénieurs de l'École Centrale de Lyon, TP, TD, BE, niveau L3, (50h), France

**10.2.2. Supervision**

PhD : Antoine Bassil, *Fibre-optic sensor for fatigue monitoring*, D. Leduc, O. Abraham and X. Chapeleau. Ecole doctorale SPIGA, Université de Nantes, since November 2016.

PhD : Delwar Hossain Bhuyan, *Damage localisation for civil structures*, L. Mevel, F. Schoefs, Y. Lecieux and M. Doehler. Ecole doctorale MathSTIC, Université de Rennes 1, defended in 2017.

Guillaume Gautier's post-doctoral project on morphosense sensors, L. Mevel, 2015-2017.

Shubamoy Sen's post-doctoral project on seismic event monitoring, L. Mevel, 2016-2017.

Guillaume Gautier's post-doctoral project on seismic event monitoring, L. Mevel, 2017-2018.

Ludovic Gavérina post-doctoral project on in-situ measurement of thermal resistance of building envelopes, J. Dumoulin, march 2017- february 2019.

PhD : Nassif Berrabah, *Electrical cable ageing monitoring*, Q. Zhang, Ecole doctorale MathSTIC, Université de Rennes 1, defended in 2017.

PhD : Nicolas Le Touz. *Design and study of positive energy transport infrastructures: from thermo-mechanical modeling to the optimization of such energy systems* J. Dumoulin. Ecole Centrale Nantes (ECN) since december 2015.

PhD : Thibault Toullier. *Simultaneous characterization of the radiative properties and temperatures of envelopes of structures in natural environment by multispectral infrared thermography* L. Mevel, J. Dumoulin and M. Doehler. Ecole doctorale MathSTIC, Université de Rennes 1, since November 2016.

PhD : Saeid Allahdadian, *Methods for vibration-based damage assessment*, M. Doehler and C. Ventura. University of British Columbia, Canada, defended in 2017.

PhD : Eva Viefhues, *Statistical damage localization for civil structures*, L. Mevel and M. Doehler. Ecole doctorale MathSTIC, Université de Rennes 1, since November 2016.

PhD : Francesco Giordano, *Value of information for strain monitoring of infrastructure*, M. Doehler and MP. Limongelli and F. Bourquin. Politecnico Milano, Italy, since November 2017.

PhD : David Pallier, *Sensor Enhancement to Augmented Usage and Reliability*, S. Pillement, IETR, V. Le Cam, Ecole doctorale MathSTIC

J. Dumoulin is associate professor at Laval University, Canada.

M. Doehler is associate researcher at BAM, Germany.

### **10.2.3. Juries**

Jean Dumoulin was invited jury member for the PhD defense of Yingying YANG at I2M in Bordeaux.

## **10.3. Popularization**

The Hybrid solar road Mock-up (presented at the French Pavillon during COP21) has been invited and presented at:

- Forum National des Travaux Publics, Carroussel du Louvre (Paris), February 2017
- Innovation day des Travaux Publics, Casino du Lyon Vert (Lyon), December 2017
- Fête de la science, Ecole d'architecture de Nantes, October 2017

## IBIS Project-Team

## 9. Dissemination

### 9.1. Research

#### 9.1.1. Scientific events: organizing committees

##### 9.1.1.1. Member of organizing committees

IBIS members	Conference, workshop, school	Date
Hidde de Jong	Workshop on microbial growth control and biotechnological applications, La Grande Motte	Oct 2017
Hidde de Jong	CompSysBio: Advanced Lecture Course on Computational Systems Biology, Aussois	Mar 2017
Delphine Ropers	Séminaire de Modélisation du Vivant (SeMoVi), Lyon and Grenoble	2016

#### 9.1.2. Scientific events: selection committees

##### 9.1.2.1. Chair of conference program committees

IBIS member	Conference, workshop, school	Role
Eugenio Cinquemani	European Control Conference (ECC 2017)	Associate editor

##### 9.1.2.2. Member of conference program committees

IBIS member	Conference, workshop, program
Eugenio Cinquemani Hidde de Jong Delphine Ropers	ECC 2017 ISMB/ECCB 2017, CMSB 2018, WML 2018 JOBIM 2017

#### 9.1.3. Journals

##### 9.1.3.1. Member of editorial boards

IBIS member	Journal
Johannes Geiselmann Hidde de Jong Hidde de Jong Hidde de Jong	Frontiers in Microbiology (review editor) Journal of Mathematical Biology Biosystems ACM/IEEE Transactions on Computational Biology and Bioinformatics

#### 9.1.4. Scientific evaluation and expertise

IBIS member	Organism	Role
Johannes Geiselmann	INRA	Member of scientific advisory committee Microbiologie, Adaptation, Pathogénie
Johannes Geiselmann	UMR5240 CNRS-UCBL-INSA-BayerCropScience	Member scientific council
Johannes Geiselmann Hidde de Jong	ARC1, Rhône-Alpes region Microbiology and Food Chain Department, Inra	Member scientific committee Member scientific council
Hidde de Jong	HCERES	Member of evaluation committee of TAGC laboratory (UMR U1090), Marseille

### 9.1.5. Recruitment committees

IBIS member	Organism	Recruitment
Hidde de Jong	INRA	Chargés de recherche
Johannes Geiselmann	INSA de Lyon	Full professor
Delphine Ropers	Inria	Chargés de recherche CR1 (jury d'admissibilité)
Delphine Ropers	Inria Sophia-Antipolis	Chargés de recherche (jury d'admissibilité)
Delphine Ropers	INSA de Lyon	Assistant professor

### 9.1.6. Invited talks

#### Eugenio Cinquemani

Title	Event and location	Date
Reconstruction of promoter activity statistics from reporter protein population snapshot data	Workshop on "Modélisation stochastique et analyse statistique de l'expression génétique", Laboratoire de Mathématiques et Applications (LMA) de l'Université de Poitiers	Jan 2017
Modeling of stochastic gene expression	Tutorial at CompSysBio: Advanced Lecture Course on Computational Systems Biology, Aussois	Mar 2017
Toward automatic control of synthetic microbial communities	Journées Scientifiques Inria 2017, Sophia Antipolis – Méditerranée	Jun 2017

#### Hidde de Jong

Title	Event and location	Date
Analysis and control of bacterial regulatory networks	Seminar Systems Biology Institute, ETH Zürich, Switzerland	Feb 2017
Qualitative modeling and simulation of bacterial regulatory networks	Course at Instituto de Tecnologia Química e Biológica, Oeiras, Portugal	Feb 2017
Natural and synthetic control of resource allocation in bacteria	Seminar at Instituto de Tecnologia Química e Biológica, Oeiras, Portugal	Feb 2017
Integrated models of the cell: metabolism, gene expression, signalling	Tutorial at CompSysBio: Advanced Lecture Course on Computational Systems Biology, Aussois	Mar 2017
Presentation IBIS and IPL COSY	Réunion de suivi du Programme Transversal Microbiote, Inserm, Paris	Jun 2017
Natural and synthetic control of resource allocation in bacteria	Keynote talk at 3rd BeNeLuxFra Student Symposium, Lille	Jul 2017
Natural and synthetic control of resource allocation in bacteria	International Workshop on Control Engineering and Synthetic Biology, London	Jul 2017
Resource allocation in microorganisms: Some control-theoretical problems	Journée McTAO, Institut mathématique de Bourgogne, Dijon	Dec 2017
A dynamic analysis of carbon catabolite repression and diauxic growth in bacteria	6th network retreat of BEeSy, Saint Hugues de Biviers	Dec 2017

**Johannes Geiselmann**

Title	Event and location	Date
Growth rate control in Escherichia coli	Seminars in Molecular Biology, University of British Columbia, Vancouver, Canada	Jun 2017
Changing resource allocation and growth rate by a genetic control of transcription and DNA replication	Workshop growth rate control in bacteria, BioSynSys conference, Montpellier, France	Oct 2017
Engineering resource allocation and growth rate in Escherichia coli	International symposium on Systems, Synthetic and Chemical Biology, Kolkata, India	Dec 2017

**Stephan Lacour**

Title	Event and location	Date
NGS sequencing techniques in biology	Seminar Mechanobiology, UGA Phitem, Grenoble	Jan 2017
Direct versus indirect gene regulation by the stress response SigmaS factor	Seminar Institut de Biologie Structurale, Grenoble	Feb 2017
Modulation of curli production in Escherichia coli by non-coding RNA	Réseau National Biofilm (RNB), Clermont-Ferrand	Dec 2017

**Delphine Ropers**

Title	Event and location	Date
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**9.1.7. Research administration**

IBIS member	Committee	Role
Eugenio Cinquemani	Inria Grenoble - Rhône-Alpes	Member Comité des Emplois Scientifiques (CES)
Eugenio Cinquemani	Inria Grenoble - Rhône-Alpes	Member Comité des Utilisateurs des Moyens Informatiques (CUMI)
Eugenio Cinquemani	Inria	Member Comité Administrative Paritaire (CAP)
Hidde de Jong	Inria Grenoble - Rhône-Alpes	Member scientific council
Hidde de Jong	Inria	Member working group on International Relations of Conseil d'Orientation Scientifique et Technique (COST)
Delphine Ropers	Inria	Member of Commission d'évaluation d'Inria
Delphine Ropers	Inria	Member of Groupe de travail plan stratégique
Delphine Ropers	Inria Grenoble - Rhône-Alpes	Référente chercheurs
Delphine Ropers	Inria Grenoble - Rhône-Alpes	Member of Comité des études doctorales (CED)

## 9.2. Teaching - Supervision - Committees

### 9.2.1. Teaching

Four members of the IBIS team are either full professor, associate professor or assistant professor at the Université Grenoble Alpes. They therefore have a full teaching service (at least 192 hours per year) and administrative duties related to the organization and evaluation of the university course programs on all levels (from BSc to PhD). Besides the full-time academic staff in IBIS, the following people have contributed to courses last year.

#### Eugenio Cinquemani

Master: Stochastic modelling of gene regulatory networks, M2, BIM, INSA de Lyon (6 h)

Master: Statistics for systems biology, M1, Master Approches Interdisciplinaires du Vivant, CRI/Université Paris Descartes (24 h, also in charge of 24 h of practicals)

Master: Modelling and identification of metabolic networks, M1, Phelma, INP Grenoble (4 h)

#### Hidde de Jong

Master: Modeling and simulation of gene regulatory networks, M2, BIM, INSA de Lyon (20 h)

Master: Integrated models of the cell: metabolism, gene expression, signalling, M2, ENS Paris (6 h)

Master: Integrated models of the cell: metabolism, gene expression, signalling, M2, Institut de Technologie et d'Innovation, Paris Sciences Lettres (PSL) (6 h)

#### Delphine Ropers

Master: Modelling in systems biology, M1, Phelma, INP Grenoble (16 h)

Master: Modeling and simulation of genetic regulatory networks, M1, Université Grenoble Alpes (9 h)

Master: Modeling and simulation of genetic regulatory networks, M2, INSA de Toulouse (4 h)

### 9.2.2. Supervision

PhD defended: **Stefano Casagrande**, Analysis and control of models of gene regulatory networks. Supervisors: Jean-Luc Gouzé (BIOCORE) and Delphine Ropers

PhD defended: **Nils Giordano**, Microbial growth control in shifting environments: Theoretical and experimental study of resource allocation in *Escherichia coli*. Supervisors: Hidde de Jong and Johannes Geiselmann

PhD defended: **Bernard Chelli Ponce de Leon**, Quantitative study of the effects of low DnaA concentrations in *Escherichia coli*, using the *uhp* pathway as an inducible expression system. Supervisors: Irina Mihalcescu (Université Grenoble Alpes) and Johannes Geiselmann

PhD in progress: **Thibault Etienne**, Analyse intégrative de la coordination entre stabilité des ARNm et physiologie cellulaire chez *Escherichia coli*. Supervisors: Delphine Ropers and Muriel Coccagn-Bousquet (INRA Toulouse)

PhD in progress: **Joël Espel**, RNA engineering: Design of the dynamical folding of RNA and of RNA switches. Supervisors: Alexandre Dawid (Université Grenoble Alpes) and Johannes Geiselmann

### 9.2.3. PhD thesis committees, PhD advisory committees, and habilitation committees

#### PhD thesis committees

IBIS member	Role	PhD student	University	Date
Eugenio Cinquemani	Invité	Stefano Casagrande	Université Nice Sophia Antipolis	Jun 2017
Hidde de Jong	Président	Bernard Chelli Ponce de Leon	Université de Grenoble	Mar 2017
Hidde de Jong	Directeur de thèse	Nils Giordano	Université de Grenoble	Mar 2017
Hidde de Jong	Rapporteur	Mathias Weyder	Université de Toulouse	Mar 2017
Johannes Geiselmann	Rapporteur	Stanislas Thiriet-Rupert	Université du Mans	Jan 2017
Johannes Geiselmann	Président	Defne Dalkara	Université de Grenoble	Jan 2017
Johannes Geiselmann	Directeur de thèse	Nils Giordano	Université de Grenoble	Mar 2017
Johannes Geiselmann	Directeur de thèse	Bernard Chelli Ponce de Leon	Université de Grenoble	Mar 2017
Johannes Geiselmann	Rapporteur	Lionel Uhl	Université de Marseille	Apr 2017
Johannes Geiselmann	Rapporteur	Zoran Marinkovic	Université Paris Diderot	Nov 2017
Stephan Lacour	Examineur	Benjamin Diel	Université de Lyon	Sep 2017
Stephan Lacour	Examineur	Sophie Bouillet	Université Aix-Marseille	Dec 2017
Delphine Ropers	Directrice de thèse	Stefano Casagrande	Université Nice Sophia Antipolis	Jun 2017
Delphine Ropers	Examineur	Guillaume Madelaine	Université de Lille	Mar 2017

#### Habilitation (HDR) committees

IBIS member	Role	PhD student	University	Date
Hidde de Jong	Rapporteur	Elisabeth Rémy	Université Aix-Marseille	Avr 2017

**PhD advisory committees**

IBIS member	PhD student	University
Eugenio Cinquemani	Luis Pereira	Université Nice Sophia Antipolis
Stephan Lacour	Alice Berry	Université de Grenoble
Stephan Lacour	Simon Léonard	Université Claude Bernard de Lyon

**9.2.4. Teaching administration**

Yves Markowicz is director of the BSc department at Université Grenoble Alpes.

Michel Page is coordinator of the master Systèmes d'information et d'organisation at the Institut d'Administration des Entreprises (IAE), Université Grenoble Alpes.

Eugenio Cinquemani organizes a module on statistics in systems biology at CRI/Université Paris Descartes.

Delphine Ropers organizes a module on the mathematical modeling of biological systems at PHELMA, INP Grenoble.

Hidde de Jong organizes with Daniel Kahn a module on the modeling of genetic and metabolic networks at INSA de Lyon.



## ILDA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- EICS 2018, 10th ACM SIGCHI Symposium on Engineering Interactive Computing Systems: Emmanuel Pietriga (general co-chair)
- CHI 2017, 35th ACM SIGCHI Conference on Human Factors in Computing Systems: Caroline Appert (papers co-chair)

#### 10.1.1.2. Member of the Organizing Committees

- VIS 2017, the IEEE Visualization Conference (SciVis, InfoVis, VAST): Anastasia Bezerianos (Communities co-chair)

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- CHI 2018, 36th ACM SIGCHI Conference on Human Factors in Computing Systems: Emmanuel Pietriga (SC - subcommittee chair)

#### 10.1.2.2. Member of the Conference Program Committees

- CHI 2018, 36th ACM SIGCHI Conference on Human Factors in Computing Systems: Anastasia Bezerianos
- UIST 2017, 30th ACM User Interface Software and Technologies Symposium: Anastasia Bezerianos
- InfoVis 2017, the IEEE Visualization Conference (SciVis, InfoVis, VAST): Anastasia Bezerianos
- WWW 2018, 27th Web Conference, research track Web Content Analysis, Semantics, and Knowledge: Emmanuel Pietriga
- ISWC 2017, 16th International Semantic Web Conference: Emmanuel Pietriga
- EICS 2017, 9th ACM SIGCHI Symposium on Engineering Interactive Computing Systems: Emmanuel Pietriga
- VOILA @ ISWC 2017, Visualizations and User Interfaces for Ontologies and Linked Data, workshop co-located with ISWC 2017: Emmanuel Pietriga
- Immersive Analytics @ InfoVis 2017: Exploring Future Interaction and Visualization Technologies for Data Analytics, workshop co-located with IEEE InfoVis 2017: Emmanuel Pietriga, Anastasia Bezerianos

#### 10.1.2.3. Reviewer

- ACM CHI 2018, Conference on Human Factors in Computing Systems: Caroline Appert, Olivier Chapuis, Bruno Fruchard, Maria Jesus Lobo Gunther, Arnaud Prouzeau
- ACM UIST 2017, Symposium on User Interface Software and Technology: Caroline Appert, Olivier Chapuis
- ACM ISS 2017, International Conference on Interactive Surfaces and Spaces: Olivier Chapuis
- ACM TEI 2017, International Conference on Tangible, Embedded and Embodied Interaction: Caroline Appert, Bruno Fruchard (WiP), Vit Rusnak (WiP)

- ACM MobileHCI 2017 , International Conference on Human-Computer Interaction with Mobile Devices and Services: Caroline Appert
- GI 2017, Graphics Interface: Olivier Chapuis, Arnaud Prouzeau
- Graph Drawing 2017: Emmanuel Pietriga
- EuroVis EG/VGTC 2017, Conference on Data Visualization: Anastasia Bezerianos
- OzCHI 2017: Vit Rusnak
- IHM 2017, Conference of the Association Francophone d'Interaction Homme-Machine: Olivier Chapuis

### **10.1.3. Journal**

#### *10.1.3.1. Member of the Editorial Boards*

- ACM ToCHI, Transactions on Computer-Human Interaction: Caroline Appert

#### *10.1.3.2. Reviewer - Reviewing Activities*

- ACM ToCHI, Transactions on Computer-Human Interaction: Olivier Chapuis
- IEEE TVCG, Transactions on Visualization and Computer Graphics: Olivier Chapuis, Emmanuel Pietriga, Caroline Appert, Anastasia Bezerianos
- IEEE Pervasive Computing: Emmanuel Pietriga
- Future Generation Computer Systems: Vit Rusnak

### **10.1.4. Invited Talks**

- Emmanuel Pietriga and Olivier Chapuis: Monitoring Air Quality in Korea's Metropolises on Ultra-High Resolution Wall-Sized Displays, Asia Data Week 2017, Jeju, South Korea, November 2017
- Caroline Appert: Reconnaître un pattern de points de contact sur une surface tactile – *Multi-Touch* et *Machine Learning*, Journée IHM-IA, Paris (UPMC), France, March 2017.
- Anastasia Bezerianos: Concepts of Information Visualization research, and ties to Data Management, DBTrento, University of Trento, Italy, November 2017.

### **10.1.5. Leadership within the Scientific Community**

- ANR, CES Vice chair - Interaction, Robotique: Caroline Appert

### **10.1.6. Scientific Expertise**

- H2020, Leadership in Enabling and Industrial Technologies - Space RIA: Emmanuel Pietriga
- ANR, CES Vice chair - Interaction, Robotique: Caroline Appert

### **10.1.7. Research Administration**

- Deputy Director of the Laboratoire de Recherche en Informatique (LRI): Olivier Chapuis
- President of Inria Saclay - Île de France's Commission for Technological Development (CDT): Emmanuel Pietriga

### **10.1.8. Learned societies**

- Association Francophone d'Interaction Homme-Machine (AFIHM), in charge of the relation with the SIF: Olivier Chapuis.
- SigCHI Paris Local Chapter, chair: Anastasia Bezerianos.
- SigCHI Paris Local Chapter, vice chair: Caroline Appert.

### **10.1.9. Hiring committees**

- Univ. Paris-Sud hiring committee, Commission Consultative des Spécialistes de l'Université 27ème section (computer science), members: Caroline Appert.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Master: Anastasia Bezerianos, Head of EIT masters M1 & M2 HCID, Univ. Paris-Sud
- Master: Anastasia Bezerianos, Head of M2 Interaction, Univ. Paris-Sud, Université Paris-Saclay
- Master: Anastasia Bezerianos, Programming of Interactive Systems – 21h CM, M1/M2 HCID + M2R Interaction, Univ. Paris-Sud
- Master: Anastasia Bezerianos, Mixed Reality and Tangible Interaction – 11h CM, M1/M2 HCID + M2R Interaction, Univ. Paris-Sud
- Master: Anastasia Bezerianos, Career Seminar, – 12h CM, M2 HCID + M2R Interaction, Univ. Paris-Sud
- Master: Anastasia Bezerianos, Design Project in HCI, – 21h CM, M1 HCID, Univ. Paris-Sud
- Master: Anastasia Bezerianos, HCI Project, – 21h CM, M2 HCID + M2 Interaction, Univ. Paris-Sud
- Master: Anastasia Bezerianos, Introduction to Java – 18h CM, M1/M2 HCID + M2R Interaction, Univ. Paris-Sud
- Master: Emmanuel Pietriga, Data Visualization, 24h CM, M2 Informatique Décisionnelle, Univ. Paris-Dauphine.
- Master: Caroline Appert, Evaluation of Interactive Systems, 21h CM, M2 Interaction Univ. Paris-Sud / M1-M2 HCID EIT Digital.
- Master: Caroline Appert, Advanced Evaluation of Interactive Systems, 21h CM, M2 Interaction Univ. Paris-Sud / M1-M2 HCID EIT Digital.
- Master: Arnaud Prouzeau, Programmation des interfaces interactives avancées, 27h, M1 Info Univ. Paris-Sud
- Licence: Maria Jesus Lobo Gunther, Algorithmique Informatique Graphique, 27h, L3 Univ. Paris-Sud
- Licence: Maria Jesus Lobo Gunther, Programmation des interfaces interactives avancées, 27h, L3 Univ. Paris-Sud
- Licence: Maria Jesus Lobo Gunther, Interaction Homme-Machine, 12h TP, L3 Polytech Paris Sud
- Licence: Arnaud Prouzeau, Interaction Homme-Machine, 12h TP, L3 Polytech Paris Sud
- Licence: Arnaud Prouzeau, Programmation Impérative Avancée en C++, 16.5h TP, L1 MPI, Université Paris-Sud
- Licence: Bruno Fruchard, Visualisation, 10h, Télécom Paristech.
- Licence: Bruno Fruchard, Interaction Homme-Machine, 16h, Télécom Paristech.
- Licence: Bruno Fruchard, Paradigmes de programmation, 12h, Télécom Paristech.
- Licence: Bruno Fruchard, Infrastructures et plateformes pour l'informatique répartie, 34h, Télécom Paristech.

### 10.2.2. Supervision

- PhD : Maria Jesus Lobo Gunther, Interaction Techniques for Map Multiplexing, defended on December 5th, 2017. Advisors: Caroline Appert, Emmanuel Pietriga
- PhD : Rafael Morales Gonzalez, Surface Gestures for Advanced Graphical Interfaces: Which Gesture for What, defended on October 4th, 2017. Advisors: Caroline Appert, Gilles Bailly, Emmanuel Pietriga
- PhD : Arnaud Prouzeau, Collaboration around Wall-Displays in Time Critical and Command and Control Contexts, defended on December 15th, 2017. Advisors: Anastasia Bezerianos, Olivier Chapuis

PhD : Evanthia Dimara, Merging Interactive Visualization and Automated Analysis for Group Decision-Making Involving Large Datasets, defended on November 30th, 2017, Advisors: Pierre Dragicevic, Anastasia Bezerianos

PhD in progress : Marie Destandau, Interactive Visual Exploration of Webs of Data, since October 2017, Advisors: Caroline Appert, Emmanuel Pietriga

PhD in progress : Anna Gogolou, Iterative and expressive querying for big data series, October 2016, Advisors: Anastasia Bezerianos, Themis Palpanas

PhD in progress : Hugo Romat, Visual exploration and interactive manipulation techniques for collections of heterogeneous data and documents, since June 2016, Advisors: Caroline Appert, Emmanuel Pietriga

PhD in progress : Bruno Fruchard, Techniques d'interaction exploitant la mémoire spatiale pour faciliter l'accès rapide aux commandes et aux données, since October 2015, Advisors: Eric Lecolinet, Olivier Chapuis

Master (M2): Dylan Lebout, Visualization of geolocated and temporal data on the Web , May - September 2017, Advisors: Caroline Appert, Emmanuel Pietriga

Master (M2): Reyhaneh Raissi, Multi-user Multi-selection on Tabletop, Mars - September 2017, Advisors: Anastasia Bezerianos, Olivier Chapuis

Master (M1): Eleonore Bartenlian, Tools for customizing tangible interfaces, May - July 2017, Advisors: Caroline Appert

### 10.2.3. Juries

HDR: Guillaume Touya (IGN/Université Paris-Est): Emmanuel Pietriga (examinateur)

PhD: Justin Mathew (Inria/Université Paris-Saclay): Emmanuel Pietriga (président du jury)

PhD: Lonni Besançon (Inria/Université Paris-Saclay): Emmanuel Pietriga (président du jury)

PhD: Hanaë Rateau (Inria/Université Lille 1): Caroline Appert (examinateur)

PhD: Maxime Guillon (Université Grenoble Alpes): Caroline Appert (examinateur)

PhD: Antoine Lhuillier (ENAC/Université Toulouse III): Caroline Appert (examinateur)

## 10.3. Popularization

- *Fête de la science*, Université Paris-Sud: Caroline Appert.
- *Science en Direct*, Cité de la Science: Maria Jesus Lobo Gunther.
- *Qu'est-ce qu'un chercheur en IHM ?*, to high-school students visiting Telecom ParisTech: Bruno Fruchard.

## IMAGINE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

Remi Ronfard was the scientific chair for the Eurographics workshop on intelligent cinematography and editing (WICED) in Lyon, France in April 2017.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

- Marie-Paule Cani was the Technical Paper Chair for Siggraph 2017.
- Stefanie Hahmann is the paper chair for SPM 2018.

#### 9.1.2.2. Member of the Conference Program Committees

- Marie-Paule Cani served in the Papers Committee of Eurographics 2017.
- Frédéric Devernay served as a member of the program committee for IEEE CVPR 2017, ECCV 2017, 3DV 2017, CVMP 2017, RFIA 2017.
- Damien Rohmer was member of the following International Program Committee: ACM SIGGRAPH General submissions and poster program; Symposium on Computer Animation (SCA); Symposium on Solid and Physical Modeling (SPM); Shape Modeling International; Fabrication and Sculpting Event (SMI-FASE). He was also member of the jury committee of the best paper for the "Journées d'Informatique Française 2017" (J.Fig).
- Remi Ronfard was a member of the Program Committees for Motion in Games (MIG 2017) and International Conference on Interactive Storytelling (ICIDS 2017).
- Stefanie Hahmann served in the International Program Committee for Eurographics 2017, Shape Modeling International (SMI) 2017 and SGP 2017.
- Jean-Claude Léon was member of the International Program Committee for Symposium on Solid and Physical Modeling (SPM) and Shape Modeling International-Sculpting Event (SMI-FASE)

#### 9.1.2.3. Reviewer

- Damien Rohmer was a reviewer for the journals: ACM TOG, Computer and Graphics, Computing and Informatics.
- Remi Ronfard was a reviewer for ACM Siggraph, Siggraph Asia, Computer Vision and Pattern Recognition (CVPR) and Computer Human Interface (CHI) conferences.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

- Marie-Paule Cani is an Associate Editor of ACM Transactions on Graphics (TOG).
- Stefanie Hahmann is an Associate Editor of CAD (Elsevier) and Computers & Graphics (Elsevier).
- Jean-Claude Léon is an Associate Editor of CAD (Elsevier)

#### 9.1.3.2. Reviewer - Reviewing Activities

- Remi Ronfard was a reviewer for the ACM transactions on Graphics, Computers and Graphics, and Graphical Models journals in 2017.
- Stefanie Hahmann was a reviewer for the journals CAGD and CAD.

- Jean-Claude Léon was a reviewer for the journal ASME JCISE.
- Frederic Devernay was a reviewer in 2017 for IEEE Robotics and Automation Letters, IEEE Transactions on Robotics, and Traitement du Signal.

#### **9.1.4. Invited Talks**

Rémi Ronfard gave the following invited talks

- Movie Making Machines, Xerox Research Center Europe, February 2017.
- Directing virtual worlds from script to screen, Officine Sintetiche Lab, CIRMA, Torino, May 2017.
- Computer science and visual arts, CNRS, May 2017.
- Synchronization of senses, ICCV workshop CVAM, Keynote invited speaker, October 2017.

Damien Rohmer gave an invited talk at the SIAM-GD (Geometric Design) conference on "Efficient Developable Surface Modeling: From Garment Design, to Paper Animation". Pittsburg, July 2017.

#### **9.1.5. Scientific Expertise**

- Marie-Paule Cani
  - was a reviewer for a consolidator and a starting ERC project.
  - did some consulting for Disney Research, Zurich.
- Remi Ronfard
  - was a member of the scientific committee at IMAGINOVE in 2017.
- Stefanie Hahmann
  - was an expert for the Netherlands Organisation for Scientific Research.
  - serves as a member of the Advisory Board (2014-2018) for the European Marie-Curie Training Network ARCADES.
- Damien Rohmer was reviewer for an ANR submission and a "Grand Est Application" project.

#### **9.1.6. Research Administration**

- Marie-Paule Cani served as first Vice-Chair and chair of the Steering Committee of the Eurographics association.
- Marie-Paule Cani and Rémi Ronfard are elected members of the executive board (CA) of EG-France, the french chapter of Eurographics.
- Marie-Paule Cani was joint director of Laboratoire Jean Kuntzmann until April 2017.
- Damien Rohmer is member of the Conseil d'Administration of Association Française d'Informatique Graphique (AFIG).
- Stefanie Hahmann
  - is an elected member of the Executive Committee of SMA (Solid Modeling Association) since 2013.
  - is the head of the French working group "GTMG" (Groupe de travail en Modélisation Géométrique) part of the CNRS GDR IM and GDR IGRV.
  - was member of the Conseil de laboratoire of the LJK lab.

## **9.2. Teaching - Supervision - Juries**

### **9.2.1. Teaching**

- Marie-Paule Cani is responsible for two courses at Ensimag/Grenoble-INP: 3D Graphics (a course that attracts about 80 master 1 students per year) and IRL (introduction à la recherche en laboratoire), a course enabling engineering students to work on a personal project in a research lab during one semester, to get an idea of what academic research is.

- Stefanie Hahmann is co-responsible for the department MMIS (Images and Applied Maths) at Grenoble INP with 120 students. (<http://ensimag.grenoble-inp.fr/cursus-ingenieur/modelisation-mathematique-images-simulation-124674.kjsp>)  
Stefanie Hahmann had teaching load of 192h per year. She is responsible for 3 courses at Ensimag/Grenoble INP: Numerical Methods (240 students, 3rd year Bachelor level), Geometric Modeling (60 students, Master 1st year) and Surface Modeling (30 students, Master 2nd year).
- Olivier Palombi is responsible for the French **Campus numérique** of anatomy. He is responsible and national leader of the project SIDES (<http://side-sante.org/>). All the French medical schools (43) have planned to use the same e-learning framework (SIDES) to manage evaluations and to create a large shared database of questions.
- Damien Rohmer is coordinator of the Math, Signal, Image program at the engineering school CPE Lyon in supervising the scientific and technical content of the program. He is also co-responsible for the *Image, Modeling & Computing* specialization program attracting 35 students per year. He gives, and is responsible for one Computer Science class (130 student, 3rd year Bachelor level), an introductory Computer Graphics class (110 students, Master 1st year), and 5 specialization classes on C++ programming, OpenGL programming, 3D modeling, animation and rendering (35 students, Master 1st and 2nd year). He coordinates the association between CPE and the new computer graphics master program ID3D (Image, Développement et Technologie 3D) from University Lyon1. He also coordinates the association between CPE and the Gamagora computer game project.
- Rémi Ronfard taught courses in Computational modeling of narrative texts, movies and games, MSTII Doctoral School, University Grenoble Alpes (18 hours in March-April 2017); Game Engine Programming, M2R IMAGINA, University of Montpellier (36 hours in October-December 2017) and Advanced 3D animation, M2R MOSIG, University of Grenoble Alpes (12 hours in December 2017).
- Jean-Claude Léon is in charge of the module Mechanical Systems at Grenoble-INP ENSE3 (300 students, 64h, coordination of three courses)
- Frederic Devernay teaches Computer Science at CPP - La prépa des ING, Grenoble (50h, 200 students).

Note that MOSIG is a joint master program between University Joseph Fourier (UJF) and Institut Polytechnique de Grenoble (INPG) taught in English since it hosts a number of internal students. It belongs to the doctoral school MSTII.

### 9.2.2. Supervision

- PhD: Sébastien Crozet, *Calcul de distance minimale entre solides B-Rep CAO pour des applications de simulations mécaniques temps réelles*, Janvier 2015-Décembre 2017. Supervised by Jean-Claude Léon. Defended in December 2017.
- PhD: Grégoire Niéto (Université de Grenoble Alpes), *Dispositifs de capture de type "caméra plénoptique" pour la vision à grande distance, et algorithmes de traitement et de visualisation*, supervised by Frédéric Devernay and James Crowley (LIG, Grenoble). Defended in October 2017.
- PhD: Tibor Stanko. *Modélisation de surfaces lisses maillées à partir de capteurs inertiels*. Thèse CEA. October 2014- September 2017. Supervised by Stefanie Hahmann and GP Bonneau. Defended in December 2017.
- PhD in progress: Romain Brégier (Univ. Grenoble Alpes), *Detection and pose estimation of rigid object instances for robotics (Détection et estimation de pose d'instances d'objets rigides pour la manipulation robotisée)*. July 2014 - February 2018. Frédéric Devernay, James Crowley (LIG, Grenoble).
- PhD in progress: Guillaume Cordonnier. *Graphical simulation of mountains based on geology*. Grenoble university. October 2015-September 2018. Marie-Paule Cani and Eric Galin.

- PhD in progress: Geoffrey Guingo. *Synthesis of animated textures*. Grenoble university. October 2015-September 2018. Marie-Paule Cani, Jean-Michel Dischler and Basile Sauvage.
- PhD in progress: Sandra Nabil (Université de Grenoble Alpes), High resolution panoramic video creation and processing (Vidéo panoramique 360 degrés à très haute résolution). October 2015 - October 2018. Frédéric Devernay, James Crowley (LIG, Grenoble).
- PhD in progress: Robin Roussel. *Function-aware design for objects to be fabricated*. UCL London. October 2015-September 2018. Niloy Mitra, Marie-Paule Cani and Jean-Claude Léon.
- PhD in progress: Amélie Fondevilla. Sculpting and animating developable surfaces with video embedding. Grant MENRT. October 2016 - September 2019. Stefanie Hahmann and Damien Rohmer.
- PhD in progress: Thomas Buffet. Efficient multi-layered cloth animation using implicit surfaces, Grant ANR FoLD-Dyn. December 2017 - November 2020. Marie-Paule Cani and Damien Rohmer.
- PhD in progress: Maxime Garcia. *Expressive performance transfer*. Grant MENRT. October 2016-September 2019. Supervised by Rémi Ronfard.
- PhD in progress: Pierre Casati. *Animating 3D antique statues and engravings*. December 2017-November 2020. Supervised by Rémi Ronfard and Stéfanie Hahmann. Funded by ANR project E-ROMA.
- PhD in progress: Ameya Murukutla. *Authoring scenarios for augmented reality anatomy learning*. December 2017-November 2020. Supervised by Rémi Ronfard and Olivier Palombi. Funded by ANR project Anatomy 2020.
- PhD abandoned: Even Entem. *3D modelling from a sketch*. Grenoble University. November 2013-March 2017. Marie-Paule Cani and Loic Barthe (IRIT Toulouse). PhD Stopped in March 2017.
- PhD abandoned: Pablo Coves. From Point Cloud Data to Functional CAD Model. Grenoble. Univ. Jean-Claude Léon, Damien Rohmer, Raphaëlle Chaine (LIRIS), Julie Digne (LIRIS). May 2015 - Sept. 2017. PhD stopped in Sept. 2017. Pablo currently pursue his career as a software engineer in the company Anatoscope.
- M2R: Sarah Kushner. Master MOSIG. Sketch-Based Posing and Interaction of Multiple Characters: Animating Dancing Couples. Supervised by Marie-Paule Cani and Rémi Ronfard. Sarah Kushner is now a PhD Student at the University of Toronto.
- M2R: Tuan Hung Vu. Master MOSIG. Learning cinematographic style from pictures. Supervised by Karteek Alahari (THOTH team) and Rémi Ronfard. Tuan Hung Vu is now a PhD student at IMT Lille Douai.
- M1: Hugo Frezat. Master MOSIG. Story Generation from Pictures. Supervised by Rémi Ronfard.

### 9.3. Popularization

Starting in May 2017, our recent work on "3D animation by gesturing and drawing" has been featured in a live demo open to the general public in the new Espace Login at Inria in Montbonnot.

On November 8 and 9, that same demo was presented at Studio 104 in Paris during the celebration of Inria's 50th anniversary, to an audience of several hundred people.

Rémi Ronfard gave presentations on

- Directing virtual worlds, Ministère de la Culture, January 2017.
- Eyetracking and the arts, Institut d'Art Contemporain, Lyon, April 2017.
- Sketch-based character animation, CITIA, Annecy, May 2017.
- Computer science and theatre, ENSATT Lyon, December 2017.

Marie-Paule Cani was invited by France Inter's Dorothée Barba on December 25, 2016 to speak about the Imagine team and the future of cinema. A podcast of the the program (Demain la veille: cinema futurismo) can be obtained from <https://www.franceinter.fr/emissions/demain-la-veille/demain-la-veille-25-decembre-2016>.



## INDES Project-Team

# 7. Dissemination

## 7.1. Promoting Scientific Activities

### 7.1.1. Scientific Events Organisation

#### 7.1.1.1. General Chair, Scientific Chair

- Ilaria Castellani was the co-chair (together with Pedro D'Argenio, Mohammad Reza Mousavi and Ana Sokolova) of the workshop "Open Problems in Concurrency Theory 2017" (OPCT'17), which was held in the Institute of Science and Technology Austria (IST Austria), from June 26 to June 29. <http://opct2017.famaf.unc.edu.ar/Home.html>
- Ilaria Castellani was the co-chair (together with Mohammad Reza Mousavi) of the workshop TRENDS 2017, which took place in Berlin on September 9, in association with the CONCUR 2017 conference. <https://concurrency-theory.org/events/workshops/trends>

#### 7.1.1.2. Member of the Organizing Committees

- Tamara Rezk was member of the Organizing Committees of the conference Euro Security and Privacy 2017 and the workshop Secure Compilation Meeting at POPL 2017. She also is a member of the Steering Committee of the POST conference.
- Manuel Serrano is a member of the Steering Committee for the Trends in Functional Programming conference and the Programming conference.
- Nataliia Bielova was a member of the Organizing Committee of the Dagstuhl Seminar on Online Privacy and Web Transparency. <https://www.dagstuhl.de/en/program/calendar/semhp/?semnr=17162>

### 7.1.2. Scientific Events Selection

#### 7.1.2.1. Chair of Conference Program Committees

- Nataliia Bielova was the PC co-chair (together with Marco Gaboardi) of the ACM workshop "Workshop on Programming Languages and Analysis for Security" (PLAS 2017), which took place in Dallas (USA) on 30 October 2017. <http://plas2017.cse.buffalo.edu/>

#### 7.1.2.2. Member of the Conference Program Committees

- Ilaria Castellani served in the Program Committees of the conference TTCS'17 and of the workshops PLACES'17 and EXPRESS/SOS'17.
- Tamara Rezk served in the Program Committees of SecDev, Sec@SAC, ESSoS, HotSpot@Etaps.
- Manuel Serrano served the ProWeb'17 program committee.
- Nataliia Bielova served in the Program Committees of CLaw'17, MMM-ACNS'17, ProWeb'17, FCS'17, IEEE SecDev'17, IEEE CSF'17, USENIX Security Poster session, APVP'17.

#### 7.1.2.3. Reviewer

- The team members have been reviewers for the following conferences and workshops: TTCS'17, PLACES'17, EXPRESS/SOS'17, SecDev, Sec@SAC, ESSoS, HotSpot@Etaps, ProWeb'17, CLaw'17, MMM-ACNS'17, ProWeb'17, FCS'17, IEEE SecDev'17, IEEE CSF'17, USENIX Security Poster session, APVP'17.

### 7.1.3. Journal

#### 7.1.3.1. Member of the Editorial Boards

- Ilaria Castellani is a member of the editorial board of *Technique et Science Informatiques*.

- Ilaria Castellani (together with Mohammad Reza Mousavi) was guest editor for the JLAMP special issue on Trends in Concurrency Theory (Selected invited contributions from the workshops TRENDS 2014 and TRENDS 2015), J. Log. Algebr. Meth. Program., vol. 87, 2017. <https://doi.org/10.1016/j.jlamp.2017.01.002>.
- Tamara Rezk is a member of the editorial board of *Interstices*.

#### 7.1.3.2. Reviewer - Reviewing Activities

- The team members have been reviewers for the following journals: JLAMP, LMCS, ACM TOIT, ACM Toplas, ACM TOPS.

#### 7.1.4. Invited Talks

- Tamara Rezk was an invited speaker at ETH Zurich in January, at GT-Verif (during the days of the meeting Gdr Sécurité) in May, and at the Journées Scientifiques Inria in June.
- Manuel Serrano gave a keynote talk on Web Programming at the Splash META'17 workshop in September <https://2017.splashcon.org/track/meta-2017>.
- Nataliia Bielova was an invited speaker at DGCCRF in March, at SySoSec seminar (Rennes) in May, at Higher School of Economics (Moscow) in October, and at DNU and KPI universities (Ukraine) in November.

#### 7.1.5. Leadership within the Scientific Community

- Ilaria Castellani is the chair of the IFIP TC1 WG 1.8 on Concurrency Theory since June 2014.
- Ilaria Castellani is a Management Committee member of the COST Action IC1405 on Reversible Computation (November 2014-November 2018).

#### 7.1.6. Scientific Expertise

- Tamara Rezk was an expert for reviewing projects for the National Center of Science and Technology Agency (Kazakhstan) and the CMU Portugal Program in collaboration with Carnegie Mellon University.
- Nataliia Bielova was an expert for reviewing projects for the Data Transparency Lab (DTL).

#### 7.1.7. Research Administration

- Manuel Serrano is the "Délégué scientifique" (head of research) of the Inria Sophia Antipolis Méditerranée research center. He is member of the Inria Evaluation Committee.
- Nataliia Bielova is a member of "Comité du Suivi Doctoral (CSD)" (Supervision of PhD students) of the Inria Sophia Antipolis Méditerranée research center.
- Ilaria Castellani is a member of Inria's "Comité Parité et Égalité des Chances". In the Centre of Inria Sophia Antipolis, she is a member of the "Comité d'Animation et Médiation Scientifique" and of the "Comité Scientifique du Colloquium".
- Tamara Rezk is a member of the "Commission de Développement Technologique (CDT)" of the Inria Sophia Antipolis Méditerranée research center.

## 7.2. Teaching - Supervision - Juries

### 7.2.1. Teaching

Master : Tamara Rezk, Security of Web Applications, 28ETD, niveau M2, University of Nice Sophia Antipolis, France

Master : Tamara Rezk, Preuves en Cryptographie, 28ETD, niveau M2, University of Nice Sophia Antipolis, France

Master : Tamara Rezk, Security of Web Applications, 18ETD, niveau M2, University of Pierre et Marie Curie, France

Master : Nataliia Bielova, Security of Web Applications, 18ETD, niveau M2, University of Pierre et Marie Curie, France

### 7.2.2. Supervision

PhD in progress: Dolière Francis Somé, Security and Privacy in Web Applications, 1/11/2015, Nataliia Bielova and Tamara Rezk

PhD in progress: Mohamad Ellaz, The DDH Assumption, 1/12/2017, Benjamin Gregoire and Tamara Rezk

PhD in progress: Colin Vidal, *Programmation Web réactive*, University of Nice, 1/07/2015, Manuel Serrano and Gérard Berry.

### 7.2.3. Juries

- Tamara Rezk was a member of the PhD jury of Zeineb Zhioua, Eurecom.
- Manuel Serrano was a member of the PhD jury of Gabriel Radanne, University Denis Diderot.
- Nataliia Bielova was a member of the PhD jury of Pierre Laperdrix, INSA Rennes.

## 7.3. Popularization

Tamara Rezk and Nataliia Bielova were contributors to the Security White Report of Inria to provide an overview of the research in the area of IoT security and Web Tracking technologies carried out by Inria teams.

Nataliia Bielova has presented a joint work with Privatics team at the EU Parliament meeting dedicated to the analysis of the new EU ePrivacy Regulation in June 2017. <https://www.inria.fr/en/centre/sophia/news/nataliia-bielova-at-the-european-parliament>.

Nataliia Bielova gave a general audience talk on Web Tracking technologies and protection mechanisms for Web users at Carnegie-Mellon University (remotely) and SKEMA Business school in October and at Cafe-techno organised by Inria in November.

## INFINE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

1. **Aline C. Viana** was scientific chair of Algotel 2017.
2. **Emmanuel Baccelli** was chair of the RIOT Summit 2017.

#### 9.1.1.2. Member of the Organizing Committees

1. **Aline C. Viana** is Publicity Chair of: IEEE PICom 2018; IEEE MiSeNet 2018 jointly with IEEE Infocom 2018; DCOSS 2018.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

1. **Aline C. Viana** was scientific chair of Algotel 2017.

#### 9.1.2.2. Member of the Conference Program Committees

1. **Aline C. Viana** is/was TPC member of: Algotel 2018; IFIP NTMS 2018 New Technolog; WCU 2017 jointly with SBRC 2017; IEEE AINA-2017.

#### 9.1.2.3. Reviewer

1. **Cedric Adjih** was reviewer for PEMWN 2017, IEEE PIMRC 2017 Workshop WS-07, WINCOM 2017, WCNC 2018.
2. **Emmanuel Baccelli** was reviewer for ACM ICN 2017 (Poster/Demo), PEMWN 2017.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

1. **Aline C. Viana** is Associate Editor of ACM SIGCOMM Computer Communication Review (ACM CCR), since May 2014; Editorial Board member of Wireless Communications and Mobile Computing Open Access Journal of John Wiley&Sons and Hindawi since 2016.

#### 9.1.3.2. Reviewer - Reviewing Activities

1. **Aline C. Viana** reviewed papers for ACM SIGCOMM CCR Journal, elsevier Pervasive and Mobile Computing Journal and Computer Communication Elsevier Journal.

#### 9.1.3.3. Reviewer

1. **Cedric Adjih** was reviewer for Future Generation Computer Systems, and IEEE Transactions on Communications.
2. **Emmanuel Baccelli** was reviewer for ACM Transactions on Networking (TON), Elsevier Future Generation Computer Systems.

### 9.1.4. Standardization

1. **Emmanuel Baccelli and Cedric Adjih** have participated at several working groups at IETF (March, July and November 2017)
2. **Emmanuel Baccelli and Cedric Adjih** have participated at the IETF hackathons (July and November 2017)

### 9.1.5. Invited Talks

1. **Aline C. Viana** was invited to give a talk at (1) University of Coimbra, Portugal in December 2016; (2) University of Porto, Portugal in December 2016; (3) EBSIS Summer School in Timmendorfer Strand, Germany in July 2017; (4) University of Edinburgh, UK in February 2017, (5) Spring School on Networks (SSN) 2017 at ChileCON Conference, Pucon, Chile in October 2017, all on "Toward a more Tactful Networking".
2. **Aline C. Viana** will be the keynote speaker of the CoUrb 2018 Workshop jointly organized with SBRC 2018, Brazil in May 2018.
3. **Laurent Massoulié** gave several invited talks at: Stochastic Networks Conference, UCSD; CIRM workshop on random matrices; Institut Henri Poincaré's Nexus of Information and Computation Theories; LINCS scientific advisory board.
4. **Cedric Adjih** has presented in the **June seminar** of Digicosme GT task 2 Future Access Networks : "On Doing 5G with Old Low Cost Wireless Sensor Nodes (with RIOT, FIT IoT-LAB and one SDR device)". This presented work-in-progress experimenting of some 5G-related method(s) on low cost wireless sensor nodes, focusing on massive access (for machine-type communication), and describing one of the most readily experimental family of methods for random access known as "Coded Slotted Aloha", along with its already known features and performance evaluation aspects. Proof-of-concept experimentation was also described starting from the underlying hardware platform, FIT IoT-LAB (a large scale open testbed IoT Lab), and the underlying software platform, RIOT (an Operating System from the Internet of Things). Using additionally a software-defined receiver, it was shown how such 5G-like random access can be experimented on such typical 802.15.4-based devices. An analysis of preliminary results was provided, along with some lessons learned and some consequences on the design space of such methods.
5. **Cedric Adjih** has presented a tutorial at **ANTS 2017** in Bhubaneswar, Odisha, India, on the subject of "**IoT in Practice**": it presented a comparative study of embedded OS's such as RIOT, Contiki, ARM Mbed, Zephyr as well as implementation specificities of IoT protocol stacks e.g. RPL/6LoWPAN. Insight on how do hardware and software building blocks and transport level and application level protocols fit together was provided. Addressed practical issues include the analysis of actual protocol performance (e.g. 802.15.4 or LoRa stacks) in experimental settings, and topics such as reasons for adopting open source approaches for IoT solutions. Presentation of experimental proof of concepts concluded the tutorial.
6. **Emmanuel Baccelli** gave an invited talk at CiscoX Symposium 2017, on the topic of "ICN for IoT: Energy Efficiency, Opportunities & Challenges"
7. **Emmanuel Baccelli** gave an invited talk at Bremen University in February, on the topic of "End-to-End Open Source IoT with RIOT".

### 9.1.6. Research Administration

1. **Aline C. Viana** is the President of the Scientific Commission at Inria Saclay, responsible for the selection of candidates for the CORDI-S, Post-Doc and Delegation campaigns.
2. **Aline C. Viana** will be the new leader of Infine team due to the fact that Laurent Massoulié had to leave Inria Saclay to join the Inria & Microsoft Lab at Inria Paris.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master : Emmanuel Baccelli, "Operating Systems for Small Connected Devices in the Internet of Things", 3h cours magistral, Formation PESTO Corps des Mines, Telecom ParisTech, Paris France  
 Licence: Aline C. Viana, "Toward a more Tactful Networking", 2h TD, niveau L3, Federal University of Goias (UFG) and Federal University of Minas Gerais, Brazil  
 Licence: Aline C. Viana, "Opportunistic communication in disconnected mobile Ad Hoc networks", 6h TD, niveau L3, Telecom SudParis, France

Licence: Cédric Adjih, “Microcontrollers: from embedded systems to the Internet of Things”, 3h TD, Niveau L3, Telecom SudParis, France

Licence: Laurent Massoulie, “Networks: distributed control and emerging phenomena”, 18h TD, Niveau L3, Ecole Polytechnique, France

Master : Aline C. Viana, “Toward a more Tactful Networking”, 2h TD, niveau M2, Federal University of Goias (UFG), Federal University of Minas Gerais, Brazil

Master : Aline C. Viana, “Toward a more Tactful Networking”, 3h TD, niveau M2, Telecom SudParis, France

Master : Aline C. Viana, Master Project evaluation, 4h TD, niveau M2, Telecom SudParis, France

Doctorat : Aline C. Viana, “Toward a more Tactful Networking”, 2h TD, Federal University of Goias (UFG) and Federal University of Minas Gerais, Brazil

### 9.2.2. Supervision

PhD: Guangshuo Chen, “Human habits investigation: From mobility reconstruction to mobile traffic prediction”, Ecole Polytechnique, March 2018, Aline C. Viana.

PhD in progress: (1) Rafael Costa, “Inferring friends in the crowd in Device-to-Device communication”, June 2016, Aline C. Viana and Leobino Sampaio (co-tutele); (2) Roni Shigetta, “Distributed channel allocation strategy based on human behavior”, January 2014, Aline C. Viana and Mauro Fonseca (co-tutele).

PhD in progress: Loic Dauphin, “IoT Robotics”, June 2016, Emmanuel Baccelli and Cédric Adjih co-supervision.

### 9.2.3. Juries

1. Aline Viana will be on the PhD jury as reviewer of: Florent Coriat, “Geolocalisation en situation de crise”, UPMC ? Sorbonne Universit;æs, France, may 2018.
2. Aline Viana was on the PhD jury as examiner of: (1) S. Eddine Belouanas, “Dessemination de contenus populaires et tolerants au delai dans les reseaux cellulaires”, UPMC ? Sorbonne Universit;æs, France, September 2017; (2) P. Salgueiro Santos, “Wireless Protocols and Channel Estimation for Data Gathering with Mobile Nodes”, Univ. of Porto, Portugal, May 2017; (3) Amal Ellouzem, "Mobile Applications Offloading in Mobile Cloud Environment", Telecom ParisTech, France, March 2017.
3. Aline C. Viana was on the PhD jury as invited member of Tanel Razafimandimby "Toward Internet of Heterogeneous Things: Wireless communication maintenance and efficient data sharing among devices", University Lille 1, Inria Lille, France, October 2017.
4. Aline C. Viana was on the PhD Qualification jury as examiner of T. Duc Ha, "Allocation de ressources et association utilisateur/cellule optimisees pour les reseaux C-RAN" (Univ. Paris Sud, 2017);
5. Aline C. Viana was on the Master jury of Bruno Farias Fausto "Um mecanismo de deteccao e controle de congestionamento usando redes ad hoc veiculares sem infraestrutura", Federal Univ. of Rio de Janeiro State, Brazil, October 2017.
6. Laurent Massoulie was on the PhD jury as reviewer for the PhD theses of Anna Benhamou and Alaa Saade, and he presided the PhD thesis committee of Kevin Scaman.

## 9.3. Popularization

1. Aline C. Viana gave a scientific talk on “Le smartphone, votre 6e sens ?” and “The research career”, December 2017, for college students visiting Inria Saclay
2. Cédric Adjih, Emmanuel Baccelli, Alexandre Abadie, Raul Fuentes participated to the "Inria-Industry Meetings" on 17 and 18 October 2017, with two demonstrations:

- **RIOT, the friendly OS for the Internet of Things** - it has shown the various functionalities from RIOT on hardware of the type sensor/actuator to demo a control loop via the cloud. RIOT was used to generate IoT data locally (via sensors), sending them to the cloud where this data is analyzed. This analysis will result in a physical action (via actuators). We highlighted two use-cases: building automation, and low-cost robotics
- **End-to-end IoT with FIT IoT-LAB** - this presented the use of FIT IoT-LAB for experimenting with IoT; in particular the end-to-end Over-the-air updates of RIOT.

## INOCS Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

6th Winter School on Network Optimization, Estoril, Portugal, January 2017: Bernard Fortz.

Meeting of the EURO Working group on Pricing and Revenue Management, Amsterdam, Netherlands, June 2017: Luce Brotcorne.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

ORBEL 2017, Brussels, Belgium, February 2017: Bernard Fortz.

ROADEF2017 - 18ème Conférence de la Société Française de Recherche Opérationnelle et d'Aide à la Décision, Metz, France, February 2017: Luce Brotcorne, Bernard Fortz, Frédéric Semet.

International Network Optimization Conference (INOC) 2017, Lisbon, Portugal, March 2017: Bernard Fortz.

International Conference on Design of Reliable Communication Networks 2017 (DRCN 2017), Munich, March 2017: Martine Labbé.

Conference of the International Federation of Operational Research Societies, Quebec, Canada, July 2017: Luce Brotcorne, Bernard Fortz.

International Symposium on Locational Decisions (ISOLDE 2017), Toronto, July 2017 Martine Labbé.

INFORMS TSL Conference, Chicago, July 2017: Martine Labbé.

XLIX Brazilian Symposium on Operational Research (XLIX SBPO), Blumenau, Brazil, August 2017: Martine Labbé.

Computer Science Discovery 8 (CSD8), Mons, Belgium, August 2017: Martine Labbé.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

EURO Journal on Computational Optimization: Martine Labbé - Editor in chief.

Computers and Operations Research: Luce Brotcorne - Associate editor.

INFORMS Journal on Computing: Bernard Fortz - Associate editor.

International Transactions in Operations Research: Bernard Fortz, Martine Labbé - Associate editors.

Transportation Science: Martine Labbé - Member of the Advisory Board.

#### 10.1.3.2. Reviewer - Reviewing Activities

Annals of Operations Research, Applied Computing and Informatics, Central European Journal of Operations Research, Computers & Operations Research, Computational Optimization and Applications, Discrete Applied Mathematics, EURO Journal on Transportation and Logistics, European Journal of Operational Research, ISE Transactions, INFORMS Journal on Computing, International Journal of Management Science and Engineering Management, Mathematical Programming Computation, Networks, Omega, Operations Research, Optimization and Engineering, RAIRO - Operations Research, Transportation Science: Luce Brotcorne, Diego Cattaruzza, Bernard Fortz, Martine Labbé, Maxime Ogier, Frédéric Semet, Markus Sinnl.



#### **10.1.4. Invited Talks**

Conference of the International Federation of Operational Research Societies, Quebec, Canada, July 2017: Martine Labbé, EURO plenary lecturer [42].

Optimization 2017, Lisbon, Portugal, September 2017: Martine Labbé, plenary speaker [43].

Conférence ROAD 2017, Esatic, Abidjan, March 2017: Luce Brotcorne, plenary speaker [37].

Network Optimization Workshop 2017, Viterbo, June 2017: Luce Brotcorne, Frédéric Semet, invited speaker [38], [61].

#### **10.1.5. Leadership within the Scientific Community**

EURO Working Group "Pricing and Revenue Management": Luce Brotcorne - coordinator.

EURO Working Group "European Network Optimization Group (ENOG)": Bernard Fortz - coordinator.

EURO Working Group "Vehicle routing and logistics optimization (VEROLOG)": Frédéric Semet - Member of the board.

SIAG/Optimization Prize committee: Martine Labbé - Chair.

ORBEL (Belgian Operations Research Society): Bernard Fortz - Member of the board of administration and treasurer.

ORBEL representative for EURO and IFORS: Bernard Fortz

CNRS GdR 3002 : Operations Research: Frédéric Semet - Member of the steering committee

#### **10.1.6. Scientific Expertise**

Scientific orientation committee of the Interuniversity Centre on Entreprise Networks, Transportation and Logistics (CIRRELT), Canada: Bernard Fortz, Frédéric Semet - Members.

Scientific Advisory Board of IWR and its Graduate school HGS MathComp, Heidelberg University: Martine Labbé - Member.

Centro de Matemática, Aplicações Fundamentais e Investigação Operacional, University of Lisbon: Martine Labbé - Member.

Scientific committee of France-Netherlands Exchange Program: Luce Brotcorne - Member.

Evaluation committee for Inria/MITACS Exchange Program: Luce Brotcorne - Member.

Evaluation committee COST GTRI: Luce Brotcorne - Member.

President of the FRIA PE1 - jury 1: Bernard Fortz - Chair.

Scientific board of PICOM competitiveness cluster: Frédéric Semet - Member.

Agence Nationale de la Recherche (ANR): Luce Brotcorne, Frédéric Semet - Reviewer.

Fond de Recherche Nature et Technologie du Québec: Frédéric Semet - Reviewer.

Research Council of Norway: Frederic Semet - Reviewer.

#### **10.1.7. Research Administration**

Committee for the Technological Development (CDT): Luce Brotcorne - Member.

CRISAL: Frédéric Semet - Deputy-director.

Scientific council of Centrale Lille: Frédéric Semet - Elected member.

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

Master: Bernard Fortz, Recherche Opérationnelle et Applications, 30hrs, M1, Université de Mons (campus Charleroi), Belgique.

- Master: Bernard Fortz, Continuous Optimization, 24hrs, M1 & M2, Université libre de Bruxelles, Belgique.
- Master: Martine Labbé, Computer science seminar, 12hrs, M2, Université libre de Bruxelles, Belgique.
- Master: Frédéric Semet, Non-linear Optimization, 30hrs, M2, Centrale Lille.
- Master: Frédéric Semet, Operations Research, 28hrs, M2, Centrale Lille.
- Master: Luce Brotcorne, Optimisation, 14hrs, M1, Polytech Lille.
- Master: Luce Brotcorne, Recherche opérationnelle, 16hrs, M1 apprentissage, Polytech Lille.
- Master: Luce Brotcorne, Diego Cattaruzza, Maxime Ogier, Frédéric Semet, Numerical Analysis and Optimization, 132hrs, M1, Centrale Lille.
- Master: Diego Cattaruzza, Maxime Ogier, Object-Oriented Programming, 48hrs, M1, Centrale Lille.
- Master: Diego Cattaruzza, Maxime Ogier, Operations Research, 16hrs, M1, Centrale Lille.
- Master: Frédéric Semet, Large-scale optimization methods, 24hrs, M1, Centrale Lille.
- Licence: Diego Cattaruzza, Maxime Ogier, Object-Oriented Programming, 36hrs, L3, Centrale Lille.
- Licence: Frédéric Semet, Advanced programming and Complexity, 24hrs, L3, Centrale Lille.
- Licence: Diego Cattaruzza, Maxime Ogier, Object-Oriented Programming, 40hrs, L2, Centrale Lille.
- Licence: Diego Cattaruzza, Web Technologies and Multimedia, 32hrs, L2, Centrale Lille.
- Licence: Bernard Fortz, Algorithmique 1, 12hrs, L1, Université libre de Bruxelles, Belgique.
- Licence: Bernard Fortz, Algorithmique 2, 24hrs, L1, Université libre de Bruxelles, Belgique.
- Licence: Martine Labbé, Projets d'informatique 3 transdisciplinaire, 12hrs, L3, Université libre de Bruxelles, Belgique.

### 10.2.2. Supervision

- PhD: Carlos Casorrán Amilburu, Models and algorithms for Solving Bimatrix Stackelberg games, Université libre de Bruxelles, October 2017, Martine Labbé [11].
- PhD in progress: Jérôme De Boeck, Optimization problems in energy, from October 2015, Bernard Fortz.
- PhD in progress: Burak Celik, Models and methods for Stackelberg games using bilevel optimization and mixed integer linear programming, from Nov 2016, Luce Brotcorne, Martine Labbé.
- PhD in progress: Yaheng Cui, Models and methods for decentralized decision in logistics networks, from Oct 2016, Luce Brotcorne, Eric Ballot.
- PhD in progress: Concepción Domínguez Sánchez, Mixed Integer Linear Models and Algorithms for Pricing Problems, from October 2017, Martine Labbé.
- PhD in progress: Wenjuan Gu, Location routing for short and local fresh food supply chain, from Oct 2016, Maxime Ogier, Frédéric Semet.
- PhD in progress: Léonard Von Niederhausern, Design and pricing of new services in energy in a competitive environment, from Oct 2015, Luce Brotcorne, Didier Aussel.
- PhD in progress: Fränk Plein, Models and methods for the robust verification of booked capacities in gas networks in a decentralized setting, from October 2017, Martine Labbé.
- PhD in progress: Luciano Porretta, Models and methods for the study of genetic associations, from May 2011, Bernard Fortz.
- PhD in progress: Fabio Sciamannini, Column generation approaches for solving variants of node coloring problems, from October 2014, Bernard Fortz, Martine Labbé.

PhD in progress: Yuan Yuan, Vehicle Routing Problems with Synchronization for City Logistics, from Oct 2016, Diego Cattaruzza, Frédéric Semet.

### 10.2.3. *Juries*

PhD: "Quelques Algorithmes de Planification Ferroviaire sur Voie Unique", Laurent Daudet, Université de Paris Est. Frédéric Meunier. Luce Brotcorne - Reviewer.

PhD: "Formulations and algorithms for general and security Sackelberg games", Carlos Casorrán Amilburu, Université libre de Bruxelles. Martine Labbé et Fernando Ordóñez. Bernard Fortz - Examiner and Committee Secretary.

PhD: "The multi-terminal vertex separator problem: Complexity, Polyhedra and Algorithms", Youcef Magnouche, Université Paris Dauphine. Ridha Mahjoub. Frederic Semet - Committee Chair.

PhD: "Vehicle routing problems with road-network information", Ramza Ben Ticha, Université Clermont-Auvergne. Nabil Absi and Alain Quillot. Frédéric Semet - Reviewer and Committee Chair.

PhD: "Problèmes de tournées avec gestion de stock et prise en compte explicite de la consommation d'énergie", Yun He, Université Fédérale de Toulouse-Midi Pyrénées. Cyril Briant and Nicolas Jozefowicz. Frédéric Semet - Reviewer.

PhD: "Conception et optimisation d'un réseau de transport multimodal pour desservir des ports maritimes et leur hinterland", Yulong Zhao, Université de Nantes. N. Bostel and Pierre Dejax. Frédéric Semet - Examiner.

PhD: "Heterogeneous cluster computing for many-task exact optimization - Application to permutation problems", Jan Gmys, Université de Mons. Nouredine Melab and Daniel Tuyttens. Frederic Semet - Committee Secretary.

PhD: "Mathematical optimization for the visualization of complex datasets", Vanesa Guerrero Lozano, Universidad de Sevilla. Emilio Carrizosa Priego and Dolores Romero Morales. Martine Labbé - Examiner.

PhD: "Automatic algorithm configuration", Leslie Angélica Pérez Cáceres, Université Libre de Bruxelles. Thomas Stuetzle. Martine Labbé - Examiner.

Habilitation: "Reformulations and decompositions of mixed integer linear and nonlinear programs", Fabio Furini, Université Paris-Dauphine. Ridha Mahjoub. Martine Labbé- Reviewer.

## 10.3. Popularization

L. Brotcorne, Club Logistique et Transport, Lille, September 2017.

## IPSO Project-Team

## 6. Dissemination

### 6.1. Promoting Scientific Activities

#### 6.1.1. Scientific Events Organisation

##### 6.1.1.1. Member of the Organizing Committees

- F. Castella organized the workshop "Multiscale numerical methods", Saint-Malo, december 13-15 2017. [15 participants]
- N. Crouseilles co-organized the weekly seminar "Mathematic and applications", ENS Rennes.
- N. Crouseilles co-organized the Nantes-Rennes meeting at the university of Nantes, january 19 2017. [50 participants]
- N. Crouseilles organized the IPL FRATRES meeting at Inria Rennes, november 27-28 2017. [30 participants]
- N. Crouseilles and M. Lemou co-organized (with C. Cheverry and K. Pravda-Starov) the international workshop "Analysis of transport equations: Vlasov and related models", Rennes, may 16-19 2017. [50 participants]
- E. Faou organizes a work-group on "Mathematics of deep learning" (Inria, IRMAR and Technicolor), Rennes, France.
- E. Faou organized the mini-symposium "Methods for the nonlinear Schrödinger equations, solitary waves and discrete patterns", with T. Matsuo (University of Tokyo), at the Scicade international conference, Bath (UK), september 11-15 2017.
- E. Faou co-organized the conference ANSIVAL on the occasion of the 60th birthday of M. Dauge (IRMAR), Rennes, France, february 8-10 2017. [70 participants]

#### 6.1.2. Journal

##### 6.1.2.1. Member of the Editorial Boards

- P. Chartier is associate editor of M2AN (2007-).
- A. Debussche is editor in chief of Stochastic Partial Differential Equations: analysis and computations (2013-).
- A. Debussche is associate editor of Differential and Integral Equations (2002-).
- A. Debussche is associate editor of Potential Analysis (2011-).
- A. Debussche is associate editor of ESAIM:PROC (2012-).
- A. Debussche is associate editor of Journal of Evolution Equation (2014-).
- A. Debussche is associate editor of Applied Mathematics & Optimization (2014-).
- A. Debussche is associate editor of SIAM JUQ (2017-).
- A. Debussche is member of the editorial board of the collection "Mathématiques & Applications de la SMAI", Springer.

##### 6.1.2.2. Reviewer - Reviewing Activities

The members of the IPSO team are reviewers for almost all the journals in which they publish.

### 6.1.3. Invited Talks

#### National conferences

- A. Crestetto gave talk at Congrès SMAI 2017, La Tremblade, june 5-9 2017.
- The members of the team gave several seminars in french institutions (Marseille, Cergy, Toulouse, Nancy, CEA Cadarache, ...).

#### International conferences

- P. Chartier was invited speaker at FoCM 2017, workshop on "Geometric Integration and Computational Mechanics" (july 10-12), Barcelona, Spain.
- P. Chartier was invited speaker at "Mathematical and Computational Methods for Quantum and Kinetic Problems", (june 12-14), Beijing, China.
- P. Chartier was invited speaker at "Kinema 2017: Numerical Modelling of Kinetic Magnetized Plasmas", spring school, Institut d'études scientifiques de Cargèse, (april 3-7), Cargèse, France.
- A. Crestetto gave talk at the workshop "NumKin 2017" (october 23-27), IPP Garching, Germany.
- A. Crestetto gave a talk at the Oberseminar (july 11), Würzburg, Germany.
- N. Crouseilles gave a talk at the workshop on "Mathematical and Computational methods for Quantum and Kinetic Problems, (june 12-14), Beijing, China.
- A. Debussche gave a talk at "Stochastic PDEs: Analysis and Computation", (march 27-31), Warwick, England.
- A. Debussche gave a talk at "Probabilistic Perspectives in Nonlinear PDEs", (june 5-9), International Centre for Mathematical Sciences (ICMS), Edinburgh, Scotland.
- A. Debussche gave a talk at FoCM2017, workshop on "Stochastic Computation", (july 10-12), Barcelona, Spain.
- A. Debussche gave a talk at "2017 Fields Medal Symposium", (october 16-19), Toronto, Canada.
- E. Faou gave a talk at the mini-symposium "Modelling, theory and approximation of nonlinear waves", Scicade international conference, (september 11-15), University of Bath, UK.
- E. Faou gave a talk at the conference "Asymptotic analysis of evolution equations", (july 3-7), CIRM, Marseille.
- E. Faou gave a talk at the seminar at the University of Cambridge, (june 2017), UK.
- E. Faou gave a talk at the workshop "Mathematical questions in wave turbulence theory", (may 15-19), San Jose, California.
- E. Faou gave a talk at the workshop "Modern Numerical Methods for Quantum Mechanics", (march 20-22) Polish Academy of sciences, Warsaw, Poland.
- M. Lemou gave a talk at International workshop "Geometric Transport Equations in General Relativity", (february 20-24), ESI, Vienna, Austria.
- M. Lemou gave a course in the summer school "Applied and Stochastic Analysis for Partial Differential Equations". Institute of Natural Science, Shanghai Jiao Tong University, (july 12-22), Shanghai, China.
- M. Lemou gave a talk at WPI workshop on "Quantum Dynamics and Uncertainty Quantification", (june 20-25), Vienna, Austria,
- M. Lemou gave a talk at the workshop on "Mathematical and Computational methods for Quantum and Kinetic Problems, (june 12-14), Beijing, China.
- M. Lemou gave a course at "Kinema 2017: Numerical Modelling of Kinetic Magnetized Plasmas", spring school, Institut d'études scientifiques de Cargèse, (april 3-7), Cargèse, France.
- M. Lemou gave a talk at the workshop on "Kinetic Theory and Fluid Mechanics : theoretical and computational aspects", (november 6-10), Toulouse, France.

- F. Méhats gave a talk at SIAM Conference on "Analysis of Partial Differential Equations", (december 10-12), Baltimore, USA.
- F. Méhats gave a talk at the workshop on "Mathematical and Computational methods for Quantum and Kinetic Problems, (june 12-14), Beijing, China.
- F. Méhats gave a talk at the conference "Advances in Mathematics for Technology", (october 9-11) Catania, Italy.

#### 6.1.4. Scientific Expertise

- P. Chartier is member of the promotion committees DR1 and DR0 Inria.
- N. Crouseilles was reviewer for ANR project.
- A. Debussche participated to the report projet EUR Centre Henri Lebesgue.
- A. Debussche was reviewer for ERC projects, "Philip Leverhulme" (GB) fundation, Austrian Science Fundation.
- A. Debussche was president of the visiting committee HCERES of the Centre d'Analyses et de Mathématique Sociales (Paris, EHESS).

#### 6.1.5. Research Administration

- P. Chartier is scientific vice-deputy of the Inria Rennes center.
- P. Chartier is member of the Inria evaluation committee.
- P. Chartier is member of the Inria Scientific Committee (COSI).
- P. Chartier is member of the Bureau du Comité des Projets (BCP).
- A. Crestetto is member of the mathematic department council of the university of Nantes.
- A. Crestetto is member of the scientific council of "UFR Sciences et Techniques" of the university of Nantes.
- N. Crouseilles is member of the scientific council of ENS Rennes.
- N. Crouseilles is member of the mathematic laboratory (IRMAR) council.
- N. Crouseilles is member of the Fédération de Fusion council (University of Rennes representative).
- A. Debussche is member of the scientific council of the Fédération Denis Poisson.
- A. Debussche is member of the administrative council of ENS Paris-Saclay.
- A. Debussche is scientific vice-deputy and international relations of ENS Rennes.
- A. Debussche is vice-head of the Centre Henri Lebesgue.
- A. Debussche is vice-head of the Lebesgue agency for Mathematic and Innovation.
- E. Faou is member of the scientific council of the Pôle Universitaire Léonard de Vinci.
- E. Faou is member of the CNU section 26.
- E. Faou is head of organization of the semester *scientific computing* sponsored by the Labex Lebesgue (2 international summer schools, 7 workshops and international conferences).
- M. Lemou is member of the scientific council of the Center Henri Lebesgue.
- M. Lemou is member of the scientific council of ENS Rennes.
- M. Lemou is the head of the numerical analysis team of IRMAR laboratory. [46 members].
- F. Méhats was head of the mathematic laboratory IRMAR (2015-2017). [250 members].

## 6.2. Teaching - Supervision - Juries

### 6.2.1. Teaching

- Master : F. Castella, "Equations de transport et Phenomenes de Propagation", 48h, M1, university of Rennes 1, France.

- Master : F. Castella, "Analyse Numerique Generale", 48h, M1, university of Rennes 1, France.
- Master : P. Chartier, "Semi-lagrangian methods for Vlasov-Poisson equations", 18h, M2, university of Rennes 1, France.
- Master : A. Crestetto, "Méthodes numériques pour les fluides incompressibles", 64h, M2, university of Nantes, France.
- Master : A. Crestetto, "Compléments de modélisation pour l'agrégation", 26h, M2, university of Nantes, France.
- Master : N. Crouseilles, "Analyse numérique", 30h, M1, ENS Rennes, France.
- Master : A. Debussche, "Distribution et analyse fonctionnelle", 30h, M1, ENS Rennes, France.
- Master : A. Debussche, "Introduction aux EDP Stochastiques", 48h, M2, university of Rennes 1, France.
- Master : A. Debussche, "Compléments pour l'agrégation", 26h, M2, ENS Rennes, France.
- Master : M. Lemou, "Equations aux dérivées partielles elliptiques", 30h, M1, ENS de Rennes.
- Master : F. Méhats, "Equations hyperboliques", 30h, M2, university of Rennes 1, France.

### 6.2.2. Supervision

- PhD : R. Horsin, Comportement en temps long d'équations de type Vlasov: Etudes mathématiques et numériques, university of Rennes 1, december 1st 2017, E. Faou and F. Rousset (university Paris Sud).
- PhD : V. Doli, Phénomènes de propagation de champignons parasites de plantes, par couplage de diffusion spatiale et de reproduction sexuée, december 23th 2017, F. Castella and F. Hamelin (IGEPP, Agrocampus).
- PhD in progress : M. Malo, Equations cinétiques non collisionnelles : stabilité, oscillations, september 2015, M. Lemou and F. Méhats.
- PhD in progress : J. Bernier, Mathematical and numerical analysis of nonlinear transport equations, (2016-), september 2016, N. Crouseilles and E. Faou.
- PhD in progress : M. Tusseau, Sur l'équation de Schrödinger non linéaire hautement oscillante avec potentiel aléatoire, september 2013, A. Debussche and F. Méhats.
- PhD in progress : M. Jugal Nguapedja Nankep, Modèles spatiaux stochastiques de systèmes multi-échelle de particules en interactions, september 2014, A. Debussche.
- PhD in progress : A. Rosello, Approximation-diffusion pour des équations cinétiques pour les modèles de type "spray", september 2017, A. Debussche.

### 6.2.3. Juries

- A. Crestetto was member of the jury of the thesis of T. Blanc, "Etude mathématique de problèmes paraboliques fortement anisotropes", Marseille, december 4th 2017.
- N. Crouseilles was member of the jury of the thesis of A. Finot, "Analyse mathématique des modèles cinétiques en présence d'un champ magnétique intense", Marseille, january 26th 2017.
- N. Crouseilles was member of the jury of the thesis of T. Hardy, "Traitement des conditions aux limites spéculaires pour l'étude du transfert radiatif dans des matériaux à géométrie complexe", Nantes, january 31th 2017.
- E. Faou was member of the jury of the thesis of S. Dieckmann, "Dynamics of patterns in equivariant Hamiltonian partial differential equations", Bielefeld (Germany), april 2017.
- E. Faou was member of the jury of the thesis of P. Krämer, "Numerical integrators for Maxwell-Klein-Gordon and Maxwell-Dirac systems in highly to slowly oscillatory regimes", Karlsruhe (Germany), august 2017.
- M. Lemou was member of the jury of the thesis of R. Horsin Blanc, "Comportement en temps long d'équations de type Vlasov: Etudes mathématiques et numériques", Rennes, december 1st 2017.
- M. Lemou was member of the jury (reviewer) of the thesis of T. Blanc, "Etude mathématique de problèmes paraboliques fortement anisotropes", Marseille, december 4th 2017.
- F. Méhats was member of the jury of the thesis of A. Finot, "Analyse mathématique des modèles cinétiques en présence d'un champ magnétique intense", Marseille, january 26th 2017.

## **KAIROS Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific Events Organisation**

#### *9.1.1.1. General Chair, Scientific Chair*

- Eric Madelaine was General Chair of the 11th IEEE International conference on Theoretical Aspects of Software Engineering (TASE'2017), which was held in Sophia-Antipolis, september 2017. The whole conference was organized by the services of Inria Sophia Méditerranée Center.
- Marie-Agnès Peraldi-Frati and Frédéric Mallet organized the Workshop InS3Pect System engineering for Secured Services for Connected Objects. The workshop gathered approximately thirty researchers and industrials to explore a transdisciplinary approach for Connected Objects Secured Services modeling and validation <https://www.i3s.unice.fr/ins3pect/fr/node/8/>.

#### *9.1.1.2. Member of the Organizing Committees*

Frederic Mallet was a member of the organizing committee of COMPAS 2017, organized in Antibes from June 27th to 30th 2017 <https://compas2017.sciencesconf.org/>.

### **9.1.2. Scientific Events Selection**

#### *9.1.2.1. Chair of Conference Program Committees*

- Robert de Simone: was Program Chair of EMSOFT 2017, part of the federated "superconference" ESWEEK 2017 (Seoul, Korea, October).
- Frédéric Mallet was Program Chair for TASE 2017.
- Eric Madelaine was Steering Committee Chair for the Int. Symposium on Formal Aspects of Component Software (FACS 2017).
- Frederic Mallet was steering committee member of ETR 2017

#### *9.1.2.2. Member of Conference Program Committees*

- Robert de Simone: FDL 2017, MEMOCODE 2017.
- Frederic Mallet: DATE 2017, Euromicro DSD 2017, FDL 2017, ModelsWard 2017, DHS 2017, ICTERI 2017.
- Julien Deantoni: Models 2017, DSD 2017, TASE 2017, Momo 2017, GEMOC 2017, EXE 2017, MDEbug 2017.
- Marie-Agnès Peraldi-Frati: national French Conférence en Ingénierie du Logiciel (CIEL).

### **9.1.3. Journal**

#### *9.1.3.1. Member of the Editorial Boards*

Eric Madelaine was Guest Editor for the Science of Computer Programming journal, of a special issue on FACS 2016 selected papers.

### **9.1.4. Invited Talks**

Sid Touati gave an Invited Tutorial entitled "Parametric statistics for program performance analysis, comparison and evaluation" at the 2017 International Conference on High Performance Computing and Simulation (HPCS 2017, Genova, Italy).

Eric Madelaine gave an invited seminar at ECNU Shanghai in Nov. 2017.



Frederic Mallet gave an invited talk on the "Model-Based System Engineering for Cyber-Physical Systems" at ECNU in Shanghai and in Suzhou University in December 2017. He also gave an invited talk together with Julien DeAntoni in the GT OVSTR of the Labex Digicosme in Telecom ParisTech in April 2017.

Julien Deantoni was invited speaker on the fourteenth Bellairs CAMPaM workshop on multi-paradigm modeling and simulation, in Barbados (<http://msdl.cs.mcgill.ca/conferences/CAMPaM/2017/>).

### 9.1.5. Leadership within the Scientific Community

Robert de Simone is Prime Investigator for the FM4CPS Associated-Team (with ECNU Shanghai); he is also Inria contact coordinator for the DESIR collaborative programme from SAFRAN on embedded system design. Eric Madelaine is member of the Council Board of the International Joint Lab of Trustworthy Software (IJLTS), from ECNU Shanghai.

### 9.1.6. Research Administration

Robert de Simone was Deputy Director of the EDSTIC Doctoral School until September 2017.

Frederic Mallet is the deputy director of the I3S Laboratory (UMR 7271 CNRS UNS) and he is in charge of the relationships with LEAT and of the research formations. He is also a member of the Steering Committee of the Po<sup>le</sup> de Compétitivité Solutions Communicantes Sécurisées (SCS) and of its board. He is the head of the first Year of the International Track of the Master on Foundations of Computer Sciences.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master: Robert de Simone, Models of Computation for Networks-on-Chips (MoCs for NoCs), 36h, M2 International, UNS.

Master: Robert de Simone, Functional and Temporal Correctness, 36h, M1 International, UNS.

Master : Julien Deantoni, Systèmes embarqués et Ambient, 10h, M2, Polytech'Nice, France.

Master : Julien Deantoni, Langage C++, 88h, M1, Polytech'Nice, France.

Master : Julien Deantoni, Finite State Machines, 24h, M1, Polytech'Nice, France.

Master : Julien Deantoni, Internship Management, 20h, M2, Polytech'Nice, France.

Licence : Marie-Agnes Peraldi-Frati, Algorithms and programming 60h, L1, UNS Institute of technology.

Licence : Marie-Agnes Peraldi-Frati, System and Networks administration 80h, L2, UNS Institute of technology .

Licence : Marie-Agnes Peraldi-Frati, Web Programming 50 h, L2, UNS Institute of technology.

Licence: Frédéric Mallet, Conception Orientée Objet, 45h, L3, UNS.

Licence: Frédéric Mallet, Programmation Orientée Objet, 45h, L3, UNS.

Master: Frédéric Mallet, Programmation Avancée et Design Patterns, 45h, M1, UNS.

Master: Frédéric Mallet, Vérification temporelle et fonctionnelle, 24h, M1, UNS.

Master: Frédéric Mallet, Model-Driven Engineering, 24h, M1, UNS.

### 9.2.2. Supervision

- PhD: Emilien Kofman, *Conception Haut Niveau Low Power d'objets mobiles communicants*, 2017, supervised by Robert de Simone, co-supervised by François Verdier (UMR CNRS/UNS LEAT).
- PhD in progress: Hui (Vincent) Zhao, UNS, started February 2016, supervised by Frédéric Mallet, co-supervised by Ludovic Apvrille (Telecom ParisTech)
- PhD in progress: Dongdong An, ECNU-SEI/China, started November 2016, co-supervised by R. de Simone, supervised by Jing Liu (ECNU).

- PhD in progress: Pierre Leca, CIFRE thesis at Huawei Research Lab (Paris), started 2017, supervised by Gaetan Haines and Ludovic Henrio, co-advisor Eric Madelaine
- PhD in progress: Zhao Yanrui, ECNU-SEI/China, started in January 2017, co-supervised by Yixiang Chen (ECNU) and Frederic Mallet

### **9.2.3. Juries**

Robert de Simone: Examiner (Président) for the PhD of Vincenzo Mastandrea (UCA)

Frédéric Mallet: Examiner (President) for the HDR of Jerome Hugues from ISAE Sup'Aero.

## **KERDATA Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific Events Organisation**

#### *9.1.1.1. General Chair, Scientific Chair*

Luc Bougé: Chair of the Steering Committee of the **Euro-Par** Series of conferences since August 2017.

### **9.1.2. Scientific Events Selection**

#### *9.1.2.1. Chair of Conference Program Committees*

Gabriel Antoniu:

- Program Chair of the IEEE Cluster 2017 international conference.
- Vice-Chair of the Program Committee of the ACM/IEEE CCGrid 2017 international conference (Hybrid and Mobile Clouds Area), Madrid, May 2017.

Alexandru Costan:

- Program Co-Chair of the ScienceCloud 2017 international workshop held in conjunction with HPDC 2017, Washington, USA.
- Posters Chair of the IEEE Big Data 2017.
- Submissions Chair of the IEEE Cluster 2017.
- Track Chair of the IEEE ScalCom 2017 (Tools for Big Data track)

#### *9.1.2.2. Member of Conference Program Committees*

Gabriel Antoniu: IEEE/ACM SC'17 (Papers), ACM HPDC 2017.

Luc Bougé: ISC HPC 2017.

Alexandru Costan: IEEE/ACM SC'17 (Posters), ACM/IEEE CCGrid 2017, IEEE/ACM UCC 2017, ARMS-CC 2017 workshop (held in conjunction with PODC 2016), IEEE Big Data 2017, MLDS 2017, EBDMA 2017, ISPD 2017, CSCS 2017.

#### *9.1.2.3. Reviewer*

Luc Bougé: ISC 2017, SC 2017, BigData 2017, IPDPS 2017, etc.

Alexandru Costan: HPDC 2017, SC 2017, IPDPS 2017

### **9.1.3. Journal**

#### *9.1.3.1. Member of the Editorial Boards*

Gabriel Antoniu: Future Generation Computer Systems: Special Issue on Mobile, hybrid, and heterogeneous clouds for cyberinfrastructures (Guest Editor, 2017).

Luc Bougé: Concurrency and Computation: Practice and Experience, Special Issues on the Euro-Par conference.

Alexandru Costan: Soft Computing Journal, Special Issue on Autonomic Computing and Big Data Platforms

#### *9.1.3.2. Reviewer - Reviewing Activities*

Gabriel Antoniu: Concurrency and Computation: Practice and Experience.

Luc Bougé: IEEE Transactions on Distributed Parallel Systems.

Alexandru Costan: IEEE Transactions on Parallel and Distributed Systems, Future Generation Computer Systems, Concurrency and Computation Practice and Experience, IEEE Communications, IEEE Transactions on Storage, Information Sciences, IEEE Transactions on Big Data.

Chi Zhou: IEEE Transactions on Big Data, IEEE Transactions on Cloud Computing and ACM TAAS.

#### 9.1.4. Keynote Talks and Invited Talks

Gabriel Antoniu:

BigStorage and WALL ITN Joint Meeting: *Tyr: Storage-based Convergence Between HPC and Big Data*, Mainz, January 2017.

Huawei Seminar: *Convergence of HPC and Big Data*, Huawei European Research Center, Munich, October 2017.

Luc Bougé:

Dagstuhl School on Challenges and Opportunities of User-Level File Systems for HPC: *Are objects the right level of abstraction to enable the convergence between HPC and Big Data at storage level?*, joint talk with María Pérez, Universidad Politécnica de Madrid ([slides](#)).

ENS Rennes: *Map-Reduce: Very-Large Scale Programming for Big Data on Clouds*, November 2017.

Alexandru Costan:

Huawei Seminar: *Low-Latency Stream Storage*, Huawei Research Munich, October 2017.

BigStorage Summer School: *Making Cities Smarter: A Storage-based View on Stream Processing Engines*, Heraklion, July 2017.

UPB Scientific Days: *Science Driven, Scalable Data-Intensive Processing on Clouds*, University Politehnica of Bucharest, June 2017.

#### 9.1.5. Leadership within the Scientific Community

Gabriel Antoniu:

- Scientific leader of the KerData project-team.
- Topic leader for Inria for the *Data storage, I/O and in situ processing* topic, supervising collaboration activities in this area within the **JLESC**, Joint Inria-Illinois-ANL-BSC-JSC-RIKEN/AICS Laboratory for Extreme-Scale Computing.
- Co-leader the **BDEC** working group dedicated to exploring convergence-related challenges for hybrid architectures combining HPC systems, clouds and fog/edge computing infrastructures with **Geoffrey Fox** and **Ewa Deelman**.
- Work package leader within the **BigStorage** H2020 ETN project for the *Data Science* work package.

Luc Bougé: Vice-President of the *French Society for Informatics* (SIF), in charge of the Teaching department.

Alexandru Costan: Leader of the *Smart Cities* Working Group within the **BigStorage** H2020 ETN project.

#### 9.1.6. Scientific Expertise

Gabriel Antoniu served as a project evaluator for the project proposals submitted within the Activity "Post-doctoral Research Support" provided from the European Regional Development Fund to the The State Education Development Agency (SEDA) of the Republic of Latvia.

Luc Bougé: Member of the jury for the *Agrégation de mathématiques* and the *CAPES of mathématiques*. These national committees select permanent mathematics teachers for secondary schools and high-schools, respectively.

### 9.1.7. Research Administration

Gabriel Antoniu: Vice Executive Director of JLESC, Joint Inria-Illinois-ANL-BSC-JSC-RIKEN/AICS Laboratory for Extreme-Scale Computing for Inria.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Gabriel Antoniu

- Master (Engineering Degree, 5th year): Big Data, 24 hours (lectures), M2 level, ENSAI (*École nationale supérieure de la statistique et de l'analyse de l'information*), Bruz, France.
- Master : Cloud Computing, 15 hours (lectures and lab sessions), M2 level, ENSAI (*École nationale supérieure de la statistique et de l'analyse de l'information*), Bruz, France.
- Master: Scalable Distributed Systems, 12 hours (lectures), M1 level, SDS Module, EIT ICT Labs Master School, France.
- Master: Infrastructures for Big Data, 12 hours (lectures), M2 level, IBD Module, SIF Master Program, University of Rennes, France.
- Master: Cloud Computing and Big Data, 10 hours (lectures), M2 level, Cloud Module, MIAGE Master Program, University of Rennes, France.
- Master: Big Data Processing, 6 hours (lectures), M2 level, Health Big Data Master, University of Rennes, Faculty of Medecine, France.

Luc Bougé

- Bachelor: Introduction to programming concepts, 36 hours (lectures), L3 level, Informatics program, ENS Rennes, France.
- Master: Introduction to compilation, 24 hours (exercice and practical classes), M1 level, Informatics program, Univ. Rennes I, France.

Alexandru Costan

- Bachelor: Software Engineering and Java Programming, 28 hours (lab sessions), L3, INSA Rennes.
- Bachelor: Databases, 68 hours (lectures and lab sessions), L2, INSA Rennes, France.
- Bachelor: Practical case studies, 24 hours (project), L3, INSA Rennes.
- Master: Big Data Storage and Processing, 28h hours (lectures, lab sessions), M1, INSA Rennes.
- Master: Algorithms for Big Data, 28h hours (lectures, lab sessions), M2, INSA Rennes.
- Master: Big Data Project, 28h hours (project), M2, INSA Rennes.

### 9.2.2. Supervision

Luis Eduardo Pineda Morales: *Efficient Big Data Management for Geographically Distributed Workflows*, INSA Rennes, defended on May 24, 2017. Co-advised by Alexandru Costan and Gabriel Antoniu. Manuscript: <https://tel.archives-ouvertes.fr/tel-01645434>.

Tien Dat Phan: *Energy-efficient Straggler Mitigation for Big Data Applications on the Clouds*, ENS Rennes, defended on November 30, 2017. Co-advised by Shadi Ibrahim and Luc Bougé.

Orçun Yildiz: *Efficient Big Data Processing on Large Scale Shared Platforms: Managing I/Os and Failures*, ENS Rennes, defended on December 8, 2017. Co-advised by Shadi Ibrahim and Gabriel Antoniu.

#### 9.2.2.1. PhD in progress

Pierre Matri: *Predictive Models for Big Data*, thesis started in March 2015, co-advised by María Pérez (Universidad Politécnica de Madrid) and Gabriel Antoniu.

Mohammed-Yacine Taleb: *Energy-impact of data consistency management in Clouds and Beyond*, thesis started in August 2015, co-advised by Gabriel Antoniu and Toni Cortés (Barcelona Supercomputing Center).

Ovidiu-Cristian Marcu: *Efficient data transfer and streaming strategies for workflow-based Big Data processing*, thesis started in October 2015, co-advised by Alexandru Costan and Gabriel Antoniu.

Nathanaël Cheriére: *Resource Management and Scheduling for Big Data Applications in Large-scale Systems*, thesis started in September 2016, co-advised by Gabriel Antoniu and Matthieu Dorier.

Paul Le Noac'h: *Workflow Data Management as a Service for Multi-Site Applications*, thesis started in November 2016, co-advised by Alexandru Costan and Luc Bougé.

### 9.2.3. Juries

Gabriel Antoniu: Referee for the PhD thesis of Jonathan Martí at the Barcelona Supercomputing Center (March 2017).

### 9.2.4. Miscellaneous

#### 9.2.4.1. Responsibilities

Gabriel Antoniu: in charge of the IBD module of the SIF Master of Rennes and of the Cloud module of the MIAGE Master of the University of Rennes 1.

Luc Bougé: Co-ordinator between ENS Rennes and the Inria Research Center and the IRISA laboratory.

Luc Bougé: In charge of the Bachelor level (L3) and of the student seminar series at the Informatics Department of ENS Rennes.

Alexandru Costan: In charge of communication at the Computer Science Department of INSA Rennes.

Alexandru Costan: In charge of the organization of the IRISA D1 Department Seminars.

#### 9.2.4.2. Tutorials

Gabriel Antoniu gave a tutorial on in situ processing at the BigStorage Summer School in Heraklion (July 2017).

## 9.3. Popularization

Gabriel Antoniu:

ORAP Forum, Paris: ORAP is a French national forum intended for all stakeholders in the HPC area (industry and academia). Invited talk: *Convergence of HPC and Big Data: a storage-oriented perspective* in March 2017.

Available resources: [Video](#) and [Slides](#).

Plenary Meeting of Inria's Department for International and European Relations: *Convergence of HPC and Big Data: Where Are We Going?*, Inria, Rocquencourt, October 2017.

Luc Bougé:

Doctoral Program, Rennes. Invited presentation to the PhD students about *Preparing your applications after your PhD* (November 2017).

Master Program, Rennes. Invited presentation to the M2 students about *Informatics as a scientific activity: Toward a responsible research* (November 2017).

## LACODAM Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

Organization co-chair (T. Guyet) of the first conference on “usage of the medico-administrative database of french insured for health research” (<http://www.rennes-donnees-sante-2017.fr/>)

Organization chair (T. Guyet) of GAST workshop at EGC 2018 and at EGC 2017 (<https://gt-gast.irisa.fr/>)

Organization co-chair (T. Guyet) of the technical track “Knowledge Extraction from Geographical Data” of the 33rd ACM/SIGAPP Symposium On Applied Computing

Webmaster (L. Galárraga) of the ICDE 2018 conference (<https://icde2018.org/>)

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

AAAI Conference on Artificial Intelligence 2017, 2018 (T. Guyet)

Conférence Nationale sur les Applications Pratiques de l’Intelligence Artificielle (APIA) 2017 (C. Largouët)

IEEE International Conference on Data Science and Advanced Analytics (DSAA) 2017 (A. Termier)

European Conference Dedicated to the Future Use of ICT in the Agri-food Sector, Bioresource and Biomass sector (EFITA) 2017 (A. Termier, C. Largouët)

Extraction et Gestion de Connaissances (EGC) 2018 (T. Guyet, R. Quiniou, A. Termier).

European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (EMLCPKDD) 2017 (E. Fromont)

International Conference on Data Mining (ICDM) 2017 (A. Termier)

Conference on Intelligent Data Analysis (IDA) 2017 (E. Fromont)

International Joint Conference on Artificial Intelligence (IJCAI) 2017 (T. Guyet, A. Termier)

Symposium on Information Management and Big Data (SimBig) 2017 (T. Guyet)

#### 10.1.2.2. Reviewer

Y. Dauxais, C. Gautrais: IJCAI 2017, ICDM 2017, EGC 2018

E. Fromont: ECMLPKDD 2017, AAAI 2017, IDA2017, ECMLPKDD demo track 2017

L. Galárraga: The Web Conference 2018, WebDB workshop 2017, AKBC workshop 2017

T. Guyet: IJCAI 2017, ICDM 2017, AAAI 2018, AAAI 2017

R. Quiniou: IJCAI 2017, ICDM 2017, AAAI 2018

A. Termier: EuroPar 2017

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

E. Fromont: Machine Learning and Data Mining ECMLPKDD special issue

T. Guyet: Revue d’Intelligence Artificielle (RIA)

### 10.1.3.2. Reviewer - Reviewing Activities

- E. Fromont: Data Mining and Knowledge Discovery, Machine Learning Journal
- L. Galárraga: Data Mining and Knowledge Discovery, Artificial Intelligence Review, Semantic Web Journal
- C. Gautrais: Data Mining and Knowledge Discovery
- T. Guyet: Journal of Biomedical Informatics, Journal of Intelligent Information Systems, Artificial Intelligence Review
- C. Largouët: Natural Computing, International Journal of Agricultural and Environmental Information Systems (IJAEIS)
- A. Termier: Knowledge and Information Systems, The Very Large DataBases Journal

### 10.1.4. Invited Talks

- E. Fromont gave an invited talk for the Machine Learning seminar of the KULEUVEN University in May 2017, Ostende, Belgium.
- A. Termier gave an invited talk at KU Leuven on 09/06/2017.
- E. Fromont gave an invited talk "Big Data and Business" summer school organised by the IRIXYS consortium and ATOS, Chiemsee, Germany.
- A. Termier gave an invited talk at the esacconnect event of ESA agriculture school (Angers), on 26/10/2017.
- L. Galárraga gave an invited talk at the LTCI Data Science Seminar (<https://lcti.telecom-paristech.fr/data-science-seminar/>) at Télécom ParisTech on 16/11/2017.
- T. Guyet gave an invited talk at the SPECIF Campus association (<https://www.specifcampus.fr/les-supports-de-la-journee-du-24-novembre-2016/>) on 24/11/2017.

### 10.1.5. Leadership within the Scientific Community

- A. Termier is the representative of Inria for the #DigitAg Convergence Institute

### 10.1.6. Scientific Expertise

- Evaluation of one project proposal for IFREMER: T. Guyet
- Evaluation of two projects proposals for ANR: A. Termier
- Comité d'évaluation scientifique ANR CE23 - Données, Connaissances, Big data, Contenus multi-médias, Intelligence Artificielle: E. Fromont
- Groupe de travail national "infrastructure de recherche pour l'Intelligence Artificielle" (demandé par Allistene): E. Fromont

### 10.1.7. Research Administration

- Member of INRA CEI (Engineers Evaluation Committee): T. Guyet
- Member of the scientific board of department EA of INRA: A. Termier
- Member of the scientific board of Agrocampus Ouest - COREGE: C. Largouët

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Many members of the project-team LACODAM are also faculty members and are actively involved in computer science teaching programs in ISTIC, INSA and Agrocampus-Ouest. Besides these usual teaching activities, LACODAM is involved in the following programs:

- A. Termier, DMV Module: Data Mining and Visualization, 18h, Master 2, Istic, Univ. Rennes 1
- L. Bonneau and C. Largouët, DataViz with R, 10h, Master Datascience, Agrocampus Ouest Rennes
- L. Bonneau and C. Largouët, Computer Science for BigData, 30h, Master Datascience, Agrocampus Ouest Rennes
- C. Largouët, Scientific Programming, Master 1, Agrocampus Ouest Rennes
- C. Largouët, Data Management, Master 1, Agrocampus Ouest Rennes



**10.2.2. Supervision**

PhD in progress: Maël Guillemé, “New data mining approaches for improving energy consumption in factory”, 03/10/2016, A. Termier, V. Masson, L. Rozé and R. Quiniou

PhD in progress: Clément Gautrais, “Mining massive data from client purchases”, 01/10/2015, A. Termier, P. Cellier, T. Guyet and R. Quiniou

PhD in progress: Yann Dauxais, “Query-language for care-pathway mining and analysis”, 01/02/2015, D. Gross-Amblard, T. Guyet, A. Happe

PhD in progress: Colin Leverger, “Cluster resources optimization through forecasting and management of metric time series”, 01/10/2017, T. Guyet, S. Malinowski, R. Marguerie, A. Termier

PhD in progress: Alban Siffer, “DataMining approaches for cyber attack detection”, 05/2016, P.-A. Fouque, A. Termier, C. LARGOUËT

PhD in progress: Kevin Fauvel, “Using data mining techniques for improving dairy management”, 10/2017, V. Masson, P. Faverdin, A. Termier

PhD in progress: Raphaël Gauthier, "Modelling of nutrient utilization and precision feeding of lactating sows", 11/2017, C. LARGOUËT, J.-Y. Dourmad

**10.2.3. Juries**

Committee member of Georges Nassopoulos' PhD defense on 22/05/2017 (Université de Nantes): R. Quiniou

Committee member of Chemseddine NABTI's PhD defense (Université Claude Bernard Lyon 1): A. Termier

Reviewer of Vladimir Dzyuba's Phd (KU Leuven): A. Termier

Committee member of Hoang Son Pham's PhD defense (Université de Rennes 1): A. Termier

Thesis advisory committee member of Jean Coquet (Univ. Rennes 1): A. Termier

Thesis advisory committee member of Mathilde Chen (INRA): A. Termier

Thesis advisory committee member of Benoit Bellot (INRA/IGEP): T. Guyet

Thesis advisory committee member of Zhi Cheng (UNC/PPME): T. Guyet

Thesis advisory committee member of Vanel Siyou (Univ. Blaise Pascal/LIMOS): T. Guyet

Committee member of Asma Dachraoui's PhD defense on 31/01/2017 (ABIES/AgroParisTech): T. Guyet

Member of the associate professor hiring committee on 12/05/2017 (LINK/AgroParisTech) : T. Guyet

Committee member of Jordy Salmon-Monviola's PhD defense on 05/04/2017 (AgroCampus Ouest): V. Masson

Committee member (as co-supervisor) of Damien Fourure on 12/12/2017 (Univ. Saint-Etienne) : E. Fromont

Committee member of Van-Tinh TRAN, (University of Lyon) on 11/07/2017 : E. Fromont

Committee member of Maxime Gasse, (University of Lyon) on 13/01/2017: E. Fromont

Committee member of Pauline Wauquier, (University of Lille 3) on 29/05/2017 : E. Fromont

Committee member of Ouadie Gharroudi, (University of Lyon) on 21/12/2017 : E. Fromont

Thesis advisory committee member of Mohamed Ali Hammal on 30/04/2017 (University of Lyon), Maxime CHABERT on 11/04/2017 and 2/06/2017 (University of Lyon), Tuan Nguyen on 21/06/2017 (Université Savoie Mont Blanc), Jean-Jacques Ponciano on 17/05/2017 (Univ. Saint-Etienne), Julien Tissier, Jordan Fréry, Carlos Arango, Dennis Diefenbach on 12/07/2017 (Univ. Saint-Etienne): E. Fromont

### 10.3. Popularization

M.-O. Cordier is editorial board member of Interstices webzine.

C. Largouët and L. Galárraga participated in a science diffusion talk at the educational institution "Assomption" on 20/10/2017.

L. Galárraga participated as AI specialist in a discussion forum at the general election assembly of the "Pôle Images et Réseaux" on 23/11/2017.

T. Guyet gave a public talk about Artificial Intelligence and Data Mining in MDA Rennes (FranceIA events) on 01/03/2017.

A. Termier gave a public talk about Artificial Intelligence at the Esacconnect event on 26/10/2017 <https://www.chaire-mutations-agricoles.com/evenements/esacconnect-2017/programme/panorama-de-lintelligence-artificielle-en-2017-alexandre-termier/link>.

A. Termier was interviewed for the December podcast of the Interstices webzine.

## LAGADIC Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- Marie Babel was the Scientific Chair of the workshop “Serious game et réalité virtuelle : de la conception à l’utilisation” organized in Inria Rennes on December 15th 2017.

#### 10.1.1.2. Member of the Organizing Committees

- Marie Babel and Patrick Rives were in the Organizing Committee of JNRR 2017 (“Journées Nationales de la Recherche en Robotique”) held in Biarritz in November 2017
- Alexandre Krupa co-organized with Christoph Hennesperger (Technical University of Munich) and Danail Stoyanov (University College London) the Workshop on “Medical Imaging Robotics” at IROS 2017, Vancouver, Canada (<http://robotic-imaging.com>)
- Claudio Pacchierotti was the Publicity Chair of the 2017 IEEE World Haptics conference held in München, Germany. He also co-organized the workshop on “Wearable haptic systems: design, applications, and perspectives,” at this conference.
- Paolo Robuffo Giordano was Editor-in-Chief of the IEEE Int. Symposium on Multi-Robot and Multi-Agent Systems (MRS 2017)

#### 10.1.1.3. Chair of Conference Program Committees

- Julien Pettré was Program Chair for the 2017 ACM Motion in Games Conference, Barcelona, 8-10 November 2017

#### 10.1.1.4. Member of the Conference Program Committees

- François Chaumette: ICRA 2018 (Associate Editor)
- Claudio Pacchierotti: WHC 2017 (Associate Editor)
- Julien Pettré: Eurographics 2017, ACM SCA 2017
- Patrick Rives: ICINCO 2017 (Program Committee Membership)
- Paolo Robuffo Giordano: IROS 2018 (Associate Editor), ICRA 2018 (Associate Editor), RSS 2018, ISRR 2017

#### 10.1.1.5. Reviewer

- Marie Babel: ICRA 2017 (1)
- François Chaumette: CDC 2017 (1)
- Vincent Drevelle: IROS 2017 (1)
- Alexandre Krupa: IROS 2017 (1), Surgetica 2017 (1), ICRA 2018 (1)
- Eric Marchand: IROS 2017 (3), ICRA 2018 (2)
- Claudio Pacchierotti: WHC 2017, ICRA 2017, IROS 2017, Haptics 2018, also Senior Reviewer for IEEE Robotics & Automation Society Young Reviewers Program (from 2016)
- Julien Pettré: ACM SIGGRAPH (2), ACM SIGGRAPH Asia 2017 (2), Eurographics 2018 (1), IEEE VR 2018 (1), ACM SCA 2017 (2)
- Patrick Rives: ICRA 2017 (3), CVPR 2017 (2), ICCV 2017, Icinco 2017 (3), IV 2017 (1), PPIV 2017 (3)
- Paolo Robuffo Giordano: ACC 2017 (1), HFR 2017(2), ICRA 2018(2), IROS 2017(2)

- Paolo Salaris: ACC 2017 (1), RSS 2017 (2), IROS 2017 (1)
- Fabien Spindler: IROS 2017 (1)

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

- François Chaumette: Editorial Board of the Int. Journal of Robotics Research, Funding Senior Editor of the IEEE Robotics and Automation Letters, Editorial Board of the Springer Tracts in Advanced Robotics, Board Member of the Springer Encyclopedia of Robotics, Senior Editor of the IEEE Trans. on Robotics (from December 2017).
- Alexandre Krupa and Eric Marchand are Associate Editors of the IEEE Robotics and Automation Letters.
- Julien Pettré: Editorial board of Collective Dynamics, Associate Editor for Computer Animation and Virtual Worlds

#### 10.1.2.2. Reviewer - Reviewing Activities

- Marie Babel: IEEE RAL (1), IEEE THMS (1)
- François Chaumette: Journal of Intelligent & Robotics Systems (1), Int. Journal of Robotics Research (1)
- Alexandre Krupa: Int. Journal of Robotics Research (1)
- Eric Marchand: Int. Journal of Robotics Research (1)
- Claudio Pacchierotti: TOH (5), RAL (8), TBME (1), TMECH(1), IJMRCAS(1), Plos One (1)
- Julien Pettré: Plos One (1), Wiley's Computer Animation and Virtual Worlds (1), Current Directions in Psychological Science (1), Elsevier's Computer and Graphics (1), IEEE TVCG (1), Journal of Motor Behavior (1).
- Patrick Rives: IEEE-Robotics and Automation Letters (1)
- Paolo Robuffo Giordano: L-CSS(1), RAL (1), TRO (1), TSMC (1)
- Paolo Salaris: IEEE-Robotics and Automation Letters (1), IEEE Trans. on Control, Systems Technology (1), Int. Journal of Robotics Research (1), Int. Journal of Control, Automation and Systems IJCAS (1)

### 10.1.3. Invited Talks

- Marie Babel:
  - “Assistance and Service Robotics in a Human Environment Workshop” at IEEE IROS 2017 workshop about “Smart wheelchairs: the tomorrow's vehicles?”.
  - “Navigation en milieu humain : comprendre pour mieux assister” at JNRR 2017
- François Chaumette: “Visual servoing with and without image processing”, University of Zhejiang, December 2017.
- Vincent Dreville: “Set-membership interval methods for observation robotics”, ENSTA Bretagne, Brest, France, October 2017.
- Eric Marchand: “The dense approach for visual servoing”, “Journées scientifiques” Inria, Sophia Antipolis, June 2017.
- Claudio Pacchierotti: “Wearable haptics for VR and AR”. Max-Planck Institute for Intelligent Systems, Stuttgart, Germany, 2017.
- Julien Pettré:
  - “Microscopic crowd modeling and simulation: an holistic approach”, Univ. Pompeu Fabra (Barcelona), May 2017

- “Pedestrian Dynamics: Modeling, Validation and Calibration”, Brown University ICERM workshop, August 2017
- “Velocity-based algorithms for crowd simulation”, workshop “Piétons et foules”, Univ. Orsay, December 2017
- Paolo Robuffo Giordano:
  - “A New Look at Shared Control for Complex Robotics Systems”. Ecole Normale Supérieure (ENS), Rennes, France, December 2017
  - “Blending Human Assistance and Local Autonomy for Advanced Telemanipulation”. Humanoids 2017 Workshop on Towards Robust Grasping And Manipulation Skills For Humanoids, November 2017
  - “Recent Results on Shared Control for Human- assisted Telemanipulation”. IROS 2017 Workshop on Human in-the-loop robotic manipulation: on the influence of the human role, September 2017
  - “Shared Control Architectures for Single and Multiple Robots”. LS2N, Nantes, France, July 2017
  - “Graph-Theoretical Tools for Sensor-based Multi-Robot Applications”. Robolog 2017 workshop, IRISA, France, June 2017
  - “Collective Control, State Estimation and Human Interaction for Quadrotors in Unstructured Environments”. ICRA 2017 Workshop on Human Multi-Robot System Interaction, June 2017
  - “Recent results in Collective Control, State Estimation and Human Interaction for Quadrotors in Unstructured Environments”. Aerial Robotics workshop, Paris, France, March 2017
- Fabien Spindler: “ViSP integration in ROS ecosystem”, “Journée technique : retour d’expériences autour de ROS” organized by “Réseau métier des roboticiens et mécatroniciens”, Cité Scientifique de l’Université de Lille, August 2017.

#### ***10.1.4. Leadership within the Scientific Community***

- François Chaumette is a 2016-2019 elected member of the Administrative Committee of the IEEE Robotics and Automation Society. He is also a member of the Scientific Council of the CNRS INS2I and vice-president of the Tremplin-ERC ANR program.
- Claudio Pacchierotti is the Chair of the IEEE Technical Committee on Haptics.
- Philippe Martinet is vice-president of the “GdR Robotique”. François Chaumette and Patrick Rives are members of its scientific council.

#### ***10.1.5. Scientific Expertise***

- Marie Babel served as an expert for the International Mission of the French Research Ministry (MEIRIES).
- François Chaumette served as a Panel member for the ERC PE7 consolidator grants. He also served in the selection committee for a Professor position at UTC (Compiègne). He was also involved in the evaluation of a research proposal submitted to the Research Foundation of Flanders, and for an Associate Prof. position at the City University of Hong Kong.
- Claudio Pacchierotti was a member of the jury for the EuroHaptics Best PhD thesis award, for the Robotics Made in Italy Video Contest, and served for Hans Fischer Senior Fellowship at the Institute for Advanced Study of the Technical University of Munich (TUM-IAS).
- Paolo Robuffo Giordano was reviewer of ERC Starting Grants and Consolidator Grants for the EU, of ANR projects, and of NWO projects (Dutch funding agency).
- Patrick Rives served as member of the “Comité d’Evaluation” of the ANR Challenge “Malin” and of the ANR Challenge “Rose”.

### 10.1.6. Research Administration

- François Chaumette serves as the president of the committee in charge of all the temporary recruitments (“Commission Personnel”) at Inria Rennes-Bretagne Atlantique and Irisa. He is also a member of the Head team of Inria Rennes-Bretagne Atlantique.
- Eric Marchand served as secretary in the board of the “Association Française pour la Reconnaissance et l’Interprétation des Formes” (AFRIF). He is also in charge of the Irisa Ph.D. students in the committee in charge of all the temporary recruitments (“Commission Personnel”) at Inria Rennes-Bretagne Atlantique and Irisa. He is in the board of the “Pôle Images et Réseaux” and in the board of “Ecole doctorale Matisse”.
- Alexandre Krupa is a member of the CUMIR (“Commission des Utilisateurs des Moyens Informatiques pour la Recherche”) of Inria Rennes-Bretagne Atlantique.
- Paolo Salaris is member of the “Comité de Suivi Doctoral (CSD)” of Inria Sophia Antipolis.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Marie Babel:

- Master INSA2: “Robotics”, 26 hours, M1, INSA Rennes
- Master INSA1: “Architecture”, 30 hours, L3, INSA Rennes
- Master INSA2: “Computer science project”, 30 hours, M1, INSA Rennes
- Master INSA2: “Image analysis”, 18 hours, M1, INSA Rennes
- Master INSA1: “Remedial math courses”, 50 hours, L3, INSA Rennes

François Chaumette:

- Master ESIR3: “Visual servoing”, 8 hours, M2, Ecole supérieure d’ingénieurs de Rennes

Vincent Drevelle:

- Master ESIR2: “Real-time systems and RTOS”, 24 hours, M1, Esir Rennes
- Master GLA: “Terrain information systems”, 14 hours, M2, Université de Rennes 1
- Master Info: “Artificial intelligence”, 24 hours, M1, Université de Rennes 1
- Master Elec: “Connected and geolocalized embedded applications”, 24 hours, M2, Université de Rennes 1
- Licence Info: “Computer systems architecture”, 24 hours, L1, Université de Rennes 1
- Licence and Master Elec: “Electronics project”, 38 hours, L3 and M1, Université de Rennes 1
- Portail Info-Elec: “Discovering programming and electronics”, 14 hours, L1, Université de Rennes 1
- LabFab School Mobility: “Build your robot”, 30 hours, DU
- Licence Miage: “Computer programming”, 78 hours, L3, Université de Rennes 1
- Master Elec: “Instrumentation, localization, GPS”, 4 hours, M2, Université de Rennes 1
- Master Elec: “Data fusion”, 20 hours, M2, Université de Rennes 1

Alexandre Krupa:

- Master SIBM (Signals and Images in Biology and Medicine): “Medical robotics guided from images”, 4.5 hours, M2, Université de Rennes 1, Brest and Angers
- Master FIP TIC-Santé: “Ultrasound visual servoing”, 6 hours, M2, Télécom Physique Strasbourg
- Master INSA3: “Modeling and engineering for Biology and Health applications”, 12 hours, M2, INSA Rennes
- Master ESIR3: “Ultrasound visual servoing”, 9 hours, M2, Esir Rennes

Eric Marchand:

Master Esir2: “Colorimetry”, 24 hours, M1, Esir Rennes

Master Esir2: “Computer vision: geometry”, 24 hours, M1, Esir Rennes

Master Esir3: “Special effects”, 24 hours, M2, Esir Rennes

Master Esir3: “Computer vision: tracking and recognition”, 24 hours, M2, Esir Rennes

Master MRI: “Computer vision”, 24 hours, M2, Université de Rennes 1

Master MIA: “Augmented reality”, 4 hours, M2, Université de Rennes 1

Julien Pettré:

INSA1: “Programmation Informatique”, 40 hours, INSA Rennes

### 10.2.2. Supervision

- Ph.D.: Renato José Martins, “Robust navigation and control of an autonomous vehicle”, defended in October 2017, supervised by Patrick Rives and Samuel Siqueira Bueno (CTI) [12]
- Ph.D.: Jason Chevrie, “Flexible needle steering using ultrasound visual servoing”, defended in December 2017, supervised by Alexandre Krupa and Marie Babel [11]
- Ph.D. in progress: Fabrizio Schiano, “Collective control with onboard sensors for multiple quadrotor UAVs”, to be defended in January 2018, supervised by Paolo Robuffo Giordano
- Ph.D. in progress: Pedro Patlan-Rosales, “A robotic control framework for quantitative ultrasound elastography”, to be defended in January 2018, supervised by Alexandre Krupa
- Ph.D. in progress: Quentin Bateau, “Visual servoing from global descriptors”, started in October 2014, supervised by Eric Marchand
- Ph.D. in progress: Lesley-Ann Duflot, “Visual servoing using shearlet transform”, started in November 2014, supervised by Alexandre Krupa and Brahim Tamadazte (Minarob group at FEMTO-ST, Besançon)
- Ph.D. in progress: Firas Abi Farraj, “Shared Control Architectures for Visual Servoing Tasks”, started in October 2015, supervised by Paolo Robuffo Giordano
- Ph.D. in progress: Salma Jiddi, “Analyses géométrique et photométrique pour des applications de réalité mixte”, started in October 2015, supervised by Eric Marchand and Philippe Robert (Technicolor)
- Ph.D. in progress: Ide Flore Kenmogne Fokam, “Cooperative localization in multi-robot fleets using interval analysis”, started in October 2015, supervised Vincent Drevelle and Eric Marchand
- Ph.D. in progress: Bryan Penin “Model predictive visual servoing for UAVS”, started in October 2015, supervised by Paolo Robuffo Giordano and François Chaumette
- Ph.D. in progress: Guillaume Cortes, “Motion Capture”, started in October 2015, supervised Eric Marchand and Anatole Lécuyer (Hybrid group).
- Ph.D. in progress: Muhammad Usman, “Robust Vision-Based Navigation for Quadrotor UAVs”, started in October 2015, supervised by Paolo Robuffo Giordano
- Ph.D. in progress: Louise Devigne, “Contribution d’une aide technique robotique à l’évaluation de pathologies neurologiques : Application à la navigation d’un fauteuil roulant”, started in November 2015, supervised by Marie Babel and Philippe Gallien (Pôle Saint Hélier)
- Ph.D. in progress: Quentin Delamare, “Algorithmes d’estimation et de commande pour des quadrirotors en interaction physique avec l’environnement”, started in September 2016, supervised by Paolo Robuffo Giordano and Antonio Franchi (LAAS)
- Ph.D. in progress: Axel Lopez Gandia, “Data assimilation for synthetic vision-based crowd simulation algorithms”, started in October 2016, supervised by Julien Pettré and François Chaumette

- Ph.D. in progress: Aline Baudry, “Contribution à la modélisation des fauteuils roulants pour l’amélioration de leur navigation en mode semi-autonome”, started in October 2016, supervised by Marie Babel and Sylvain Guégan (Mechanical Engineering Dpt/LGCGM at Insa Rennes)
- Ph.D. in progress: Hadrien Gurnel, “Shared control of a biopsy needle from haptic and ultrasound visual feedback”, started in October 2016, supervised by Alexandre Krupa, Maud Marchal (Hybrid group at Inria Rennes-Bretagne Atlantique and Irisa) and Laurent Launay (IRT b<>com)
- Ph.D. in progress: Dayana Hassan, “Plate-forme robotisée d’assistance aux personnes à mobilité réduite”, started in November 2016, supervised by Paolo Salaris, Patrick Rives, and Frank Anjeaux (Axyn robotique)
- Ph.D. in progress: Agniva Sengupta, “Localization and characterization of objects with unknown shapes”, started in January 2017, supervised by Alexandre Krupa and Eric Marchand
- Ph.D. in progress: Xavier De Tinguy de la Giroulière, “Conception de techniques d’interaction multi-sensorielles pour la manipulation dextre d’objets en réalité virtuelle”, started in September 2017, supervised by Maud Marchal, Anatole Lécuyer (Hybrid group) and Claudio Pacchierotti
- Ph.D. in progress: Rahaf Rahal, “Mixed tactile-force feedback for safe and intuitive robotic teleoperation”, started in October 2017, supervised by Paolo Robuffo Giordano and Claudio Pacchierotti
- Ph.D. in progress: Nicolas Le Borgne, “Contrôle partagé et navigation assistée d’un fauteuil roulant en extérieur”, started in October 2017, supervised by Marie Babel
- Ph.D. in progress: Florian Berton, “Design of a virtual reality platform for studying immersion and behaviours in aggressive crowds”, started in November 2017, supervised by Julien Pettré

### 10.2.3. External Ph.D. and HdR Juries

- François Chaumette: Abed Malti (HdR, reviewer, Tlecem University, Algeria), Guillaume Laurent (HdR, reviewer, Femto ST, Besançon), Sylvain Lanneau (Ph.D., member, LS2N, Nantes)
- Eric Marchand: Angélique Loesch (Ph.D., reviewer, Univ. Clermont Auvergne, CEA), Pierre Rolin (Ph.D., reviewer, Univ. de Nancy), Hristina Hristova (Ph.D., president, Univ. de Rennes 1)
- Paolo Robuffo Giordano: Alexandre Boeuf (Ph.D., reviewer, LAAS, Toulouse), Valerio Modugno (Ph.D., reviewer, University of Rome La Sapienza, Italy), Mohamed Sorour (Ph.D., reviewer, LIRMM, Montpellier)

## 10.3. Popularization

- Due to the visibility of our experimental platforms, the team is often requested to present its research activities to students, researchers or industry. Our panel of demonstrations allows us to highlight recent results concerning the positioning of an ultrasound probe by visual servoing, grasping and dual arm manipulation by Romeo, vision-based shared control using our haptic device for object manipulation, the control of a fleet of quadrotors, vision-based detection and tracking for space navigation in a rendezvous context, the semi-autonomous navigation of a wheelchair, and augmented reality applications. Some of these demonstrations are available as videos on VispTeam YouTube channel (<https://www.youtube.com/user/VispTeam/videos>). This year there were among others, demonstrations organized for the new year’s lab greetings, for the Inria industry journey focused on data and applications in Paris, for the “Semaine de l’Informatique Graphique et de la Réalité virtuelle”, and for the Science and music journey.
- Marie Babel participated as a member in a panel discussion during the Digital Tech Conference organized in Rennes in December 2017.
- Julien Pettré wrote a vulgarization paper [68], explaining how crowd simulation is used in the field of visual effects for the movie and the video-game industries. The crowd simulation topic was presented during the “Pint of Science FR 2017” event, which organizes mini conferences animated by researchers in public places such as cafes and bars.



## LARSEN Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- Co-organized an international workshop at IROS 2017 (*Micro-Data Learning: the next frontier of Robot Learning?*) [Jean-Baptiste Mouret].
- Co-organized an international workshop at ECAL'2017 (*Evolution in Physical System*) [Jean-Baptiste Mouret].
- Co-organized an international workshop at HUMANOIDS 2017 (*Human-Humanoid collaboration: the next industrial revolution?*) [Serena Ivaldi].
- Co-organized “Expressions, simulations, perceptions - Journées PsyPhINe 2017”, the third workshop of the PsyPhINe project (<http://poincare.univ-lorraine.fr/fr/manifestations/psypchine-2017>) [Amine Boumaza].

#### 10.1.1.2. Member of the Organizing Committees

- Serena Ivaldi was Publicity Chair of the international conferences HUMANOIDS 2017 (IEEE/RSJ International Conference on Humanoid Robots) and of ICDL 2017 (IEEE Conference on Development and Learning)

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of Conference Program Committees

- CEC 2017 (Congress on Evolutionary computation) [Amine Boumaza]
- CoRL (Conference on Robot Learning) [Serena Ivaldi, Jean-Baptiste Mouret]
- ECAL 2017 (European Conference on Artificial Life) [Amine Boumaza, Jean-Baptiste Mouret]
- EVO\* 2017 (EvoStar) [Jean-Baptiste Mouret]
- GECCO2017 (Genetic and Evolutionary Computation Conference) [Amine Boumaza, Jean-Baptiste Mouret]
- HFR 2017 (Human-Friendly Robotics Conference) [Serena Ivaldi]
- HUMANOIDS 2017 (IEEE/RSJ International Conference on Humanoid Robots) [Serena Ivaldi, associate editor]
- ICRA 2017 & ICRA 2018 (IEEE International Conference on Robotics and Automation) [Serena Ivaldi, associate editor]
- IROS 2017 (IEEE/RSJ International Conference on Intelligent Robots and Systems) [Serena Ivaldi, associate editor]
- JFPDA 2017 (Journée Francophones sur la Planification, la Décision et l'Apprentissage pour la conduite de systèmes) [Vincent Thomas]
- NIPS Bayesian Optimization Workshop [Jean-Baptiste Mouret]

#### 10.1.2.2. Reviewer for Peer-reviewed Conferences

- ICRA 2018 (2018 IEEE International Conference on Robotics and Automation) [Karim Bouyarmane, Francis Colas, Serena Ivaldi, Jean-Baptiste Mouret]
- IROS 2017 (IEEE/RSJ International Conference on Intelligent Robots and Systems) [Karim Bouyarmane, Francis Colas, Jean-Baptiste Mouret]

- HUMANOIDS 2017 (IEEE/RSJ International Conference on Humanoid Robots) [Jean-Baptiste Mouret, Karim Bouyarmane]
- ICDL-EPIROB 2017 (IEEE International Conference on Development and Learning and on Epigenetic Robotics) [Francis Colas]

### **10.1.3. Journal**

#### *10.1.3.1. Member of the Editorial Boards*

- Jean-Baptiste Mouret co-edited a special issue of the Artificial Life journal (MIT Press), called “Evolution in Physical Systems” [19]
- Serena Ivaldi was an Associate Editor of IEEE Robotics and Automation Letters (RAL) and an Editorial Board member for the Springer Journal of Intelligent Service Robotics

#### *10.1.3.2. Reviewer - Reviewing Activities*

- Frontiers in AI and Robotics [Amine Boumaza, Serena Ivaldi, Jean-Baptiste Mouret]
- Robotics and Automation Letters [Karim Bouyarmane, Francis Colas, Jean-Baptiste Mouret]
- Autonomous Robots [Francis Colas]
- IEEE Transactions on Robotics [Karim Bouyarmane, Serena Ivaldi]
- International Journal of Robotics Research [Karim Bouyarmane]
- IEEE Transactions on Systems, Man and Cybernetics [Karim Bouyarmane]

### **10.1.4. Invited Talks**

- Jean-Baptiste Mouret was invited to talk at as the Centre for BioRobotics – University of Southern Denmark (distinguished speaker), at the LIRIS (CNRS / Univ. Lyon) at the “Evolution in Cognition Workshop” (GECCO 2017), and at the GT8 (Robotique et Neurosciences) meeting of the GDR Robotique (CNRS).
- Serena Ivaldi was invited to talk at XEROX Research in Grenoble, at IHEST in Paris, at the GT Robotique Humanoide in Montpellier, at the IEEE ICDL 2017 Workshop on Perception of Self, and at the the GT8 (Robotique et Neurosciences) meeting of the GDR Robotique (CNRS).
- Karim Bouyarmane was invited to give a presentation at the Seminaire Francilien de Geometrie Algorithmique et Combinatoire at Institut Henri Poincarre in Paris.

### **10.1.5. Leadership within the Scientific Community**

- Jean-Baptiste Mouret is the chair of the “evo-devo-robot” task force of the IEEE technical committee “Developmental and Cognitive Systems”.
- Serena Ivaldi is the co-chair of the web task force of the IEEE technical committee “Developmental and Cognitive Systems”.

### **10.1.6. Scientific Expertise**

- Serena Ivaldi was vice-president of the CES33 committee for evaluation of national projects for the ANR
- Francis Colas was member of the CES33 committee for evaluation of national projects for the ANR
- Serena Ivaldi is a member of the scientific experts committee for the upcoming Robots exhibition at the Cite de la Science in Paris.
- François Charpillat was member of the hiring committees:
  - CR2 Inria: Committee member (Bordeaux)
  - Maître de conférences: Committee member for jury (UTT)
  - Professeur des Universités: Committee member for jury PR 4036 “Traitement du signal, conception de méthodes de décision, fusion de données” (UTT)

### 10.1.7. Research Administration

- Amine Boumaza is a board member of the Évolution Artificielle association.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master [Vincent Thomas]

- “Modèles probabilistes et Apprentissage par renforcement”, 15h eq. TD, M2 “Informatique - Image Perception Raisonnement Cognition”, Univ. Lorraine, France.
- “Optimisation et méta-heuristiques”, 15h eq. TD, M1 “Informatique”, Univ. Lorraine, France.
- ‘Game Design’, 20h eq. TD, M1 “Sciences Cognitives”, Univ. Lorraine, France.
- “Agent intelligents et collectifs”, 20h eq. TD, M1 “Sciences Cognitives”, Univ. Lorraine, France.
- “Serious Game”, 12h eq. TD, M2 “Sciences Cognitives”, Univ. Lorraine, France.
- “Robotique Autonome”, 18h eq. TD, M2 “Systèmes Interactifs et Robotiques”, Centrale-Supélec, France.

Formation IHEST [Serena Ivaldi] “Robotique collaborative”, 2h.

Tutorial in an international conference [Jean-Baptiste Mouret] “Evolutionary Robotics”, GECCO 2017, Berlin, Germany [1h].

Engineering School [Karim Bouyarmane]:

- “Programmation et algorithmique Java”, Polytech Nancy School of Engineering
- Engineering school: Karim Bouyarmane, “Langages C et C++”, Polytech Nancy School of engineering
- Engineering school: Karim Bouyarmane, “Introduction to Computer Science”, Polytech Nancy School of engineering
- Engineering school: Karim Bouyarmane, “Operating Systems”, Polytech Nancy School of engineering

### 10.2.2. Supervision

- HDR: Francis Colas, “Modélisation bayésienne et robotique”, 17 May 2017 [7].
- PhD: Van Quan Nguyen, “Mapping of a sound environment by a mobile robot”, 3 Nov. 2017, Emmanuel Vincent (advisor), Francis Colas, François Charpillet.
- PhD: Nassim Kaldé, “Exploration et reconstruction d’un environnement inconnu par une flottille de robots”, 12 Dec. 2017, François Charpillet (advisor), Olivier Simonin.
- PhD: Iñaki Fernández Pérez, “Apprentissage incrémental évolutionnaire”, 19 Dec. 2017, F. Charpillet (advisor), Amine Boumaza.
- PhD: Vincent Samy, “Humanoid fall control by postural reshaping and adaptive compliance”, 13 Nov. 2017, Abderrahmane Kheddar (advisor), Karim Bouyarmane.
- PhD in progress: Yassine El Khadiri, “Apprentissage automatique pour l’assistance à l’autonomie à domicile”, started in June 2017, François Charpillet (advisor).
- PhD in progress: Adrien Malaisé, “Capteurs porte’s dans la robotique collaborative : de l’apprentissage du mouvement humain à l’acceptabilité de cette technologie”, started in January 2017, Francis Colas (advisor), Serena Ivaldi
- PhD in progress: Adam Gaier, “Optimisation aerodynamic design through illumination of surrogate models”, started in June 2017, Jean-Baptiste Mouret (advisor), Alexander Asteroth.

- PhD in progress: Rituraj Kaushik, “Fast adaptation to damage by exploiting trajectory data”, started in Oct. 2016, Jean-Baptiste Mouret (advisor).
- PhD in progress: Konstantinos Chatzilygeroudis, “*Diagnosis-free Damage Recovery in Robotics with Machine Learning*”, started in Oct. 2015, Jean-Baptiste Mouret (advisor).
- PhD in progress: Oriane Dermay, “*Learning to control the physical interaction of a humanoid robot with humans*”, started in Nov. 2015, François Charpillet (advisor), Serena Ivaldi.
- PhD in progress: Adrian Bourgaud, “*Multi-sensor Fusion and Active Sensing*”, started in Jul. 2015, François Charpillet (advisor).

### 10.2.3. Juries

- Jean-Baptiste Mouret was:
  - a reviewer of the PhD of Valerio Modugno (Univ. Sapienza, Rome, Italy);
  - the president of the jury for the PhD of Charles Rocabert (Univ. Lyon / Inria).
- Serena Ivaldi was
  - an examiner of the PhD of Ganna Pugach (Univ. Cergy-Pontoise);
  - a reviewer of the PhD of Oskar Palinko (IIT & Univ. Genoa, Italy);
  - an external reviewer in the VIVA / PhD exam of Valerio Ortenzi (Univ. of Birmingham, UK).
- François Charpillet was:
  - a reviewer of the PhD of Kabalan Chaccour (Tech. Univ. Belfort-Montbéliard);
  - a reviewer of the PhD of Alexis Brenon (Univ. Grenoble Alpes);
  - a reviewer of the PhD of Chu Xing (Ecole Centrale Lille);
  - a reviewer of the PhD of Viet-Cuong Ta (Univ. Grenoble Alpes);
  - an examiner of the HDR of Olivier Buffet (Univ. Lorraine).

## 10.3. Popularization

One of the main general audience event of the team has been the “Fête de la Science” on the 13th and 14th of October, 2017. The team hosted about 10 groups of 15-20 persons (150 to 200 visitors) over two days, with the following demonstrations:

- “smart apartment”, with the “smart tiles” and the Pepper Robot;
- AnDy project: activity recognition with the “inertial” motion capture suit, muscle sensing with EMG sensors;
- iCub robot: performing squats with the iCub robot and a whole-body motion controller; interactive demonstrations of iCub following a red-ball (given to a child) with the gaze and the head;
- ResiBots project: damage recovery with a damaged 6-legged robot.

The team also presented numerous videos of additional results with the robots. Involved members of the team: François Charpillet, Konstantinos Chatzilygeroudis, Brice Clément, Francis Colas, Oriane Dermay, Dorian Goepf, Waldez Gomes, Aurore Husson, Serena Ivaldi, Yassine El Khadiri, and Adrian Bourgaud, Adrien Malaisé, Jean-Baptiste Mouret, Kazu Otani and Olivier Rochel.

In addition:

- Vincent Thomas gave tutorials on “physics simulation” and “stochastic decision making” for teachers during “journées ISN-EPI” (30th of Mars 2017).
- Vincent Thomas participated in the preparation and reviewing of “Computer Science Exporoute” (conducted by Inria Nancy Grand-Est) presented in 2017.
- Vincent Thomas animated discussions and tutorials on “planning in mazes” for students from 6 to 20 years old during “fetes de la sciences” organized by Univ. Lorraine (13th of October 2017).
- Vincent Thomas presented “Bayesian reasoning” during “journées portes ouvertes” organized by Inria Nancy-Grand Est (14th of October 2017).
- Vincent Thomas accompanied computer science DUT students during the “Nancy accueille Google” event (20th of October 2017).
- Serena Ivaldi was panelist in public conferences/debates in Futur en Seine and 50 ans of Inria, both in Paris.
- Amine Boumaza is a member of the editorial board of “Interstice”.
- Karim Bouyarmane was the academic advisor for the Polytech School of Engineering students team of robotics that participated to the 2017 Coupe de France de Robotique.
- Francis Colas participated in a Sciences en Lumières event “Visages de la robotique” at RTE (14th of December 2017).

## LEMON Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. Member of the Organizing Committees

Carole DELENNE was member of the local organisation committee of the "Powders and Grains" congress that hold in Montpellier (Corum) in July 2017

Gwladys TOULEMONDE is chair of the organizing committee of the international conference METMA IX (June 2018, Montpellier).

### 8.1.2. Journal

#### 8.1.2.1. Member of the Editorial Boards

Antoine ROUSSEAU is member of DCDS-S editorial board

#### 8.1.2.2. Reviewer - Reviewing Activities

Carole DELENNE is reviewer Journal of Hydraulic Research, Water (2 manuscripts/year)

Vincent GUINOT is reviewer for Journal of Hydrology, Advances in Water Resources, Mathematical Problems in Engineering (3 manuscripts/year)

Antoine ROUSSEAU is reviewer for Journal of Hydrology (2 manuscripts/year)

### 8.1.3. Invited Talks

Antoine ROUSSEAU gave an invited talk to the [Sino-French Conference on Computational and Applied Mathematics](#)

### 8.1.4. Leadership within the Scientific Community

Antoine ROUSSEAU is the scientific coordinator of the the research line *advanced modeling for marine energy* at MERIC (Santiago, Chile).

### 8.1.5. Scientific Expertise

Antoine ROUSSEAU is member of the scientific board of Fondation Blaise Pascal

Carole DELENNE was reviewer for the STIC-AmSud Program

Gwladys TOULEMONDE is appointed by the Occitanie region to the scientific board in charge of innovation projects in the field of intelligent systems and digital data chain

### 8.1.6. Research Administration

Vincent GUINOT is head of the ETH team at HSM (10 staff members),

Vincent GUINOT is member of the HSM steering board,

Antoine ROUSSEAU is head of the LEMON team at Inria CRI-SAM (5 staff members),

Antoine ROUSSEAU is member of the Inria CRI-SAM steering board (*Comité des Projets*)

Gwladys TOULEMONDE is elected to the MIPS Scientific Department (Mathematics, Computer Science, Physics and Systems), a component of the University of Montpellier

Gwladys TOULEMONDE is elected to IMAG laboratory board

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

License : C. Delenne, Méthodes mathématiques pour l'ingénieur, 10.5H CM, 22.5hTD, L3, Polytech Montpellier

License : C. Delenne, Hydraulique à surface libre, 15h CM, 15hTD, L3 (apprentissage), Polytech Montpellier

License : C. Delenne, Hydraulique, 28hTD, L1, IUT Génie Civil, Nîmes

License : C. Delenne, Algorithme et programmation 3h CM, 21hTD 15h projet, Polytech Montpellier, Université de Montpellier.

License : C. Delenne, Projets Eau et Génie Civil, 24hTP, Polytech Montpellier (apprentissage), Université de Montpellier.

License : V. Guinot, Mécanique des fluides, 72h ETD, L3, Polytech Montpellier, Université de Montpellier.

License : V. Guinot, Hydraulique à surface libre, 60h ETD, L3, Polytech Montpellier, Université de Montpellier.

License : F. Marche, Biomaths, 72h TD., L1, Université Montpellier

License : G. Toulemonde, Harmonisation Maths, 18h TD, L3, Polytech Montpellier, Université de Montpellier.

License : G. Toulemonde, Tutorat Maths, 5h TD, L3, Polytech Montpellier, Université de Montpellier.

License : G. Toulemonde, Modélisation et statistique, 18h CM, L3, Polytech Montpellier, Université de Montpellier.

License : G. Toulemonde, Modélisation statistique et analyse de données, 30h CM-TD, M1, Polytech Montpellier, Université de Montpellier.

Master : G. Toulemonde, Econométrie, 12h CM, 16h TD, M2, Polytech Montpellier, Université de Montpellier.

Master : G. Toulemonde, Econométrie avancée, 3h CM, 3h TD, M2, Faculté de Sciences Economiques, Université de Montpellier.

Master : C. Delenne, Hydraulique, 30hTP, M1, Polytech Montpellier, Université de Montpellier.

Master : C. Delenne, Spécialité hydraulique, 18h TD, Polytech Montpellier, Université de Montpellier.

Master : C. Delenne, Tutorat de stages et projets, apprentis, 100hETD, Polytech Montpellier, Université de Montpellier.

Master : V. Guinot, Méthodes Mathématiques pour l'Ingénieur, 18h ETD, M1, Polytech Montpellier, Université de Montpellier.

Master : V. Guinot, Hydraulique des Réseaux, 30h ETD, M1, Polytech Montpellier, Université de Montpellier.

Master : V. Guinot, Mécanique des Fluides, Master SPAE, 36h ETD, M1, UMontpellier

Master : V. Guinot, Transitoires hydrauliques, 54 h ETD, M1, Polytech Montpellier, Université de Montpellier.

Master : V. Guinot, tutorat de stages ingénieur, 15h ETD, M1, Polytech Montpellier, Université de Montpellier.

Master : V. Guinot, Modélisation hydraulique à surface libre 2D, 6h ETD, M2, Polytech Montpellier, Université de Montpellier.

Master : V. Guinot, Projet Industriel de Fin d'Etudes (PIFE), 30h ETD, M2, Polytech Montpellier, Université de Montpellier.

Master : V. Guinot, Tutorat de Stage de fin d'études ingénieur, 18h ETD, M2, Polytech Montpellier, Université de Montpellier.

Master : F. Marche, Analyse numérique des EDP, 24H CM, 12H TD, 15H TP., M1, Université Montpellier

Master : F. Marche, Calcul scientifique avancé, 26H CM, M2R, Université Montpellier

### 8.2.2. Supervision

Gwladys TOULEMONDE is responsible of the students recruitment in the IG department Polytech Montpellier.

Gwladys TOULEMONDE co-supervises a PhD thesis in an established collaboration with Sanofi and is punctually implicated in other industrial collaborations (BALEA, Twin Solutions)

Gwladys TOULEMONDE advises a post-doctoral fellow since october 2017 on spatio-temporal extreme processes to assess flood hazards (NUMEV funding)

### 8.2.3. Juries

Antoine ROUSSEAU was appointed external member of a recruitment campaign at IRSTEA (research engineer)

Antoine ROUSSEAU was appointed internal member of a recruitment campaign at Inria (HR jurist)

Antoine ROUSSEAU was appointed internal member of a recruitment campaign at Inria (CR2 at Inria CRI-SAM)

Carole DELENNE was appointed internal member of a recruitment campaign for a lecturer at University of Montpellier (LMGC/IUT Nîmes).

## 8.3. Popularization

Antoine ROUSSEAU gave several conferences for highschool students and their teachers, on the topics of mathematical modeling for environmental sciences:

*Fête de la Science*, Oct. 2017, Genopolys Montpellier (2 days)

*Maths au lycée*, Apr. 2017, Lycée de Castelnaudary (1 day)

Antoine ROUSSEAU is member of the national Inria network for scientific outreach *Médiation scientifique*

Antoine ROUSSEAU is member of the editorial board of **Interstices**

Antoine ROUSSEAU is member of the scientific board of **Fondaton Blaise Pascal**

Antoine ROUSSEAU co-authored the **Calendrier Mathématique 2017**



## LFANT Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Scientific Events Organisation

##### 8.1.1.1. General Chair, Scientific Chair

B. Allombert and K. Belabas organized a workshop PARI/GP in Lyon on 09-13 January 2017.

B. Allombert and K. Belabas organized a workshop “Elliptic curves, modular forms and  $L$ -functions in the PARI/GP system” in Clermont-Ferrand on 19-23 June 2017.

B. Allombert and A. Page organized a mini-workshop PARI/GP in Oujda, Morocco on 22-23 November 2017.

#### 8.1.2. Journal

##### 8.1.2.1. Member of the Editorial Boards

K. Belabas acts on the editorial board of *Journal de Théorie des Nombres de Bordeaux* since 2005 and of *Archiv der Mathematik* since 2006.

H. Cohen is an editor for the Springer book series *Algorithms and Computations in Mathematics (ACM)*.

J.-M. Couveignes is a member of the editorial board (scientific committee) of the *Publications mathématiques de Besançon* since 2010.

A. Enge is an editor of *Designs, Codes and Cryptography* since 2004.

#### 8.1.3. Scientific Expertise

J.-M. Couveignes is a member of the scientific council of the labex “Fondation Sciences Mathématiques de Paris”, FSMP, Paris.

J.-M. Couveignes is a member of the ‘conseil d’orientation’ of the labex “Institut de Recherche en Mathématiques, Interactions et Applications”, IRMIA, Strasbourg.

K. Belabas is a member of the ‘conseil scientifique’ of the Société Mathématique de France

#### 8.1.4. Research Administration

Since January 2017, A. Enge is “délégué scientifique” of the Inria research centre Bordeaux–Sud-Ouest. As such, he is also a designated member of the “commission d’évaluation” of Inria.

Since January 2015, K. Belabas is vice-head of the Math Institute (IMB). He also leads the computer science support service (“cellule informatique”) of IMB and coordinates the participation of the institute in the regional computation cluster PlaFRIM.

He is an elected member of “commission de la recherche” in the academic senate of Bordeaux University.

He is a member of the “Conseil National des Universités” (25th section, pure mathematics).

J.-P. Cerri is an elected member of the scientific council of the Mathematics Institute of Bordeaux (IMB) and responsible for the bachelor programme in mathematics and informatics.

Since January 2015, J.-M. Couveignes is the head of the Math Institute (IMB). He is head of the Scientific Committee of the Albatros (ALLiance Bordeaux universities And Thales Research in AviOnicS) long term cooperation between Inria, Bordeaux-INP, Université de Bordeaux and CNRS.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master : G. Castagnos, *Cryptanalyse*, 60h, M2, University of Bordeaux, France;  
 Master : G. Castagnos, *Cryptologie avancée*, 30h, M2, University of Bordeaux, France;  
 Master : G. Castagnos, *Courbes elliptiques*, 60h, M2, University of Bordeaux, France;  
 Master : D. Robert, *Courbes elliptiques*, 60h, M2, University of Bordeaux, France;  
 Master : K. Belabas, *Computer Algebra*, 91h, M2, University of Bordeaux, France;  
 Licence : Jean-Paul Cerri, Arithmétique et Cryptologie, 24h TD, L3, Université de Bordeaux, France  
 Licence : Jean-Paul Cerri, Algèbre bilinéaire et géométrie, 35h TD, L3, Université de Bordeaux, France  
 Licence : Jean-Paul Cerri, Structures algébriques 2, 35h TD, L3, Université de Bordeaux, France  
 Master : Jean-Paul Cerri, Cryptologie, 24h TD, M1, Université de Bordeaux, France  
 Master : Jean-Paul Cerri, Arithmétique, 60h TD, M1, Université de Bordeaux, France

### 8.2.2. Supervision

PhD in progress : Ida Tucker, *Design of new advanced cryptosystems from homomorphic building blocks*, since October 2017, supervised by Guilhem Castagnos and Fabien Laguillaumie  
 PhD in progress: Abdoulaye Maiga, *Computing canonical lift of genus 2 hyperelliptic curves*, University Dakar, supervised by Djiby Sow, Abdoul Aziz Ciss and D. Robert.  
 PhD in progress: Jared Asuncion, *Class fields of complex multiplication fields*, since September 2017, supervised by A. Enge and Marco Streng (Universiteit Leiden).  
 PhD in progress: Chloë Martindale, *Isogeny graphs*, since 2013, supervised by A. Enge and Marco Streng (Universiteit Leiden).  
 PhD in progress: Emmanouil Tzortzakis *Algorithms for  $\mathbb{Q}$ -curves*, supervised by K. Belabas, P. Bruin and B. Edixhoven.  
 PhD in progress: Pavel Solomatin *Topics on L-functions*, supervised by B. de Smit and K. Belabas.  
 PhD in progress: Antonin Riffaut *Calcul effectif de points spéciaux*, supervised by Y. Bilu and K. Belabas.  
 Master 2: Margarita Pierrakea, *Supersingular isogeny key-exchange*, supervised by D. Robert.

### 8.2.3. Juries

- A. Enge has written a report for the doctoral dissertation by Alexandre Le Meur, Université de Rennes, sur *Formules de Thomae généralisées à des courbes galoisiennes résolubles sur la droite projective*.
- A. Enge has written a report for the doctoral dissertation by Alexandre Gélina, Université Pierre et Marie Curie, *Class Group Computations in Number Fields and Applications to Cryptology*. K. Belabas was a member of the defense committee.
- K. Belabas has written a report for the doctoral dissertation of Thomas Camus, Université Grenoble-Alpes, *Méthodes algorithmiques pour les réseaux algébriques*.
- K. Belabas was a member of the defense committee of José Villanueva-Gutierrez, Université de Bordeaux, *Sur quelques questions en théorie d'Iwasawa*.
- K. Belabas was a member of the defense committee of Philippe Moustrou, Université de Bordeaux, *Geometric distance graphs, lattices and polytopes*.
- J-M. Couveignes was a member of the defense committee of Carine Jaber (advisor Christian Klein), Université de Dijon, *Approche algorithmique au domaine fondamental de Siegel* the 28 June 2017.

- J-M. Couveignes was the president of the defense committee of Matthieu Rambaud (advisor Hugues Randriambololona), Telecom-ParisTech, *Shimura curves and bilinear multiplication algorithms in finite fields* the 2 September 2017.
- D. Robert is a member of the jury of Agregations de Mathematiques. He is also the codirector with Alain Couvreur of the option “calcul formel” of the Modelisation part of the oral examination.

### 8.3. Popularization

The book *Guide to Pairing-Based Cryptography* [26] has been published by CHAPMAN and HALL/CRC. D. Robert wrote with Sorina Ionica the chapter “Pairings” of this book. This book aims to help Engineers understand and implement pairing based cryptography; in the Chapter “Pairings”, D. Robert give a self contained definition and proof of the Weil and Tate pairing; including how to handle divisors with non disjoint support (this is often skipped in scientific papers but is important for practical implementations).

A. Page gave a popularization talk “À la découverte de la cryptologie : la science du secret” during the Fête de la Science event. Two groups of high school students and one group of Inria agents participated in this activity. Following this talk, three high school students decided to work on the RSA cryptosystem for their TPE essay and came back to the IMB to meet A. Page and talk about this topic in greater detail.

## LIFEWARE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

François Fages is co-organizer of the **CSBC** Workshop on Computational Systems Biology for Cancer, Institut des Systèmes Complexes, Paris, France, 24-26 jan. 2018.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

- François Fages was member of the PC of
  - **CMSB'17** The 15th conference on Computational Methods for Systems Biology, September 27th to 29th 2017, Darmstadt, Germany.
  - **FroCos'17** The 11th International Symposium on Frontiers of Combining Systems, 25-29 September 2017, Brasilia, Brazil.

#### 9.1.2.2. Reviewer

- François Fages reviewed one article for the 15th Int. Computer Science Symposium in Russia CSR 2017.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

François Fages is member of

- the Editorial Board of the Computer Science area of the Royal Society Open Science journal since 2014,
- the Editorial Board of the journal RAIRO OR Operations Research since 2004.

#### 9.1.3.2. Reviewer - Reviewing Activities

In addition to their Editorial Board and Program Committee duties,

- Grégory Batt reviewed one article for *Nature Scientific Reports*.
- François Fages reviewed articles for *Bioinformatics*, *ACM Transactions on Modeling and Computer Simulation*, *Fundamenta Informaticae*, *Computers and Industrial Engineering*
- Sylvain Soliman reviewed articles for *Briefings in Bioinformatics*, *PNAS*, *Transactions on Computational Biology and Bioinformatics*

#### 9.1.4. Invited Talks

- Virgile Andréani gave a poster presentation at the Spring school on Computational Systems Biology (CompSysBio 2017), Aussois, March 19-25 2017
- Gregory Batt gave invited talks at
  - Computational biology seminar of Curie Institute, “Predicting long-term effects of repeated apoptosis-inducing drug treatments: coupling signal transduction pathways with stochastic protein turnover models”, Paris, Jan 19 2017.
  - 6th Annual Consortium Meeting of Revive LabEx, “Multi-scale modeling of TRAIL-induced apoptosis: from protein level fluctuations to drug resistance in multicellular spheroids”, Montvillargenne, Jan 24 2017.
  - ENS/ESPCI joint Biophysics seminar, “Balancing a genetic toggle switch by real-time control or periodic stimulations”, Paris, Feb 10 2017.
  - BioNetVisA 2017 workshop “From biological network reconstruction to data visualization and analysis in molecular biology and medicine”, “A multi-scale model for investigating TRAIL resistance in multi-cellular tumor spheroids”, Basel, Sept 12 2017.
  - Workshop on Control of Cellular and Molecular Systems, “Balancing a genetic toggle switch by real-time control or periodic stimulations”, Mathematical Biosciences Institute, Ohio State University.
  - Second Symposium du Réseau de Biologie des Systèmes de Sorbonne Université, “Balancing a genetic toggle switch by real-time control or periodic stimulations”, Paris, Dec 1 2017.
- François Fages gave invited talks at
  - National Taiwan University, Dept. Electrical Engineering, “Strong Turing Completeness of Continuous Chemical Reaction Networks and Compilation of Mixed Analog-Digital Programs”, Tapei, Taiwan, 9 Nov 2017.
  - Centre de Recherche Interdisciplinaire, CRI Paris, “Living with Algorithms and Algorithms of the Living”, Paris, 29 June 2017.
  - GT BIOSS-preGDR IA, keynote talk “In Quest of the Software of the Living: Successes and Difficulties of the Program Verification Paradigm in Cell Biology”, Gif sur Yvette, 22 June 2017.
  - Dynamic Days Europe, “Quantitative Modelling of the Circadian Clock and Cell Cycle Coupling: Prediction of RevErb- $\alpha$  Up-Regulation during Mitosis in Mouse Embryonic Fibroblasts – Temporal Logic Constraints and Parameter Search in BIOCHAM”, Szeged, Hungary, 7 June 2017.
  - “Turing Completeness of Biochemical Reactions over a finite set of molecules under the Differential Semantics and Compilation of Mixed Analog-Digital Programs”, French Embassy in Berlin, Germany, 1 June 2017.
  - GT BIOSS “Turing Completeness of Biochemical Reactions under the Continuous Semantics and Compilation of Mixed Digital-Analog Programs”, Montpellier, 13 March 2017.
  - Lab Sys2diag “Biochemical Compiler and Mixed Analog-Digital Algorithms in the Cell”, Montpellier, 9 March 2017.
- Jean-Baptiste Lugagne gave invited talks at
  - Khammash lab seminar, “Balancing a genetic toggle switch by real-time feedback control and periodic forcing”, ETHZ, Zurich, March 2017
  - Seminar of SynthSys Centre for Synthetic and Systems Biology, “Balancing a genetic toggle switch by real-time feedback control and periodic forcing”, University of Edinburgh, June 08 2017

- International Workshop on Control Engineering and Synthetic Biology, “Balancing a genetic toggle switch by real-time feedback control and periodic forcing” (poster presentation), Royal Academy of Engineering, London, July 17 2017
- Seminar of Theory of Living Matter Group, “Balancing a genetic toggle switch by real-time feedback control and periodic forcing”, University of Cambridge, July 19 2017
- Jakob Ruess gave invited talks at
  - Working days of GT BIOSS “Control of bio-digital systems in single cells”, March 13 2017
  - Conference of GdR Biologie Synthétique et Systémique (BioSynSys) “Control of bio-digital systems in single cells”, La Grande Motte, Oct 10 2017

### 9.1.5. Leadership within the Scientific Community

- Grégory Batt is a member of
  - the IEEE/CSS Technical Committee on Systems Biology,
  - the scientific board of the GDR de Biologie de Synthèse et des Systèmes
  - the GDR de Bioinformatique Moléculaire, in charge of the axis on Biological network modelling, systems biology and synthetic biology
  - co-animator of the French working group on Symbolic Systems Biology GT BIOSS
  - the scientific committee of the Spring school on Computational Systems Biology (Comp-SysBio 2017)
- François Fages is a member of
  - the Steering Committee of the **International Conference on Computational Methods for Systems Biology** since 2008,
  - the Scientific Council of the *Doctorate School “Frontières Du Vivant”* at *Center for Research and Interdisciplinarity*, Universities Paris Descartes and Paris Diderot, since 2010,
  - The Scientific Committee of the Summer School **Ecole Thématique Modélisation Formelle des Réseaux de Régulation Biologique** since 2010.

### 9.1.6. Scientific Expertise

- Gregory Batt
  - has been in charge of the definition of the 16th challenge of the 2018-2022 Inria strategic plan on predictive systems biology
  - has been a member of the INRA selection committee for hiring permanent junior researchers (CR2)
  - has evaluated the PhD thesis of Lorena Postiglioni and Giansimone Perrino (Diego di Bernardo, Tigem, Italy; Thesis evaluation report)
  - has been a member of thesis advisory committee meetings for Arnaud Bonnaffoux (Olivier Gandrillon ENS Lyon/Cosmo Company), Raphael Goujet (Ariel Lindner, CRI, Paris), Adele Kerjouan (Olivier Destaing, IAB, Grenoble), and Mathilde Koch (Jean-Loup Faulon, INRA, Jouy en Josas)
- François Fages
  - is a member of the jury for the **Prix de thèse Gilles Kahn** of the *Société Informatique de France*, since 2015,
  - reviewed one Research Fellowship application for the Royal Commission for the Exhibition of 1851

### 9.1.7. Research Administration

- François Fages is member of the “Bureau du Comité des Projets” of Inria Saclay-IdF.
- Sylvain Soliman is member of the “Commission Scientifique” of Inria Saclay-IdF

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master: Grégory Batt (coordinator and teacher: 48h) and Jakob Ruess (24h), *Computational Biology*, M1, Master Approches Interdisciplinaires du Vivant (AIV).

Master/PhD: Grégory Batt (co-coordinator 80h, teacher 8h) and Jakob Ruess (8h), *Modeling and engineering of biological systems*, M2/PhD, Institut de Technologie et d’Innovation of Paris Sciences et Lettres (PSL-ITI), Paris.

Master/PhD: Gregory Batt (Scientific committee and teacher 6h), Spring school on Computational Systems Biology (CompSysBio 2017), Aussois, March 19-25 2017

Master: François Fages (coordinator module 48h, teaching 12h), C2-19 *Computational Methods for Systemic and Synthetic Biology*, Master Parisien de Recherche en Informatique (MPRI), Paris.

Master: Chiara Fracassi (20h), *Experimental Methods in Biophysics*, M1, Master Approches Interdisciplinaires du Vivant (AIV).

Master: Sylvain Soliman, C2-35-1 *Constraint Programming*, coordinator and teaching 24h, M2, Master Parisien de Recherche en Informatique (MPRI), Paris.

Master: Denis Thieffry (coordinator, 6h) and Gregory Batt (6h), *Dynamical Modelling of Cellular Regulatory Networks*, M2, Interdisciplinary Master in Life Science at the Ecole Normale Supérieure, Paris.

#### E-learning

Online **BIOCHAM tutorial notebook** by F. Fages and S. Soliman, presented at **CMSB 2017**, Darmstadt, Germany.

### 9.2.2. Supervision

Grégory Batt is currently supervising the Ph.D. theses of

- Virgile Andreani (ED STIC, ENS)
- Sebastian Sosa Carrillo (ED FdV, Inria)
- Chetan Aditya (ED FdV, Inria)

### 9.2.3. Juries

- Ph.D.: Stefano Casagrande (Inria Sophia Antipolis), *G. Batt*, June 30 2017.
- HDR: Russ Harmer, Ecole Normale Supérieure de Lyon, *F. Fages*, reviewer, May 22 2017.
- Ph.D.: Guillaume Madelaine, University of Lille, *F. Fages*, reviewer, Feb. 28 2017.
- Ph.D.: Danhua Peng, University of Rostock, Germany, *F. Fages*, reviewer, Feb. 3 2017.
- Ph.D.: Ferdinanda Camporesi, University PSL, ENS Paris, *F. Fages*, Jan 23 2017.

## 9.3. Popularization

We participated in seminars for general audiences.

- G. Batt, “*La cybergénétique: piloter des cellules par ordinateur*”, 50 ans d’Inria au Siège, Rocquencourt, Nov 16 2017.
- F. Fages, “*Living with algorithms and algorithms of the living*”, Workshop **Shaping Major Transitions in the Digital World**. Interdisciplinary Research Center, CRI, Paris, 28-30 June 2017.
- J. Ruess, “*Automating scientific discovery in single cells*”, Unithé ou café, Inria Saclay - Ile de France, Apr 21 2017

Our publications also raised the attention of specialized and non-specialized media. One can mention

- “Piloter le comportement de cellules biologiques par ordinateur, c’est possible” in Science et Avenir
- “Forscher verbinden und kontrollieren Bakterien mit einem Computer”, in Wiener Zeitung
- “Forscher steuern Bakterien durch Verbindung mit Computer” in der Standard
- “Forscher verbinden und kontrollieren Bakterien mit einem Computer ” and “Virtuelle Realität für Bakterien” in Austria Presse Agentur (APA)
- “Ils parviennent à contrôler des cellules biologiques par ordinateur” in SciencePost
- “Computerized biology, or how to control a population of cells with a computer” and “Virtual reality for bacteria” in Phys.org
- “Computerized biology, or how to control a population of cells with a computer” in EurekAlert.org
- “Scientists Learn to Control Bacteria by Connecting Them to Computers” in Scicasts.com
- “Virtuelle Realität für Bakterien” in Innovations-report.de
- “Virtuelle Realität für Bakterien” in Informationsdienst Wissenschaft



## LINKMEDIA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

Laurent Amsaleg was appointed general co-chair of ACM Intl. Conf. on Multimedia 2019.

Laurent Amsaleg was general chair of Intl. Conf. on Multimedia Modeling 2017.

Laurent Amsaleg and Vincent Claveau were general co-chairs of the Workshop on Computational Journalism collocated with EGC 2017.

Teddy Furon was general co-chair of IEEE Intl. Workshop on Information Forensics and Security 2017.

Teddy Furon was a co-chair of the GdR-ISIS national workshop “Comment concilier Big Data, identification des personnes, traçabilité des contenus et respect de la vie privée ?”, 2017.

Ewa Kijak and Vincent Claveau organized and chaired a special session on Social Networks and User-Generated Content Verification at the IEEE Intl. Workshop on Information Forensics and Security.

#### 10.1.1.2. Member of the Organizing Committees

Guillaume Gravier was special session chair at Intl. Conf. on Multimedia Modeling 2017.

Guillaume Gravier was nominated special session co-chair of IEEE Intl. Workshop on Content-Based Multimedia Indexing 2018.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

Yannis Avrithis was area chair of the ACM Intl. Conf. on Multimedia 2017.

Yannis Avrithis was area chair of the European Signal Processing Conf 2017.

Guillaume Gravier was appointed area chair of ACM Intl. Conf. on Multimedia 2019.

#### 10.1.2.2. Member of Conference Program Committees

Laurent Amsaleg was a PC member of: Base de Données AvancéesA; IEEE Intl. Workshop on Content-Based Multimedia Indexing, IEEE Intl. Conf. on Multimedia and Exhibition; Intl. Conf. on Similarity Search and Applications; ACM Intl. Conf. on Multimedia Retrieval.

Yannis Avrithis was a PC member of: IEEE Conf. on Computer Vision and Pattern Recognition; Intl. Conf. on Computer Vision; ACM Intl. Conf. on Multimedia; European Signal Processing Conf.; IEEE Intl. Conf. on Multimedia and Expo; IEEE Intl. Conf. on Acoustics, Speech, and Signal Processing.

Vincent Claveau was a PC member of: ACL demonstration track; EMNLP demonstration track; International Semantic Web Conference; Intl. Conf. on Multimedia Modeling; IEEE Intl. Workshop on Information Forensics and Security; Conférence en Recherche d’Information et Applications; TextMine workshop.

Teddy Furon was a PC member of ACM Information Hiding and Multimedia Security.

Guillaume Gravier was a PC member of: ACM Intl. Conf. on Multimedia; IEEE Intl. Conf. on Multimedia and Exhibition; ACM Intl. Conf. on Multimedia Retrieval; Annual Conf. of the Intl. Speech Communication Association; European Conf. on Information Retrieval; IEEE Intl. Conf. on Acoustics, Speech and Signal Processing; IEEE Intl. Symposium on Multimedia; Multimedia Modeling Conf.

Ewa Kijak was a PC member of: ACM Intl. Conf. on Multimedia; ACM Intl. Conf. on Multimedia Retrieval; Intl. Workshop on Content-Based Multimedia Indexing; IEEE Intl. Workshop on Information Forensics and Security.

Christian Raymond was a PC member of: Annual Conf. of the Intl. Speech Communication Association; IEEE Intl. Conf. on Acoustics Speech and Signal Processing; IEEE Intl. Conf. on Machine Learning And Applications; Conf. en Traitement Automatique des Langues Naturelles.

Pascale Sébillot was a PC member of: European Conf. on Information Retrieval; Annual Meeting of the Association for Computational Linguistics; Intl. Joint Conf. on Artificial Intelligence; Intl. Conf. on Multimedia Modeling; Conf. Traitement Automatique des Langues Naturelles; Traitement Automatique du Langage et Analyse de Documents.

#### *10.1.2.3. Reviewer*

Ewa Kijak reviewed for ACM Intl. Conf. on Multimedia.

### **10.1.3. Journal**

#### *10.1.3.1. Member of the Editorial Boards*

Laurent Amsaleg was guest editor for the special issue of the Multimedia tools and applications Journal, best papers from the MMM2017 conference.

Vincent Claveau is editor of the journal Recherche d'Information, Document, Web Sémantique

Vincent Claveau is member of the editorial board of the journal Traitement Automatique des Langues.

Guillaume Gravier is associate editor of IEEE Trans. on Multimedia.

Guillaume Gravier was editor of the Working Notes Proc. of the MediaEval Multimedia Benchmark.

Christian Raymond is member of the editorial board of the electronic Journal Discours.

Pascale Sébillot is editor of the Journal Traitement Automatique des Langues.

Pascale Sébillot is member of the editorial board of the Journal Traitement Automatique des Langues.

#### *10.1.3.2. Reviewer - Reviewing Activities*

Laurent Amsaleg was a reviewer for: IEEE Trans. on Circuits and Systems for Video Technology; IEEE Trans. on Multimedia, Pattern Recognition Letters; IEEE Trans. on Information Forensics & Security; IEEE Trans. on Image Processing; IEEE Trans. on Information Systems; IEEE Trans. on Knowledge and Data Engineering.

Yannis Avrithis was a reviewer for Multimedia Tools and Applications, Elsevier Neurocomputing.

Vincent Claveau reviewed for reviewed for Multimedia Tools and Applications, Elsevier Information Sciences, Traitement Automatique des Langues.

Teddy Furon reviewed for IEEE Trans. on Information Forensics and Security, IEEE Trans. on Image Processing, and IEEE Trans. on Signal Processing.

Guillaume Gravier reviewed for Information Science, Multimedia Tools and Applications, IEEE Trans. on Multimedia.

Christian Raymond was a reviewer for Multimedia Tools and Applications.

Pascale Sébillot reviewed for Traitement Automatique des Langues.

### **10.1.4. Invited Talks**

Laurent Amsaleg gave an invited talk at East China Normal University, Shanghai.

Yannis Avrithis gave an invited talk at Deep Learning in Vision, Language, and Multimedia Workshop on September 25 in Rennes.

Vincent Claveau gave an invited talk at Intelligence artificielle et Recherche d'Information : Journée commune AFIA - ARIA.

Guillaume Gravier gave an invited talk at Katholieke Universiteit Leuven.

Guillaume Gravier gave an invited talk at Universidad de Chile, Santiago de Chile.

Guillaume Gravier gave an invited talk at East China Normal University, Shanghai.

Pascale Sébillot gave an invited tutorial at symposium on Propriété intellectuelle et données dans l'environnement numérique, Rennes.

### **10.1.5. Leadership within the Scientific Community**

Laurent Amsaleg is a member of the Steering Committee of SISAP for the 2016–2020 term.

Vincent Claveau is finance head of the Association pour la Recherche d'Informations et ses Applications (ARIA).

Guillaume Gravier is co-founder and general chair of the ISCA SIG Speech, Language and Audio in Multimedia.

Guillaume Gravier is member of the Community Council of the Mediaeval Multimedia Evaluation series.

Guillaume Gravier was president of the Scientific Evaluation Committee of the National Research Agency for the theme 'Knowledge, data, content, big data, HPC, simulation' up to July 2017.

Since September 2017, Guillaume Gravier is president of the Scientific Evaluation Committee of the National Research Agency for the theme 'Knowledge, data, content, big data - AI'.

Pascale Sébillot is a member of the permanent steering committee of Conf. Francophone en Traitement Automatique des Langues Naturelles.

### **10.1.6. Scientific Expertise**

Laurent Amsaleg was an expert evaluator for the French National Research Agency (ANR).

Yannis Avrithis was an expert evaluator for the French National Research Agency (ANR).

Vincent Claveau was an expert for was an expert for the Idex UCA-Jedi

Teddy Furon is scientific adviser for the company LAMARK.

### **10.1.7. Research Administration**

Vincent Claveau is deputy head of the GdR MaDICS, a CNRS inter-lab initiative to promote research about Big Data and Data Science.

Guillaume Gravier is a member of the Board of the technology cluster Images & Réseaux.

Guillaume Gravier is a member of the Board of the Comité des Projets of Inria - Rennes Bretagne Atlantique.

Pascale Sébillot is a member of the Conseil National des Universités 27th section (computer science).

Pascale Sébillot is the director of the Computer Science Laboratory, INSA Rennes.

Pascale Sébillot is the deputy director of the Scientific Advisory Committee of IRISA UMR 6074.

Pascale Sébillot is a member of the theses advisory committee of the MathSTIC doctoral school.

Pascale Sébillot is a member of the board of the MathSTIC doctoral school.

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

For reseachers, all activities are given. For professors and assistant professors, only courses at the M. Sc. level are listed.

Licence: Teddy Furon, Probabilities, 40h, L1, Agrocampus Rennes, France

Licence: Guillaume Gravier, Databases, 30h, L2, INSA Rennes, France

Licence: Guillaume Gravier, Probability and statistics, 16h, L3, INSA Rennes, France  
 Licence: Guillaume Gravier, Natural Language Processing, 12h, L3 & M1, INSA Rennes, France  
 Master: Laurent Amsaleg, Multidimensional indexing, 13h, M2, University Rennes 1, France  
 Master: Yannis Avrithis, Deep Learning for Vision, 30h, M2, Univ. Rennes 1, France  
 Master: Vincent Claveau, Data-Based Knowledge Acquisition: Symbolic Methods, 20h, L3, INSA Rennes, France  
 Master: Vincent Claveau, Text Mining, 18h, M2, Univ. Rennes 1, France  
 Master: Vincent Claveau, Information Retrieval, 15h, M2, ENSSAT, France  
 Master: Vincent Claveau, Information Retrieval, 13h, M2, Univ. Rennes 1, France  
 Master: Teddy Furon, Rare events, 20h, M2, Insa Rennes, France  
 Master: Guillaume Gravier, Data analysis and probabilistic modeling, 30h, M2, University Rennes 1, France  
 Master: Ewa Kijak, Image processing, 67h, M1, ESIR, France  
 Master: Ewa Kijak, Supervised machine learning, 15h, M2R, University Rennes 1, France  
 Master: Ewa Kijak, Supervised machine learning, 45h, M1, ESIR, France  
 Master: Ewa Kijak, Image indexing, 17h, M2, University Rennes 1, France  
 Master: Ewa Kijak, Indexing and multimedia databases, 15h, M2, ENSSAT, France  
 Master: Ewa Kijak, Computer vision, 22h, M2, ESIR, France  
 Master: Ewa Kijak, Image and text mining, 12h, M2, ENSAI, France  
 Master: Simon Malinowski, Short-term time series prediction, 29h, M1, Univ. Rennes 1  
 Master: Simon Malinowski, Supervised Learning, 24h, M2, Univ. Rennes 1  
 Master: Christian Raymond, Dialogue, 4H, M2, University Rennes 1, France  
 Master: Christian Raymond, Dialogue, 5H, M1, INSA Rennes, France  
 Master: Pascale Sébillot, Advanced Databases and Modern Information Systems, 70h, M2, INSA Rennes, France  
 Master: Pascale Sébillot, Logic Programming, 12h, M1, INSA Rennes, France  
 Master: Pascale Sébillot, Natural Language Programming, 6h, M1, INSA Rennes, France

### 10.2.2. Supervision

PhD: Rémi Bois, Navigable directed multimedia hypergraphs: construction and exploitation, defended December 2017, Guillaume Gravier and Pascale Sébillot  
 PhD: Ahmet Iscen, Continuous memories for representing sets of vectors and image collections, defended September 2017, Teddy Furon  
 PhD: Raheel Kareem Qader, Phonology modeling for emotional speech synthesis, defended March 2017, Gwénoél Lecorvé and Pascale Sébillot (with EXPRESSION, IRISA team)  
 PhD: Vedran Vukotić, Deep neural architectures for automatic representation learning from multimedia multimodal data, defended September 2017, Guillaume Gravier and Christian Raymond  
 PhD in progress: Ricardo Carlini Sperandio, Unsupervised motif mining in multimedia time series, started August 2015, Laurent Amsaleg and Guillaume Gravier  
 PhD in progress: Clément Dalloux, Clinical text mining and indexing, started Dec. 2016, Vincent Claveau, Natalia Grabar (STL, Lille), Olivier Dameron (with DYLISS project-team)  
 PhD in progress: Mikail Demirdelen, User-adapted multi-document multimedia synthesis, started Oct. 2016, Guillaume Gravier and Pascale Sébillot

PhD in progress: Cheikh Brahim El Vaigh, Incremental content to data linking leveraging ontological knowledge in data journalism, started Oct. 2017, Guillaume Gravier, Pascale Sébillot and François Goasdoué (with CEDAR, Inria team)

PhD in progress: Mathieu Laroze, Active learning on adaptive representations for object detection in high-resolution imaging, started June 2016, Romain Dambreville, Chloe Friguët, Ewa Kijak and Sebastien Lefevre (with OBELIX, IRISA team)

PhD in progress: Cédric Maigrot, Detecting fake information on social networks, started October 2015, Laurent Amsaleg, Vincent Claveau and Ewa Kijak

PhD in progress: Antoine Perquin, Universal speech synthesis through embeddings of massive heterogeneous data, started Oct. 2017, Laurent Amsaleg, Gwénoél Lecorvé, Damien Lolive (with EXPRESSION, IRISA team)

PhD in progress: Oriane Simeoni, Invariance and supervision in visual learning, started Oct. 2016, Yannic Avrithis and Guillaume Gravier

PhD in progress: Hanwei Zhang, Deep learning in adversarial contexts, started Oct. 2017, Laurent Amsaleg, Teddy Furon, Ewa Kijak

### 10.2.3. *Juries*

Guillaume Gravier

PhD, reviewer, Aparna Nurani Venkitasubramanian, Katholieke Universiteit Leuven

PhD, reviewer, Heider Sanchez, Universidad de Chile

PhD, reviewer, Mateusz Budnik, Univ. Grenoble Alpes

PhD, reviewer, Nhi Tran, CNAM

PhD, president, Gaël Le Lan, Univ. du Maine

Ewa Kijak

PhD, member, Yanwei Cui, Université Bretagne Sud

Pascale Sébillot

PhD, reviewer, Dialekti Valsamou, Université Paris Sud

PhD, reviewer, Anaïs Ollagnier, Aix-Marseille Université

PhD, president, Joseph Lark, Université de Nantes

PhD, member, Yoann Dupont, Université Sorbonne Nouvelle - Paris 3

## 10.3. Popularization

Vincent Claveau

participated to the collective book "Les Big Data à découvert", CNRS éditions

got an interview published in CNRS - Le journal about detecting fake news and image forgeries (joint work with C. Maigrot and E. Kijak).

## LINKS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Conference Program Committees

- I. Boneva was member of the program committees of Alberto Mendelson Workshop 2017.
- P. Bourhis was member of the program committees of IC (Ingénierie des Connaissances) 2017.
- P. Bourhis was the program chair of the demonstration track of BDA (Gestion de Données – Principes, Technologies et Applications) 2017.
- J. Niehren is the chair of the WPTE 2018 workshop collocated with FLOCS in Oxford
- J. Niehren was a member of the program committee of BDA 2017
- J. Niehren was a member of the program committee of WPTE 2017.
- S. Staworko was member of the program committees of ISWC (International Semantic Web Conference) 2017.
- S. Tison was member of the program committees of FSCD (First International Conference on Formal Structure for Computation and Deduction) 2017.
- S. Tison was member of the program committees of Highlight 2017.

### 9.1.2. Journal

#### 9.1.2.1. Member of the Editorial Boards

- J. Niehren is editor of *Fundamenta Informaticae*.
- S. Salvati is managing editor of JoLLI (Journal for Logic, Language and Information).
- S. Tison is in the editorial committee of RAIRO-ITA (Theoretical Informatics and Applications).

### 9.1.3. Research Administration

- I. Boneva was an elected member of CRISAL laboratory council until the December 1st, 2017.
- J. Niehren is member of the Board of the Inria Lille's Board of the Comité des Equipe-Projects.
- J. Niehren is head of the Inria team Links.
- S. Salvati is secretary of the The Association for Logic, Language and Information (<http://www.folli.info>).
- S. Salvati is vice-head of the Inria team Links.
- S. Tison is president of CITC EuraRFID since June 2017.
- S. Tison is a member of coordination committee I-Site ULNE since April 2017.
- S. Tison is a vice president of the University of Lille 1 since October 2015, where she is responsible for industrial partnerships, innovation, and valorisation.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- I. Boneva gives a Master 1 semester on Algorithms for databases.
- F. Capelli organized a research school on Knowledge Compilation at ENS de Lyon in December 2017.

A. Lemay is pedagogical responsible for Computer Science and Numeric correspondent for UFR LEA, Lille 3.

J. Niehren was teaching the course “Foundations of Data and Knowledge Bases” at the University of Cape Coast, Ghana, as part of the PhD summer school of the Academie without Borders.

J. Niehren was teaching the course “Foundations of Databases” as part of the masters 2 Mocad on Information Extraction at the University of Lille 1.

S. Salvati is pedagogical responsible of Master Miage FA, Lille 1.

S. Salvati organised the reasearch label for Computer Science Bachelor, Lille 1.

S. Staworko is pedagogical responsible of the Web Analyst Master, Lille 3.

S. Staworko has created an online lecture on R as part of the partnership between Lille 3 University and Dakar University, Senegal.

S. Tison is pedagogical responsible of first year ACT Master, Lille 1.

S. Tison has organized Catalyst Contest 2017 in Lille.

### 9.2.2. Supervision

PhD in progress: D. Gallois. Since 2015. Recursive Queries. Supervised by Bourhis and Tison.

PhD in progress: M. Sakho. Hyperstreaming Query answering on graphs. Since 2016. Supervised by Niehren and Boneva.

PhD in progress: J.M. Lozano. On data integration for mixed database formats. Supervised by Boneva and Staworko.

PhD in progress: P. Gallot. On safety of data transformations. Started on October 2017. Supervised by Lemay and Salvati.

Projet de Fin d’Étude (PFE): N. Crosetti. On weighted dependency aggregation. Supervised by Capelli, Niehren and Ramon (Team MAGNET).

### 9.2.3. Juries

S. Salvati was the reviewer of El Makki VOUNDY’s thesis *Langages  $\varepsilon$ -sûrs et caractérisations des langages d’ordres supérieurs* defended on November 15, 2017, University of Marseille.

S. Salvati was a member of the jury of Félix Baschenis’ thesis *Minimisation de ressources pour les transductions régulières sur les mots* defended on December 5, 2017, University of Bordeaux.

### 9.2.4. Selection committies

P. Bourhis was a member of the selection committee for two assistant professorships at the University of Lille III.

A. Lemay was a member of the selection committee for two assistant professorships at the University of Lille III.

S. Tison was a member of the selection committee for an assistant professorship at the University of Rouen.

S. Tison was a member of the selection committee for an assistant professorship at the University of Marne-la-Vallée.

S. Tison was a member of the selection committee for a professorship at the University of Calais.

S. Tison is a member of the jury of “Agrégation de mathématiques, option D”.

## 9.3. Popularization

Joachim Niehren contributed an article in the december issue of “Inria by Lille” titled “Interroger les bases de données d’une manière plus intelligentes”

## M3DISIM Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

M. Genet, Session chair on Biomechanics at CSMA2017

M. Genet, Session chair on Software and Algorithms at FEniCS-2017

#### 10.1.1.2. Member of the Organizing Committees

D. Chapelle, Member of the Paris-Saclay Biomechanical Seminar organizing committee

M. Genet, Member of the CSMA-2017 organizing committee

P. Le Tallec, Vice-president of the CSMA2017 (bi-annual national conference on computational structural mechanics) organizing committee

P. Moireau, Member of the organizing committee of the Inria-Saclay teams (Poems-M3disim-Defi) scientific computing seminar

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

D. Chapelle, Member of the Conference Program Committee of FIMH 2017

M. Genet, Member of the Conference Program Committee of CSMA-2017

P. Le Tallec, Member of the Conference Program Committee of CSMA-2017

#### 10.1.2.2. Reviewer

D. Chapelle, reviewer for FIMH 2017

M. Genet, reviewer for CSMA-2017

P. Le Tallec, reviewer for CSMA-2017

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

D. Chapelle, Member of the editorial board of journal *Computers & Structures*

D. Chapelle, Member of the editorial board of journal *ESAIM: M2AN*

#### 10.1.3.2. Reviewer - Reviewing Activities

J.-M. Allain, reviewer for “Journal of the Mechanical Behavior of Biomedical Materials” and “Soft Matter journal”

R. Chabiniok, reviewer for “Journal of Computer Methods and Programs in Biomedicine”, “Computers and Structures” and “Journal of Cardiovascular Translational Research”

D. Chapelle, reviewer for “Biomechanics and Modeling in Mechanobiology”, “Computer Methods in Applied Mechanics and Engineering”, “Computers & Structures”

M. Genet, reviewer for “Acta Biomaterialia”

S. Imperiale, reviewer for “Journal of Computers and mathematics with application”, “Journal of Numerical Methods for Partial Differential Equations” “Journal of Methods and Algorithms for Scientific Computing section”, “Journal of Geophysics” and “Journal of Computational Physics”

P. Moireau, reviewer for “ANR” and “Bulletin of Mathematical Biology”



#### **10.1.4. Invited Talks**

- D. Chapelle, invited seminars at Centrale-Supelec (Jan. 19th) and WIAS Berlin (Sept. 18th)
- P. Moireau, “A discrete-time optimal filtering approach for nonlinear systems as a stable discretization of the Mortensen observer” , Workshop on Optimal Control of Dynamical Systems

#### **10.1.5. Leadership within the Scientific Community**

- J.-M. Allain, Member of Society of Experimental Mechanics and of Biophysical Society
- J.-M. Allain, Member of the Academic Council of Université Paris-Saclay, France
- D. Chapelle, Head of Science of Inria Saclay-Ile-de-France, and member of the Inria Evaluation Committee
- D. Chapelle, Member of the board of directors of the VPH Institute, and of the Avicenna Alliance
- D. Chapelle, Member of the steering committee of the BioMedical Engineering Institute coordinated by Ecole Polytechnique
- A. Le Gall, Chair of youth committee of SFAR (French Society of Anesthesia and Reanimation)
- P. Le Tallec, Director of the LMS (Solid Mechanics Laboratory) Ecole Polytechnique
- P. Le Tallec, President of the Mechanics department at University Paris Saclay
- P. Moireau, Member of the steering committee of Department of Mathematics of Université Paris Saclay and Jacques Hadamard Foundation

#### **10.1.6. Scientific Expertise**

- R. Chabiniok, Honorary medical consultant at Saint-Thomas hospital (King’s College London)
- S. Imperiale, Consultant for CEA (The French Alternative Energies and Atomic Energy Commission)
- P. Le Tallec, Consultant for CEA
- P. Le Tallec, Consultant for Michelin
- P. Moireau, Reviewer for ANR

#### **10.1.7. Research Administration**

- J.-M. Allain, Responsibility of the teaching experimental center (mechanics), at École Polytechnique
- J.-M. Allain, Scientific Advisory Board, chair BioMecAM at ENSAM
- J.-M. Allain, Responsible of the “Mechanics and Material for the bio” at the Fédération Francilienne de Mécanique
- D. Chapelle, Head of Science of Inria Saclay-Ile-de-France, and member of the Inria Evaluation Committee
- P. Le Tallec, Director of the LMS (Solid Mechanics Laboratory) Ecole Polytechnique
- P. Le Tallec, in charge of 3rd year program in Mechanics and Energy at Ecole Polytechnique
- P. Le Tallec, in charge of the André Citroën Chair
- P. Le Tallec, in charge of the Mechanics department at University Paris Saclay
- P. Le Tallec, President of the academic senate of the Ecole Polytechnique

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

- Bachelor: J.-M. Allain, “Introduction projects to physics”, 15h, (L1), École Polytechnique, France

Bachelor: F. Caforio, “PEIP1 S2 M2 – Mathematical analysis in two and three dimensions, linear algebra in  $\mathbb{R}^n$ ”, 22h, (L1), Polytech Paris-Sud, France

Bachelor: F. Caforio, “Math 255 – Differential calculus for physics (mathematical analysis in two and three dimensions)”, 42h, (L2), Université Paris-Sud, France

Bachelor: M. Genet, “MEC435 – Modélisation et Simulation en Mécanique Industrielle”, 32h, (L3), École Polytechnique, France

Bachelor: M. Genet, “MEC430 – Mécanique des Milieux Continus I”, 32h, (L3), École Polytechnique, France

Bachelor: M. Genet, “MEC431 – Mécanique des Milieux Continus II”, 32h, (L3), École Polytechnique, France

Bachelor: S. Imperiale, “MA102 – Analyse pour les EDP”, 24h, (L3), ENSTA ParisTech, France

Bachelor: S. Imperiale, “MA104 – Analyse complexe”, 12h, (L3), ENSTA ParisTech, France

Bachelor: F. Kimmig, “Mathematical methods for physics”, 32h, (L1) level, École Polytechnique, France

Bachelor: F. Kimmig, “Introduction projects to physics”, 6h, (L1), École Polytechnique, France

Bachelor: F. Kimmig, “Modeling and simulation in industrial mechanics”, 32h, (L3), École Polytechnique, France

Bachelor: P. Le Tallec, “MEC 431 – Mécanique des Milieux Continus 2”, (L3), École Polytechnique, France

Bachelor: P. Le Tallec, “Continuum mechanics”, 32h, (L3), Shanghai ParisTech, China

Bachelor: P. Moireau, “MAP 411 – Approximation numérique et optimisation”, 32 h, (L3), Ecole Polytechnique, France

Master: P. Moireau, “MA103 – Introduction aux EDP et à la méthode des différences finies”, 14h, (L3), ENSTA ParisTech, France

Bachelor: F. Wijanto, “Modeling and simulation in industrial mechanics” 32 h, (L3), École Polytechnique, France

Master: J.-M. Allain, “computational fluid dynamics”, 36h, (M1), Ecole Polytechnique, France

Master: J.-M. Allain, “Cellular Motility”, 32h, (M2), Ecole Polytechnique, France

Master: D. Chapelle: “Biomechanical Modeling of Active Tissues”, 33h, (M2), Université Paris-Saclay, France

Master: S. Imperiale, “MA2610 Calcul Scientifique – Mécanique des solides”, 6h, (M1), Central/Supélec, France

Master: S. Imperiale, “Simnum – Programmation C++”, 18h, (M1), ENSTA ParisTech, France

Master: P. Le Tallec, “M4S – Numerical methods in non linear mechanics”, 27h, (M2), École Polytechnique, France

Master: P. Le Tallec, “Nuclear Energy on Continuum Mechanics”, 15h, (M2), INSTN, France

Master: P. Moireau, “MAP-Ann1 – La méthode des éléments finis”, 21h, (M1), ENSTA ParisTech, France

Master: P. Moireau, “Biomechanical Modeling of Active Tissues”, 12h, (M2), Université Paris-Saclay, France

Master: P. Moireau, “Méthodes et problèmes inverses en dynamique des populations”, 24h, (M2), UPMC, France

### 10.2.2. Supervision

PhD: Aurora Armiento, “Inverse problems and data assimilation methods applied to protein depolymerisation”, supervisors: M. Doumic and P. Moireau, Paris-Descartes University, defended Jan. 13th

PhD in progress: Ustim Khristenko, “Méthodes mathématiques et numériques pour la modélisation et le calcul des états établis cycliques en mécanique non-linéaire”, started Oct. 2014, supervised: P. Le Tallec

PhD in progress: Florent Wijanto, “Modélisation multi-échelle des fibres de collagènes”, started: Sept. 2015, supervisors: J.-M. Allain and M. Caruel

PhD in progress: Federica Caforio, “Modélisation mathématique et numérique de la propagation d’ondes élastique dans le coeur”, started: Nov. 2015, supervisors: D. Chapelle and S. Imperiale

PhD in progress: François Kimmig, “Multi-scale modeling of muscle contraction – From stochastic dynamics of molecular motors to continuum mechanics, in interaction with experimental assays”, started: Sept. 2016, supervisors: M. Caruel and D. Chapelle

PhD in progress: Arthur Le Gall, “Application of biomechanical heart modeling in hemodynamic monitoring of increased risk patients during anesthesia using clinical data”, started Nov. 2016, supervisors: D. Chapelle, E. Gayat (UP7 Paris Diderot) and R. Chabiniok

PhD in progress: Ezgi Berberoglu, “Image-guided Computational Cardiac Mechanics”, started: Jan. 2016 supervisors: Martin Genet and Sebastian Kozerke (ETH, Zurich, Switzerland)

PhD in progress: Cécile Patte, “Modélisation poro-mécanique multi-échelle du poumon, de la respiration au remodelage chronique associé à la fibrose pulmonaire”, started: Nov. 2017, supervisors: M. Genet and D. Chapelle

PhD in progress: Marija Gusseva, “Cardiac Biomechanical Modeling of Chronic Right Ventricular Loading”, started Dec. 2017, supervised: R. Chabiniok, D. Chapelle, T. Hussain (UTSW Medical Center Dallas)

### 10.2.3. Juries

- D. Chapelle, Habilitation Jury of Marcela Szopos, Strasbourg University, President, Dec. 1st
- P. Moireau, PhD Jury of Aurora Armiento, Paris-Descartes University, PhD Advisor, Jan. 13th
- P. Moireau, PhD Jury of Chloé Audebert, Paris-6 University, Reviewer, Febr. 24th
- P. Moireau, PhD Jury of Pauline Bernard, Paris-6 University, President, Nov. 20th
- P. Moireau, PhD Jury of Roch Mollero, University of Nice-Sophia Antipolis, Dec. 19th

## 10.3. Popularization

- J.-M. Allain, Jeudi de la Recherche de l’X: popularisation talk on research with medical application. June 2017
- J.-M. Allain, 3 articles in popularisation journals (quotidien du médecin, le concours médical, biotech.info) by journalists
- D. Chapelle, interview for “Usine Nouvelle”, Dec. 12th
- A. Laurin, Inria Saclay inauguration demo and associated news article in “Le Parisien”, Jan. 2017
- P. Moireau, Créteil district “Olympiades de Mathématiques” award ceremony, May 2017
- R. Chabiniok, Review paper promoting Cardiovascular MRI particularly of congenital heart diseases for Czech and Slovak physicians [17]
- A. Laurin, P. Moireau, D. Chapelle, demo at 50 ans de l’Inria, Nov. 7th and 8th

## MADYNES Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

Rémi Badonnel: IEEE/IFIP International Symposium on Integrated Network Management (IEEE/IFIP IM 2017), IFIP International Conference on Autonomous Infrastructure, Management and Security (IFIP AIMS 2017), IEEE/IFIP International Network Operations and Management Symposium (IEEE/IFIP NOMS 2018).

Lucas Nussbaum: 4th International Workshop on Reproducibility in Parallel Computing (REPPAR 2017).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

Isabelle Chrisment was a TPC co-chair of the 2nd IEEE/IFIP Workshop on Analytics for Network and Service Management (AnNet 2017). She was member of the steering committee for RESSI'17 (Rendez-vous de la Recherche et de l'Enseignement de la Sécurité des Systèmes d'Information).

Rémi Badonnel is a TPC co-chair for the Third IEEE/IFIP International Workshop on Analytics for Network and Service Management (AnNet 2018).

Jérôme François was a co-chair of the 3rd IEEE/IFIP Workshop on Security for Emerging Distributed Network Technologies (DISSECT).

Lucas nussbaum was a co-chair of the *High Performance Computing in/with the Cloud* track at 9th IEEE International Conference on Cloud Computing Technology and Science (CloudCom 2017).

#### 10.1.2.2. Member of the Conference Program Committees

Rémi Badonnel: IFIP/IEEE International Conference on Network and Service Management (IFIP/IEEE CNSM 2017) ; IEEE Conference on Network Softwarization (IEEE NetSoft 2017) ; IFIP/IEEE International Symposium on Integrated Network Management (IFIP/IEEE IM 2017) ; IFIP International Conference on Autonomous Infrastructure, Management and Security (IFIP AIMS 2017) ; IEEE Global Information Infrastructure and Networking Symposium (IEEE GIIS 2017) ; Asia-Pacific Network Operations and Management Symposium (APNOMS 2017) ; IEEE International Conference on Communications (IEEE ICC - SAC 2017).

Olivier Festor: IFIP/IEEE International Conference on Network and Service Management (IFIP/IEEE CNSM 2017) ; IEEE Conference on Network Softwarization (IEEE NetSoft 2017) ; IFIP/IEEE International Symposium on Integrated Network Management (IFIP/IEEE IM 2017) ; IFIP International Conference on Autonomous Infrastructure, Management and Security (IFIP AIMS 2017) ; IFIP Networking 2017.

Abdelkader Lahmadi: IEEE Conference on Network Softwarization (IEEE NetSoft 2017) ; IFIP/IEEE International Symposium on Integrated Network Management (IFIP/IEEE IM 2017) ; Asia-Pacific Network Operations and Management Symposium (APNOMS 2017) ; 1st Cyber Security in Networking Conference (CSNET 2017).

Jérôme François: IEEE Conference on Network Softwarization (IEEE NetSoft 2017) ; IFIP/IEEE International Symposium on Integrated Network Management (IFIP/IEEE IM 2017) ; Asia-Pacific Network Operations and Management Symposium (APNOMS 2017) ; IEEE Global Information Infrastructure and Networking Symposium (IEEE GIIS 2017) ; Principles, Systems and Applications of IP Telecommunications (IPTComm'17); IFIP/IEEE International Workshop on Management of SDN and NFV Systems (IFIP/IEEE ManSDN 2017).

Thibault Cholez: IEEE/IFIP Workshop on Security for Emerging Distributed Network Technologies (DISSECT 2017); 4th ACM Conference on Information-Centric Networking: Demos and Posters tracks (ICN 2017).

Lucas Nussbaum: 4th International Workshop on Computer and Networking Experimental Research Using Testbeds (CNERT'2017) ; 26th IEEE International Conference on Enabling Technologies: Infrastructure for Collaborative Enterprises (WETICE'2017) ; 23rd IEEE International Conference on Parallel and Distributed Systems (ICPADS'2017).

Isabelle Chrisment: IFIP International Conference on Autonomous Infrastructures, Management and Security (IFIP AIMS'17) ; Rencontres Francophones sur la Conception de Protocoles, l'évaluation de Performance et l'Expérimentation Aspects Algorithmiques de Télécommunications (CoResl'17) ; IEEE/IFIP International Symposium on Network Operations and Management (IFIP/IEEE IM'17).

Ye-Qiong Song: IEEE International Workshop on Factory Communication Systems (WFCS 2017); IEEE International Conference on Communications and Networking (ComNet 2017) ; IEEE International Conference on Emerging Technologies and Factory Automation (ETFA 2017) ; 25th International Conference on Real-Time Networks and Systems (RTNS 2017) ; IEEE Clobecom 2017; ICOST 2017; IEEE RTCSA 2017.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

Rémi Badonnel is Associate Editor for the Wiley International Journal of Network Management (IJNM), and serves as a Guest Editor for a Special Issue on Management of SDN/NFV-based Systems in the same journal.

Jérôme François serves as a Guest Editor for a Special Issue on Security for Emerging Open Networking Technologies in Wiley International Journal of Network Management (IJNM).

Ye-Qiong Song is an Associate Editor for the Elsevier Computers and Electrical Engineering journal, and for the Journal of Multimedia Information System.

#### 10.1.3.2. Reviewer - Reviewing Activities

The following reviews for journals has been made by team members:

Rémi Badonnel: IEEE Transactions on Network and Service Management (IEEE TNSM), Springer Journal of the Network and Systems Management (JNSM), Wiley International Journal of Network Management (IJNM), IEEE Communications Magazine (COMMAG), Elsevier Journal on Computer Communications (COMCOM), Elsevier Journal on Communication Networks (COMNET), Elsevier Journal on Computers and Security (COSE).

Olivier Ferstor: Elsevier Computers & Security.

Abdelkader Lahmadi: IEEE Transactions on Network and Service Management (IEEE TNSM), Springer Journal of the Network and Systems Management (JNSM), Wiley International Journal of Network Management (IJNM), International Journal of Distributed Sensor Networks (IJDSN), IEEE Communications Magazine (COMMAG).

Jérôme François: IEEE Communications Magazine (COMMAG), Wiley International Journal of Network Management (IJNM).

Thibault Cholez: Wiley International Journal of Network Management (IJNM), Elsevier Journal on Communication Networks (COMNET).

Lucas Nussbaum: PLOS ONE ; Springer Journal of Internet Services and Applications (JISA) ; International Journal of Grid and Utility Computing (IJGUC) ; IEEE Transactions on Services Computing (TSC).

Isabelle Chrisment: IEEE Transactions on Network and Service Management (IEEE TNSM), IEEE Communications Magazine (COMMAG). Elsevier Journal Computer Communications (COMCOM)

Ye-Qiong Song: Elsevier Computers and Electrical Engineering journal, IEEE Transactions on Industrial Informatics, IEEE Communications surveys and tutorials.

#### 10.1.4. Invited Talks

Jérôme François:

- IRTF NMRG (IETF 100), Singapore: "Network traffic analysis for encrypted traffic and security monitoring"
- 7th annual Inria@SiliconValley workshop, Berkeley, CA, USA: panelist on "Blockchain Technology for Cybersecurity and Social Impact" and presenter in session "Scaling up for IoT"
- Annual CODE event of the Universität der Bundeswehr, Munich, Germany: panelist on "Smart Attacks requires smart defence"

Lucas Nussbaum:

- École ARCHI 2017: "Experimenting on Architectures for High Performance Computing"
- Reproducible Research Webinars: "Testbeds in Computer Science"
- École RESCOM 2017: "Scaling Your Experiments"

Vassili Rivron:

- CERReV/Université de Caen Normandie Conference on *Les services gratuits du web entre empowerment et hégémonie : contradictions et régulations de l'économie collaborative*, "Sites d'information et bloqueurs de publicité : intermédiaires de l'auto-régulation publicitaires dans le champ journalistique", March 2017.
- SHS Seminar in Loria, "News-sites and adblockers : intermediaries of advertising self-regulation in the field of journalism", in collaboration with Thibault Cholez, June 2017.

#### 10.1.5. Scientific Expertise

Abdelkader Lahmadi served as a member of the Selection Committee of the 2017 ComSoc Student Competition "Communications Technology Changing the World".

Jérôme François serves as reviewer for ANRT to evaluate a CIFRE PhD proposition and as reviewer for ANR.

Yeqiong Song serves as reviewer for ANRT to evaluate a CIFRE PhD proposition and as reviewer for ANR.

#### 10.1.6. Research Administration

Abdelkader Lahmadi is a member of the CDT of Inria Nancy Grand Est.

Jérôme François is a member of the Horizon Startup local committee in Nancy Grand Est.

Isabelle Chrisment is a member of :

- AFNIC's scientific council
- scientific pole AM2I (Automatique, Mathématiques, Informatique et leurs Interaction) at Université de Lorraine
- COMIPERS at Inria Nancy Grand Est.
- CMI (Commission de la Mention Informatique), part of the doctoral school IAEM.

She also served as a member of the working group "Plan Stratégique Scientifique Inria".

Olivier Festor is member of the Scientific Council of Telecom Sud Paris. Olivier Festor is leading the IFIP TC6 Working Group 6.6 : Network and Service Management. He is also in charge of the CERI initiative between France and Germany.

Yeqiong Song is head of Department 3 of LORIA.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Olivier Festor is the Director of the TELECOM Nancy Engineering School.

Rémi Badonnel is heading the Internet Systems and Security specialization of the 2nd and 3rd years at the TELECOM Nancy engineering school, and is coordinating the Security Pathway Program at the same school, elaborated in the context of the International Master of Science in Security of Computer Systems built with the Mines Nancy school.

Laurent Ciarletta is co-heading the specialization Safe Systems Architecture of the Computer Science and IT department of the Ecole des Mines de Nancy ("Grande Ecole", Engineering School, Master degree level).

Team members are teaching the following courses:

**Rémi Badonnel** 242 hours - L3, M1, M2 - Networks, Systems and Services, Software Design and Programming, Cloud Computing, Network and Security Management - TELECOM Nancy, Université de Lorraine

**Abdelkader Lahmadi** 280 hours - L3, M1, M2 - Real time and Embedded Systems Programming, Distributed Systems and Algorithms, Green IT, Algorithms and Advanced Programming - ENSEM Engineering School

**Ye-qiong Song** 200 hours - L3, M1, M2 - Green IT, Algorithms and Advanced Programming, Databases networking - ENSEM Engineering School

**Jérôme François** 70 hours - M1, M2 -Network security, Big Data - TELECOM Nancy, Université de Lorraine, University of Lorraine

**Thibault Cholez** 300 hours - L3, M1, M2 - Techniques and Tools for Programming, Computer Networks, Object-Oriented Programming, Network Services, Constraint development on small Connected Objects, Mobile applications and Internet of Things, Project Management - TELECOM Nancy, Université de Lorraine, University of Lorraine

**Isabelle Chrisment** 220 hours -L3, M1, M2 -C and Shell Programming, Computer Networking, Operating Systems, Network Security. - TELECOM Nancy, Université de Lorraine

#### **E-learning**

MOOC: Thibault Cholez, Supervision de réseaux et services (concept clés avec SNMP), 1 semaine (5 leçons), FUN, Université de Lorraine, Ingénieur, formation initiale et continue, ouverture en janvier 2018.

MOOC: Rémi Badonnel, Laurent Andrey, Supervision de réseaux et services (monitoring avec Nagios), 1 semaine (5 leçons), FUN, Université de Lorraine, Ingénieur, formation initiale et continue, ouverture en janvier 2018.

MOOC: Olivier Festor, Abdelkader Lahmadi, Supervision de réseaux et services (instrumentation avec JMX), 1 semaine (3 leçons), FUN, Université de Lorraine, Ingénieur, formation initiale et continue, ouverture en janvier 2018.

MOOC: Jérôme François, Supervision de réseaux et services (évolution des protocoles), 1 semaine (4 leçons), FUN, Université de Lorraine, Ingénieur, formation initiale et continue, ouverture en janvier 2018.

### **10.2.2. Supervision**

PhD: Wazen Shbair, *Service-Level Monitoring of HTTPS Traffic* [1] defended on May 3rd 2017, University of Lorraine, supervised by Isabelle Chrisment and Thibault Cholez.

PhD: Julien Vaubourg, *Intégration de modèles de réseaux IP à un multi-modèle DEVS, pour la co-simulation de systèmes cyber-physiques* [2], defended in April 2017, Université de Lorraine, supervised by Vincent Chevrier and Laurent Ciarletta.

PhD: Evangelia Tsiontsiou, *Multi-constrained QoS Routing and Energy Optimization in Wireless Sensor Networks*, defended on December 15th 2017, University of Lorraine, supervised by Ye-Qiong Song and Bernardetta Addis.

PhD: Patrick-Olivier Kamgueu, *Configuration Dynamique et Routage pour l'Internet des Objets*, defended on December 18th 2017, Université de Yaoundé & Université de Lorraine, supervised by Olivier Festor, Emmanuel Nataf and Thomas Djotio

PhD: Elian Aubry, *Protocole de routage pour l'architecture NDN*, defended on December 19th 2017, University of Lorraine, supervised by Isabelle Chrisment and Thomas Silverston

PhD in progress: Thomas Paris, *Mo, délimitation de systèmes complexes par composition*, since September 2015, supervised by Vincent Chevrier and Laurent Ciarletta.

PhD in progress: Maxime Compastie, *Software-Defined Security for the Cloud*, since December 2015, supervised by Olivier Festor and Rémi Badonnel.

PhD in progress: Florian Greff, *QoS and fault-tolerance of distributed real-time systems over mesh networks*, since Feb. 2015, supervised by Ye-Qiong Song and Laurent Ciarletta.

PhD in progress: Nicolas Schnepf, *Orchestration and Verification of Security Functions for Smart Environments*, since October 2016, supervised by Stephan Merz, Rémi Badonnel and Abdelkader Lahmadi.

PhD in progress: Giulia De Santis, *Data Analytics for Security*, since October 2015, supervised by Olivier Festor, Abdelkader Lahmadi and Jérôme François.

PhD in progress: Paul Chaignon, *Mécanismes de supervision de la sécurité dans un réseau programmable de type SDN/NFV*, since November 2015, supervised by Olivier Festor, Kahina Lazri and Jérôme François.

PhD in progress: Xavier Marchal, *Secure operation of virtualized Named Data Networks*, since December 2015, supervised by Olivier Festor and Thibault Cholez.

PhD in progress: Salvatore Signorello, *A multifold approach to address the security issues of stateful forwarding mechanisms in Information-Centric Networks*, since December 2014, supervised by Olivier Festor, Jérôme François and Radu State.

PhD in progress: Abdulqawi Saif, *Open Science for the scalability of a new generation search technology*, since December 2015, supervised by Ye-Qiong Song and Lucas Nussbaum.

PhD in progress: Pierre-Olivier Brissaud, *Anomaly detection in encrypted traffic*, since July 2016, supervised by Isabelle Chrisment, Jérôme François and Thibault Cholez.

PhD in progress: Petro Aksonenko, *Positionnement robuste pour véhicules autonomes à base de fusion de données de capteurs reposant sur les systèmes de navigation inertielle*, since October 2016, supervised by Patrick Henaff (Biscuit, Dep 5, Ioria), Vadim Avrutov (Kiev Polytechnic institute in Ukraine) and Laurent Ciarletta.

PhD in progress: Lakhdar Meftah, *Cartography of the quality of experience for mobile internet access*, since November 2016, supervised by Romain Rouvoy and Isabelle Chrisment.

PhD in progress: Haftay Gebreslasie Abreha, *Compressed and Verifiable Filtering Rules in Software-defined Networking*, since October 2017, supervised by Michael Rusinowitch, Abdelkader Lahmadi and Adel Bouhoula.

PhD in progress: Mingxiao Ma, *Cyber-physical systems defense through smart network configuration*, since December 2017, supervised by Isabelle Chrisment and Abdelkader Lahmadi.

PhD in progress: Louis Viard, *Environnement de développement et d'analyse de propriétés pour des systèmes cyber-physiques mobiles*, since November 2017, supervised by Pierre-Etienne Moreau and Laurent Ciarletta.

### 10.2.3. Juries

Team members participated to the following Ph.D. defense committees in:

- Maryam Barshan, PhD in Computer Science from Ghent University, Belgium. Title: Cloud Resource Provisioning and Bandwidth Management in Media-Centric Networks, August 2017 – (Rémi Badonnel as reviewer).



- Jose Jair Cardoso de Santanna, PhD in Computer Science from University of Twente, The Netherlands. Title: DDOS-as-a-Service - Investigating Booter Websites, November 2017 – (Olivier Festor as reviewer).
- Amina Boubendir, PhD in Computer Science from TELECOM ParisTech, France. Title: Flexibility and Dynamicity for Open Network-as-a-Service : From Architecture Modeling to Deployment, March 2017 – (Olivier Festor as reviewer).
- Merve Sahin, PhD in Computer Science from TELECOM ParisTech, France. Title: Understanding Telephony Fraud as an Essential Step to Better Fight It, September 2017 – (Olivier Festor as reviewer).
- Christian Hammerschmidt, PhD in Computer Science from the University of Luxembourg, Luxembourg Title: Learning Finite Automata via Flexible State-Merging and Applications in Networking – (Jérôme François as reviewer).
- Pascal Thubert, PhD in Computer Science from IMT Atlantique - Bretagne -Pays de Loire, France. Title: Converging over Deterministic Networks for an Industrial Network, March 2017 – (Isabelle Chrisment as reviewer).
- Yoann Bertrand, PhD in Computer Science from Université Côte d’Azur, France. Title: Access control policies and companies data transmission management, March 2017 – (as examiner).
- Eric Asselin, PhD in Computer Science from Université de Toulouse, France. Title: Système de détection d’intrusion adapté au système de communication aéronautique ACARS, June 2017 – (Isabelle Chrisment as reviewer)
- Xiao Han, PhD in Computer Science from TELECOM ParisTech, France. Title: Measurement and Monitoring of Security from the Perspective of a Service Provider, September 2017 – (Isabelle Chrisment as reviewer)
- Bruno Dorsemaine, PhD in Computer Science from TELECOM ParisTech, France. Title: Conception et expérimentation d’un modèle de sécurité dédié à un système d’information interagissant avec des infrastructures d’objets connectés, October 2017 – (Isabelle Chrisment as examiner)
- Rishikesh SAHAY, PhD in Computer Science from TELECOM ParisTech, France. Title: Policy-Driven Autonomic Cyberdefense using Software Defined Networking, November 2017 – (Isabelle Chrisment as examiner)
- Florian Grandhomme, PhD in Computer Science from Université de Rennes 1, France. Title: Études de protocoles de routage dynamique externe de type BGP dans un environnement réseaux tactiques ad hoc mobiles : faisabilité et performance, November 2017 – (Isabelle Chrisment as examiner)
- Celestin Matte, PhD in Computer Science from Université de Lyon, Insa, France. Title: Wi-Fi Tracking: Fingerprinting Attacks and Counter-Measures, December 2017 – (Isabelle Chrisment as examiner)
- Zied Aouini, PhD in Computer Science from Université de la Rochelle, France. Title: Traffic Monitoring in Home Networks: From Theory to Practice, December 2017 – (Isabelle Chrisment as reviewer)
- Deepak Subramanian, PhD in Computer Science from CentraleSupélec, France. Title: Information Flow Control for the Web Browser through a Mechanism of Split Qddress, December 2017 – (Isabelle Chrisment as reviewer)
- Emilie Bérard-Deroche, PhD in Computer Science from Université de Toulouse - INP Toulouse, France. Title: Distribution d’une architecture modulaire intégrée dans un contexte hélicoptère, December 2017 – (Yeqiong Song as reviewer)
- Alemayehu Addisu Desta, PhD in Computer Science from Université de Paris-Est, France. Title: Energy Supply and Demand Side Management in Industrial Microgrid Context, December 2017 – (Yeqiong Song as examiner)
- Muhammad Agus Zainuddin, PhD in Computer Science from Université de Franche-Comté, France. Title: Efficient Low Layer Techniques for Electromagnetic Nanocommunication Networks, March 2017 – (Yeqiong Song as reviewer)

Team members participated to the following mid-term Ph.D. defense committees in:

- Philippe Pittoli, PhD Student in Université de Strasbourg, France. Title : Architecture de sécurité pour l'Internet des Objets, July 2017 – (Isabelle Chrisment as external reviewer)
- Antoine Vastel, PhD Student in Université de Lille, France. Title; Browser Fingerprinting: Privacy, Security and tracking, September 2017 – (Isabelle Chrisment as external reviewer)
- John Harrison Kurunathan, PhD Student in the University of Porto, Portugal. Title: Improving QoS for IEEE 802.15.4e Networks, September 2017 – (Yeqiong Song as external reviewer)

Team members participated to the following Habilitation Degree defense committees:

- Mathieu Bouet, Habilitation Degree in Computer Science from Université Pierre et Marie Curie - Sorbonne Universités, France. Title: Software networks : Orchestration, resilience, and programmability concerns, July 2017 – (Olivier Festor as reviewer).
- Nader Mbarek, Habilitation Degree in Computer Science from Université de Bourgogne, France. Title: Contributions à la Gestion Autonome et la Garantie du Niveau de Service dans les Environnements Cloud, Radio Maillés et Mobiles, July 2017 – (Olivier Festor as reviewer).
- Osman Salem, Habilitation Degree in Computer Science from Université Paris Descartes, France. Title: Anomaly Detection in Wireless Body Area Networks for Reliable Healthcare Monitoring, April 2017 – (Olivier Festor as reviewer).
- Francis Colas, Habilitation Degree in Computer Science from Université de Lorraine, France. Title: Modélisation bayésienne et robotique, May 2017 – (Yeqiong Song as examiner).
- Hanen Idoudi, Habilitation Degree in Computer Science from Université Jean Jaures, Toulouse 2, France. Title: Contributions à l'amélioration des communications dans les réseaux sans fil multi-sauts, December 2017 – (Yeqiong Song as reviewer).
- Karine Deschinkel, Habilitation Degree in Computer Science from Université de Franche-Comté, France. Title: Nouveaux modèles de programmation linéaires et de flots pour la résolution de problèmes d'optimisation difficiles, June 2017 – (Yeqiong Song as president).

### 10.3. Popularization

- Isabelle Chrisment was in charge of the scientific part of the 4th module (connecter le réseau) in the Class'Code project <https://project.inria.fr/classcode/classcode-in-english/>, aiming at helping teachers and educators for introducing computer science to childrens aged from 8 to 14 years;

## MAGIQUE-3D Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

- Hélène Barucq, Julien Diaz and Sébastien Tordeux organized the conference in honor of Abderrahmane Bendali in Pau, December 12th-14th, 2017, <https://project.inria.fr/bendali/>
- Julien Diaz co-organized the conference in honor of Patrick Joly in Saclay, August 28th-30th 2017, in Saclay <https://wavesjoly60.inria.fr/>

#### 9.1.1.2. Member of the Conference Program Committees

- Hélène Barucq and Julien Diaz were members of the scientific committee of Waves 2017 <https://cceevents.umn.edu/waves-2017>

### 9.1.2. Journal

#### 9.1.2.1. Reviewer - Reviewing Activities

Members of Magique 3D have been reviewers for the following journals:

- Applied Numerical Mathematics
- Mathematics and Computers in Simulation
- International Journal for Numerical Methods in Engineering
- Geophysical Journal International
- IMA Journal of Numerical Analysis
- SIAM Journal on Scientific Computing
- Computers and Mathematics with Applications
- Journal of Mathematical Analysis and Applications
- Journal of Computational Physics
- Journal of the Acoustical Society of America

### 9.1.3. Scientific Expertise

- Julien Diaz was expert for the evaluation of Millennium Science Initiative project for the government of Chile.

### 9.1.4. Research Administration

- Hélène Barucq has been the chairwoman of the local jury of Inria competitive selection for Young Graduate Scientists (CR2) in Bordeaux. She has been part of a working group dealing with the new strategic plan of Inria. In January 2017, she has been appointed chairwoman of the committee created by the regional council of Nouvelle Aquitaine. She is in charge of the scientific evaluation of research projects in Mathematics, Informatics, Electronics, Optics. She is the scientific head of the project DIP since its creation in 2009.
- Juliette Chabassier is member of the Inria BSO Young Researcher Committee and of the Inria BSO Center Committee. She is member of the Workgroup for sustainable development at Inria Bordeaux Sud-Ouest.

- Julien Diaz is elected member of the Inria Technical Committee and of the Inria Administrative and Scientific Boards. He is appointed member of the CDT (Commission de Développement Technologique)
- Mamadou N'Diaye is member of the Center Committee of Inria Bordeaux Sud-Ouest.
- Victor Péron is appointed member of the CJC (Commission Jeunes Chercheurs) of Inria Bordeaux Sud-Ouest.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master : Julien Diaz, Transformées, 24h Eq. TD, M1, EISTIA, France

Licence : Justine Labat, Algèbre 1, 19,5h Eq. TD, L1, UPPA, France

Licence : Justine Labat, Algèbre linéaire, 19,5h Eq. TD, L1, UPPA, France

Licence : Justine Labat, Introduction aux Probabilités, 19,5h Eq. TD, L2, UPPA, France

Licence : Victor Péron, Analyse 2, 39 Eq. TD, L1, UPPA, France

Licence : Victor Péron, Mathématiques appliquées, 15 Eq. TD, L1, UPPA, France

Licence : Victor Péron, Courbes et calcul intégral, 19.5 Eq. TD, L2, UPPA, France

Licence : Victor Péron, Analyse numérique des systèmes lin., 48.75 Eq. TD, L3, UPPA, France

Master : Victor Péron et Sébastien Tordeux, Analyse num. des EDP 1: différences finies, 75 eq. TD, Master1, UPPA, FRANCE

Master : Victor Péron et Sébastien Tordeux, Introduction aux phénomènes de propagation d'ondes, 38 eq. TD, Master 2, UPPA, FRANCE

Master : Victor Péron et Sébastien Tordeux, Méthodes asymptotiques, 35 eq. TD, Master 2, UPPA, FRANCE

### 9.2.2. Supervision

HDR : Victor Péron, Asymptotic models for acoustic, elastic and electromagnetic media. Corner and edge asymptotics for elliptic systems, Université de Pau et des Pays de l'Adour, December 6th, 2017 [12].

PhD : Vincent Darrigrand, Etude d'erreur pour des problèmes d'Helmholtz approchés par des techniques de Petrov-Galerkin , September 1st 2017, Hélène Barucq and David Pardo.

PhD : Florian Faucher, Méthodes d'inversion sismique dans le domaine fréquentiel , November 29th 2017, Hélène Barucq.

PhD : Mamadou N'Diaye, Analyse et développement de schémas temporels hybrides pour les équations hyperboliques du premier ordre, December 8th 2017, Hélène Barucq and Marc Duruflé.

PhD in progress : Aurélien Citrain, Déformation 3D de maillages en imagerie sismique, Méthodes d'inversion sismique dans le domaine fréquentiel , October 2016, Hélène Barucq and Christian Gout.

PhD in progress : Izar Azpiroz Irigorri, Approximation des problèmes d'Helmholtz couplés sur maillages virtuels , October 2014, Hélène Barucq, Julien Diaz and Rabia Djellouli (CSUN).

PhD in progress : Justine Labat, Diffraction of an electromagnetic wave by small obstacles, Université de Pau et des Pays de l'Adour, October 2016, Victor Péron and Sébastien Tordeux

PhD in progress : Hamza Alaoui Hafidi, Imagerie ultrasonore tridimensionnelle dans les milieux hétérogènes complexes, October 2015, Encadrement : Marc Deschamps, Michel Castaings, Eric Ducasse, Samuel Rodriguez (I2M), Hélène Barucq, Marc Duruflé, Juliette Chabassier (Magique 3D).

PhD in progress : Pierre Jacquet, ,October 2015, Hélène Barucq and Julien Diaz.

PhD in progress : Chengyi Shen, Approches expérimentale et numérique de la propagation d'ondes sismiques dans les roches carbonatées, October 2016, Julien Diaz and Daniel Brito (LFC).

PhD in progress : Elvira Shishenina, Approximations hybrides par éléments finis et éléments virtuels discontinus pour l'élasto-acoustique, October 2015, Hélène Barucq and Julien Diaz.

PhD in progress : Alexandre Gras, Hybrid resonance for sensing applications, IOGS, October 2017, Encadrement : Philippe Lallane(IOGS), Marc Duruflé, Hélène Barucq (Magique 3D)

Master 1 internship : Kevin Lagnoux, Détermination des paramètres physiques et de forme d'un objet dans un milieu élasto-acoustique, Université Toulouse III, Sept. 2017.

Master 1 internship : Fatima Ezzahra, Formulation de modèles de dissipation dans les milieux poreux en géophysique, École des Mines de Saint-Étienne, Sept. 2017.

### 9.2.3. Juries

- Hélène Barucq : Laure Pesudo (Université Paris Saclay) "Une méthode hybride couplant la méthode des équations intégrales et la méthode des rayons en vue d'applications au contrôle non destructif ultrasonore", PhD thesis, October 8th 2017
- Hélène Barucq : Victor Péron (Université de Pau et des Pays de l'Adour) "Analyse asymptotique et calcul scientifique pour des applications en physique", HDR, December 6th 2017
- Hélène Barucq (reviewer): Sébastien Pernet (Université Paul Sabatier, Toulouse) "Quelques méthodes performantes pour la simulation des phénomènes de propagation et de diffraction d'ondes", HDR, December 11th 2017
- Hélène Barucq (reviewer): Marius Albrand (Université Paul Sabatier, Toulouse) "Etude d'une solution d'évaluation des constantes diélectriques du béton d'ouvrages à risque par une approche problème inverse en électromagnétisme", PhD thesis, December 18th 2017
- Julien Diaz (reviewer): Mohamed Lakkhal (Université Paris Saclay) "Méthodes d'inversion pour la reconstruction de mines enfouies à partir de mesures d'antennes radar.", PhD thesis, June 22nd 2017
- Julien Diaz : Vincent Darrigrand (University of Basque Country/Université de Pau et des Pays de l'Adour) "Goal-oriented adaptivity using unconventional error representations", PhD thesis, September 1st 2017
- Julien Diaz : Octavio Castillo Reyes (UPC Universitat Politecnica de Catalunya) "Edge-Elements Formulation of 3D CSEM in Geophysics: A Parallel Approach.", PhD thesis, October 23th 2017
- Julien Diaz : Mamadou N'Diaye (Université de Pau et des Pays de l'Adour) "Étude et développement de méthodes numériques d'ordre élevé pour la résolution des équations différentielles ordinaires (EDO), applications à la résolution des équations d'ondes acoustiques et électromagnétiques.", PhD thesis, December 8th 2017
- Juliette Chabassier : Jin Jack Tan (Université Paris Saclay) "Piano acoustics: string's double polarisation and piano source identification", PhD thesis, November 15th 2017.

### 9.3. Popularization

- Juliette Chabassier shared her experience as a scientist in the collège de Lussac in March 2017.
- Juliette Chabassier participated in scientific "speed datings" during the "Filles et Maths" day in April 2017.
- Juliette Chabassier shared her experience as a scientist during "Printemps de la Mixité" in May 2017.
- Juliette Chabassier presented a talk around mathematics in music in Pau in April 2017.
- Juliette Chabassier co-organized a series of three conferences around the theme of women in informatics in 2017.
- Juliette Chabassier gave a talk about mathematics in music in Bordeaux during the "découvreuses anonymes" exposition in November 2017.
- Juliette Chabassier presented a workshop around mathematics in music in November 2017.
- Juliette Chabassier gave a pitch of science during the national event "50 ans Inria" in November 2017.

## MAGNET Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Local Workshops

AURÉLIEN BELLET organized the workshop **Decentralized Machine Learning, Optimization and Privacy**. More than 50 attendees were present for a series of invited talks on Sep 11-12, 2017. The list of speakers was

- Dan Alistarh (IST Austria / ETH Zurich)
- Borja Balle (Amazon Research)
- Keith Bonawitz (Google Research)
- Hamed Haddadi (QMUL / Imperial College London)
- Stephen Hardy (Data61 / CSIRO)
- Mikael Johansson (KTH)
- Peter Richtárik (KAUST / University of Edinburgh)
- Meilof Veeningen (Philips Research)

MIKAELA KELLER co-organized the local workshop *Demi-journée Dating* bringing together researchers from the local teams Links, Magnet, Sequel and Sigma for an afternoon of presentations and scientific discussions.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

AURÉLIEN BELLET served as PC member of NIPS'17, ICML'17, AISTATS'18 and MOD'17.

MARC TOMMASI served as senior PC member of IJCAI'17 and PC member of CAP'17, EGC'17, CRI'17, AAAI'18.

MIKAELA KELLER served as PC member of NIPS'17 and CAP'17.

JAN RAMON served as PC member of AISTATS'17, AISTATS'18, IEEE-BigData'17, BNaic'17, CIKM'17, DS'17, ECML/PKDD'17, ICHI'17, IJCAI'17, ISMIS'17, KDD'17, MLG'17, MOD'17, NIPS'17 and TDLSG-ECMLPKDD'17.

RÉMI GILLERON served as PC member of CAP'17, IJCAI'17, NIPS'17, AISTATS'18, ICLR'18.

PASCAL DENIS served as PC member of ACL-17, CAP'17, EACL'17, EMNLP'17, IJCAI'17, IWCS'17, CORBON'17, and NIPS'17.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

JAN RAMON was member of the editorial board of Machine Learning Journal.

JAN RAMON was member of the editorial board of Data Mining and Knowledge Discovery.

#### 10.1.3.2. Reviewer - Reviewing Activities

JAN RAMON acted as reviewer for project proposals and project follow-up for H2020, COST and SNF (CH).

AURÉLIEN BELLET was reviewer for Machine Learning Journal.

### 10.1.4. Invited Talks

MARC TOMMASI was invited at the seminar of the machine learning group at the University of Liege.

JAN RAMON gave an invited talk at the TDLSG'17 workshop of ECML/PKDD'17.

AURÉLIEN BELLET gave invited talks at the DALI 2017 Workshop on Fairness and Privacy in Machine Learning,<sup>0</sup> the 2nd Russian-French Workshop in Big Data and Applications,<sup>0</sup> and the Journée Apprentissage et Interactions du GdR IA.<sup>0</sup>

AURÉLIEN BELLET gave an invited lecture at the Pre-doc Summer School on Learning Systems (MPI/ETH).<sup>0</sup>

AURÉLIEN BELLET was invited at the seminars of the Distributed Computing Lab at EPFL, Multispeech (Inria Nancy), Sequel (Inria Lille), SIGMA (Centrale Lille), Proba/Stat (University of Lille), CRISAL Lille (DaTinG department day).

### **10.1.5. Scientific Expertise**

MARC TOMMASI was member of the ANR CES 23 committee and served in the HCERES committee for the scientific evaluation of a French laboratory.

### **10.1.6. Research Administration**

PASCAL DENIS was member of the Commission Emploi et Recherche (CER) and Commission de Développement Technologique (CDT) at the Inria Lille Research Center.

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

Licence MIASHS: MARC TOMMASI, Réseaux, 24h, L1, Université Lille 3.

Licence MIASHS: RÉMI GILLERON, Traitement de données, 24h, L1, Université Lille 3.

Licence MIASHS: MATHIEU DEHOUCQ et THIBAUT LIÉTARD, Projet informatique de traitement de données en SHS, 20h, L2, Université Lille 3.

Licence MIASHS: MIKAELA KELLER, Codage et représentation de l'information, 24h, L1, Université Lille 3.

Licence SoQ (SHS): FABIEN TORRE, Traitement de contenus textuels, 24h, L3, Université Lille 3.

Licence SoQ (SHS): MIKAELA KELLER, Algorithmique de graphes, 24h, L3, Université Lille 3.

Licence SHS: MIKAELA KELLER, Langages du Web, 24h, L2, Université Lille 3.

Licence SHS: MIKAELA KELLER, Représentation numérique de l'information, 24h, L2-L3, Université Lille 3.

Licence économie gestion: RÉMI GILLERON, Traitement de données et documents, 24h, L1, Université Lille 3.

Licence MARC TOMMASI C2i, Université Lille 3.

Master MIASHS: RÉMI GILLERON et FABIEN TORRE, Web et référencement, 24h, M1, Université Lille 3.

Master MIASHS: GÉRAUD LE FALHER, Web et réseaux, 24h, M1, Université Lille 3.

Master MIASHS: MIKAELA KELLER, Programmation et bases de données, 24h, M1, Université Lille 3.

Master MIASHS: MIKAELA KELLER, Algorithmes fondamentaux de la fouille de données, 60h, M1, Université Lille 3.

Master MIASHS: MARC TOMMASI, Apprentissage et émergence de comportements, 30h, M2, Université Lille 3.

<sup>0</sup><http://dalimeeting.org/dali2017/fairness-and-privacy.html>

<sup>0</sup><https://bi.hse.ru/en/rfw/2017/>

<sup>0</sup><http://www.gdria.fr/jai17/>

<sup>0</sup><http://learning-systems.org/events/summer-school-on-learning-systems-2017>

Master LTTAC: FABIEN TORRE, Algorithmique des textes – Javascript, 36h, M1, Université Lille 3.

Master ID: FABIEN TORRE, information structurée, 20h, M2, Université Lille 3.

Master ID: FABIEN TORRE, programmation Web, 20h, M2, Université Lille 3.

Master / Master Spécialisé Big Data: AURÉLIEN BELLET, Advanced Machine Learning, 25.5h, Télécom ParisTech.

Formation continue (Certificat d'Études Spécialisées Data Scientist): AURÉLIEN BELLET, Supervised Learning and Support Vector Machines, 10h, Télécom ParisTech.

Formation continue: AURÉLIEN BELLET, Graph Mining, 3h, Télécom ParisTech pour Allianz.

### **E-learning**

SPOC: MARC TOMMASI, RÉMI GILLERON and ALAIN PREUX: Culture numérique, 5 semesters at the bachelor level, Moodle, Lille 3 university, more than 7000 students.

Pedagogical resources: texts, videos, quiz and exercises available on <http://culturenumerique.univ-lille3.fr/>, creative commons.

### **10.2.2. Supervision**

Postdoc in progress: MELISSA AILEM, Inria@SiliconValley postdoctoral grant, supervised by AURÉLIEN BELLET, MARC TOMMASI, PASCAL DENIS and FEI SHA (University of Southern California).

Postdoc in progress: BO LI, ANR-NFS REM postdoctoral grant, supervised by PASCAL DENIS.

PhD in progress: ONKAR PANDIT, Graph-based Semi-supervised Linguistic Structure Prediction, since Dec. 2017, PASCAL DENIS, MARC TOMMASI and LIVA RALAIVOLA (University of Marseille).

PhD in progress: MATHIEU DEHOUCK, Graph-based Learning for Multi-lingual and Multi-domain Dependency Parsing, since Oct 2015, PASCAL DENIS and MARC TOMMASI.

PhD in progress: THIBAUT LIÉTARD, Adaptive Graph Learning with Applications to Natural Language Processing, AURÉLIEN BELLET, PASCAL DENIS and RÉMI GILLERON.

PhD in progress: GÉRAUD LE FALHER, Machine Learning in Signed Graphs, Inria Lille – Nord Europe, since Oct. 2014, MARC TOMMASI, FABIO VITALE and CLAUDIO GENTILE (University of Insubria, Italy).

PhD in progress: ROBIN VOGEL, Learning to rank by similarity and performance optimization in biometric identification, since 2017 (CIFRE thesis with IDEMIA and Télécom ParisTech).

PhD: PAULINE WAUQUIER, Task driven representation learning, Université de Lille, May 29th 2017, MIKAELA KELLER and MARC TOMMASI.

PhD: DAVID CHATEL, Semi-supervised spectral clustering defended, Dec. 7th 2017, MARC TOMMASI and PASCAL DENIS.

### **10.2.3. Juries**

- AURÉLIEN BELLET was member of the PhD committee of ROMAIN BRAULT (Examinateur).
- MARC TOMMASI was member (head) of the recruitment committee for Professor and Assistant Professors in Computer Science at Université Lille 3.
- MARC TOMMASI was member of the habilitation committee of JESSE READ (Rapporteur).
- MIKAELA KELLER was a member of the recruitment committee for the Assistant Professor position in Computer Science at Université Lille 3.
- MIKAELA KELLER was a member of the PhD committee of DAMIEN FOURURE (Examinatrice).
- JAN RAMON was a member of the PhD committee of GIANNIS NIKOLENZOS (Athens, Greece).
- RÉMI GILLERON was a member of the PhD committee of LUDOVIC DOS SANTOS (Rapporteur).



### **10.3. Popularization**

- AURÉLIEN BELLET participated in a discussion on Artificial Intelligence at the Fête de la Science event held at Cité des Sciences (Paris, October 8).
- JAN RAMON presented at the "Pint of Science" series in Lille on the theme of big data and data protection on May 15th.
- JAN RAMON gave a presentation on exploiting traffic data (and the MAGNET work in the MUST project in this domain) in the Inria Meet-up series on December 14th.

## MAGRIT Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- M.-O Berger co-organized with E. Marchand (IRISA) a one-day workshop on Augmented Reality in Paris in June 2017.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

- M.-O. Berger was a member of the program committee of: International Conference on Robotic and automation (ICRA 2016), International Conference on Information Processing in Computer assisted interventions (IPCAI 2017), International Conference on Robotics and Automation (IROS 2017), International Symposium on Mixed and Augmented Reality (ISMAR 2017)
- E. Kerrien was a member of the program committee of the Medical Image Computing and Computer Assisted Interventions Conference (MICCAI 2017).
- G. Simon was a member of the program committee of IEEE Virtual Reality 2018
- P-F Villard was a member of the program committee of IADIS Computer Graphics, Visualization, Computer Vision and Image Processing 2017, and of the Eurographics Workshop on Visual Computing for Biology and Medicine 2017.

### 10.1.3. Journal

#### 10.1.3.1. Reviewer - Reviewing Activities

The members of the team reviewed articles in IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Multimedia, Experimental Mechanics, Traitement du Signal, IEEE Transactions on Biomedical Engineering.

### 10.1.4. Invited Talks

- Marie-Odile Berger was a keynote speaker at ISMAR'2017.
- Pierre-Frederic gave a seminar at the department of information technology of Uppsala University on August 30th. Title: 'Application in treatment planning, training simulators and on-line treatment' [http://user.it.uu.se/~maya/seminar\\_abstracts/sem\\_fall17/PFVillard](http://user.it.uu.se/~maya/seminar_abstracts/sem_fall17/PFVillard).
- Pierre-Frederic Villard gave a talk at the Harvard Biorobotics Lab on October 31st. Title: 'Automatic Reconstruction of Mitral Valve Chordae'.

### 10.1.5. Scientific Expertise

- Marie-Odile Berger is the president of the Association française pour la reconnaissance et l'interprétation des formes (AFRIF)

### 10.1.6. Research Administration

- Marie-Odile Berger is a member of the Inria evaluation committee.
- Gilles Simon is Chargé de Mission Loria to take part in an EIT's KIC (Knowledge and Innovation Communities) proposal on the topic of manufacturing (KIC Added-value Manufacturing).
- E. Kerrien and G. Simon were members of selection committees for Assistant Professor hiring.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

The four associate professors of the MAGRIT team actively teach at Université de Lorraine with an annual number of around 200 teaching hours in computer sciences, some of them being accomplished in the field of image processing. Inria researchers have punctual teaching activities in computer vision and shape recognition mainly in the computer science Master of Nancy and in several Engineering Schools near Nancy (ENSMN Nancy, SUPELEC Metz, ENSG). Our goal is to attract Master students with good skills in applied mathematics towards the field of computer vision.

The list of courses given by staff members which are tightly related to image processing and computer vision is detailed below:

- Licence: Graphic and haptic rendering, 30h, IUT Saint-Dié des Vosges (P.-F. Villard).
- Licence: Image processing, 30h, IUT Saint-Dié des Vosges (P.-F. Villard).
- Licence: 3D programming, 30h, IUT Saint-Dié des Vosges (P.-F. Villard).
- Game design with Unity3D , 15h, IUT Saint-Dié des Vosges (P.-F. Villard).
- Introduction to augmented reality, 6h, IUT Saint-Dié des Vosges (P.-F. Villard).
- Master: Signal analysis, 50 h, Université de Lorraine (F. Sur).
- Master: Augmented reality, 24 h, Télécom-Nancy, Université de Lorraine (G. Simon).
- Master : Introduction to computer vision, 12h, Université de Lorraine ((M.-O. Berger).
- Master : Shape recognition, 15 h, Université de Lorraine (M.-O. Berger).
- Master : Computer vision: foundations and applications, 15 h, Université de Lorraine (M.-O. Berger).
- Master : Introduction to image processing, 21 h, École des Mines de Nancy (M.-O. Berger, R. Kerrien)
- Master : Image processing for Geosciences, ENSG, 12h (M.-O. Berger).
- Master : Introduction to signal processing and applications, 21 h, Ecole des Mines de Nancy (F. Sur).
- Master : Augmented reality, 24h, M2 IHM Metz (G. Simon).
- Master : Augmented reality, 3 h, SUPELEC Metz (G.simon).
- Master : Virtual worlds, 10h, M2 Cognitive Sciences and Applications, UFR Math-Info, Université de Lorraine (P.-F. Villard).

Frédéric Sur is the head of the Industrial Engineering and Applied Mathematics department at Mines Nancy.

### 10.2.2. Supervision

PhD: Pierre Rolin, Calcul de pose par simulation de points de vue pour la réalité augmentée, octobre 2013, Marie-Odile Berger, Frédéric Sur. PhD defended in March 2017.

PhD: Charlotte Delmas, Reconstruction 3D des outils chirurgicaux en radiologie interventionnelle, avril 2013, Marie-Odile Berger, Erwan Kerrien. PhD defended in november 2017.

PhD in progress: Antoine Fond, Introduction de sémantique dans la modélisation urbaine dans un contexte de calcul du point de vue, octobre 2014, Marie-Odile Berger, Gilles Simon.

PhD in progress: Jaime Garcia Guevara, Vers une utilisation clinique de la réalité agmentée pour la chirurgie hépatique, octobre 2015, Marie-Odile Berger, Stéphane Cotin (MIMESIS).

PhD in progress: Raffaella Trivisonne, Image-guided real-time simulation using stochastic filtering, novembre 2015, Erwan Kerrien, Stéphane Cotin (MIMESIS).

PhD in progress: Vincent Gaudillière, Reconnaissance de lieux et d'objets pour la réalité augmentée en milieux complexes, décembre 2016, Marie-Odile Berger, Gilles Simon.

PhD in progress: Daryna Panicheva, Image-based Biomechanical Simulation of Mitral Valve Closure, octobre 2017, Marie-Odile Berger, Pierre-Frédéric Villard.

### 10.2.3. Juries

Marie-Odile Berger was external reviewer of the PhD of Canseng Jiang (Université de Bourgogne), Angélique Loesch (Université de Clarmont Auvergne) and Shaifali Parashar (Université de Clermont Auvergne).

### 10.3. Popularization

Members of the team participate on a regular basis, to scientific awareness and mediation actions.

- Erwan Kerrien is Chargé de Mission for scientific mediation at Inria Nancy-Grand Est. As such, he is a member of the steering committee of “Maison pour la Science de Lorraine, and member of the IREM<sup>0</sup> steering council. He also serves as the academic referent of an IREM working group aiming at introducing computer science in middle and high school curricula. Among other activities, he was also an associate researcher to a MATH.en.JEANS workshop, and he participated in the creation of a MOOC for teachers of the new ICN option (Informatique et Création Numérique - *Computer Science and Digital Creation*) at the beginning of high school curriculum.
- Gilles Simon participated to the “Fête de la science 2017” at the Faculté de Sciences et Technologies of the Université de Lorraine. He presented unplugged activities of computer science.
- Pierre-Frédéric Villard participated to open days and science festival in the IUT of Saint-Dié des Vosges. He presented augmented and virtual reality demos and their link to the high school mathematics program.

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<sup>0</sup>Institut de Recherche sur l’Enseignement des Mathématiques - *Research Institute for Teaching Mathematics*

## MAMBA Project-Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

#### Editorial activities, scientific boards, research administration

**P.-A. Bliman** is member of the Scientific committee of the ANR program “Environnement, pathogènes et maladies émergentes ou ré-émergentes - One health”.

**J. Clairambault** is member of the expert group of ITMO Cancer, representative of Inria (since 2008) and member of the bureau of the interdisciplinary doctoral programme “Interfaces pour le Vivant” (IPV) at Sorbonne Université.

**M. Doumic** is member of the expert group of ITMO BMSV, representative of Inria (since 2014).

**D. Drasdo** is head of a research team, until June 2017 co-localised at Interdisciplinary Center for Bioinformatics, Univ. Leipzig, and since July 2017 co-localised at Leibniz Institute for Work-environment IfADo, Dortmund. He is member of the boards of TheScientificWorldJOURNAL and Royal Society open science (UK), J. Theor. Biol. and member of CaSyM expert committee for EU Horizon 2020.

**B. Perthame** is Chief Editor of Acta Applicandæ Mathematicæ (Springer-Nature) (since october 2017), Editor of De Gruyter Series in Mathematics and Life Sciences and of Frontiers in Mathematical Sciences (Birkhäuser), and member of the scientific board for the ECMTB Conference 2018.

### 9.2. Teaching - Supervision - PhD and HDR defence committees

#### 9.2.1. Teaching

*We indicate here only the courses given by scientific staff members who do not have a teaching position. Benoît Perthame gives courses at UPMC.*

Luis Ameida is in charge of the Major MathBio of the speciality “Mathematics of modelling”, M2 level, UPMC.

- *Luis Almeida, 2017*  
Tissue growth (with Delphine Salort, IBPS). UPMC M2 course, Paris **20 h**
- *Pierre-Alexandre Bliman, 2017*  
Analysis, Graduate cycle, School of Applied Mathematics, Fundação Getulio Vargas, Rio de Janeiro, Brazil **60 h**  
*and* Calculus III, Graduate cycle, School of Applied Mathematics, Fundação Getulio Vargas, Rio de Janeiro, Brazil **30 h**  
*and* Control theory, Graduate cycle, School of Industrial Management, Université Mohamed 6 Polytechnique, Ben Guerir, Morocco **6 h**
- *Jean Clairambault, 2017*  
International course on stem cells, UPMC, September 2017 **2 h**  
*and* Spring school on systems biology, Instituto Gulbenkian de Ciência, Lisbon, May 2017 **6 h**
- *Marie Doumic, 2017*  
Direct and inverse problems in population dynamics (with P. Moireau, Inria M3DISIM). UPMC M2 course, Paris **24 h / yr**
- *Dirk Drasdo, 2017*

Agent-based models of tissue organisation, UPMC M2 course, Paris **24 h / yr**

University of Rome: Tutorial, 2h: TiSim: A modelling tool for multicellular simulations

### 9.2.2. Supervision

#### 9.2.2.1. PhD defences in 2017

- Aurora Armiento, “Inverse problems and data assimilation methods applied on protein polymerisation”, UPMC, begun September 2013, supervision by M. Doumic and Ph. Moireau (Inria Saclay, M3DISIM team), PhD defence January 2017, UPMC
- Giulia Fabrini “Numerical methods for optimal control problems with biological applications”, supervision by L. Almeida and P. Bagnnerini (University of Genova, Italy), PhD defence April 2017, Univ. Genova
- Walid Djema, “Understanding Cell Dynamics in Cancer from Control and Mathematical Biology Standpoints: Particular Insights into the Modelling and Analysis Aspects in Hematopoietic Systems and Leukemia”, supervision by C. Bonnet (DISCO, Saclay), J. Clairambault, and F. Mazenc (DISCO, Saclay), PhD defence November 2017, L2S, Gif/Yvette

#### 9.2.2.2. Ongoing PhD theses

- PhD in progress: Noémie Boissier (since November 2013, PhD defence in February 2018), supervision by D. Drasdo and I. Vignon-Clementel
- PhD in progress: Julia Delacour (since September 2017), supervision by Marie Doumic and Christian Schmeiser (WPI, Vienna)
- PhD in progress: Adrian Friebel, “Software of image processing and analysis of liver tissue at histological scales”, supervision by D. Drasdo and S. Hoehme
- PhD in progress: Ghassen Haddad, “Optimisation of cancer treatments”, UPMC in co-tutela with ENIT Tunis, begun October 2015, supervision by J. Clairambault and S. Ben Miled (Tunis)
- PhD in progress: Hugo Martin, “New structured population models for bacterial growth”, begun October 2016, supervision by M. Doumic in co-tutela with Pierre Gabriel (Versailles)
- PhD in progress: Mathieu Mézache, begun October 2016, “Oscillatory dynamics in protein aggregation”, supervision by M. Doumic in co-tutela with Human Rezaei (INRA)
- PhD in progress: Johannes Neitsch, “Growth and regeneration modelling based on an agent-based model with deformable cells”, (since June 2011), supervision by D. Drasdo and P. Van Liedekerke
- PhD in progress: Pastor Pérez-Estigarribia, Universidad Nacional de Asunción, Paraguay, supervision by C. Schaerer and P.-A. Bliman
- PhD in progress: Camille Pouchol, “Modelling interactions between tumour cells and adipocytes in breast cancer”, UPMC, begun September 2015, supervision by J. Clairambault, M. Sabbah, and E. Trélat
- PhD in progress: Antonin Prunet, UPMC, begun October 2014, supervision by L. Almeida and M. Sabbah
- PhD in progress: Andrada Quillas Maran, “Modelling early leukaemogenesis”, UPMC, begun March 2014, supervision by J. Clairambault, F. Delhommeau and B. Perthame
- PhD in progress: Martin Strugarek, “Structured population dynamics for transmissible diseases”, UPMC, begun October 2015, supervision by N. Vauchelet and B. Perthame
- PhD in progress: Cécile Taing, UPMC, begun October 2014, supervision by A. Lorz and B. Perthame

#### 9.2.3. PhD and HDR defence committees

- Luis Almeida: Giulia Fabrini, “Numerical methods for optimal control problems with biological applications”, PhD defence April 26, 2017, Genova (Italy)

- Jean Clairambault: Cécile Carrère, “Prise en compte de l’hétérogénéité tumorale dans l’optimisation d’une chimiothérapie : contrôle optimal, analyse théorique et numérique”, PhD defence October 6, 2017, Marseille
- Jean Clairambault: Sébastien Benzekry (HDR), “Contributions in Mathematical Oncology: When Theory Meets Reality”, HDR defence November 13, 2017, Bordeaux
- Jean Clairambault: Walid Djema, “Understanding Cell Dynamics in Cancer from Control and Mathematical Biology Standpoints: Particular Insights into the Modelling and Analysis Aspects in Hematopoietic Systems and Leukemia”, PhD defence November 21, 2017, Gif/Yvette
- Marie Doumic: Aurora Armiento, “Inverse problems and data assimilation methods applied on protein polymerisation”, UPMC, PhD defence January 13, 2017, UPMC
- Marie Doumic: Apollos Besse, “Modélisation mathématique de la leucémie myéloïde chronique”, PhD defence July 6, University Lyon 1
- Marie Doumic: Aline Marguet, “Processus de branchement pour des populations structurées et estimateurs pour la division cellulaire”, PhD defence November 27, 2017, Ecole Polytechnique
- Benoît Perthame: Giulia Fabrini, “Numerical methods for optimal control problems with biological applications”, PhD defence April 26, 2017, Genova (Italy)

## **MANAO Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific Events Organisation**

#### *10.1.1.1. Chair of Conference Program Committees*

Eurographics 2017 Posters chair

#### *10.1.1.2. Member of the Conference Program Committees*

Expressive 2017 (NPAR-SBIM-CAe), Eurographics 2017 and 2018, Eurographics Symposium on Rendering 2017 (EGSR), Eurographics Workshop on Graphics and Cultural Heritage 2017 (GCH), Symposium on Geometry Processing 2017 (SGP), Geometric Modeling and Processing 2017 (GMP), SIBGRAPI 2017, Web3D 2017

#### *10.1.1.3. Reviewer*

ACM Siggraph 2017, ACM Siggraph Asia 2017, Eurographics 2017, Graphics Interface 2017, Computer Graphics International 2017, CHI 2018, Vision meets Graphics 2017

### **10.1.2. Journal**

#### *10.1.2.1. Reviewer - Reviewing Activities*

ACM Transactions on Graphics (TOG), IEEE Transactions on Visualization and Computer Graphics (TVCG), Computer Graphics Forum (CGF), Journal of Vision (JoV), i-Perception, Computers & Graphics

### **10.1.3. Scientific Expertise**

Horizon 2020 Program

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

The members of our team are involved in teaching computer science at University of Bordeaux, ENSEIRB Engineering School, and Institut d'Optique Graduate School (IOGS). General computer science is concerned, as well as the following graphics related topics:

Master : Pierre Bénard, Gaël Guennebaud, Romain Pacanowski, Advanced Image Synthesis, 60 HETD, M2, Univ. Bdx, France.

Master : Gaël Guennebaud & Antoine Lucat, Numerical Techniques, 45 HETD, M1, IOGS, France

Master : Xavier Granier, Image Synthesis, 14 HETD, M2, IOGS, France

Master : Gaël Guennebaud, Geometric Modeling, 22 HETD, M2, IOGS, France

Master : Gaël Guennebaud, Thibaud Lambert, Parallel Programming, 19 HETD, M1, IOGS, France

Master : Romain Pacanowski, Thibaud Lambert, Antoine Lucat & Brett Ridel, Algorithmic and Object Programming, 60 HETD, M1, IOGS, France

Master : Xavier Granier, Romain Pacanowski, Colorimetry and Appearance Modeling, 20 HETD, M1, IOGS, France.

Master : Gaël Guennebaud and Pierre Bénard, 3D Worlds, 60 HETD, M1, Univ. Bdx and IOGS, France.

Master : Pierre Bénard, Virtual Reality, 24 HETD, M2, Univ. Bdx, France.

Master : Patrick Reuter, Graphical user interfaces and Spatial augmented reality seminars, M2, ESTIA, France.

Master : Pierre Bénard, Image Synthesis and 3D modeling, 20 HETD, M2, ENSEIRB, France.

Licence : Patrick Reuter, Digital Imaging, 30 HETD, L3, Univ. Bdx, France.



Some members are also in charge of some fields of study:

Master : Xavier Granier, M2, IOGS (Bordeaux), France.

License : Patrick Reuter, Science and Modeling, L2, Univ. Bdx, France.

### 10.2.2. Supervision

HdR : Pascal Barla, Toward a Perceptually-relevant Theory of Appearance, Inria & Univ. Bordeaux, 9 October 2017

PhD : Arthur Dufay, Adaptive high-quality of virtual environments with complex photometry, Technicolor & Univ. Bordeaux, 10 October 2017, J.-E. Marvie R. Pacanowski & X. Granier

PhD : Thibaud Lambert, Real-time rendering of highly detailed 3D models, Inria & Univ. Bordeaux, 18 December 2017, G. Guennebaud & P. B nard

PhD in progress : Lo s Mignard-Debize, Plenoptic function and its application to spatial augmented reality, Inria & Univ. Bordeaux, P. Reuter & I. Ihrke

PhD in progress : Antoine Lucat, Appearance Acquisition and Rendering, IOGS & Univ. Bordeaux, R. Pacanowski & X. Granier

PhD in progress : David Murray, Expressive Rendering of Volumetric Data, Thermo Fisher Scientific & Univ. Bordeaux, J. Baril & X. Granier

PhD in progress : Thomas Crespel, Autostereoscopic 3D display, Inria & Univ. Bordeaux, P. Reuter & X. Granier

PhD in progress : Charlotte Herzog, 3 dimensions X-rays imaging for medical applications, Imaging Optics, IOGS & Univ. Bordeaux, X. Granier

PhD in progress : Camille Brunel, Real-Time Animation and Deformation of 3D Characters, Inria & Univ. Bordeaux, P. Barla, G. Guennebaud & P. B nard

## 10.3. Popularization

We took part in "FACTS", the art and science festival of Universit  de Bordeaux, and more precisely in the exhibition "Open Lab", which took place from November 14 to 21 at Espace 29. In collaboration with the artist Maud Mulliez, we presented our ongoing work, "L'empreinte du Geste", which aims at analyzing the connection between the gesture of the artist and the mark that the brush or pen produces on the final art piece. An installation combining videos and projection was allowing the audience to discover our preliminary results.

Pierre B nard gave a talk titled *L'art et la science des films d'animation 3D* during the internal Inria BSO seminar "Unith  ou caf " in January 2017 (45 minutes + questions) and in front of secondary students (120 split into 5 groups) during "la F te de la Science" (30 minutes) in September 2017. This talk presents the main steps and ingredients required to create a 3D animated film (3D modeling, animation, lighting, rendering) and, for each of them, it shows the subtle but indispensable mix of physical and mathematical models, computer algorithms and artistic talent that it implies. It also highlights how the work of manao contributes to this field.

## MARELLE Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. Member of the Organizing Committees

- Anders Mörtberg was an organizer of the 3rd workshop on Homotopy Type Theory and Univalent Foundations in Oxford, 8-9 September.

#### 8.1.1.2. Chair of Conference Program Committees

- Yves Bertot was program committee co-chair for CPP'17 (Certified Programs and Proofs), in Paris, in January 2017.
- Yves Bertot is program committee co-chair for CoqPL'18 (Coq for Programming Languages), in Los Angeles, in January 2018.

#### 8.1.1.3. Member of the Conference Program Committees

- Laurence Rideau was member of the program committee for JFLA'2018 (Journées francophones des langages applicatifs).

#### 8.1.1.4. Reviewer

- Members of the team reviewed papers for JFLA (Journées Francophones des Langages Applicatifs), PoPL (Principles of Programming Languages), CPP (Certified Programs and Proofs), ITP (Interactive Theorem Proving), LPAR (Logic for Programming, Artificial Intelligence, and Reasoning), TACAS (Tools and Algorithms for the Construction and Analysis of Systems).

### 8.1.2. Journal

#### 8.1.2.1. Reviewer - Reviewing Activities

- Members of the team reviewed papers for JAR (Journal of Automated Reasoning), and MSCS (Mathematical Structures in Computer Science).

### 8.1.3. Invited Talks

- Anders Mörtberg gave an invited talk at TTT (Type-Theory based Tools) in Paris in January and an invited talk at the workshop on Syntax and Semantics of Type Theory in Ljubljana in February.
- Cyril Cohen was invited for a talk at the workshop on Real Verification in South Korea in July.
- Damien Rouhling gave an invited talk at a meeting of the ANR-funded FastRelax project.

### 8.1.4. Scientific Expertise

- Yves Bertot performed a project review for the Dutch research funding agency (NWO).

### 8.1.5. Research Administration

- Yves Bertot is a member of the "Bureau du comité des projets".
- Yves Bertot is a member of the scientific committee for Academy "RISE" of University Côte d'azur.
- Yves Bertot was a member of the national working group for the strategic plan of Inria.
- Benjamin Grégoire is a member of the committee on the computer tool usage (CUMI) for the Sophia-Antipolis Méditerranée Inria center.
- José Grimm is a member of the local committee for hygiene and work safety.

- Laurence Rideau was a member of the Jury for hiring new researchers at Inria Sophia Antipolis (Jury d'admissibilité de chargés de recherche, Inria Sophia Antipolis Méditerranée).

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Doctorat: Enrico Tassi organized an advanced school on Coq and the Mathematical Components library, where Laurence Rideau, Cyril Cohen, Laurent Théry, and Yves Bertot gave lectures and supervised laboratory sessions. This school took place in December and had 12 attendants.

Doctorat: Enrico gave a course "Type Theory, The Coq proof assistant", at the University of Padova in June.

Master: Yves Bertot organized an introductory school on Coq. This school took place in January and had 12 attendants.

Licence: Sophie Bernard gave 54 hours of lectures on probabilities at University of Nice Sophia Antipolis.

Licence: Damien Rouhling taught about 60 hours at University Nice Sophia Antipolis: differential calculus, Fourier analysis, and C programming (First year students).

Licence: Boris Djalal taught 4 hours of computer science for first year students in a "classe préparatoire aux grandes écoles".

Licence: Cécile Baritel-Ruet taught 30 hours of computer science for first year students at Université de Nice, and 12 hours of lectures on computer science history.

Licence: Laurence Rideau taught 10 hours of computer science in a "classe préparatoire aux grandes écoles"

Licence: Cyril Cohen gives mathematics exercises in a "classe préparatoire aux grandes écoles".

Master: Laurent Théry taught 3 hours on "introduction to computer verified proof" at Ecole des Mines de Paris,

### 8.2.2. Supervision

PhD in progress : Cécile Baritel-Ruet, "Formal verification of Security with EasyCrypt", started October 2016, supervised by Benjamin Grégoire and Yves Bertot,

PhD in progress : Sophie Bernard, "Formal proofs for transcendence", started October 2016, supervised by Yves Bertot and Laurence Rideau,

PhD in progress : Boris Djalal, "Formal verification of cylindrical algebraic decomposition", supervised by Cyril Cohen and Yves Bertot,

PhD in progress : Mohammad El Laz, "Formal study of Security", started December 2017, supervised by Benjamin Grégoire and Tamara Rezk (Indes Inria project team),

PhD in progress, : Damien Rouhling, "Formal proofs for control and robotics", started in October 2016, supervised by Yves Bertot and Cyril Cohen.

### 8.2.3. Juries

- Laurent Théry attended the middle thesis review for David Braun, in Strasbourg,
- Enrico Tassi was a member of the Jury for the defence of Roberto Blanco Martinez (Ecole Polytechnique),
- Laurent Théry was a member of the Jury for the defence of Thomas Sibut-Pinote (Ecole Polytechnique).

## 8.3. Popularization

Laurent Théry gave a talk in high-school (Centre International de Valbonne) in the context of the annual "Fête de la Science".

Damien Rouhling and Cécile Baritel-Ruet participated to the event "My thesis in 180 seconds" at the regional level.

## MATHERIALS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

E. Cancès

- is the director of CERMICS, the Applied Mathematics department at École des Ponts,
- is a member of the editorial boards of Mathematical Modelling and Numerical Analysis (2006-), SIAM Journal of Scientific Computing (2008-), Communications in Mathematical Sciences (2011-), SIAM Multiscale Modeling and Simulation (2012-), and the Journal of Computational Mathematics (2017-),
- was a member of the executive committee of the CEA-EDF-Inria schools in applied mathematics and computer science (2010-July 2017),
- is co-organizing the IMA Long Program on Multiscale Mathematics and Computing in Science and Engineering, 2017-2018.

V. Ehrlacher

- is a member of the “Conseil d’Enseignement et de Recherche” of Ecole des Ponts,
- has co-organized the Oberwolfach workshop on “Applications of Optimal Transportation in the Natural Sciences”, January 2017 (with J.-D. Benamou and D. Matthes),
- has co-organized a minisymposium on “Numerical methods for electronic structure calculations” at the SIAM CSE conference, February 2017 (with B. Stamm, L. Lin and C. Yang),
- has co-organized the IPAM workshop on “Uncertainty Quantification for Stochastic Systems and Applications”, November 2017 (with M. Katsoulakis, T. Lelièvre, P. Plechac, A. Stuart and D. Trinkle).

G. Ferré and J. Roussel co-organize the working group J-PSI (Jeunes chercheurs en physique statistique et interactions) at IHP, which aims at stimulating interactions between PhD students and post-docs coming from different institutions in Paris and working on the analysis of models in statistical physics.

C. Le Bris is editor-in-chief of Applied Mathematics Research Express (2003-2017). He is a managing editor of Networks and Heterogeneous Media. He is a member of the editorial boards of Annales mathématiques du Québec (2013-), Archive for Rational Mechanics and Analysis (2004-), COCV (Control, Optimization and Calculus of Variations) (2003-), Mathematics in Action (2008-), Nonlinearity (2005-) and Journal de Mathématiques Pures et Appliquées (2009-).

He is a member of the editorial boards of the monograph series Mathématiques & Applications, Series, Springer (2008-), Modelling, Simulations and Applications, Series, Springer (2009-), Springer Monographs in Mathematics, Springer (2016-).

He is a member of

- the Cabinet of the High Commissioner for Atomic Energy,
- the “Comité d’experts” for the Fondation de Recherche pour l’Aéronautique et l’Espace,
- the “International Scientific Advisory Committee” of the Centre de Recherche Mathématique, Université de Montréal,
- the “Advisory Board” of the DFG Cluster of Excellence Engineering of Advanced Materials, Erlangen,
- the “International Scientific Advisory Board” of the DFG research center Matheon, Berlin,
- the “Conseil scientifique de la SMAI” (Scientific Council of the French Applied Maths Society),
- the International Mathematical Union Circle.

He is the president of the strategic committee of the Institut des Sciences du calcul et des données, Sorbonne Universités.

He has held a regular position of Visiting Professor at the University of Chicago.

F. Legoll is a member of the editorial board of SIAM MMS (2012-) and of ESAIM: Proceedings and Surveys (2012-).

T. Lelièvre

- is editor-in-chief of ESAIM: Proceedings and Surveys (with D. Chafai, C. Imbert and P. Lafitte),
- is a member of the “Conseil d’Administration” of SMAI and École des Ponts,
- has co-organized the Journées EDP-Probas at Institut Henri Poincaré (with F. Malrieu),
- has co-organized the IPAM Long Program on “Complex High-Dimensional Energy Landscapes”, September 11th - December 15th 2017 (with C. Clementi, G. Henkelman, R. Hennig, M. Luskin, N. Marom, P. Plechac and C. Schuette),
- has co-organized the ICTS program on “Large deviation theory in statistical physics: Recent advances and future challenges”, August 14th - October 13th 2017 (with A. Ayyer, F. den Hollander, A. Dhar, J.P. Garrahan, C. Jarzynski, M. Krishnapur, S. Sabhapandit and H. Touchette),
- has co-organized with Florent Malrieu and Pierre-André Zitt the workshop “Piecewise Deterministic Markov Processes and sampling”, January 25-27th, 2017,
- has co-organized with C. Chipot and G. Stoltz the “Rencontre Math-Industrie simulation moléculaire dans l’industrie pharmaceutique”, at IHP on 28th April 2017,
- has co-organized with A. Jentzen the Stochastic Computation Workshop at FoCM 2017, Barcelona, July 10th-12th, 2017.

G. Stoltz

- is a member of the scientific council of UNIT (Université Numérique Ingénierie et Technologie),
- has co-organized the IHP trimester “Stochastic Dynamics Out of Equilibrium”, Spring 2017 (with G. Giacomini, S. Olla, E. Saada and H. Spohn).

## 10.2. Teaching - Supervision - Juries

The members of the project-team have taught the following courses:

- Licence: Outils mathématiques pour l’ingénieur, 15h, L3, École des Ponts (E. Cancès, V. Ehrlacher, M. Josien, F. Legoll, T. Lelièvre),
- Licence: Analyse et calcul scientifique, 30h, L3, École des Ponts (G. Ferré, A. Levitt, M. Josien, G. Stoltz),
- Licence: Projet de 1ère Année, 6h, L3, École des Ponts (J. Roussel, P. Terrier),
- Licence: Mathématiques, 36h, L1, Université Paris Dauphine (G. Ferré, J. Roussel),
- Licence: Optimisation, 15h, L3, École des Ponts (A. Levitt),
- Licence: Équations aux dérivées partielles et éléments finis, 15h, L3, École des Ponts (F. Legoll, A. Levitt),
- Licence: Méthodes numériques pour les problèmes en grande dimension, 17h30, L3, École des Ponts (V. Ehrlacher, S. Boyaval),
- Licence: Maths 1 et 2, 9h, L3, École des Mines (G. Stoltz),
- Licence: méthodes pour la grande dimension, L3, École des Ponts (V. Ehrlacher 10h, S. Boyaval 5h),
- Licence: hydraulique numérique, 15h, L3, École des Ponts (S. Boyaval),
- Master: Modéliser Programmer Simuler, 28 h, M1, École des Ponts (T. Lelièvre),

- Master: Analyse variationnelle des équations aux dérivées partielles, 32h, École Polytechnique (T. Lelièvre),
- Master: Aléatoire, 32h, École Polytechnique (T. Lelièvre),
- Master: Simulation moléculaire, 6h, UVSQ (T. Lelièvre, G. Stoltz),
- Master: Analyse de Fourier, 15h, M1, École des Ponts (V. Ehrlacher, A. Levitt, G. Stoltz),
- Master: Partial differential equations, 21h, M1, École des Ponts (E. Cancès),
- Master: Control of dynamical systems, 16h, M1, École Polytechnique (E. Cancès),
- Master: Projet du département IMI, 12h, M1, École des Ponts (J. Roussel, G. Ferré),
- Master: Analyse spectrale et application aux Équations aux dérivées partielles, 36h, M1, École des Ponts (F. Legoll, V. Ehrlacher),
- Master: Spectral theory and variational methods, 10h, M2, UPMC (E. Cancès),
- Master: Méthodes de quantification des incertitudes en ingénierie, 18h, M2, École des Ponts (V. Ehrlacher),
- Master: Simulation moléculaire en sciences des matériaux, 6h, M1, École des Ponts (V. Ehrlacher),
- Master: Introduction to computational statistical physics, 20h, M2, UPMC (G. Stoltz),
- Master: Méthodes numériques probabilistes, 36 h, M2, UPMC (T. Lelièvre),
- Master: Problèmes multiéchelles, aspects théoriques et numériques , 20h, M2, UPMC (F. Legoll).

The following Habilitation thesis has been defended in the group at École des Ponts:

- Sébastien Boyaval, Topics in the numerical modelling of flows, Université Paris-Est, defended on December 21 2017.

The following PhD theses have been defended in the group at École des Ponts:

- Athmane Bakhta, Modélisation and simulation for photovoltaic applications, Université Paris-Est, École des Ponts, defended on December 19th, 2017, supervised by E. Cancès and T. Lelièvre, co-supervised by V. Ehrlacher,
- Gêrôme Faure, Multiscale methods for the simulation of shock and detonation waves, Université Paris-Est, École des Ponts and CEA/DAM, defended on November 29th 2017, supervised by G. Stoltz and J.-B. Maillet (CEA/DAM),
- Alessandra Iacobucci, Nonequilibrium steady-states of rotor and oscillator chains, defended on October 20th 2017, University Paris Dauphine, supervised by S. Olla (Dauphine) and G. Stoltz,
- Henri Louvin, Development of adaptive variance reduction methods for Monte Carlo particle transport, Ecole Doctorale PHENIICS, defended on October 12th, supervised by Check Diop (CEA) and T. Lelièvre,
- Boris Nectoux, Spectral analysis and semi-classical analysis for metastability in molecular dynamics, Université Paris-Est, École des Ponts, defended on November 20th, supervised by T. Lelièvre and E. Cancès.

The following PhD theses are ongoing in the group at École des Ponts:

- Amina Benaceur, Thèse CIFRE EDF, started January 1st, 2016, supervised by A. Ern, co-supervised by V. Ehrlacher, in collaboration with G. Blatman (EDF) and S. Meunier (EDF),
- Lingling Cao, Mathematical analysis of models of thermo-electronic transport, Université Paris-Est, École des Ponts, started November 1st, 2016, supervised by E. Cancès and G. Stoltz,
- Rafaël Coyaud, Méthodes numériques déterministes et stochastiques pour le transport optimal, Université Paris-Est, École des Ponts, started October 1st, 2017, supervised by A. Alfonsi and co-supervised by V. Ehrlacher,
- Qiming Du, Mathematical analysis of splitting methods, École Doctorale Sciences Mathématiques de Paris Centre, started September 1st, 2016, supervised by A. Guyader (UPMC) and T. Lelièvre,

- Grégoire Ferré, Efficient sampling methods for nonequilibrium systems, Université Paris-Est, École des Ponts started October 1st, 2016, supervised by G. Stoltz,
- Marc Josien, Multiscale approaches for materials science, started September 1st, 2015, supervised by C. Le Bris,
- Sofiane Martel, Modélisation de la turbulence par mesures invariantes d'EDPS, Université Paris-Est, École des Ponts, started January 1st, 2017, supervised by S. Boyaval and co-supervised by J. Reygner (CERMICS),
- Julien Roussel, Variance reduction techniques for nonequilibrium systems, Université Paris-Est, École des Ponts, started September 1st, 2015, supervised by G. Stoltz,
- Pierre-Loik Rothé, Numerical methods for the estimation of fluctuations in multi-scale materials and related problems, started October 1st, 2016, supervised by F. Legoll,
- Mouad Ramil, Metastability for interacting particle systems, started October 1st 2017, supervised by T. Lelièvre and J. Reygner (CERMICS),
- Laura Silva Lopes, Rare event simulation and applications to biological systems, started October 1st, 2016, supervised by J. Hénin (IBPC) and T. Lelièvre,
- Sami Siraj-Dine, Modélisation mathématique des matériaux 2D, École des Ponts, started October 2017, supervised by E. Cancès, C. Fermanian and co-supervised by A. Levitt,
- Pierre Terrier, Reduced models for defect migration in metals, Université Paris-Est, École des Ponts and CEA Saclay, started September 1st, 2015, supervised by G. Stoltz and M. Athènes (CEA).

Project-team members have participated in the following PhD juries:

- S. Boyaval, PhD of Riad Sanchez (“Application des techniques de bases réduites à la simulation des écoulements poreux”), defended at IFPEN in December 2017,
- E. Cancès, PhD of Geneviève Dusson, defended at UPMC in October 2017,
- E. Cancès, PhD of Chaoyu Quan, defended at UPMC in November 2017,
- V. Ehrlacher, PhD of Xianglong Duang (“Transport optimal et diffusion de courants”), defended at Université Paris-Saclay in September 2017,
- V. Ehrlacher, PhD of Eleonora Musharbash (“Dynamical Low Rank approximation for PDEs with random parameters”), defended at EPFL in May 2017,
- V. Ehrlacher, PhD of Julien Ricaud (“Symétrie et brisure de symétrie pour certains problèmes non linéaires”), defended at Université de Cergy-Pontoise in June 2017,
- V. Ehrlacher, PhD of Pierre-Éric Allier (“Contrôle d’erreur pour et par les modèles réduits PGD”), defended at ENS Paris-Saclay in November 2017,
- V. Ehrlacher, PhD of Quentin Ayoul-Guilnard (“Méthodes numériques pour la prise en compte de défauts aléatoires en mise en forme de composites quasi-périodiques”), defended at Ecole Centrale Nantes in December 2017,
- T. Lelièvre, referee for the PhD of Arthur Talpaert (“Simulation numérique directe de bulles sur maillage adaptatif avec algorithmes distribuées”), defended at Ecole Polytechnique in February 2017,
- T. Lelièvre, PhD of Romain Poncet (“Méthodes numériques pour la simulation d’équations aux dérivées partielles stochastiques non-linéaires en condensation de Bose-Einstein”), defended at Ecole Polytechnique in October 2017,
- T. Lelièvre, president of the jury for the PhD of Manon Baudel (“Théorie spectrale pour des applications de Poincaré aléatoires”), defended at Université d’Orléans in December 2017,
- T. Lelièvre, referee for the PhD of Riad Sanchez (“Application des techniques de bases réduites à la simulation des écoulements en milieux poreux”), defended at Université Paris Saclay in December 2017,
- G. Stoltz, referee for the PhD of Romain Poncet (“Méthodes numériques pour la simulation d’équations aux dérivées partielles stochastiques non-linéaires en condensation de Bose-Einstein”), defended at École Polytechnique in October 2017,
- G. Stoltz, referee for the PhD of Viviana Letizia (“Modèles microscopiques pour la loi de Fourier”), defended at Université Paris Dauphine in December 2017.

Project-team members have participated in the following habilitation jury:

- T. Lelièvre, HDR of Fabio Pietrucci (“Inventing general simulation methods to study the transformations of matter”), defended at UPMC on December 1st 2017.

### 10.3. Conference participation

Members of the project-team have delivered lectures in the following seminars, workshops and international conferences:

- S. Boyaval, Finite-Element for Flows, Roma, April 2017,
- S. Boyaval, RWTH AICS colloquim, Aachen, November 2017,
- S. Boyaval, weekly seminar of Collège de France, Paris, December 2017,
- E. Cancès, workshop on New trends in Mathematical Physics at the interface of Analysis and Probability, University College London, England, February 2017,
- E. Cancès, SIAM conference on Scientific Computing, Atlanta, Georgia, February 2017,
- E. Cancès, Mathematical Physics seminar, Université Paris Dauphine, March 2017,
- E. Cancès, weekly seminar of the Mathematics department, University of Metz, March 2017,
- E. Cancès, workshop on Wavelet and Tensor Methods for Partial Differential Equations, Berlin, May 2017,
- E. Cancès, IMA workshop on Mathematical Modeling of 2D Materials, Minneapolis, Minnesota, May 2017,
- E. Cancès, weekly seminar of the Mathematics department, Peking University, Beijing, China, June 2017,
- E. Cancès, workshop on Focus activity on quantum and kinetic problems, Beijing, China, June 2017,
- E. Cancès, BIRS workshop on Mathematical and Numerical Methods for Time-Dependent Quantum Mechanics from Dynamics to Quantum Information, Oaxaca, Mexico, August 2017,
- E. Cancès, workshop on Advances in mathematical modelling and numerical simulation of superfluids, University of Rouen, August 2017,
- E. Cancès, Colloquium lecture, University of Kansas, Lawrence, Kansas, September 2017,
- E. Cancès, workshop on Multiscale Theory and Computation, Minneapolis, Minnesota, September 2017,
- E. Cancès, MOANSI workshop, Aachen, Germany, October 2017,
- V. Ehrlacher, Demi-journée d’échange Labex Bézout/EADS, Marne-la-Vallée, October 2017,
- V. Ehrlacher, Seminar Institut für Numerische Simulation, Bonn, Allemagne, November 2017,
- V. Ehrlacher, IPAM workshop on “Uncertainty Quantification for Stochastic Systems and Applications”, Los Angeles, California, November 2017,
- V. Ehrlacher, MORTECH 2017 (keynote lecture), Sevilla, Spain, November 2017,
- V. Ehrlacher, Oberwolfach workshop on “Multiscale and High-Dimensional Problems“, Oberwolfach, Germany, April 2017,
- V. Ehrlacher, Conference in honor of Y. Maday’s 60th birthday, Roscoff, May 2017,
- V. Ehrlacher, SIAM CSE conference, Atlanta, Georgia, February 2017,
- G. Ferré, Young researchers’ seminar, IHP semester, “Stochastic dynamics out of equilibrium”, Paris, June 2017,
- G. Ferré, Large deviation theory in statistical physics, ICTS, Bangalore, September 2017,
- M. Josien, CAMP Seminar, University of Chicago, April 2017,



- M. Josien, SciCADE Conference, Bath, September 2017,
- M. Josien, Séminaire de Physique Mathématique-EDP, Institut de Mathématiques de Bordeaux, December 2017,
- D. Kazerani, weekly seminar, Orléans, October 2017,
- D. Kazerani, Post-doc days of IHES, Orsay, October 2017,
- D. Kazerani, weekly seminar IRD, Paris, October 2017,
- C. Le Bris, Conference in honor of Yvon Maday's 60th birthday, May 2017,
- C. Le Bris, Conference in honor of Patrick Joly's 60th birthday, August 2017,
- C. Le Bris, Workshop HPC, Institut d'Etudes Scientifiques de Cargèse, September 2017,
- C. Le Bris, Multiscale Modeling, Theory, and Computation, Conference in honor of Mitchell Luskin's 65th birthday, Minneapolis, September 2017,
- C. Le Bris, Homogenization Theory and Applications, Weierstrass Institute Berlin, October 2017,
- C. Le Bris, BIRS Workshop on "Computational Uncertainty Quantification", Banff International Research Station (BIRS), Canada, October 2017,
- C. Le Bris, Séminaire d'Automatique du plateau de Saclay, June 2017,
- C. Le Bris, Forum Teratec, July 2017,
- F. Legoll, Workshop stochastic homogenization, Bonn, February 2017,
- F. Legoll, UNECECOMP Conference, Rhodes, June 2017,
- F. Legoll, ADMOS Conference, Verbania, June 2017,
- F. Legoll, CIMPA Summer school on multiscale methods, Lucknow, India, July 2017,
- F. Legoll, USNCCM Conference, Montreal, July 2017,
- F. Legoll, COMPLAS 2017 Conference, Barcelona, September 2017,
- F. Legoll, Scicade conference, Bath, September 2017,
- F. Legoll, IMA program on multiscale mathematics, Minneapolis, September 2017,
- F. Legoll, séminaire Université de Genève, October 2017,
- F. Legoll, MORTECH 2017 conference, Sevilla, November 2017,
- F. Legoll, IPAM Program, Los Angeles, November, 2017,
- T. Lelièvre, workshop on Multiscale methods for stochastic dynamics, Geneva, February 2017,
- T. Lelièvre, Séminaire du Laboratoire de Chimie Physique, Université Paris-Sud, March 2017,
- T. Lelièvre, CECAM workshop "Exploiting finite-size effects in simulations", UPMC, April 2017,
- T. Lelièvre, CIRM workshop "interactions EDP/probabilités - équations cinétiques, temps long et propagation du chaos", Marseille, April 2017,
- T. Lelièvre, Colloquium Lorrain de Mathématiques, Université de Nancy, April 2017,
- T. Lelièvre, IHP trimester on Stochastic Dynamics Out of Equilibrium, Paris, April 2017,
- T. Lelièvre, CECAM workshop "Beyond Kd's: New computational methods to address challenges in drug discovery", EPFL, Lausanne June 2017,
- T. Lelièvre, Séminaire de probabilités, ENS Lyon, June 2017,
- T. Lelièvre, "Multiscale Theory and Computation Conference", University of Minneapolis, September 2017,
- T. Lelièvre, "Quasistationary Distributions: Analysis and Simulation", University of Paderborn, September 2017,
- T. Lelièvre, Colloquium du laboratoire Dieudonné, Université Nice Sophia Antipolis, October 2017,

- T. Lelièvre, “Workshop Stochastic Sampling and Accelerated Time Dynamics on Multidimensional Surfaces”, IPAM, Los Angeles, October 2017,
- T. Lelièvre, Workshop “Bridging Scales in Molecular Biology”, Mathematics & Physical Sciences conference of the Simons Foundation, New York, November 2017,
- T. Lelièvre, workshop “Mathématiques pour la neutronique”, GDR MANU, Paris, November 2017,
- T. Lelièvre, Mathematisches Kolloquium RWTH Aachen University, Aachen, December 2017,
- A. Levitt, Young researchers working group, UPMC, January 2017,
- A. Levitt, Chemistry colloquium, Cornell, New York, February 2017,
- A. Levitt, THEOS seminar, Cornell, New York, February 2017,
- A. Levitt, SIAM CSE conference, Atlanta, Georgia, February 2017,
- A. Levitt, Conference in honor of Y. Maday’s 60th birthday, Roscoff, May 2017,
- A. Levitt, Scalable solvers group seminar, Lawrence Berkeley National Lab, California, June 2017,
- A. Levitt, CCP17, Paris, July 2017,
- A. Levitt, Density Functional Theory and Beyond, Warwick, July 2017,
- A. Levitt, Mathematical physics summer school, Zurich, July 2017,
- A. Levitt, ICJ seminar, Lyon, November 2017,
- P. Monmarché, Groupe de travail Prob., Théo. Erg. et Systèmes Dynamiques, LMRS, Rouen, January 2017,
- P. Monmarché, Workshop PDMP et sampling, ENPC, Marne-la-Vallée, January 2017,
- P. Monmarché, Conférence PDE/Probability Interactions: Kinetic Equations, CIRM, Marseille, April 2017,
- P. Monmarché, Seminar of the Department of Statistics, University of Oxford, May 2017,
- P. Monmarché, Groupe de travail de probabilités, Université Paris 5, May 2017,
- P. Monmarché, Trimestre IHP dynamiques hors équilibre, Institut Henri Poincaré, Paris, June 2017,
- B. Nectoux, Workshop “Interactions EDP/probabilités : équations cinétiques, temps long et propagation du chaos”, CIRM, April 2017,
- B. Nectoux, SciCADE, university of Bath, UK, Septembre 11-15, 2017,
- B. Nectoux, Workshop “Quasi-stationary distribution: analysis and simulation”, Paderborn, September 2017,
- P.-L. Rothé, SciCADE 2017 Conference, Bath, UK, September 2017,
- P.-L. Rothé, USNCCM14, 14th U.S. National Congress on Computational Mechanics, Montreal, Canada, July 2017,
- P.-L. Rothé, Congrès SMAI 2017, La Tremblade, June 2017,
- J. Roussel, Young researchers’ seminar, IHP semester “Stochastic dynamics out of equilibrium”, Paris, June 2017,
- J. Roussel, ICL Seminar, London, November 2017,
- L. Silva Lopes, “Hands-on” Workshop on Enhanced Sampling and Free-Energy Calculation, Urbana-Champaign, Illinois, September 2017,
- G. Stoltz, seminar at Army Research Laboratory, Aberdeen Proving Grounds, February 2017,
- G. Stoltz, seminar at University of Massachusetts, February 2017,
- G. Stoltz, seminar at University of Geneva, March 2017,
- S. Siraj-Dine, Density Functional Theory and Beyond, Warwick, July 2017,
- P. Terrier, The MRS Spring Meeting & Exhibit, Phoenix, April 2017,
- P. Terrier, Séminaire des doctorants du LAMFA, Amiens, December 2017.

Members of the project-team have delivered the following series of lectures:

- E. Cancès, The mathematics of quantum chemistry, 9h, GDR CORREL winter school, Paris, January 2017,
- E. Cancès, Density Functional Theory: Models and numerical methods, 4h, Beijing, China, June 2017,
- E. Cancès, Mathematical aspects of electronic structure theory, 3h, Aussois, France, June 2017,
- E. Cancès, Mathematical structure of quantum mechanics, 3h, Heidelberg, Germany, October 2017,
- T. Lelièvre, Lectures on “Algorithms for computational statistical physics”, 3h, ICTS, Bangalore, August 2017,
- T. Lelièvre, Tutorial on “Sampling efficiently metastable dynamics: algorithms and mathematical analysis”, 2h, IPAM, Los Angeles, September 2017,
- A. Levitt, Numerical analysis of periodic quantum systems, 2h, Aalborg, Denmark, June 2017,
- G. Stoltz, From a microscopic description of matter to a macroscopic one on a computer: computational statistical physics, 6h, CIMPA Summer School on Multiscale Computational Methods and Error Control, IIT Kanpur, India, July 2017,
- Random homogenization, theoretical and numerical aspects, 6h, CIMPA Summer School on Multiscale Computational Methods and Error Control, IIT Kanpur, India, July 2017.

Members of the project-team have presented posters in the following seminars, workshops and international conferences:

- G. Ferré, Complex high-dimensional energy landscapes, UCLA, Los Angeles, October 2017,
- G. Ferré, Numerical Aspects of Nonequilibrium dynamics, IHP semester “Stochastic dynamics out of equilibrium”, Paris, April 2017,
- G. Ferré, Trends and Advances in Monte Carlo Sampling Algorithms, Duke University, Durham (North Carolina), December 2017,
- D. Kazerani, colloque EDP Normandie, Caen, October 2017,
- B. Nectoux, Workshop “Dynamiques stochastiques hors d’équilibre”, CIRM, April 2017,
- P.-L. Rothé, colloque EDP Normandie, Caen, October 2017,
- J. Roussel, workshop “Trends and Advances in Monte Carlo Sampling Algorithms”, SAMSI (Duke University), December 2017,
- J. Roussel, Numerical Aspects of Nonequilibrium dynamics, IHP semester “Stochastic dynamics out of equilibrium”, Paris, April 2017,
- L. Silva Lopes, Beyond Kd’s: New computational methods to address challenges in drug discovery, Lausanne, Switzerland, June 2017,
- L. Silva Lopes, CEMRACS 2017: Numerical methods for stochastic models: control, uncertainty quantification, mean-field, Marseille, July, 2017,
- L. Silva Lopes, 11th Triennial Congress of the World Association of Theoretical and Computational Chemistry, Munich, Germany, August 2017,
- L. Silva Lopes, Stochastic Sampling and Accelerated Time Dynamics on Multidimensional Surfaces, Los Angeles, California, October 2017,
- P. Terrier, SMAI 2017, La Tremblade, June 2017.

Pierre Terrier has won the best poster award at SMAI 2017.

Members of the project-team have participated (without giving talks nor presenting posters) in the following seminars, workshops and international conferences:

- M. Josien, colloque EDP Normandie, Caen, October 2017,
- Mouad Ramil, PDE/Probability Interactions: Kinetic Equations, Long time and Propagation of Chaos at CIRM, Marseille, April 2017
- Mouad Ramil, Workshop on Quasi-Stationary distributions, Paderborn, September 2017
- P.-L. Rothé, Winter School on Numerical Analysis of Multiscale Problems, Hausdorff Research Institute for Mathematics, Bonn, Germany, January 2017,
- J. Roussel, CEMRACS, CIRM, July 2017,
- L. Silva Lopes, IPAM Long Program on “Complex High-Dimensional Energy Landscapes”, Los Angeles, California, September-November 2017.

#### 10.4. Software development and contributions

- A. Levitt has added methods for optimization on Riemannian manifolds to the Optim.jl optimization library, see <https://github.com/JuliaNLSolvers/Optim.jl>.
- A. Levitt has published an implementation of the method developed in [16] to construct Wannier functions, see <https://github.com/antoine-levitt/wannier>.
- In the framework of the PhD of Laura Silva Lopes, L. Silva Lopes and T. Lelièvre have implemented a new tutorial on the NAMD code in order to popularize the Adaptive Multilevel Splitting method among the practitioners, see <http://www.ks.uiuc.edu/Training/Tutorials/namd/ams-tutorial/tutorial-AMS.pdf>.
- J. Roussel and G. Stoltz have added new features to the Simol code, in particular concerning the use of control variates.

#### 10.5. Popularization

- G. Ferré gave a talk about statistical physics and its applications to undergraduate students at Lycée Pierre Corneille, Rouen, in November 2017.
- A. Levitt is a member of the editorial board of Interstices, Inria’s popularization website.
- P. Monmarché gave a talk about mathematics and music to high school students at lycée Pablo Picasso, Avion, in May 2017.
- P. Monmarché participated to Les Matinales de la Recherche de l’ENPC and presented a poster about his work to the students of ENPC in April 2017.
- G. Stoltz participated to Les Matinales de la Recherche de l’ENPC and gave a talk about his work to the staff of ENPC in April 2017.
- G. Stoltz, together with Gilles Buisson (Ecole des Ponts), published a contribution to the proceedings of QPES 2017 (Questions de Pédagogie dans l’Enseignement Supérieur), on his teaching experience involving flipped classrooms organized at the level of a complete class of first year students at Ecole des Ponts. See G. Buisson and G. Stoltz, La classe inversée à grande échelle en école d’ingénieur, Actes du colloque QPES 2017, 633-640.

## **MATHNEURO Team**

## **6. Dissemination**

### **6.1. Promoting Scientific Activities**

#### **6.1.1. Scientific Events Organisation**

##### *6.1.1.1. Member of the Organizing Committees*

Olivier Faugeras and Romain Veltz were on the Advisory Board of the **3rd International Conference on Mathematical Neuroscience**, held in Boulder Colorado (USA), May 30 - June 2, 2017.

Mathieu Desroches organised a special session on “Dynamical Systems and Dysfunctions: modeling and neuronal dynamics’ interpretation in both healthy and pathological brain states” at the **C@UCA workshop** (Fréjus, France), June 6-8, 2017.

Mathieu Desroches co-organised together with Daniele Avitabile (University of Nottingham, UK) and Vivien Kirk (University of Auckland, New Zealand) a two-part mini-symposium on “Recent Advances in Slow-Fast Dynamics” at the **SIAM Conference on Applications of Dynamical Systems** (Snowbird, Utah, USA), May 21-25, 2017.

Romain Veltz co-organised with Stéphane Barland (ILNL, Sophia Antipolis) the workshop **Computational Neuroscience and Optical Dynamics** held at the Institut Nonlinéaire de Nice (INLN, Sophia Antipolis), May 18-19, 2017.

#### **6.1.2. Scientific Events Selection**

##### *6.1.2.1. Member of the Conference Program Committees*

Pascal Chossat and Martin Krupa were on the Program Committee of the **3rd International Conference on Mathematical Neuroscience**, held in Boulder Colorado (USA) May 30 - June 2 2017.

#### **6.1.3. Journal**

##### *6.1.3.1. Member of the Editorial Boards*

Olivier Faugeras is the co-editor in chief of the open access **Journal of Mathematical Neuroscience**.

##### *6.1.3.2. Reviewer - Reviewing Activities*

Fabien Campillo acts as a reviewer for Journal of Mathematical Biology, for the conference **TAMTAM 2017 Tendances dans les Applications Mathématiques en Tunisie, Algérie et Maroc**.

Mathieu Desroches acts as a reviewer for Physica D, SIAM Journal on Applied Dynamical Systems (SIADS), PLoS Computational Biology, Dynamical Systems: An International Journal, IEEE Transactions on Cognitive and Developmental Systems, Discrete and Continuous Dynamical Systems Series B.

Olivier Faugeras acts as a reviewer for the Journal of Mathematical Neuroscience, the Journal of Computational Neuroscience, the SIAM Journal on Applied Dynamical Systems (SIADS).

Martin Krupa acts as a reviewer for Nonlinearity, Proceedings of the National Academy of Sciences of the USA (PNAS), the SIAM Journal of Applied Dynamical Systems (SIADS).

Martin Krupa has edited together with Pietro-Luciano Buono (University of Ontario, Canada) and Ian Stewart (University of Warwick, UK) a special issue of the Journal *Dynamical Systems: An International Journal* titled “Equivariance and Beyond: M. Golubitsky’s 70th Birthday”.

Romain Veltz acts as a reviewer for Neural Computation, Elife, SIADS, Journal of the Royal Society Interface.

#### **6.1.4. Invited Talks**

- Pascal Chossat, “Latching dynamics in neural networks with synaptic depression”, C@UCA workshop, Fréjus (France), June 2017.
- Pascal Chossat, “Pourquoi le léopard est-il tacheté et le tigre rayé”, Café des Sciences d’Avignon, Avignon (France), December 2017.
- Pascal Chossat, “Heteroclinic chains as a model of sequential activation of concepts in neural networks”, workshop Nice Nonlinearities, Nice (France), December 2017.
- Mathieu Desroches, “Canards and spike-adding phenomena in neural bursters”, University of Liverpool (UK), March 2017.
- Mathieu Desroches, “Canards and spike-adding in neural bursters”, University of The Balearic Islands (Palma, Spain), March 2017.
- Mathieu Desroches, “Three-timescale dynamics: canards and spike-adding”, SIAM Conference on Applications of Dynamical Systems, Snowbird (Utah, USA), May 2017.
- Mathieu Desroches, “Slow-fast transitions to seizure states in the Wendling-Chauvel neural mass model”, C@UCA workshop, Fréjus (France), June 2017.
- Olivier Faugeras, “Describing the thermodynamic limit of networks of interacting neurons”, workshop *PDE and Probability Methods for Interactions*, Inria Sophia Antipolis, April 2017.
- Olivier Faugeras, “Multiscale representations in mathematical neuroscience: deterministic and stochastic approaches”, C@UCA workshop, Fréjus (France), June 2017. [keynote lecture]
- Olivier Faugeras, “Coping with correlations in the analysis of the thermodynamic limit of neuronal networks”, HBP workshop *Theoretical Neuroscience in the Human Brain Project* and at the workshop *New advances in theoretical tools for the study of large scale neural systems* at the CNS Conference, Antwerp, the Netherlands, July 2017.
- Olivier Faugeras, “On a certain McKean-Vlasov equation that arises in Neuroscience”, workshop on *Singular McKean-Vlasov equations*, Inria Sophia Antipolis, September 2017.
- Elif Köksal Ersöz, “Synchronization of weakly coupled canard oscillators”, mini-symposium on “Recent Advances in Slow-Fast Dynamics” at the SIAM Conference on Applications of Dynamical Systems (Snowbird, Utah, USA), May 21-25, 2017.
- Elif Köksal Ersöz, “Canard mediated (de)synchronization in coupled phantom bursters”, C@UCA workshop, Fréjus (France), June 2017.
- Martin Krupa, “Modeling cortical spreading depression induced by the hyperactivity of interneurons”, C@UCA workshop, Fréjus (France), June 2017. [joint talk with Massimo Mantegazza (IPMC, Sophia Antipolis)]
- Romain Veltz, “Invariant manifolds in Mathematical Neurosciences”, winter school *Deterministic and Stochastic Models in Neurosciences*, Toulouse (France), December 2017.
- Romain Veltz, “On a toy network of neurons interacting through nonlinear dendritic compartments”, workshop *Random Structures on the Brain*, Lorentz Center, Leiden (the Netherlands), December 2017.
- Romain Veltz, “Oscillatory dynamics in a stochastic spiking neural network”, workshop *Brain Dynamics and Statistics*, Banff (Canada), March 2017.
- Romain Veltz, “Hopf bifurcation in the mean field of a stochastic spiking neural networks”, European Institute in Theoretical Neuroscience, Paris (France), April 2017.
- Romain Veltz, “Study of a mean field model stemming from a neural network”, Gdr NonLocal, Toulouse (France), April 2017.

### 6.1.5. Scientific Expertise

Pascal Chossat was on the Advisory Board of the Complex Systems Academy of the UCA<sup>JEDI</sup> Idex.

Fabien Campillo reviewed a grant proposal for the Swiss National Science Foundation. He is also member of the *Comité NICE* of the Projects Committee of Inria Sophia Antipolis - Méditerranée.

Mathieu Desroches reviewed grant proposals for the Agence Nationale de la Recherche (ANR).

Olivier Faugeras regularly reviews proposals to the European Research Council (ERC) in Mathematics, Computer Science and NeuroScience and he is a member of the ERC Panel 1 (Mathematics). He also reviewed a proposal in Mathematics for the Netherlands Organisation for Scientific Research (NWO).

## 6.2. Teaching - Supervision - Juries

### 6.2.1. Teaching

#### Chalk-learning

Master 2 MVA/UPMC: Romain Veltz, *Mathematical Methods for Neurosciences*, 20 hours, Paris, France.

Master 1 BIM/UPMC: Mathieu Desroches, *Modèles Mathématiques et Computationnels en Neuroscience*, 30 hours, Paris, France.

In-service education, Supagro & Inra: Fabien Campillo (in collaboration with Céline Casenave from Inra), *Modélisation et contrôle de systèmes dynamiques en agronomie*, 20 hours, Montpellier, France.

### 6.2.2. Supervision

PhD in progress: Axel Dolcemascolo, “All optical neuromimetic devices”, started in January 2016, co-supervised by Romain Veltz and Stéphane Barland (INLN).

PhD in progress: Pascal Helson, “Study of plasticity laws with stochastic processes”, started in September 2016, co-supervised by Romain Veltz and Etienne Tanré (Inria TOSCA).

PhD in progress: Quentin Cormier, “Biological spiking neural networks”, started in September 2017, co-managed (“co-encadré”) by Romain Veltz and Etienne Tanré (Inria TOSCA).

## **MATHRISK Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific Events Organisation**

#### *9.1.1.1. Member of the Organizing Committees*

- A. Alfonsi:
  - Co-organizer of the conference "Advances in Financial Mathematics", 10-13 January 2017, <https://fin-risks2017.sciencesconf.org/>.
  - Co-organizer of the working group seminar of MathRisk "Méthodes stochastiques et finance".
- J. Lelong :
  - Member of the organizing committee of Les journées de Probabilités, 2017, France, Aussois.
  - Member of the organizing committee of CEMRACS, 2017, Marseille.
  - Member of the organizing committee of Les journées SMAI MODE 2018, Grenoble.
- A. Sulem
  - Co-organizer of the seminar Inria-MathRisk /Université Paris 7 LPMA "Numerical probability and mathematical finance". <https://www.lpma-paris.fr/mathfipronum/gt>

### **9.1.2. Scientific Events Selection**

#### *9.1.2.1. Member of the Conference Program Committees*

B. Jourdain: Member of the scientific committee of the congrès SMAI 2017

#### *9.1.2.2. Reviewer*

A. Sulem: Reviewer for *Mathematical Reviews*

### **9.1.3. Journal**

#### *9.1.3.1. Member of the Editorial Boards*

- D. Lamberton
  - Associate editor of
    - Mathematical Finance,
    - Associate editor of ESAIM Probability & Statistics
- A. Sulem
  - Associate editor of
    - 2011- Present: *Journal of Mathematical Analysis and Applications (JMAA)*
    - 2009- Present: *International Journal of Stochastic Analysis (IJSA)*
    - 2008- Present: *SIAM Journal on Financial Mathematics (SIFIN)*

#### *9.1.3.2. Reviewer - Reviewing Activities*

The members of the team reviewed numerous papers for many journals in probability, finance, stochastic control, applied mathematics, ...



#### 9.1.4. Invited Talks

- A. Alfonsi
  - "Maximum Likelihood Estimation for Wishart processes", conference on "Mathematics of Quantitative Finance", Oberwolfach, March 1.
  - "Optimal Execution in a Hawkes Price Model and Calibration", Market Microstructure and High Frequency Data June 1-3, The University of Chicago, June 2.
  - "Maximum Likelihood Estimation for Wishart processes", Recent Developments in Numerical Methods with Applications in Statistics and Finance Mannheim, Germany, June 9.
  - "Sampling of probability measures in the convex order and approximation of Martingale Optimal Transport problems." New York, conference in honour of Jim Gatheral, NYU, October 15.
  - "Sampling of probability measures in the convex order and approximation of Martingale Optimal Transport problems." GT CMAP-ENSTA-ENSAE, November 27.
- V. Bally
  - LMS-EPSC Durham Symposium 10-20 July. Regularity for the solution of jump equations using an interpolation method.
  - Conference of Stochastic Processes and their Applications (SPA2017) 24-28 July. Regularity for the solution of jump equations using an interpolation method.
  - Workshop on Piecewise Deterministic Markov Processes, 29.05-2.06 Gaussian noise versus Poisson Point Measures in PDMP's.
- B. Jourdain:
  - Workshop Stochastic Sampling and Accelerated Time Dynamics on Multidimensional Surfaces, IPAM, Los Angeles, 16-20 October : Convergence and efficiency of adaptive importance sampling techniques with partial biasing
  - Workshop Singular McKean-Vlasov dynamics, Sophia-Antipolis, 14-15 September : Existence to calibrated regime-switching local volatility model
  - Summer school CEMRACS, Marseille, 17-21 July : The Metropolis-Hastings algorithm, introduction and optimal scaling of the transient phase
  - Workshop Stochastic Computation, FOCM 2017, Barcelona, 10-12 July : Strong convergence properties of the Ninomiya-Victoir scheme and applications to multilevel Monte Carlo methods
  - Workshop BSDEs SPDEs, Edinburgh, 3-7 July : Existence to calibrated regime-switching local volatility model
  - Conference PDE/Probability Interactions : Kinetic Equations, Large Time and Propagation of Chaos, Marseille, 18-22 April : On a stochastic particle approximation of the Keller-Segel equation
  - Conference PDE and probability methods for interaction, Sophia-Antipolis, 30-31 March : Evolution of the Wasserstein distance between the marginals of two Markov processes
  - Applied Mathematics seminar of the Collège de France, February 24 : Multitype sticky particles and diagonal hyperbolic systems
  - Conference Advances in Financial Mathematics, Paris, 10-13 January : Existence to a calibrated regime-switching local volatility model
- J. Lelong
  - High Performance Computing session during CEMRACS: 4 hours of lectures and 6 hours of hands-on sessions, Marseille.
- A. Sulem
  - Plenary talk at the Congrès SMAI 2017, 8ème biennale française des Mathématiques Appliquées et Industrielles, Ronces-les-bains, June 2017, <http://smai.emath.fr/smai2017/index.php>

- "Recent advances in financial mathematics", conference organised by "Financial Risks Chair", Paris, Janvier 2017. <https://fin-risks2017.sciencesconf.org/program>
- Workshop on *Optimal Stopping in Complex environments*, Bielefeld University, December 18-20 2017, <https://sites.google.com/view/imworkshop17/>
- Workshop on "Asymptotics of Stochastic Dynamics", University of Swansea, August, 29-21, 2017
- Simulation of Stochastic graphs and applications symposium, International Conference on Monte Carlo techniques, Paris, July 5-8, 2017 <https://montecarlo16.sciencesconf.org>

### 9.1.5. Scientific Expertise

B. Jourdain: Member of the Scientific Advisory Board of the Center for interdisciplinary Research in Biology, Collège de France : March 1st and 2nd 2017

### 9.1.6. Research Administration

- A. Alfonsi
  - Deputy director of the CERMICS since April 2017.
  - In charge of the Master "Finance and Application" at the Ecole des Ponts.
- D. Lamberton
  - Vice-president for research at Université Paris-Est Marne-la-Vallée
- B. Jourdain
  - Head of the doctoral school MSTIC, University Paris-Est
- A. Sulem
  - Member of the Committee for technology development, Inria Paris
  - Corresponding member of the comité opérationnel d'évaluation des risques légaux et éthiques (COERLE) at Inria Paris research center
  - Member of the Committee for Inria international Chairs

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence :

- A. Alfonsi
  - 'Probabilités', first year course at the Ecole des Ponts.
- B. Jourdain
  - "Introduction to probability theory", 1st year, Ecole Polytechnique
  - "Mathematical finance", 2nd year ENPC
- V. Bally
  - Hilbertien Analysis L3 (36h)

Master

- A. Alfonsi:
  - "Traitement des données de marché : aspects statistiques et calibration", lecture for the Master at UPEMLV.
  - "Mesures de risque", Master course of UPEMLV and Paris VI.
  - Professeur chargé de cours at Ecole Polytechnique.

- V. Bally
  - Interest rates (20h) M2 filière finance
  - Malliavin calculus and applications in finance (30h) M2 filière finance
  - "Risk analysis " M2 filière actuariat (45h)
- B. Jourdain, B. Lapeyre ; course "Monte-Carlo methods", 3rd year ENPC and Master Recherche Mathématiques et Application, University of Marne-la-Vallée
- J.-F. Delmas, B. Jourdain : course "Jump processes with applications to energy markets", 3rd year ENPC and Master Recherche Mathématiques et Application, University of Marne-la-Vallée
- B. Lapeyre: Monte-Carlo methods in quantitative finance, Master of Mathematics, University of Luxembourg,
- D. Lamberton: Calcul stochastique pour la finance, master 1 course, Université Paris-Est Marne-la-Vallée
- A. Sulem :
  - "Finite difference for PDEs in Finance", Master 2 MASEF, Université Paris IX-Dauphine, Département Mathématiques et Informatique de la Décision et des Organisations (MIDO), 27 h.
  - "PDE methods in Finance", Master of Mathematics, University of Luxembourg, 22 h lectures and responsible of the module "Numerical Methods in Finance".

Doctorat :

A. Sulem : "Stochastic Control with Applications to Mathematical Finance", International summer school in "Financial Mathematics and Actuarial Science", **Doctoral lectures**, (30 heures), Atlantic Association for Research in the Mathematical Sciences, University of Prince Edward Island (UPEI), Canada, July <https://aarms.math.ca/summer-school>

### 9.2.2. Supervision

HdR : J. Lelong, Quelques contributions aux méthodes numériques probabilistes et à la modélisation stochastique, Université Grenoble-Alpes, September 2017.

- PhD in progress :
  - Adel Cherchali, "Numerical methods for the ALM", funded by Fondation AXA, starting from September 2017, Supervisor: A. Alfonsi
  - Rafaël Coyaud, "Deterministic and stochastic numerical methods for multimarginal and martingale constraint optimal transport problems", starting from October 2017, Supervisor: A. Alfonsi
  - Rui Chen (Fondation Sciences Mathématiques de Paris grant), "Stochastic Control of mean field systems and applications to systemic risk, from September 2014, Université Paris-Dauphine, Supervisor: A. Sulem.
  - Marouen Iben Taarit , " On CVA and XVA computations ", CIFRE Natixis/ENPC, Supervisor: Bernard Lapeyre
  - Giulia Terenzi , "American options in complex financial models", Université Paris-Est Marne-la-Vallée, Supervisors: Damien Lamberton and Lucia Caramellino, from University Tor Vergata, Rome
  - Alexandre Zhou (started November 2015) "Analysis of stochastic particle methods applied to finance", Supervisor: B. Jourdain
  - Oumaima Bencheikh (started November 2017) "Acceleration of probabilistic particle methods", Supervisor: B. Jourdain

### 9.2.3. Juries

- Damien Lambertson
  - "Opponent" for the PhD thesis defense of Hannah Dyrssen (student of Erik Ekstrom) at Uppsala University (Sweden), May 2017.
- Benjamin Jourdain
  - Referee for the PhD thesis and participation to the jury for the defense of the PhD thesis of
    - Victor Reutenauer, defended on March 22, University Côte d'Azur
    - Daphné Giorgy, defended on June 2, University Pierre and Marie Curie
    - Radu Maftai, defended on December 14, University Côte d'Azur
- Agnès Sulem
  - Participation to the committee for the recruitment of a Professeur in "applied mathematics, finance and numerical probability", Laboratoire de probabilités (LPMA), Université Paris VI, 2017
  - Participation to the committee for the recruitment of a Assistant professor in "économie, finance et game theory", Université Paris-Dauphine, 2017.
  - Participation to the jury (Chair) for the defense of the PhD thesis of Amine Ismail, *Robust modeling of volatility and application to derivatives pricing and portfolio optimization*, December 15 2017, Université Paris-Diderot - Paris 7.
  - Participation to the jury (Chair) for the defense of the PhD thesis of Jiang Pu, *Contrôle optimal et applications en finance: exécution optimale, couverture d'options et choix de portefeuille*, September 25 2017, Université Paris-Diderot - Paris 7.

## MAVERICK Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Selection

#### 9.1.1.1. Member of the Conference Program Committees

- Georges-Pierre Bonneau was a member of the International Program Committees of the conferences Solid and Physical Modeling 2017, Eurographics Visualization Symposium 2017 (short paper track) and EnvirVis 2017.
- Romain Vergne was a member of the Conference Program Committee of SIBGRAPPI 2017.
- Joëlle Thollot was a member of the Conference Program Committee of Expressive 2017.
- Nicolas Holzschuch was a member of the Program Committee for the Symposium on Interactive 3D Graphics and Games (I3D) 2017.
- Nicolas Holzschuch is a member of the Steering Committee for the Eurographics Symposium on Rendering.

#### 9.1.1.2. Reviewer

All members of the Maverick team work as reviewers for the most prestigious conferences, including Siggraph, Eurographics, the EG symposium on rendering.

### 9.1.2. Journal

#### 9.1.2.1. Reviewer - Reviewing Activities

All members of the Maverick team work as reviewers for the most prestigious journals, including ACM TOG, IEEE TVCG, etc.

### 9.1.3. Invited Talks

- Romain Vergne, October 13, 2017. Blekinge Technology Institute (Karlskrona, Sweden).
- Joëlle Thollot, February 2, 2017. Loria - Inria Nancy.

### 9.1.4. Research Administration

- Georges-Pierre Bonneau is member of the “conseil du Laboratoire Jean Kuntzmann”.
- Romain Vergne is member of the “conseil du Laboratoire Jean Kuntzmann”.
- Romain Vergne is co-responsible of the GT Rendu.
- Romain Vergne is co-responsible of the PhD students of the Laboratoire Jean Kuntzmann.
- Nicolas Holzschuch is an elected member of Inria Evaluation Committee (CE), an elected member of Inria Comité Technique (CTI) and a reserve member of Inria Scientific Council (CS).
- Nicolas Holzschuch is responsible for the department "Geometry and Images" of the Laboratoire Jean Kuntzmann.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Joëlle Thollot and Georges-Pierre Bonneau are both full Professor of Computer Science. Romain Vergne is an associate professor in Computer Science. They teach general computer science topics at basic and intermediate levels, and advanced courses in computer graphics and visualization at the master levels. Nicolas Holzschuch teaches advanced courses in computer graphics at the Master level.

- Licence: Joëlle Thollot, Théorie des langages, 27h, L3, ENSIMAG, France.
- Licence: Joëlle Thollot, Séminaire d'innovation, 10h, L3, ENSE3, France.
- Master: Joëlle Thollot, Responsable du cursus en alternance, 48h, M1-M2, ENSIMAG, France.
- Master: Joëlle Thollot, Tutorat d'apprentis, 50h, M1-M2, ENSIMAG, France.
- Master: Joëlle Thollot, responsable de la filière MMIS, 24h, M1-M2, ENSIMAG, France.
- Licence : Romain Vergne, Introduction to algorithms, 64h, L1, UGA, France.
- Licence : Romain Vergne, WebGL, 29h, L3, IUT2 Grenoble, France.
- Master : Romain Vergne, Geometric modeling, 18h, M1, UGA, France.
- Master : Romain Vergne, Image synthesis, 27h, M1, UGA, France.
- Master : Romain Vergne, Image synthesis, 15h, M1, Polytech, France.
- Master : Romain Vergne, 3D graphics, 15h, M1, UGA, France.
- Master : Nicolas Holzschuch, Computer Graphics II, 18h, M2 MoSIG, France.
- Master : Nicolas Holzschuch, Synthèse d'Images et Animation, 32h, M2, ENSIMAG, France.

### 9.2.2. Supervision

- PhD: Tibor Stanko, Reconstruction de surfaces lisses maillées à partir de capteurs inertiels, Friday december 8th, 2017, Stefanie Hahmann and Georges-Pierre Bonneau.
- PhD: Benoit Arbelot, Transferts d'apparence en espace image basés sur des propriétés texturales, April 7, 2017, Joëlle Thollot, Romain Vergne.
- PhD in progress: Alexandre Bléron, Stylization of animated 3D scenes in a painterly style, October 1, 2015, Joëlle Thollot, Romain Vergne.
- PhD in progress: Vincent Tavernier, Procedural stochastic textures, October 1, 2017, Fabrice Neyret, Joëlle Thollot, Romain Vergne.
- PhD in progress: Guillaume Loubet, Efficient representations for sub-pixel appearance, October 1, 2014, Fabrice Neyret.
- PhD in progress: Jeremy Wambecke, Temporal Data Visualization in Natural Environments, September 2015, Georges-Pierre Bonneau, Romain Vergne and Renaud Blanch.
- PhD in progress: Alban Fichet, Efficient representation for measured reflectance, October 1, 2015, Nicolas Holzschuch.

### 9.2.3. Juries

- Fabrice Neyret was in the jury of the HDR of Pascal Barla on October 9th, 2017 (Bordeaux, France).
- Joëlle Thollot was in the jury of the PhD of Hristina Hristova (Univ. Rennes 1) and Jean Hergel (Inria Nancy).

## 9.3. Popularization

Every year, "MobiNet" (see section 4.5) classes are conducted with high school pupils of the large Grenoble area to practice initiation and intuition on Computer Science, Maths and Physics. Depending on the year, we have 2 to 4 groups in the scope of INP-Grenoble "Engineering weeks", and 0 to 2 groups in the scope of Math-C2+ operations.

Fabrice Neyret published a popularization article "Maths in special effects" in the magazine "Tangentes" #178 (sep-oct 2017).

Fabrice Neyret maintains the blog [shadertoyunofficial](https://shadertoyunofficial.wordpress.com/) ( <https://shadertoyunofficial.wordpress.com/> ) and various shaders examples on Shadertoy site ( <https://www.shadertoy.com/> ) to popularize GPU technologies as well as disseminates academic models within computer graphics, computer science, applied math and physics fields.

## MCTAO Project-Team

### 9. Dissemination

#### 9.1. Promoting Scientific Activities

##### 9.1.1. Scientific Events Organisation

###### 9.1.1.1. General Chair, Scientific Chair

- J.-B. Caillau was member of the 2017 PGMO days scientific committee.

###### 9.1.1.2. Member of the Organizing Committees

- 09/2017: Mini-symposium "Geometric control & applications", 18th French-German-Italian conference on optimization, Paderborn (J.-B. Caillau)
- 11/2017: Mini-symposium "Optimal control & applications to biology", PGMO days 2017, Paris Saclay (J.-B. Caillau)
- 12/2017 (Dijon): **Journées McTAO**: event organized by the team with three invited speakers and two from the team.

##### 9.1.2. Scientific Events Selection

- J.-B. Caillau is member of the program committee of the **Séminaire de géométrie hamiltonienne** of Paris VI - UPMC.

##### 9.1.3. Books

- B. Bonnard and J. Rouot, together with M. Chyba, have written the series of notes [17], soon to appear as Springer briefs Publications. They were the basis of courses at the Phd level given at the University of Burgundy and at the institute of Mathematics for industry at Fukuoka (Japan).
- J.-B. Caillau, together with M. Bergounioux, G. Peyré, C. Schnörr and T. Haberkorn, served as an editor for the volume [11]. With a focus on the interplay between mathematics and applications of imaging, the first part covers topics from optimization, inverse problems and shape spaces to computer vision and computational anatomy. The second part is geared towards geometric control and related topics, including Riemannian geometry, celestial mechanics and quantum control.

##### 9.1.4. Journals

B. Bonnard is a member of the editorial board of the *Pacific Journal of Mathematics for Industry*.

##### 9.1.5. Invited Talks

Jean-Baptiste Caillau:

02/2017: Séminaire ENAC, Toulouse

06/2017: Mathematical Control Theory, Porquerolles

07/2017: New Horizons on Optimal Control, Porto

11/2017: PGMO Days 2017, Paris Saclay (with Barlaud, M.; Gilet, C.)

Laetitia Giraldi:

03/2017: Seminar at University Paris Dauphine

05/2017: Speaker at a meeting of the IPL Algae in Silico

09/2017: Seminar at Gibbs-lab, *Grenoble*

10/2017: Speaker at **Interaction Fluide-Structure: Analyse et Contrôle**

11/2017: Seminar at Institut de Recherche Mathématiques Avancée, *Strasbourg*

Michaël Orieux:

09/2017: Workshop on Classical Integrability and Perturbations, *Paris*

Jean-Baptiste Pomet:

09/2017: **Séminaire de géométrie hamiltonienne** of Paris VI - UPMC.

Ludovic Rifford:

07/2017: Plenary speaker at the Pan African Congress of Mathematics, *Rabat (Morocco)*

07/2017: Plenary speaker at the conference New Trends in Control Theory and PDEs, *INdAM, Rome (Italy)*

09/2017: Plenary speaker at the Conférence à la mémoire d'Ahmad El Soufi, *Université François Rabelais, Tours (France)*

### 9.1.6. Research Administration

Jean-Baptiste Caillaud has been the joint head of the CNRS team Statistique, Probabilités, Optimisation & Contrôle at Institut math. Bourgogne. He is member of the Scientific Committee of the GdR Calcul, of the Institut de Mécanique Céleste et de Calcul des Éphémérides (Observatoire de Paris), and of the Programme Gaspard Monge pour l'Optimisation et la recherche opérationnelle de la Fondation Mathématique Jacques Hadamard.

From 2017 Laetitia Giraldu is member of CSD *Comité du suivi Doctoral* at Sophia-Antipolis.

Jean-Baptiste Pomet is a member of the steering committee of the Center for Planetary Origin (C4PO) and of the scientific council of Académie 2 "Complex system", both for Université Côte d'Azur (UCA). He is an elected member of Commission d'évaluation (Inria permanent evaluation committee).

Ludovic Rifford has been Executive Director of the CIMPA (Centre International de Mathématiques Pures et Appliquées) since September 2016.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : Laetitia Giraldu, Colles de Mathématiques en MPSI et MP, 110heures en équivalent TD, niveau (L1, L2, L3), Lycée internationale de Valbonne, France. J.-B. Caillaud, Processus Stochastiques, 50 H ETD, Polytech Nice-Sophia.

Master : Laetitia Giraldu, Théorie du Contrôle appliquée à des problèmes de micro-natation, 4 heures en équivalent TD, niveau M2, université de Strasbourg, France. J.-B. Caillaud, Commande optimale, 50 H ETD, Polytech Nice-Sophia ; Optimisation, 30 H ETD, Univ. Côte d'Azur.

Doctorat : Laetitia Giraldu, Controlled propulsion of elastico-magnetic micro-swimmer, 4 heures en équivalent TD, université de Padoue, Italie

### 9.2.2. Supervision

M2: Yacine El Alaoui-Faris: "Machine Learning for Biology", supervised by J.-B. Caillaud, April to September.

PhD: Zeinab Badreddine, "Mass transportation in sub-Riemannian structures admitting singular minimizing geodesics", defended December 4, 2017, co-supervised by B. Bonnard and L. Rifford. See bibliography.

PhD in progress : Michaël Orioux, "Minimum time control and applications", started September, 2015, co-supervised by J.-B. Caillaud and J. Féjóz (Univ. Paris Dauphine).

PhD in progress : Alice Nolot, "Sub-Riemannian geometry and optimal swimming at low Reynolds, started October, 2016, supervised by B. Bonnard.

PhD in progress : Sébastien Fueyo, "Testing stability of nonlinear amplifier by frequency-domain methods", started October, 2016, co-supervised by J.-B. Pomet and L. Baratchart (APICS team).

PhD in progress : Yacine El alaoui-faris, "modeling magneto-elastic micro-robot from theory to experiment", started October, 2017, co-supervised by L. Giraldu, J.-B. Pomet and Stéphane Régner (Univ. Paris Sorbonne).



PhD in progress : Clément Moreau, “Contrôlabilité de systèmes en dimension finie ou infinie issus du vivant”, started September, 2017, co-supervised by L. Giraldi, Pierre Lissy and J.-B. Pomet.

PhD in progress : Karine Sérrier, “Micro-natation et invariants de la géométrie sous-Riemannienne”, started September, 2017, supervised by B. Bonnard.

### **9.2.3. Juries**

J.-B. Caillaud has been reviewer for the Habilitation of Aude Rondepierre (Toulouse), and for the PhD's of Cécile Carrere (Marseille), Clément Gazzino (Toulouse), and Ouazna Ouchaka (Toulon). He has also been member of the Habilitation jury of Marco Caponigro (Paris).

J.-B. Caillaud and L. Giraldi are members of the jury of Agrégation de mathématiques.

Ludovic Rifford has been reviewer for the PhD of Sebastiano Nicolussi Golo (University of Jyväskylä, Finland).

## **9.3. Popularization**

J.-B. Caillaud participates in the MASTIC initiative at Inria and has given conferences at the high school level in Sophia (MathC2+ event, June 2017) and Grasse (Lycée Amiral, Sep. 2017).

## MEMPHIS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Selection

#### 10.1.1.1. Member of the Conference Program Committees

Michel Bergman has co-organized the international conference "Interaction fluide-Structure: Analyse et controle", October 2017 (<https://indico.math.cnrs.fr/event/1366/overview>)

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

Angelo Iollo is in the advisory board of Acta Mechanica.

#### 10.1.2.2. Reviewer - Reviewing Activities

Journal of Computational Physics, International Journal of CFD, Journal of Non-linear Analysis B, ASME Journal of Computational and Nonlinear Dynamics, Journal of Fluid Mechanics, Acta Mechanica, AIAA Journal, International Journal Numerical Methods in Fluids, Computers & Fluids, Journal of Engineering Mathematics, European Journal of Mechanics / B Fluids, Journal Européen de Systèmes Automatisés, Applied Mathematics and Computation. Nuclear Science and Engineering, Computer Methods in Applied Mechanics and Engineering, Journal of Theoretical Biology, Computational Optimization and Applications. Applied science, Meccanica.

### 10.1.3. Invited Talks

The invited conferences are [10], [8], [13], [14], [9], [11], [15], [7].

### 10.1.4. Scientific Expertise

Angelo Iollo is reviewer for national and international programs such as H2020 (EU), ANR (France), PRIN (Italy).

2016-2017: Angelo Iollo is expert for the Italian Ministry of Research: quality evaluation of research products. Michel Bergmann: member of the Inria Young Researchers Commission, which allocates PhD and Postdoc grants.

Afaf Bouharguane has participated to the recruitment committee for Associate Professor position in Besancon, May 2017

Angelo Iollo was expert in the Young Investigator Rita Levi Montalcini program, Italy

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Four members of the team are Professors or Assistant Professors at Bordeaux University and have a teaching duty, which consists in courses and practical exercises in numerical analysis and scientific computing. Michel Bergmann (CR) also teaches around 64 hours per year (practical exercises in programming for scientific computing).

### 10.2.2. Supervision

PhD in progress : Claire Morel, Modélisation aerodynamique 3D d une turbine eolienne, 01/01/2015, M., Bergmann M., Iollo A.

PhD in progress : Federico Tesser, Identification of dense suspensions rheology, 01/11/2014, Bergmann M., Iollo A.

PhD in progress : Baptiste Lambert, modélisation et simulations numériques des contacts dans des écoulements chargés en particules, 01/10/2015, Bergmann M., Weynans L.,

PhD in progress : Emanuela Abbate, Méthodes numériques pour problèmes stiff en mécanique des fluides et élasticité, 01/11/2015, Iollo, A.

PhD in progress : Mathias Braun, Modèles réduits et problèmes inverses pour l étude de la résilience des réseaux d eau potable, 01/10/2015, Iollo A. and Mortazavi I.

PhD in progress : Luis Henrique Benetti Ramo, Aeroelastic instabilities, Bergmann M. and Iollo A.

PhD in progress : Guillaume Ravel, Simulation numérique et modélisation de la nage du poisson zèbre pour l étude de maladies humaines d origine génétique et toxicologique, 01/10/2017, Bouharguane A. and Babin P. (MRGM)

PhD in progress : Sebastien Riffaud, Reduced Order Models, classification and data geometry, 01/10/2017, Iollo A.

2013-2017: Meriem Jedoua, Introduction d une méthode efficace de capture d interface permettant la localisation d un grand nombre d objets immergés dans un fluide. Applications à des solides rigides et des vésicules (membranes élastiques) immergés dans un fluide incompressible, 01/10/2013, Bruneau C.-H. and Maitre E.

2014-2017 : Alice Raeli, Numerical Modelling for Phase Changing Materials, 12/06/2014, Azaiez M., Bergmann M., Iollo A.

### 10.2.3. Juries

Michel Bergmann has participated to the PhD defense of Pierre Costini, Centrale Marseille, 19/05/2017

Michel Bergmann has participated to the PhD defense of Lei Cheng, DELF (pays-bas), 15/12/2017

Angelo Iollo has been reviewer of the PhD defense *Applicabilité de la réduction de modèles à la conception aérothermique collaborative des systèmes d air secondaires des turbomachines*, Pierre Costini, Ecole Doctorale des Sciences pour l Ingénieur, Aix-Marseille, May 2017.

Angelo Iollo has participated to the PhD defense of Manon Deville, *Modélisation de l'électroporation et de la transfection de gènes à l'échelle du tissu. Aspects théorique et numérique.* " Institut de Mathématiques de Bordeaux, université de Bordeaux, novembre 2017.

Angelo Iollo has participated as president to the PhD defense of Agathe Peretti *Quantification de l'hétérogénéité tumorale à partir de l imagerie médicale. Application à la classification de tumeurs rénales.* Institut de Mathématiques de Bordeaux, université de Bordeaux, décembre 2017.

## 10.3. Popularization

Lisl Weynans has co-organized the *Journée Filles et Maths, une équation lumineuse*, April 2017.

Afaf Bouharguane and Lisl Weynans have co-organized the *Journée Emploi Maths de l' Unité de Formation Mathématiques et Interaction*, November 2017.

## MEPHYSTO Project-Team

### 6. Dissemination

#### 6.1. Promoting Scientific Activities

##### 6.1.1. Scientific Events Organisation

###### 6.1.1.1. Member of the Organizing Committees

M. Simon was a member of the Organizing Committee for the *Journée de la Fédération de Recherche Mathématique du Nord Pas de Calais 2017* (place: Villeneuve d'Ascq, duration: one day).

M. Simon was a member of the Organizing Committee for the *Semaine d'Études Maths-Entreprises Hauts de France 2018* (place: Villeneuve d'Ascq, duration: one week). For that aim, she got a subvention by Inria.

##### 6.1.2. Journal

###### 6.1.2.1. Member of the Editorial Boards

Antoine Gloria is editor at NWJM.

###### 6.1.2.2. Reviewer - Reviewing Activities

G. Dujardin is reviewer for M2AN.

##### 6.1.3. Invited Talks

M. Simon was an invited speaker at:

- *Collège de France*, for the physics seminar (January 2017).
- the congress *Stochastic Analysis and its Applications*, taking place in Bedlewo Center (Poland) in June 2017.

#### 6.2. Teaching - Supervision - Juries

##### 6.2.1. Supervision

PhD: M. Duerinckx, PhD at Université Libre de Bruxelles, defended on 19th December 2017 (A. Gloria).

PhD in progress: P. Mennuni, PhD at Université de Lille 1 (S. De Bièvre and G. Dujardin).

#### 6.3. Popularization

M. Simon participated in the diffusion program *MathenJeans*, in Lille. She followed a group of 4 children (aged 10–11), who presented a project to the national competition named *CGénial*.

## MEXICO Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

- Matthias Függer is general co-chair of *ASYNC 2018*

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

- Laurent Fribourg was a PC member of:
  - 7th International Conference on New Computational Methods for Inverse Problems, Cachan, 2017
  - The 27th International Symposium on Logic-based Program Synthesis and Transformation, Namur, Belgium, 2017
  - Seventh Workshop on Design, Modeling and Evaluation of Cyber Physical Systems, Seoul, 2017.
- Matthias Függer was a member of the PC of **DDECS'17**.
- Stefan Haar was a member of the PCs of the conferences MSR 2017 and **ACSD 2017** and of the workshop **ATAED 2017**.
- Serge Haddad was a PC member of the *International Workshop on Petri Nets and Software Engineering* (PNSE) 2017 at Zaragoza, Spain, and of the *11th International Conference on Verification and Evaluation of Computer and Communication Systems* (VECOS) 2017 at Montreal, Québec, Canada. He was also a member of the scientific committee of *Ecole d'été temps-réel* (ETR 2017).

#### 9.1.2.2. Reviewer

- Matthias Függer was a reviewer for ICALP, DISC, FMCAD, ICDCN, and OPODIS.
- Stefan Haar was a reviewer for FOSSACS.
- Stefan Schwoon was a reviewer for the following conferences taking place in 2017: STACS, TACAS, ESOP, ATVA, and FSTTCS.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

- Stefan Haar is associate editor of the *Journal of Discrete Event Dynamic Systems: Theory and Applications*.

#### 9.1.3.2. Reviewer - Reviewing Activities

- Thomas Chatain was a reviewer for Acta Informatica, Artificial Intelligence and Journal of Discrete Event Dynamic Systems.
- Matthias Függer was a reviewer for MFCS.
- Stefan Haar was a reviewer for MSCS and IEEE Transactions on Automatic Control.
- Stefan Schwoon was a reviewer for Fundamenta Informaticae, International Journal on Software Tools for Technology Transfer, and the Journal of Discrete Event Dynamic Systems.

### 9.1.4. Invited Talks

- Laurent Fribourg gave the following invited talk: "Euler's Method Applied to the Control of Switched Systems", at 15th International Conference on Formal Modelling and Analysis of Timed Systems, Berlin, 2017
- Matthias Függer gave invited talks at the Theory of Hardware seminar in Vienna in February, the Noon seminar at Max-Planck Institute for Informatics in April, and the Distributed Computing Seminar at Labri in November.
- Serge Haddad gave the following invited talks:
  - at Centre Fédéré en Vérification, Bruxelles, Belgique on February 24, 2017, entitled *From Continuous Petri nets to Petri nets and Back*;
  - at LACL, Créteil on February 27, 2017, entitled *Probabilistic Disclosure: Maximisation vs. Minimisation*
  - at the MSR 2017 conference, Marseille, France, on November 16, 2017, entitled *Réseaux de Petri discrets et continus : apports réciproques*.
- Claudine Picaronny gave an invited talk on 'Vérification probabiliste, numérique ou statistique', on the 21th of april 2017 at Alea 17, CIRM Marseille, France

### 9.1.5. Scientific Expertise

- Serge Haddad was expert for the evaluation of the researcher premiums at University Pierre et Marie Curie

### 9.1.6. Research Administration

- Laurent Fribourg is a member of
  - Comité Direction of Department Sciences et technologies de l'information et de la communication of Université Paris-Saclay,
  - Bureau of Domaine d'Intérêt Majeur émergent du Réseau Francilien en Sciences Informatiques
- Stefan Haar is the president of Inria's *GTRI-COST* committee for international relations, and the head of the **SciLex** (Software Reliability and Security) axis of the **LABEXDIGICOSME**, and ipso facto a member of *DIGICOSME*'s executive committee and scientific commission.
- Serge Haddad was the president of the HCERES evaluation committee of the laboratory LIAS, Poitiers.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Stefan Haar taught one half of L3 level class on Formal Languages at ENS Paris-Saclay (15 h CM, 22.5 EQTD).
- Serge Haddad is professor at ENS Paris-Saclay. Claudine Picaronny, Thomas Chatain, and Stefan Schwoon are associate professors of the same university.
- Serge Haddad is the head of the Computer Science Department, and Stefan Schwoon is in charge of the L3 formation.
- Claudine Picaronny is a co-director of the ENS Paris-Saclay's Mathematics department and a member of the juries of the 'agrégation interne de Mathématiques' and of the second 'concours de Mathématiques' of ENS Paris-Saclay; she is also the coordinator of the mathematics/computer science examination of E3A, parts MP and MC.
- Matthias Függer is teaching "Initiation à la recherche" at ENS Paris-Saclay.

### 9.2.2. Supervision

Theses in progress:

Hugues Mandon, ENS Paris-Saclay since October 2016, on *computational models and algorithms for the prediction of Cell Reprogramming Strategies*, co-supervised by Stefan Haar and L. Paulevé (LRI)

Juraj Kolčák, , ENS Paris-Saclay since March 2017, on *Unfoldings and Abstract Interpretation for Parametric Biological Regulatory Networks*, co-supervised by Stefan Haar and L. Paulevé (LRI).

Adnane Saoud, Université Paris-Saclay since 2016, jointly supervised by Laurent Fribourg and Antoine Girard (Centrale-Supelec).

Engel Lefauchaux, ENS Paris-Saclay since 2015, *Controlling information in probabilistic systems*, jointly supervised by Nathalie Bertrand (SUMO team) and Serge Haddad

Yann Duploux, IRT SystemX since 2015, *Application of formal methods to the development of embedded systems for autonomous vehicles*, supervised by Béatrice Bérard and Serge Haddad.

Robert Najvirt (TU Wien, Austrian FWF SIC project), realistic delay models with applications in high-speed and low-power circuits, co-supervised by Matthias Függer and Andreas Steininger.

Martin Perner (TU Wien, Austrian FWF SIC project), clock generation on-chip and formalisms suitable to prove correct VLSI circuits, co-supervised by Matthias Függer and Ulrich Schmid.

Juergen Maier (TU Wien, Austrian FWF SIC project), on realistic delay models with applications in high-speed and low-power circuits, with focus on noise and high-order models, co-supervised by Matthias Függer and with Ulrich Schmid.

### 9.2.3. Juries

- Laurent Fribourg was a member of the Jury of Irini-Eleftheria Mens's PhD Thesis on "Learning regular languages over large alphabets", defended at University of Grenoble, October 2017.
- Stefan Haar was a reviewer of the thesis by Guillaume Madelaine on 'Simplifications Exactes et Structurelles de Réseaux de Réactions Biologiques', defended on February 28 at Lille University, France.
- Serge Haddad was:
  - reviewer in the jury of Bruno Karelavic on *Quantitative Analysis of Stochastic Systems – Priority Games and Populations of Markov Chains* on July 7 2017, University Paris 7
  - president of the jury of Nicolas David on *Réseaux de Petri à Paramètres Discrets* on October 20 University Nantes
  - reviewer in the jury of Thomas Geffroy on *Vers des outils efficaces pour la vérification de systèmes concurrents* on December 12 2017, University Bordeaux
- Claudine Picaronny was Member of the jury of Pierre Carlier's Thesis on 'Verification of Stochastic Timed Automata', on the 8th of december 2017, Mons, Belgium

## MIMESIS Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

David Cazier contributed to the organization of the Annual workshop of the *Animation & Simulation* group of the GDR IGRV of the CNRS in Strasbourg.

#### 10.1.1.2. Reviewing Activities

Stephane Cotin provided reviews for: *Int. Conf. on Information Processing in Computer-Assisted Interventions, Workshop on Virtual Reality Interaction and Physical Simulation*

Igor Peterlik provided reviews for: *Int. Conf. of Medical Image Computing and Computer Assisted Intervention Society*

Antoine Petit provided reviews for: *International Conference on Robotics and Automation*

### 10.1.2. Journal

#### 10.1.2.1. Reviewing Activities

Stephane Cotin provided reviews for: *International Journal of Computer Assisted Radiology and Surgery*

David Cazier provided reviews for: *Computer-Aided Design, Visual Computer, Computer & Graphics, Int. Journal on Virtual Reality*

Igor Peterlik provided reviews for: *Computer and Graphics*

Antoine Petit provided reviews for: *International Journal Of Robotics Research, Robotics and Automation Letters*

Christoph Paulus provided reviews for: *MDPI Journal Symmetry*

Lionel Untereiner provided reviews for: *Special Issue on Parallel and Distributed Algorithms of Concurrency and Computation*

### 10.1.3. Invited Talks

Keynote lecture by S. Cotin at 10th Medical Korea conference (Seoul, South Korea)

Invited lecture by S. Cotin FMTS conference (Strasbourg, France)

Invited lecture by S. Cotin B.E.S.T. symposium (Strasbourg, France)

Invited talk by S. Cotin at Fraunhofer MEVIS lab (Bremen, Germany)

Invited lecture by S. Cotin at European Computer-Assisted Liver Surgery Society (Mainz, Germany)

Invited lecture by S. Cotin at 127th annual meeting of the French Ophthalmology Association (Paris, France)

Invited lecture by S. Cotin at the French Academy of Surgery (Paris, France)

### 10.1.4. Scientific Expertise

Igor Peterlik has been providing a scientific expertise at Masaryk University, Czech Republic as a consultant and co-investigator of a project unded by Grant Agency of the Czech Republic: Development of Reliable Methods for Automated Quantitative Characterization of Cell Motility in Fluorescence Microscopy.

### 10.1.5. Research Administration

David Cazier is a member and local coordinator for a CITEPH project Paleo GTM: *A Paleo Geological and Topological Modeler*. Subject and expected contributions: multiresolution meshing and visualization for handling of massive geological data.



The project started in Sep 2017 (duration 2 years) and involves following partners:

- GEOSIRIS SAS (StartUp)
- Laboratoire ICUBE, UMR 7357 (Université de Strasbourg)
- Laboratoire XLIM, UMR 7352 (Université de Poitiers)
- Laboratoire LSIS, UMR 7296 (Université d'Aix-Marseille)

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Igor Peterlik, Modélisation des systèmes vivants, 17h, M2, University of Strasbourg

Master: Igor Peterlik, Visualisation des données et simulation, 10h, M1, University of Strasbourg

Master: Hadrien Courtecuisse, Real time simulation, 30h, M2, University of Strasbourg

Master: Hadrien Courtecuisse, Visualisation des données et simulation, 10h, M2, University of Strasbourg

Master: Hadrien Courtecuisse, Visualisation des données et simulation, 10h, M1, University of Strasbourg

Licence: David Cazier, Web technologies and programming, 96h, L3, University of Strasbourg

### 10.2.2. Supervision

PhD: Christoph Paulus, *Modeling and real-time simulation of topological changes in soft tissue*, University of Strasbourg, 03/04/2017 [11]

PhD: Fanny Morin, *Non linear simulation for intra-operative guidance for neurosurgery*, Université Grenoble Alpes, 05/10/2017

PhD in progress: Jaime Garcia Guevara, *Augmented ultrasound imaging for hepatic surgery*, 01/09/2015, supervised by Stéphane Cotin, Marie-Odile Berger

PhD in progress: Raffaella Trivisonne, *Computer-aided vascular interventions*, 01/09/2015, Stéphane Cotin, Erwan Kerrien

PhD in progress: Yinoussa Adagolodjo, *Coupling between robotics and medical simulation for automated procedures*, 01/02/2015, supervised by Hadrien Courtecuisse

PhD in progress: Nicolas Golse, *Navigation using the augmented reality during hepatic surgery*, 01/09/2016, supervised by Stéphane Cotin

PhD in progress: Lukáš Ručka, *Validation and verification of soft tissue models*, 01/09/2016, co-supervised by Igor Peterlik, supervised by Prof. Ludek Matyska at Masaryk University, Czech Republic

PhD in progress: Sergei Nikolaev, *Characterization of boundary conditions for biomechanical modeling of liver*, 01/05/2017, supervised by Stéphane Cotin, co-supervised by Igor Peterlik and Hadrien Courtecuisse

PhD in progress: Jean-Nicolas Brunet, *Characterization of boundary conditions for biomechanical modeling of liver*, 01/09/2017, supervised by Stéphane Cotin

PhD in progress: Andrea Mendizabal, *Numerical simulation of soft tissues and machine learning*, 01/09/2017, supervised by Stéphane Cotin

### 10.2.3. Juries

Stéphane Cotin was a member of jury of HDR of Christian Herlin (MD): *Imagerie et simulation pour la chirurgie plastique et reconstructrice*. Université de Montpellier. Nov 2017

## 10.3. Popularization

Demonstration at *50 Years Inria* on Nov 10 in Paris, attended by Mr. Mounir Mahjoubi, secrétaire d'état auprès du premier ministre, chargé du numérique.

## **MIMETIC Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### **10.1.1. Scientific Events Organisation**

#### *10.1.1.1. General Chair, Scientific Chair*

- Anne-Hélène Olivier, Workshop VHCIE 2017, IEEE VR 2017, Los Angeles, United-States, March 2017
- Anne-Hélène Olivier, Workshop Interactions, Rennes, June 2017

#### *10.1.1.2. Member of the Organizing Committees*

Ludovic Hoyet, co-organiser of the French Computer Graphics - Virtual Reality days, October 2017, Rennes, France

Marc Christie, steering committee of Motion in Games 2017

### **10.1.2. Scientific Events Selection**

#### *10.1.2.1. Chair of Conference Program Committees*

Ludovic Hoyet: co-chair of French Computer Graphics days 2017, October 2017, Rennes, France

Antonio Mucherino: Workshop on Computational Optimization (WCO17), in the framework of the "Federated Conference on Computer Science and Information Systems" (FedCSIS17), co-chair with Stefka Fidanova and Daniela Zaharie Web: <https://fedcsis.org/2017/wco>

#### *10.1.2.2. Member of the Conference Program Committees*

Ludovic Hoyet, ACM Motion in Games MIG 2017, Barcelona, Spain, Nov. 2017

Ludovic Hoyet, ACM Symposium on Applied Perception 2017, Cottbus, Germany, Sept. 2017

Ludovic Hoyet, International Conference on Computer Graphics Theory and Applications 2018, Maderia, Portugal, Jan. 2018

Anne-Hélène Olivier, ACM Motion in Games MIG 2017, Barcelona, Spain, October 2017

Anne-Hélène Olivier, IEEE VR 2018 TVCG Conference paper, Reutlingen, Germany, March 2018

Franck Multon, ACM Motion in Games MIG 2017, Barcelona, Spain, Nov. 2017

Franck Multon, Computer Animation and Social Agents CASA 2017, Seoul, Korea, May 2017

Franck Multon, IEEE Conference on Automatic Face and Gesture Recognition FG'2017, Washington DC, US, June 2017

Franck Multon, Affective Computing and Intelligent Interaction ACII 2017, San Antonio, United States, October 2017

Richard Kulpa, International Conference on Computer Graphics Theory and Applications (GRAPP), 2017

Marc Christie, Motion In Games (MIG) 2017

#### *10.1.2.3. Reviewer*

Ludovic Hoyet, ACM Siggraph, Los Angeles, United-States, July 2017

Ludovic Hoyet, IEEE VR 2018, Reutlingen, Germany, March 2018

Ludovic Hoyet, Pacific Graphics, Taipei, Taiwan, October 2017

Anne-Hélène Olivier, IEEE VR 2018 TVCG Conference paper, Reutlingen, Germany, March 2018

Anne-Hélène Olivier, ACM Motion in Games MIG 2017, Barcelona, Spain, October 2017

Anne-Hélène Olivier, ACM VRST 2017, Gothenburg, Sweden, November 2017  
Richard Kulpa, IEEE International Conference on Automatic Face and Gesture Recognition, 2018  
Richard Kulpa, Siggraph CHI, 2018  
Richard Kulpa, GRAPP, 2018  
Marc Christie Eurographics 2017  
Marc Christie ACM Siggraph CHI 2017  
Marc Christie Siggraph 2017  
Marc Christie IEEE VR 2017  
Franck Multon IEEE VR 2017  
Franck Multon ACM VRST 2017  
Franck Multon ACM MIG 2017  
Franck Multon ACM VRST 2017

### **10.1.3. Journal**

#### *10.1.3.1. Member of the Editorial Boards*

Franck Multon, Presence, MIT Press  
Franck Multon, Computer Animation and Virtual Worlds CAVW, John Wiley  
Antonio Mucherino, Guest Editor of Optimization Letters, Springer  
Armel Crétual, Editorial board of Journal of Electromyography and Kinesiology  
Marc Christie, Associate Editor of the Visual Computer

#### *10.1.3.2. Reviewer - Reviewing Activities*

Franck Multon, Medical & Biological Engineering & Computing, Computer and Graphics, IEEE Journal of Biomedical and Health Informatics, IEEE Transactions on Visualization and Computer Graphics, Journal of Computer Science and Technology, Computer Animation and Virtual Worlds, ROBOMECH journal  
Ludovic Hoyet, ACM Transactions on Graphics, IEEE Transactions on Visualization and Computer Graphics, Computers & Graphics, Computer Graphics Forum  
Anne-Hélène Olivier, Gait and Posture, Motor Control  
Antonio Mucherino, Journal of Global Optimization, Springer, Discrete Applied Mathematics, Elsevier  
Armel Crétual, Journal of Electromyography and Kinesiology, Clinical Biomechanics, Gait & Posture, Journal of Orthopaedic Research, Medical & Biological Engineering & Computing, PlosOne  
Richard Kulpa, Human Movement Science, 2017, Sport Medicine (SMOA), 2017, CGVCVIP, 2017  
Marc Christie, IEEE TVCG, The Visual Computer, CGF

### **10.1.4. Invited Talks**

Anne-Hélène Olivier, VenLab, Brown University, Providence USA, August 2017  
Anne-Hélène Olivier, IFSTTAR Marne la Vallée, November 2017  
Antonio Mucherino, Institute of Computer Technology, TU Vienna, Austria. Invited by N. TaheriNejad. April 2017.  
Antonio Mucherino, Research Center for Applied Sciences, Academia Sinica, Taipei, Taiwan. Invited by J-H. Lin. June 2017.

### **10.1.5. Scientific Expertise**

Franck Multon, ANR expert, member of the ANR CPDS 4 "Santé Bien-être" through the Allistene national Alliance to design the next ANR call for projects, CRSNG (Canada)

Armel Crétual, 5 projects evaluated for UEFISCDI (The Executive Agency for Higher Education, Research, Development and Innovation Funding, Romania)

Marc Christie, expert for CIR (credit impot recherche – two cases in 2017), expert for ANR (CE 27)

### **10.1.6. Research Administration**

Franck Multon is member of the University Rennes2 Research steering committee "commission recherche", and Academic Council "CAC",

Franck Multon is member of the M2S Lab steering committee,

Franck Multon is member of the UFR-APS steering committee in University Rennes2

Ludovic Hoyet is an elected member of the Board of Managers for the French Computer Graphics Association (Association Française d'Informatique Graphique) since Oct. 2017

Ludovic Hoyet participated in the local MESR PhD Grant Auditions 2017

Georges Dumont is president of the elected group at scientific council of École Normale Supérieure de Rennes, member of the scientific council of École Normale Supérieure de Rennes

Georges Dumont is scientific head of Immerstar platforms (Immersia + Immermove) jointly for Inria and Irisa Partners

Richard Kulpa is member of the University Rennes2 Research steering committee "commission recherche", Academic Council "CAC" and Committee of International Affairs "CAI"il "CAC",

Benoit Bideau is director of the M2S Lab

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

Doctorat : Ludovic Hoyet & Anne-Hélène Olivier, Evaluations en informatique graphique et réalité virtuelle : concepts généraux et cas pratiques, 2.25h, Journée Jeunes Chercheurs du GDR IG-RV 2017, France

Master : Franck Multon, co-leader of the IEAP Master (1 and 2) "Ingénierie et Ergonomie de l'Activité Physique", STAPS, University Rennes2, France

Master : Franck Multon, "Santé et Performance au Travail : étude de cas", leader of the module, 30H, Master 1 M2S, University Rennes2, France

Master : Franck Multon, "Analyse Biomécanique de la Performance Motrice", leader of the module, 30H, Master 1 M2S, University Rennes2, France

Master: Charles Pontonnier, "Numerical methods", leader of the module, 36H, Mechanics, École Spéciale Militaire de Saint-Cyr Coëtquidan, France

Master: Charles Pontonnier, "Numerical simulation of mechanical systems", leader of the module, 18H, Mechanics, École Spéciale Militaire de Saint-Cyr Coëtquidan, France

Master: Charles Pontonnier, "Analytical Mechanics" , 40H, Mechanics, École Spéciale Militaire de Saint-Cyr Coëtquidan, France

Master: Charles Pontonnier, "Robotics: practical views", 24H, International cadets seminar, École Spéciale Militaire de Saint-Cyr Coëtquidan, France

Master: Charles Pontonnier, "Design and control of legged robots", leader of the module, 38H, Electronics, École Spéciale Militaire de Saint-Cyr Coëtquidan, France

Master: Charles Pontonnier, "Design, simulation and control of mechanical systems", leader of the module, 24H, Lecturers training in mechatronics, École Normale Supérieure de Rennes, France

Master: Charles Pontonnier, "Musculoskeletal modeling and ergonomics", 3H, Master 1 M2S, University Rennes2, France

Master : Georges Dumont, Responsible of the second year of the master Mechatronics, Rennes 1 University and École Normale Supérieure de Rennes, France

Master : Georges Dumont, Mechanical simulation in Virtual reality, 36H, Master Mechatronics, Rennes 1 University and École Normale Supérieure de Rennes, France

Master : Georges Dumont, Mechanics of deformable systems, 40H, Master FE, École Normale Supérieure de Rennes, France

Master : Georges Dumont, oral preparation to agregation competitive exam, 20H, Master FE, École Normale Supérieure de Rennes, France

Master : Georges Dumont, Vibrations in Mechanics, 10H, Master FE, École Normale Supérieure de Rennes, France

Master : Georges Dumont, Multibody Dynamics, 9H, Master FE, École Normale Supérieure de Rennes, France

Master : Georges Dumont, Finite Element method, 12H, Master FE, École Normale Supérieure de Rennes, France

Master : Ludovic Hoyet, Motion for Animation and Robotics, 9h, University Rennes 1, France

Master : Ludovic Hoyet, Motion Analysis and Gesture Recognition, 12h, INSA Rennes, France

Master : Anne-Hélène Olivier, "Biostatistiques", 7H, Master 2 APPCM, University Rennes2, France

Master : Anne-Hélène Olivier, "Evaluation fonctionnelle des pathologies motrices", 9H Master 2 APPCM, University Rennes2, France

Master : Anne-Hélène Olivier, "Maladie neurodégénératives : aspects biomécaniques", 2H Master 1 APPCM, University Rennes2, France

Master : Anne-Hélène Olivier, "Biostatistiques", 7H, Master 1 EOPS, University Rennes2, France

Master : Anne-Hélène Olivier, "Méthodologie", 4H, Master 1 EOPS/APPCM, University Rennes2, France

Master : Anne-Hélène Olivier, "Contrôle moteur : Boucle perceptivo-motrice", 3H, Master IIEAP, Université Rennes 2, France

Master: Antonio Mucherino, "Programmation Parallèle", M1 en Informatique, 16H, University of Rennes, France

Master: Fabrice Lamarche, "Compilation pour l'image numérique", 29h, Master 1, ESIR, University of Rennes 1, France

Master: Fabrice Lamarche, "Synthèse d'images", 12h, Master 1, ESIR, University of Rennes 1, France

Master: Fabrice Lamarche, "Synthèse d'images avancée", 28h, Master 1, ESIR, University of Rennes 1, France

Master: Fabrice Lamarche, "Modélisation Animation Rendu", 36h, Master 2, ISTIC, University of Rennes 1, France

Master: Fabrice Lamarche, "Jeux vidéo", 26h, Master 2, ESIR, University of Rennes 1, France

Master: Fabrice Lamarche, "Motion for Animation and Robotics", 9h, Master 2 SIF, ISTIC, University of Rennes 1, France.

Master : Armel Créteil, "Méthodologie", leader of the module, 20H, Master 1 M2S, University Rennes2, France

Master : Armel Créteil, "Biostatistiques", leader of the module, 30H, Master 2 M2S, University Rennes2, France

Master : Richard Kulpa, "Boucle analyse-modélisation-simulation du mouvement", 27h, leader of the module, Master 2, Université Rennes 2, France

Master : Richard Kulpa, "Méthodes numériques d'analyse du geste", 27h, leader of the module, Master 2, Université Rennes 2, France

Master : Richard Kulpa, "Cinématique inverse", 3h, leader of the module, Master 2, Université Rennes 2, France

Master: Marc Christie, "Multimedia Mobile", Master 2, leader of the module, 32h, Computer Science, University of Rennes 1, France

Master: Marc Christie, "Projet Industriel Transverse", Master 2, 32h, leader of the module, Computer Science, University of Rennes 1, France

Master: Marc Christie, "Outils pour la Conception d'IHM", Master 2, 32h, leader of the module, Computer Science, University of Rennes 1, France

Licence : Franck Multon, "Ergonomie du poste de travail", Licence STAPS L2 & L3, University Rennes2, France

Licence: Charles Pontonnier, "Numerical control", leader of the module, Electronics, École Inter-Armes de Saint-Cyr Coëtquidan, France

Licence : Anne-Hélène Olivier, "Analyse cinématique du mouvement", 100H , Licence 1, University Rennes 2, France

Licence : Anne-Hélène Olivier, "Anatomie fonctionnelle", 7H , Licence 1, University Rennes 2, France

Licence : Anne-Hélène Olivier, "Effort et efficacité", 12H , Licence 2, University Rennes 2, France

Licence : Anne-Hélène Olivier, "Locomotion et handicap", 12H , Licence 3, University Rennes 2, France

Licence : Anne-Hélène Olivier, "Biomécanique spécifique aux APA", 8H , Licence 3, University Rennes 2, France

Licence : Anne-Hélène Olivier, "Biomécanique du vieillissement", 12H , Licence 3, University Rennes 2, France

Licence: Antonio Mucherino, "Informatique 1", 80H, L1, University of Rennes, France

Licence: Fabrice Lamarche, "Initiation à l'algorithmique et à la programmation", 56h, License 3, ESIR, University of Rennes 1, France

Licence: Fabrice Lamarche, "Programmation en C++", 46h, License 3, ESIR, University of Rennes 1, France

Licence: Fabrice Lamarche, "IMA", 24h, License 3, ENS Rennes, ISTIC, University of Rennes 1, France

Licence : Arnel Crétual, "Analyse cinématique du mouvement", 100H, Licence 1, University Rennes 2, France

Licence : Richard Kulpa, "Biomécanique (dynamique en translation et rotation)", 48h, Licence 2, Université Rennes 2, France

Licence : Richard Kulpa, "Méthodes numériques d'analyse du geste", 48h, Licence 3, Université Rennes 2, France

Licence : Richard Kulpa, "Statistiques et informatique", 15h, Licence 3, Université Rennes 2, France

Licence : Marc Christie, "Programmation Impérative 1", leader of the module, University of Rennes 1, France

### **10.2.2. Supervision**

PhD: Antoine Muller, Contributions méthodologiques à l'analyse musculo-squelettique de l'humain dans l'objectif d'un compromis précision performance (Methodological contributions to the musculoskeletal analysis of humans with a trade-off between performance and precision), Ecole normale supérieure, Georges Dumont & Charles Pontonnier

PhD: Marion Morel, Suivi et étude des interactions pour l'analyse des tactiques durant un match de basket-ball, UPMC - University Rennes 2, septembre 2014, Catherine Achard & Séverine Dubuisson & Richard Kulpa

PhD in progress (beginning september 2017): Simon Hilt, Haptique Biofidèle pour l'Interaction en réalité virtuelle, Ecole normale supérieure, Georges Dumont & Charles Pontonnier

PhD in progress (beginning september 2017): Pierre Puchaud, Développement d'un modèle musculo-squelettique générique du soldat en vue du support de son activité physique, Ecole normale supérieure, Charles Pontonnier & Nicolas Bideau & Georges Dumont

PhD in progress: Rebecca Fribourg, Enhancing Avatars in Virtual Reality through Control, Interactions and Feedback, Sept. 2017, Ferran Argelaguet & Ludovic Hoyet & Anatole Lécuyer

PhD in progress: Florian Berton, Design of a virtual reality platform for studying immersion and behaviours in aggressive crowds, Nov. 2017, Ludovic Hoyet & Anne-Hélène Olivier & Julien Petré

PhD in progress: Sean D. Lynch, Perception visuelle du mouvement humain dans les interactions lors de tâches locomotrices, M2S - University Rennes 2, september 2015, Anne-Hélène Olivier & Richard Kulpa

PhD in progress: Amaury Louarn, A topology-driven approach to retargeting of filmic style in 3D environments, University of Rennes 1, Oct. 2017, Marc Christie & Fabrice Lamarche & Franck Multon

PhD in progress: Florence Gaillard, Evaluation en situation écologique des capacités fonctionnelles des membres supérieurs d'enfants hémiplegiques, University Rennes 2, decembre 2015, Armel Créteil & Isabelle Bonan

PhD in progress: Karim Jamal, Les effets des stimulations sensorielles par vibration sur les perturbations posturales secondaires à des troubles de la cognition spatiale après un Accident vasculaire Cérébrale, University Rennes 2, septembre 2016, Isabelle Bonan & Armel Créteil

PhD in progress: Lyse Leclercq, Intérêt dans les activités physiques du rétablissement de la fonction inertielle des membres supérieurs en cas d'amputation ou d'atrophie, University Rennes 2, septembre 2017, Armel Créteil

PhD in progress: Sean D. Lynch, Perception visuelle du mouvement humain dans les interactions lors de tâches locomotrices, M2S - University Rennes 2, septembre 2015, Anne-Hélène Olivier & Richard Kulpa

PhD in progress: Pierre Touzard, Suivi longitudinal du service de jeunes joueurs de tennis élite : identification biomécanique des facteurs de performance et de risque de blessures, University Rennes 2, septembre 2014, Benoit Bideau & Richard Kulpa & Caroline Martin

PhD in progress: Yacine Said Bouhalia, Approche transversale pour l'analyse et la reconnaissance de gestes 2D et 3D, INSA of Rennes, septembre 2015, Richard Kulpa & Franck Multon & Eric Anquetil

PhD in progress: Charles Faure, Stratégies coopératives et compétitives dans des tâches d'interactions physiques multiples, Université Rennes 2 - ENS Rennes, septembre 2016, Benoit Bideau & Richard Kulpa

PhD in progress: Théo Perrin, Evaluation de l'influence des feedbacks sur la capacité d'apprentissage dans le cadre d'interactions complexes entre joueurs et influence de ces feedbacks en fonction de l'activité sportive, Université Rennes 2 - ENS Rennes, septembre 2017, Benoit Bideau & Richard Kulpa

### **10.2.3. Juries**

PhD: Alexandra PIMENTA DOS SANTOS, Dynamical synthesis and analysis of healthy and pathological human walking, Université Pierre et Marie Curie, November 2017, Franck Multon, President

PhD: Galo Xavier MALDONADO TORO, Analysis and Generation of Highly Dynamic Motions of Anthropomorphic Systems: Application to Parkour. Université Fédérale Toulouse Midi-Pyrénées. November 2017, Franck Multon, Rapporteur.

PhD: 2017, Channarong Trakunsaranakom, Proposal for tangible, intuitive and collaborative design of manufactured products through virtual and augmented reality environments, Université de Grenoble-Alpes. 2017 june 21st, Georges Dumont Rapporteur.

PhD: 2017, Jingtao Chen, Biomechanical analysis of different aspects in virtual reality, Université de Grenoble-Alpes, 2017 january 30, Georges Dumont, Rapporteur.

PhD: 2017, Anne-Laure Kervellec, Introduction d'un logiciel dans la rééducation : optimisation et évaluation de l'engagement, Université Rennes 2, January 5th 2017, Armel Crétual, Examineur

HDR: Sophie SAKKA, Entre l'humain et l'humanoïde. Ecole Centrale de Nantes. December 2017, Franck Multon, President.

### **10.3. Popularization**

Ludovic Hoyet, Journées de la Science 2017. Présentation et démo "Ma main à 6 doigts: Avatar et Réalité Virtuelle" à des classes de primaire et lycée.

Ludovic Hoyet, démonstrations pour les 50 ans d'Inria à Paris, "Ma main à 6 doigts: Avatar et Réalité Virtuelle".



## MIMOVE Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

Valérie Issarny is co-chair of the BIS'17 workshop, which is the yearly workshop organized by Inria@SiliconValley to present the state of scientific collaborations and to work on proposals for future ambitious joint projects.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- Valérie Issarny is PC co-chair of ICSE-SEIS'2018 - The Software Engineering in Society Track of the ICSE'18 conference.
- R. Teixeira, Co-chair of the program committee of ACM IMC 2017.
- R. Teixeira, Co-chair of the program committee of ACM/ISOC ANRW 2017.

#### 10.1.2.2. Member of the Conference Program Committees

- R. Teixeira, PC member of 2017 ACM SIGCOMM conference.
- Vassilis Christophides, PC member of 34th IEEE International Conference on Data Engineering.
- Vassilis Christophides, PC member of 2nd IFIP/IEEE International Workshop on Analytics for Network and Service Management (AnNet 2017)
- Nikolaos Georgantas is PC member of the following international conferences: FiCloud'17, ICSE'17 Poster Track, SAC'17 &'18, WETICE'17, AmI'17, SOSE'17&'18
- Nikolaos Georgantas is PC member of the following international workshops: CASA'17, MRT'17, SERENE'17, IoT-ASAP'17.
- Valérie Issarny is PC member of the following International Conferences: AIMS'17 & 18, EUROSYS'17, FASE'17 & 18, ICDCS'18, ICSE-SEIS'17, ICSE'18, ISEC'17, SEAMS'17.
- Valérie Issarny is PC member of the following international workshops: AMS'18, InterIoT'17.
- R. Agarwal, PC member of 10th International Conference of Contemporary Computing.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- Nikolaos Georgantas is associate editor of the International Journal of Ambient Computing and Intelligence (IJACI);
- Valérie Issarny is associate editor of the IEEE transactions on Software Engineering.
- Valérie Issarny is associate editor of the IEEE Transactions on Services Computing.
- Valérie Issarny is associate editor of the Springer JISA Journal of Internet Services and Applications.

### 10.1.4. Invited Talks

- R. Teixeira, invited talk at Politecnico di Torino, "Home network QoE diagnosis", October 2017.
- R. Teixeira, journées scientifiques Inria, "Home network QoE diagnosis", June 2017.
- R. Teixeira, LINCOS workshop, "WeBrowse: a passive crowdsourced content discovery platform for communities of a place", June 2017.

- R. Teixeira, keynote speaker at the Simpósio Brasileiro de Redes de Computadores (Brazilian networking conference), “Home network QoE diagnosis”, May 2017.
- R. Teixeira, tutorial at the Simpósio Brasileiro de Redes de Computadores (Brazilian networking conference), “Internet Measurements: Bandwidth”, May 2017.
- R. Teixeira, tutorial at the Simpósio Brasileiro de Redes de Computadores (Brazilian networking conference), “Internet Traffic Measurements”, May 2017.
- R. Agarwal: “Extracting mobility information from CDRs and using it towards achieving enhanced dissemination in wireless networks”, EMap FGV seminar, 3 August 2017, Rio De Janeiro, Brazil.
- Vassilis Christophides, “Web-scale Blocking, Iterative and Progressive Entity Resolution”, with K. Stefanidis, V. Efthymiou ICDE 2017.
- Vassilis Christophides, “Web-scale Entity Resolution”, Invited lecture at the 3rd EGC Winter School (Ecole EGC), 23 & 24 January 2017, Grenoble, France.
- Nikolaos Georgantas, “Enabling emergent mobile systems in the IoT: Functional and QoS interoperability aspects at the middleware layer”, Invited keynote talk at MSPN’17 (International Conference on Mobile, Secure and Programmable Networking), June 2017.

### 10.1.5. Leadership within the Scientific Community

- V. Issarny, Council member, ACM Europe (since July 2017).
- R. Teixeira, Vice-chair of ACM SIGCOMM (July 2013 – June 2017).
- R. Teixeira, Chair of the ACM SIGCOMM Industrial Liaison Board (October 2013 – June 2017).
- V. Christophides, Member of the EDBT Association (since 2014).

### 10.1.6. Scientific Expertise

- R. Teixeira, Reviewer of H2020 projects: CogNet, SUPERFLUIDITY, MONROE, MAMI.
- R. Teixeira, Technical advisory board of the project "Mapping of Broadband Services in Europe".
- Valérie Issarny is elected member of the *Commission d’Evaluation Inria*.
- Valérie Issarny is member of the Inria DR2 (Research Director position) selection committee.

### 10.1.7. Research Administration

- Valérie Issarny is scientific coordinator of Inria@Silicon Valley and CityLab@Inria;
- Nikolaos Georgantas is member of the PhD monitoring committee at Inria Paris.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : R. Teixeira, “Methodology for research in networking”, 10h eqTD, M2, UPMC, France

Master : R. Teixeira, “Network Metrology”, 22h CM, M2, UPMC, France

Master: Rachit Agarwal, “Network Science”, semester course at Fundacao Getulio Vargas (FGV), Rio De Janeiro, Brazil

Master: Rachit Agarwal, “Urban data democratization and its application to access urban concepts” as part of “Gestion de données ambiantes et internet des objets”, 9 hours eqTD, Niveau M2, UVSQ, France

#### E-learning

Valérie Issarny, MOOC *Villes intelligentes : défis technologiques et sociétaux*, 5 weeks, 4,085 registered students in the session of March 2017.

#### E-learning

Mooc : R. Teixeira, “Internet Measurements: a Hands-on Introduction”, 5 weeks in FUN platform, 1,204 registered students.

### **10.2.2. Supervision**

PhD : Diego da Hora, “Predicting Home Wi-Fi QoE from Passive Measurements on Commodity Access Points”, UPMC, 27/04/2017, R. Teixeira and K. van Doorselaer.

PhD: Georgios Bouloukakis, “Enabling Emergent Mobile Systems in the IoT: from Middleware-layer Communication Interoperability to Associated QoS Analysis”, UPMC, 01/08/2017, Nikolaos Georgantas and Valérie Issarny.

PhD: Amel Belaggoun, “Adaptabilité et reconfiguration des systèmes temps-réel embarquées”, UPMC, 10/10/2017, Valérie Issarny and Ansgar Radermacher (CEA-LISE).

PhD: Vassilis Efthimiou, “Entity resolution in the Web of Data”, University of Crete, 27/09/2017, V. Christophides.

PhD in progress: F. Dilmi, “End-to-end monitoring and diagnosis of video Quality of Experience”, October 2017, R. Teixeira.

PhD in progress: S. Wassermann, “Passive analysis and optimization of Internet Quality of Experience”, October 2017, R. Teixeira.

PhD in progress: S. El Aouad, “Building a personalized summary from movie reviews”, May 2013, V. Christophides, R. Teixeira, P. Perez.

PhD in progress : Radha Pallavali, “Dynamic adaptation of middleware-layer protocols for emergent mobile systems”, UPMC, November 2016, Nikolaos Georgantas and Valérie Issarny.

PhD in progress: Yifan Du, “In-network collaborative crowd-Xing”, UPMC, October 2017, Valérie Issarny and Françoise Sailhan.

### **10.2.3. Juries**

Nikolaos Georgantas was examiner for the PhD thesis of Adrien Carteron, *Une approche événementielle pour le développement de services multi-métiers dédiés à l'assistance domiciliaire*, defended in December 2017, Université de Bordeaux, France, advised by Charles Consel and Nic Volanschi.

Valerie Issarny was examiner for the HDR of Sonia Ben Mokhtar, *Contributions To Building Reliable Distributed Systems*, defended in December 2017, INSA Lyon, France.

## MINT2 Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Selection

#### 9.1.1.1. Member of the Conference Program Committees

Laurent Grisoni : PC for VISIGRAPP (IEEE InfoViz Art Track), Computer Graphics International (CGI, computer graphics), MOCO (international workshop on gesture), ISEA (art-science), GRAPP (computer graphics)

#### 9.1.1.2. Reviewer

Florent Berthaut: Reviewer for ACM CHI Conference and NIME conference  
Laurent Grisoni: Eurohaptics, ACM UIST, ACM CHI

### 9.1.2. Journal

#### 9.1.2.1. Member of the Editorial Boards

Frédéric Giraud is Associate Editor of IEEE Transactions on Haptics

#### 9.1.2.2. Reviewer - Reviewing Activities

Florent Berthaut: Reviewer for IEEE Multimedia  
Laurent Grisoni: Computer & Graphics

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Licence: Florent Berthaut, Spreadsheets et VBA programming, LEA L3 TCI (22h), Web programming, LEA L3, Université Lille 3, France
- Licence: Frédéric Giraud, Physique pour le génie électrique (30h), Université Lille 1
- Master: Christophe Giraud-Audine, Control of electrical machines (30h), Power Electronics (30h), signal processing (30h), niveau M1, ENSAM, France
- Master: Florent Berthaut, Web programming, LEA M1 TSM (16,5h) and LEA M1 RIC1 (48h), Database, LEA M1 ANI (22h), Université Lille 3, France
- Master: Frédéric Giraud, Control of electrical machines (30h), Power Electronics (40h) niveau M1, Université Lille1, France
- Master: Laurent Grisoni, NIHM : nouvelles Interactions Homme-Machine, (6h), niveau M2, Université Lille 1, France
- Master: Laurent Grisoni, Représentation et compression de données (24h), introduction à la programmation (38h), cryptographie (8h), Ecole Polytech'lille (dept IMA)
- Master: Laurent Grisoni: Gestion de projet en Co-design interdisciplinaire, Master Sciences et Culture du Visuel, Université de Lille Sciences Humaines et Sociales, Master Sciences et Cultures du Visuel (12h)
- Master: Laurent Grisoni, IHM et interface à gestes, (24h), niveau M2 (IMA5), Polytech Lille, France

### 9.2.2. Supervision

- PhD in progress: Ehsan Enferad, Modélisation et commande d'une interface tactile à stimulation hybride par modulation de friction et retournement temporel, Nov. 2015, F. Giraud, C. Giraud-Audine
- PhD in progress: Cagan Arslan, Fusion de données pour l'interaction homme-machine, Oct. 2015, L. Grisoni/J. Martinet
- PhD in progress: Farzan Kalantari, Interaction sur dispositif à retour tactile et kinesthésique, Oct. 2014, L. Grisoni, F. Giraud
- PhD: Hanae Rateau, Exploring Interactive Sub-Spaces for Gestural Midair Interaction, Université de Lille Sciences et Technologies, 17 May 2017, L. Grisoni
- PhD in progress: Vincent Guezou: L'architecte et ses outils, au travers de l'histoire et dans sa relation actuelle au numérique, Oct. 2014, L. Grisoni 25% (with F. Vermandel, architect, Lille School of Architecture)
- PhD in progress: Charlotte Planckeel, Le sens de la lacunae en archéologie de l'âge du bronze, archéologie et outils numériques, L. Grisoni (25%, with A. Lehoerff, Lille 3, archeologist)
- PhD in progress: Olivier Capra, Interaction de présentation, Oct. 2016, L. Grisoni, F. Berthaut

## MISTIS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- Stéphane Girard was a member of the organization committee of the international conference “Mathematical Methods in Reliability”, Grenoble, [MMR2017](#). He also organized a session on Extremes, safety and reliability.
- Stéphane Girard and Julyan Arbel co-organized the one week 2017 school of statistics for astrophysics on Bayesian methodology, Autrans, [Stat4Astro 2017](#).
- F. Forbes co-organized the Multiplanet 2 day [workshop](#) in November 2017 in Grenoble, on the analysis of multimodal data for planets observation and exploration.
- J.-B. Durand co-organized the [CFIES](#) conference in September 2017 in Grenoble, on teaching statistics.

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

- Stéphane Girard is Associate Editor of the *Statistics and Computing* journal since 2012 and Associate Editor of the *Journal of Multivariate Analysis* since 2016. He is also member of the Advisory Board of the *Dependence Modelling* journal since December 2014.
- F. Forbes is Associate Editor of the journal *Frontiers in ICT: Computer Image Analysis* since its creation in Sept. 2014. *Computer Image Analysis* is a new specialty section in the community-run openaccess journal *Frontiers in ICT*. This section is led by Specialty Chief Editors Drs Christian Barillot and Patrick Bouthemy.
- In 2017, J.-B. Durand has been a guest Associate Editor of the *PLOS Computational Biology* journal.

#### 10.1.2.2. Reviewer - Reviewing Activities

In 2017, S. Girard has been a reviewer for *Statistics and Risk Modeling*, *Extremes* and *Electronic Journal of Statistics*.

In 2017, F. Forbes has been a reviewer for *Journal of Multivariate Analysis*, *Computational Statistics and Data Analysis*, *Journal of graphical and computational statistics*, *Statistical analysis and data mining*.

In 2017, Julyan Arbel has been reviewer for *the Annals of Statistics*, *Bayesian Analysis*, *Biometrics*, *the Canadian Journal of Statistics*, *Statistics and Computing*, *Statistics and Probability Letters*, *the Journal of Non-parametric Statistics*, *the Scandinavian Journal of Statistics*, as well as for Machine Learning Conferences: *the Conference On Learning Theory (COLT)*, *the AAAI Conference on Artificial Intelligence (AAAI)*, *the International Conference on Learning Representations (ICLR)*. He is also writing Mathematical Reviews for MathSciNet.

### 10.1.3. Invited Talks

**Stéphane Girard** has been invited to give a talk to the following conferences:

- 10th International Conference of the ERCIM WG on Computing and Statistics [31], London, UK.
- 10th International Conference on Extreme Value Analysis [32], Delft, Netherlands.
- 27th Annual Conference of the International Environmetrics Society [33], Bergamo, Italy.

- Laboratoire de Statistique Théorique et Appliquée (LSTA), Univ Paris 6. Estimation de mesures de risques à partir des Lp-quantiles extrêmes, mai 2017.
- Laboratoire des Écoulements Géophysiques et Industriels (LEGI), Univ Grenoble-Alpes, Introduction à la statistique des valeurs extrêmes, novembre 2017.

**Florence Forbes** has been invited to give talks at :

- University of Queensland, Brisbane, Australia, April 2017 on *Student Sliced Inverse Regression*.
- University of La Trobe, Melbourne, Australia, April 2017 on *inverse regression approach to robust non-linear high-to-low dimensional mapping*.
- The American Statistical Association Joint Statistical meeting 2017 in Baltimore, USA - for a special session entitled "*New Dimension Reduction Methods with Applications to Biomedical Studies*", [35].

**Julyan Arbel** has been invited to give talks at the following seminars and conferences:

- Statistics Seminar, University of Kent, Canterbury, Kent, England, November 2. Talk: Approximating predictive probabilities of Gibbs-type priors.
- Workshop 'New challenges in statistics for social sciences', Ca' Foscari University of Venice, Italy, October 16-17. Invited tutorial: Bayesian nonparametric mixture models and clustering.
- School of Statistics for Astrophysics: Bayesian methodology, Autrans, France, October 9-13. Tutorial: Bayesian nonparametric clustering.
- Journées Scientifiques d'Inria, Sophia Antipolis, France, June 14-16. Invited talk: Probabilités de découverte d'espèces: Bayes à la rescousse de Good & Turing.
- Statistics Seminar, Université du Québec à Montréal, May 25. Invited talk: Bayesian nonparametric inference for discovery probabilities.
- Statistics Seminar, Université de Sherbrooke, Canada, May 23. Invited talk: Bayesian nonparametric inference for discovery probabilities.
- Statistical Science Seminar Series, Duke University, Durham, April 14. Invited talk: Bayesian nonparametric inference for discovery probabilities.

Julyan Arbel gave also the following contributed talks:

- 10th International Conference of Computational and Methodological Statistics (ERCIM), University of London, UK, December 16-18. Invited talk: Approximating predictive probabilities of Gibbs-type priors.
- Bayes in Grenoble reading group, Grenoble, France, November 15. Talk: Approximate Bayesian computation.
- Mathematical Methods of Modern Statistics, CIRM, Luminy, France, July 10-14. Talk: Investigating predictive probabilities of Gibbs-type priors. Poster: On the sub-Gaussianity of the Beta and Dirichlet distributions.
- 11th Conference on Bayesian Nonparametrics, Paris, France, June 26-30. Poster: Sequential Quasi Monte Carlo for Dirichlet Process Mixture Models.
- Workshop YES VIII, Eindhoven, Netherlands, January 23-25. Talk: Bayesian nonparametric inference for discovery probabilities.

**Jean-Baptiste Durand** has been invited to give a talk:

- at the seminar of probability and statistics at Laboratoire J. A. Dieudonné, in Nice, February 2017.

**Alexis Arnaud** gave a talk at:

- Congrès National d'Imagerie du Vivant, in Paris, November 2017, on *Suivi de l'hétérogénéité de la croissance de 4 modèles de gliomes par IRM multiparamétrique analysée par clustering*, [48].

**Pierre-Antoine Rodesch** gave a talk at:

- GDR ISIS, in Paris, March 2017, *Un algorithme one-step de reconstruction tomographique en Imagerie X spectrale*.

#### 10.1.4. Seminars organization

- MISTIS participates in the weekly statistical seminar of Grenoble. Jean-Baptiste Durand is in charge of the organization and several lecturers have been invited in this context.
- F. Forbes and J. Arbel are co-organizing a monthly **reading group** on Bayesian statistics.

#### 10.1.5. Leadership within the Scientific Community

Stéphane Girard is at the head of the associated team SIMERGE (*Statistical Inference for the Management of Extreme Risks and Global Epidemiology*) created in 2015 between MISTIS and LERSTAD (Université Gaston Berger, Saint-Louis, Sénégal). The team is part of the LIRIMA (Laboratoire International de Recherche en Informatique et Mathématiques Appliquées), <http://mistis.inrialpes.fr/simerge>.

#### 10.1.6. Scientific Expertise

Stéphane Girard was a member of the HCERES committee for the evaluation of the SAMM laboratory, Université Paris 1. He also was a referee for the NWO, Netherlands Organisation for Scientific Research.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : Stéphane Girard, *Statistique Inférentielle Avancée*, 18 ETD, M1 level, Ensimag. Grenoble-INP, France.

Master: Jean-Baptiste Durand, *Statistics and probability*, 192 ETD, M1 and M2 levels, Ensimag Grenoble INP, France. Head of the MSIAM M2 program, in charge of the statistics and data science tracks ([64]).

J.-B. Durand is a faculty member at Ensimag, Grenoble-INP.

Master and PhD course: Julyan Arbel gave a course on *Bayesian nonparametric statistics*, 25 ETD, Inria Montbonnot, France.

J.-M. Bécu, C. Albert are teaching at UGA.

Licence : Alexis Arnaud, *Modélisations mathématiques*, 48 ETD, L2 level, IUT2 Grenoble. Université Grenoble Alpes, France.

Licence : Alexis Arnaud, *Analyse pour l'ingénieur*, 33 ETD, L3 level, Ensimag. Grenoble-INP, France.

Licence : Alexis Arnaud, *Soutien en Analyse pour l'ingénieur*, 39 ETD, L3 level, Ensimag. Grenoble-INP, France.

Licence: Brice Olivier, *Probabilités pour l'informatique*, 27 ETD, M1 level, Ensimag. Grenoble-INP, France.

Licence: Brice Olivier, *Principes et méthodes statistiques*, 36 ETD, L3 level, Ensimag. Grenoble-INP, France.

Licencel: Brice Olivier, *Retours d'expériences (ReX)*, 2 ETD, M2 level, Ensimag. Grenoble-INP, France.

### 10.2.2. Supervision

PhD: Maïlys Lopes, “*Suivi écologique des prairies semi-naturelles : analyse statistique de séries temporelles denses d'images satellite à haute résolution spatiale*”, defended November 2017, Stéphane Girard and Mathieu Fauvel (INRA Toulouse).



PhD in progress: "A new location-scale model for heavy-tailed distributions", started on September 2016, Séphane Girard and Alio Diop (Université Gaston Berger, Sénégal).

PhD in progress: Thibaud Rahier, "Data-mining pour la fusion de données structurées et non-structurées", started on November 2015, Florence Forbes and Stéphane Girard.

PhD in progress: Clément Albert, "Limites de crédibilité d'extrapolation des lois de valeurs extrêmes", started on January 2016, Stéphane Girard.

PhD in progress: Alexis Arnaud "Multiparametric MRI statistical analysis for the identification and follow-up of brain tumors", October 2014, Florence Forbes, Benjamin Lemasson and Emmanuel Barbier (GIN).

PhD in progress: Pierre-Antoine Rodesch, "Spectral tomography and tomographic reconstruction algorithms", October 2015, Florence Forbes, Clarisse Fournier and Veronique Rebuffel (CEA Leti Grenoble).

PhD in progress: Brice Olivier, "Joint analysis of eye-movements and EEGs using coupled hidden Markov and topic models", October 2015, Jean-Baptiste Durand, Marianne Clausel and Anne Guérin-Dugué (Université Grenoble Alpes).

PhD in progress: Karina Ashurbekova, "Robust Graphical models", October 2016, Florence Forbes and Sophie Achard (Gipsa-lab, Grenoble).

PhD in progress: Veronica Munoz Ramirez, "Extraction de signatures dans les données IRM de patients parkinsoniens de novo", October 2017, Florence Forbes, Julyan Arbel and Michel Dojat (GIN).

PhD in progress: Fabien Boux, "Développement de méthodes statistiques pour l'imagerie IRM fingerprinting", September 2017, Florence Forbes, Julyan Arbel and Emmanuel Barbier (GIN).

### 10.2.3. Juries

- S. Girard was a member of 3 PhD committees in 2017:
  - Mohamed Néjib Dalhoumi, *Sur l'estimation de probabilités de queues multivariées*, Univ. Montpellier, September 2017.
  - Achmad Choiruddin, *Sélection de variables pour des processus ponctuels spatiaux*, Univ. Grenoble, September 2017.
  - Patricia Tencaliec, *Development in statistics applied to hydrometeorology: imputation of stream-flow data and semiparametric precipitation modeling*, Univ. Grenoble, February 2017.
- Florence Forbes has been reviewer of 2 PhD thesis in 2017:
  - Julie Aubert, *Analyse statistique de données biologiques à haut débit*, AgroParisTech, January 2017.
  - Adrien Faivre, *Analyse d'images hyperspectrales*, University of Besançon Franche-Comté, December 14, 2017.
- F. Forbes was a member of 3 PhD committees in 2017:
  - Clément Elvira, *Modèles bayésiens pour l'identification de représentations antiparcimonieuses et l'analyse en composantes principales bayésienne non paramétrique*, November 10, 2017, Centrale Lille
  - Melanie Bernard, *Système modulaire de traitement pour la tomographie d'émission à partir de détecteurs CdZnTe*, November 6, 2017, CEA-Leti, Grenoble.
  - Vincent Drouard, , *Localisation et suivi de visages à partir d'images et de sons*, December 18, 2017, Inria Grenoble.
- Julyan Arbel acted as a reviewer for the PhD thesis of Ilaria Bianchini, *Modeling and computational aspects of dependent completely random measures in Bayesian nonparametric statistics*, December 2017, Politecnico di Milano, Italy.

#### 10.2.3.1. Other committees

- Grenoble Pole Cognition. F. Forbes is representing Inria and LJK in the pole.
- PRIMES Labex, Lyon. F. Forbes is a member of the strategic committee. F. Forbes is representing Inria since 2016.
- F. Forbes is a member of the executive committee of the Idex CDP Grenoble Data institute.
- F. Forbes is a member of the Committee for technological project and engineer candidate selection at Inria Grenoble Rhône-Alpes ("Commission du développement technologique ") since 2015.
- F. Forbes is a member of the " Comité d'Organisation Stratégique" (COS) since September 2017.
- F. Forbes has been a member of 3 selection committees, 2 for Professors at Centrale Lille and at Paris-Descartes 5, and 1 for assistant professors at University of Lille.
- F. Forbes has been a member of the committee awarding *Grand prix Inria de l'académie des sciences*, June 2017.
- Since 2015, S. Girard is a member of the INRA committee (CSS MBIA) in charge of evaluating INRA researchers once a year in the MBIA dept of INRA.
- S. Girard is a member of the "Comité des Emplois Scientifiques" at Inria Grenoble Rhône-Alpes since 2015.

## Mjolnir Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- **ICMI** (ACM): Edward Lank (General co-Chair)
- **Rencontres Jeunes Chercheurs** (AFIHM): Sylvain Malacria (co-Chair)  
RJC is a biyearly summer school organized by the French-speaking HCI association with courses and seminars targeting 1<sup>st</sup> and 2<sup>nd</sup> year PhD students (about 20 participants).

#### 10.1.1.2. Member of the Organizing Committees

- **VIS** (IEEE): Fanny Chevalier (Meetups co-Chair)

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

- **ICMI** (ACM): Thomas Pietrzak
- **Infovis** (IEEE): Fanny Chevalier, Sylvain Malacria
- **CHI** (ACM): Fanny Chevalier (sub-committee co-chair), Sylvain Malacria (associate chair), Mathieu Nancel (associate chair)
- **IHM** (AFIHM): Géry Casiez

#### 10.1.2.2. Reviewer

- **CHI** (ACM): Géry Casiez, Thomas Pietrzak
- **UIST** (ACM): Géry Casiez, Fanny Chevalier, Thomas Pietrzak, Sylvain Malacria, Mathieu Nancel
- **MobileHCI** (ACM): Sylvain Malacria
- **ICMI** (ACM): Christian Frisson, Mathieu Nancel
- **ISS** (ACM): Mathieu Nancel
- **DIS** (ACM): Mathieu Nancel
- **Interact** (IFIP): Géry Casiez, Fanny Chevalier, Stéphane Huot, Sylvain Malacria
- **World Haptics** (IEEE): Thomas Pietrzak
- **Eurovis** (IEEE): Fanny Chevalier
- **IHM** (AFIHM): Christian Frisson
- **DAFx**: Christian Frisson
- **OzCHI**: Amira Chalbi

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- **Computer Music Journal Editorial Advisory Board**: Marcelo Wanderley

#### 10.1.3.2. Reviewer - Reviewing Activities

- **Intl. Journal of Human-Computer Studies** (Elsevier): Thomas Pietrzak
- **Transactions on Visualization and Computer Graphics** (IEEE): Fanny Chevalier
- **Transactions on Computer-Human Interaction** (ACM): Fanny Chevalier

- **Intl. Journal of Human-Computer Interaction** (Taylor & Francis): Thomas Pietrzak

#### 10.1.4. Invited Talks

- *Left Brain, Right Brain: Designing Interaction for Visual Analytics and Creativity*, **Segal Seminar Series**, Northwestern University: Fanny Chevalier
- *Designing Interaction for Visual Analytics and Creativity*, giCenter, City University of London: Fanny Chevalier
- *Direct Spacetime Sketching and Editing of Visual Media*, University College London: Fanny Chevalier
- *Static and Dynamic Network Visualization*, Université Catholique de Lille: Fanny Chevalier
- *Concevoir des systèmes interactifs pour tous*, European Commission in Luxembourg: Thomas Pietrzak
- *Advanced Interaction Techniques to Favor the Transition from Novice to Expert Behavior*, **International Symposium on User Expertise and Interactive Systems (UEIS)**: Sylvain Malacria

#### 10.1.5. Leadership within the Scientific Community

**Association Francophone d'Interaction Homme-Machine (AFIHM):**

- Géry Casiez: president until Sept. 2017
- Stéphane Huot: board member until Sept. 2017, scientific council member
- Thomas Pietrzak: board member, webmaster

#### 10.1.6. Scientific Expertise

- **Natural Sciences and Engineering Research Council (NSERC) Discovery grants**: Géry Casiez (reviewer), Fanny Chevalier (reviewer)
- CN35 AFNOR normalization committee about normalizing the French keyboard, in collaboration with Aalto University and the Max Planck Institute: Mathieu Nancel
- Research Foundation - Flanders (FWO), evaluate doctoral fellowships strategic basic research applications: Mathieu Nancel

#### 10.1.7. Research Administration

For Inria:

- **Evaluation committee**: Nicolas Roussel (member until July 2017)
- Gender equity and equality committee: Nicolas Roussel (member)
- Strategic orientation committee for the information system (COSS scientifique): Nicolas Roussel (member)
- International relations working group (COST-GTRI): Stéphane Huot (member)

For Inria Lille – Nord Europe:

- Scientific officer (délégué scientifique): Nicolas Roussel (until July 2017)
- “Bureau du comité des équipes projets” (BCEP): Stéphane Huot (member since Sept. 2017)
- Research jobs committee (CER): Fanny Chevalier (member), Nicolas Roussel (member until July 2017)
- Technical development committee (CDT): Nicolas Roussel (member until July 2017)
- Consultative committee (Comité de centre): Fanny Chevalier (member)
- Operational legal and ethical risk assessment committee (COERLE): Stéphane Huot (local correspondent)
- Support to researchers (accompagnement des chercheurs): Stéphane Huot (adviser)
- Activity reports (RAweb): Nicolas Roussel (local correspondent until July 2017)

For the CRISAL lab of Univ. Lille 1 & CNRS:

- Laboratory council: Géry Casiez (elected member)
- Computer Science PhD recruiting committee: Géry Casiez (member)

For the Univ. Lille 1:

- Coordinator for internships at IUT A: Géry Casiez

### 10.1.8. Hiring committees

- Inria's eligibility jury for Junior Researcher Positions (CR2) in Lille: Stéphane Huot (president)
- University of Lille hiring committee for two Computer Science Assistant Professor positions: Thomas Pietrzak (vice-president)
- University of Nice Sophia Antipolis hiring committee for a Computer Science Full Professor position: Stéphane Huot (member)
- Université Paris-Saclay hiring committee for a Computer Science Assistant Professor position: Géry Casiez (member) and Fanny Chevalier (member)

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

DUT Informatique: Géry Casiez (72h), Stéphane Huot (28h), *IHM*, 1<sup>st</sup> year, IUT A de Lille - Univ. Lille 1

DUT Informatique: Géry Casiez, *Algorithmique*, 80 h, 1<sup>st</sup> year, IUT A de Lille - Univ. Lille 1

DUT Informatique: Géry Casiez, *Modélisation mathématique*, 14 h, 2<sup>nd</sup> year, IUT A de Lille - Univ. Lille 1

DUT Informatique: Géry Casiez, *Projets*, 18 h, 2<sup>nd</sup> year, IUT A de Lille - Univ. Lille 1

Licence Informatique: Thomas Pietrzak, *Logique*, 52.5h, L3, Univ. Lille 1

Licence Informatique: Thomas Pietrzak, *Automates et Langages*, 36h, L3, Univ. Lille 1

Licence Sciences pour l'Ingénieur (SPI): Sylvain Malacria, *Introduction à l'Interaction Homme Machine*, 30h, L3, Institut Villebon Georges Charpak

Master Informatique: Thomas Pietrzak (18h), Géry Casiez (11h), Fanny Chevalier (13.5h), *NIHM*, M2, Univ. Lille 1

Master Informatique: Géry Casiez, *RVI*, 4 h, M2, Univ. Lille 1

Master Informatique: Géry Casiez, *Multi-Touch Interaction*, 10 h, M1, Univ. Lille 1

Master Informatique: Géry Casiez (4h), Thomas Pietrzak (4h), *Projets*, M2, Univ. Lille 1

Master Informatique: Thomas Pietrzak (55.5h), Sylvain Malacria (31.5), Nicolas Roussel (6h), *IHM*, M1, Univ. Lille 1

Master Informatique: Mathieu Nancel, *Information Visualization*, 9h, M2, Univ. Lille 3

Master: Géry Casiez (6h), Thomas Pietrzak (10.5h), *3DETech : 3D Digital Entertainment Technologies*, M2, IMT Lille Douai

Master: Thomas Pietrzak, *IHM et interfaces à gestes*, 12h, M2, Polytech Lille

Master Sciences Humaines et Sociales – Réseaux Sociaux Numériques (RSN): Fanny Chevalier, *Statistiques et visualisation de données*, 8h, M2, Univ. Lille 1

Master Sciences Humaines et Sociales – Réseaux Sociaux Numériques (RSN): Fanny Chevalier, *Outils et pratiques numériques*, 6h, M1, Univ. Lille 1

Doctorat: Géry Casiez, *Workshop on statistics for HCI*, AFIHM RJC IHM 2017

### 10.2.2. Supervision

PhD: Justin Mathew, *A Design Framework for User Interfaces of 3D Audio Production Tools*, defended in Oct. 2017 [11], advised by Stéphane Huot & Brian Katz

PhD in progress: Axel Antoine, *Helping Users with Interactive Strategies*, started Oct. 2017, advised by Géry Casiez & Sylvain Malacria

PhD in progress: Nicole Ke Chen Pong, *Understanding and Improving Users Interactive Vocabulary*, started Oct. 2016, advised by Nicolas Roussel, Sylvain Malacria & Stéphane Huot

PhD in progress: Thibault Raffailac, *Languages and System Infrastructure for Interaction*, started Oct. 2015, advised by Stéphane Huot & Stéphane Ducasse

PhD in progress: Amira Chalbi-Neffati, *Understanding and Designing Animations in the User Interfaces*, started Oct. 2014, advised by Nicolas Roussel & Fanny Chevalier

PhD in progress: Hakim Si Mohammed, *Improving Interaction Based on a Brain-Computer Interface*, started Oct. 2016, advised by Anatole Lecuyer, Ferran Argelaguet, Géry Casiez & Nicolas Roussel (in Rennes)

PhD in progress: Hrim Mehta, *Data Narratives*, started Oct. 2016, advised by Christopher Collins & Fanny Chevalier (at University of Ontario)

PhD in progress: Nicole Barbosa Sultanum, *Visualization of Medical Narratives*, started Sept. 2015, advised by Michael Brudno, Daniel Wigdor & Fanny Chevalier (at University of Toronto)

PhD in progress: Alexandre Kouyoumdjian, *Multimodal Selection of Numerous Moving Targets in Large Visualization Platforms: Application to Interactive Molecular Simulation*, started Oct. 2013, advised by Stéphane Huot, Patrick Bourdot & Nicolas Ferey (in Saclay)

PhD in progress: Jeronimo Barbosa, *Design and Evaluation of Digital Musical Instruments*, McGill University, started in 2013, advised by Marcelo Wanderley & Stéphane Huot (in Montréal)

### 10.2.3. Juries

Caroline Appert (HDR, Univ. Paris-Saclay): Géry Casiez, examiner

Jessalyn Alvina (PhD, Univ. Paris-Saclay): Géry Casiez, examiner

Élie Cattan (PhD, Univ. Grenoble Alpes): Géry Casiez, reviewer

Martin Cronel (PhD, Univ. de Toulouse): Géry Casiez, examiner

Onur Ferhat (PhD, Univ. Autònoma de Barcelona): Christian Frisson, examiner

Maxime Guillon (PhD, Univ. Grenoble Alpes): Géry Casiez, reviewer

Rafael Morales González (PhD, Univ. Paris-Saclay): Stéphane Huot, examiner

### 10.2.4. Mid-term evaluation committees

- Olivier Capra (PhD, Univ. Lille 1): Stéphane Huot
- Bruno Fruchard (PhD, Univ. Paris-Saclay): Géry Casiez
- Sarah Ribet (PhD, Univ. Lille 1): Géry Casiez
- Hugo Romat (PhD, Univ. Paris-Saclay): Fanny Chevalier

## 10.3. Popularization

Dashboard software in the **Sbarro** car: **Mojave at the Geneva Motor Show 2017** in Geneva, Julien Decaudin, Christian Frisson, Thomas Pietrzak.

*Projet Happiness : ça roule pour le tactile*, interview in the **Inria official website**, Thomas Pietrzak, Christian Frisson, Julien Decaudin.

*Dans la peau d'un robot*, article in **le blog binaire** and in the **Inria official website**, Amira Chalbi.

*Banned From the US? There's a Robot for That*, interview in **WIRED**, Amira Chalbi.

*Mon Histoire avec l'Informatique*, presentation at "L codent L créent": Amira Chalbi, Nicole Pong.

## MNEMOSYNE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

Nicolas Rougier: co-chair for the organization of the 7th Symposium on the Biology of Decision Making, Bordeaux, France (<http://sbdm2017.isir.upmc.fr/>).

#### 10.1.1.2. Member of the Organizing Committees

F. Alexandre: organization of the Latin-American Summer School on Computational Neuroscience (Lacone, 9-27 January 2017, Valparaiso, Chile).

X. Hinaut: organisation of the 2nd Workshop on Machine Learning Methods for High-Level Cognitive Capabilities in Robotics (ML-HLCR), IROS, 28 September 2017, Vancouver, Canada.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

Nicolas Rougier: Scipy 2017, EuroScipy 2017, WSOM 2017

#### 10.1.2.2. Reviewer

- F. Alexandre: NER'17; ICDL-EPIROB 2017;
- Nicolas Rougier: Frontiers in Computational Neuroscience, Complexity, JOSS, ReScience;
- X. Hinaut: CogSci'17, ICDL-EPIROB 2017, ESANN 2018;

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- Frédéric Alexandre: Review Editor for Frontiers in Neurorobotics;
- Nicolas Rougier: Editor in chief for ReScience, Academic editor for PeerJ, review editor for Frontiers in Neurorobotics.

#### 10.1.3.2. Reviewer - Reviewing Activities

- F. Alexandre: Frontiers in Neuroscience; PLoS ONE; Cognitive Computation; Nature Scientific Reports; eLife;
- André Garenne: Journal of Integrative Neuroscience
- Xavier Hinaut: Neural Networks, Frontiers in Neurorobotics, IEEE Transactions on Cognitive and Developmental Systems (TCDS), Applied Sciences;

### 10.1.4. Invited Talks

F. Alexandre:

- Workshop on Computational Neuroscience: New trends and challenges for 2030; January 18, Valparaiso, Chile.
- 2017 meeting of the GDR Neurosciences of memory NeuroMem, May, 16.
- Seminar "Modeling Cognitive Processes" of the laboratory LEAD, Dijon (Nov. 24).
- Annual meeting of the AMAF medical association ("Modeling Cognitive Functions and Artificial Intelligence", Nov. 25, Creteil).

Nicolas Rougier:

- Lex Robotica, Paris, France
- 7th Symposium on the Biology of Decision Making, Bordeaux, France.
- Open Science, Bordeaux, France
- Scientific Python, La Rochelle, France
- Reproduction is not replication, Reading, UK

X. Hinaut:

- Workshop "The role of the basal ganglia in the interaction between language and other cognitive functions", DEC, ENS Ulm, October 12-13, Paris, France.

### ***10.1.5. Leadership within the Scientific Community***

X. Hinaut:

- President of the association MindLaBDX: "open citizen lab" in Cognitive Sciences and Artificial Intelligence in Bordeaux.
- Organization of "Hack'1 Cerveau !": the first CogSci and AI hackathon in Bordeaux, at 127° (the fablab of Cap Sciences), 8-10 December 2017. Cf <https://mindlabdx.github.io/hack1cerveau> and also <https://lascienceenpassant.wordpress.com/2017/12/11/hackaton-hack1-cerveau> and <http://penseeartificielle.fr/hack1-cerveau-2017-cerveau-cap-science>.
- member of the Administration Committee of Fresco association (French Federation of students in Cognitive Science)

Nicolas Rougier: Editor in chief for ReScience

### ***10.1.6. Scientific Expertise***

F. Alexandre is the french expert for Mathematics and Computer Science of the PHC (Hubert Curien Program) Utique for scientific cooperation between France and Tunisia. In 2017, he participated to the CHIST ERA Evaluation Panel, May 18-19 and acted as an expert for the ANR.

### ***10.1.7. Research Administration***

- F. Alexandre is member of the Inria Evaluation Committee; Deputy Scientific Delegate and Vice-head of the Project Committee of Inria Bordeaux Sud-Ouest; Corresponding scientist for Bordeaux Sud-Ouest of the Inria COERLE ethical committee; Member of the national Inria committee for international chairs; Member of the local Inria committee for young researchers hiring; Member of the steering committee of the regional Cluster on Information Technology and Health; of the regional Cluster on Robotics; Expert of the ITMO 'Neurosciences, Sciences Cognitive, Neurologie, Psychiatrie'
- N. Rougier is vice-head of the Mnemosyne team-project; elected member of the Inria Evaluation Committee; Responsible of the local Inria committee for invited professors; Member of the steering committee for the BioComp CNRS consortium; Editor in chief and co-founder of ReScience.
- Thierry Viéville is in charge of the <http://classcode.fr> project and in charge, for Inria, of the creation of a Master SmartEdTech at UCA within the scope of his mission for the Inria Sophia Antipolis - Méditerranée direction.

## **10.2. Teaching - Supervision - Juries**

### ***10.2.1. Teaching***

F. Alexandre: teaching at the Lacone summer school 9-27 january 2017, Valparaiso, Chile. Teaching Ethics for Inria PhD students (Sept. 25 and Oct. 6).



André Garenne (in collaboration with Xavier Nogues) created a new teaching unit for bachelor students in biology at the final stage of their graduation. This unit will be half dedicated to the learning of programming basics using Python and its scientific libraries and half dedicated to the learning of statistical data analysis methods relying mainly on machine learning approaches and the R language.

Nicolas Rougier organized a python scientific course (24h) for the doctoral students in mathematics and computer science.

Thierry Viéville is since 2009 in charge of formations of high-school teachers in popular computer science and taught computational neuroscience in the Master of Cognitive Science and Ergonomics.

In addition, many courses are given in french universities and schools of engineers at different levels (LMD) by most team members, in computer science, in applied mathematics, in neuroscience and in cognitive science.

### 10.2.2. *Juries*

We participate to many juries each year.

## 10.3. Popularization

For a multi-disciplinary team as Mnemosyne, science popularization is not only a nice and useful contribution to the dissemination of scientific knowledge but also a necessity since we work with colleagues from bio-sciences with whom sharing profound ideas in computer science is mandatory for a real collaboration.

- Thierry Viéville is for 50% of his time involved in popularization actions, mainly computer science large audience education, and has been promoted Officer of the Order of Academic Palms for the collective contribution of the Inria Science Outreach mission.
- F. Alexandre organized a conference about artificial intelligence with high-school children (Sept. 28, Lormont)
- I. Chraïbi Kaadoud participated to the regional challenge: “My PhD in 180 seconds”
- X. Hinaut organized the 1st hackathon of Bordeaux in Cognitive Sciences and Artificial Intelligence, 8-10 December, Cap Sciences, Bordeaux. (<https://mindlabdx.github.io/hack1cerveau/>); Organization of a workshop on cellular automaton at Le Node, Bordeaux; Meeting groups of high-school students for their projects on Artificial Intelligence topics.
- The team participated to “La semaine du cerveau” on the Bordeaux Neurocampus (March 13-17) (<http://www.bordeaux-neurocampus.fr/fr/manifestations-scientifiques/seminaires-2017/semaine-cerveau-2017.html>); to the “fête de la science” on the Bordeaux Neurocampus (<http://circuit-scientifique-bordelais.cnrs.fr/modules/show/261>, Oct. 7-9); to the Declics program for high-schools (<http://www.cerclefer.org/fr/declics/>, Dec. 12)

## MODAL Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

Sophie Dabo-Niang has organized a session “Spatial econometrics” of the conference” at the *1st International Conference on Econometrics and Statistics*, June 15-16, 2017, Hong-Kong, China.

Sophie Dabo-Niang co-organises a session “Regression models under non i.i.d. settings” of the 10th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2017)

(<http://www.cmstatistics.org/CMStatistics2017/>), December 16-18, 2017, London.

Vincent Vandewalle organizes a session “Model-based clustering” of the conference” at the 10th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2017)”

(<http://www.cmstatistics.org/CMStatistics2017/>), December 16-18, 2017, London.

#### 10.1.1.1. General Chair, Scientific Chair

Benjamin Guedj, Pascal Germain (both at Modal) and Francis Bach (SIERRA, Inria Paris) co-organize a NIPS 2017 workshop, called “(Almost) 50 shades of Bayesian learning: PAC-Bayesian trends and insights”. A large audience is expected, and the workshop has a series of prestigious international speakers. See the [website](#).

Benjamin Guedj is the organizer of the [Modal team scientific seminar](#).

#### 10.1.1.2. Member of the Organizing Committees

Alain Celisse was the co-head of the organizing committee of the *Journée Statistique Mathématique*, January the 8th 2017 at IHP.

Guillemette Marot was the co-head of the organizing committee of JOBIM 2017 (<https://project.inria.fr/jobim2017/fr/>).

Sophie Dabo-Niang was:

Member of the scientific committee of “*LICMA'17*”, May 16-19, 2017, Beyrouth, Lebanon (<http://www.licma.net/>)

Member of the international organizing committee of AMU Commission on Women in Mathematics in Africa-African Women Mathematicians Association 2017 AMUCWMA - AWMA Workshop, July 7-8, 2017, Rabat, Morocco (<http://fsr.um5.ac.ma/PACOM2017/WPACOM2017.php>)

Vincent Vandewalle is member of the scientific animation cell of the bilille platform which has organized two thematic days in 2017:

Omics-driven genome annotation, Lille, March 31st 2017 ([https://wikis.univ-lille1.fr/bilille/omics\\_annotation\\_2017](https://wikis.univ-lille1.fr/bilille/omics_annotation_2017))

Working with networks and pathways in molecular biology, Lille, November 20th 2017 ([https://wikis.univ-lille1.fr/bilille/networks\\_2017](https://wikis.univ-lille1.fr/bilille/networks_2017))

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

Sophie Dabo-Niang was member of the local committee program of ISI (61st World Statistics Congress), 16-21, July, 2017, Marrakech, Morocco (<http://payment.isi2017.org/committees/local-programme-committee-lpc/>).

Vincent Vandewalle was member of the committee program of JOBIM 2017 (<https://project.inria.fr/jobim2017/fr/>).

#### 10.1.2.2. Reviewer

Benjamin Guedj is a reviewer for NIPS 2017, AISTATS 2018, ALT 2018 and ICLR 2018, ICML 2018.

Pascal Germain: 6th International Conference on Learning Representations (ICLR 2018).

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

Sophie Dabo-Niang is member of *Revista Colombiana de Estadística*, 2015- –.

Christophe Biernacki is an Associate Editor of the North-Western European Journal of Mathematics (NWEJM).

#### 10.1.3.2. Reviewer - Reviewing Activities

Benjamin Guedj acted as a reviewer for the following journal papers: Math Reviews, and the Annals of the Institute of Statistical Mathematics, Electronic Journal of Statistics.

Sophie Dabo acted as a reviewer for the following journal papers: Statistical Inference for Stochastic Processes, Computational Statistics and Data Analysis, Statistics, ESAIM: Probability and Statistics, Journal of Multivariate Analysis, Journal of Nonparametric statistics, Statistics and Probability Letters, Electronic journal of statistics, Metrika, Annals of Applied Statistics, Statistical Methods and Applications, ...

Christophe Biernacki acted as a reviewer for the following journal papers: Statistics and Computing (STCO), Psychometrika (PMET), Test, Knowledge and Information Systems (KAIS), Journal of Machine Learning Research (JMLR), Journal of Statistical Software (JSS), Neurocomputing (NEUCOM), Computational Statistics and Data Analysis (CSDA).

Alain Celisse acted as a reviewer for the following journal papers: Annals of Statistics, Bernoulli, JMLR.

Serge Iovleff acted as a reviewer for the following journal papers: Statistics and Computing and Neural Processing Letters.

Vincent Vandewalle acted as a reviewer for the following journal papers: Statistics in Medicine, Expert Systems With Applications, Computational Statistics, Journal de la SFdS.

### 10.1.4. Invited Talks

Sophie Dabo:

*LICMA'17, Lebanese International Conference on Mathematics and Applications*, Beyrouth, 16-19 May 2017. Nonparametric regression models for spatial data.

*JEF 2017 4th Days of Econometrics for Finance*, Rabat, 15-16 July, 2017.

<https://sites.google.com/site/jefconference/home>. Functional autoregressive spatial models.

*Pan African Congress of Mathematicians 2017*, Rabat, 3-7 July, 2017.

<http://fsr.um5.ac.ma/PACOM2017/>. Spatial prediction over spatio-functional data.

*SIS 2017 Statistics and Data Science: New Challenges, New generations*, Florence, 28-30 June 2017,

[http://www.fupress.com/archivio/pdf/3407\\_11724.pdf](http://www.fupress.com/archivio/pdf/3407_11724.pdf). Quasi-Maximum Likelihood Estimators For Functional Spatial Autoregressive Models.

Christophe Biernacki gave several invited talks in 2017:

61st World Statistics Congress, Marrakech (Morocco), 16-21 July 2017, <http://payment.isi2017.org/> [30]

Classification Society Conference, Santa Clara (USA), 21-24 June 2017, <https://academicaffairs.ucsc.edu/classification-society-conference/> [27]

XXIVèmes Rencontres de la Société Francophone de Classification, Lyon (France), 28-30 June 2017, <http://polytech-sfc2017.univ-lyon1.fr/> [28]

StatLearn, Lyon (France), 7th April 2017, <http://www.univ-lyon2.fr/culture-savoirs/podcasts/statlearn-2017-727260.kjsp?RH=podcasts>, [20]

Talk to the seminar of the INRA of Jouy-en-Josas, June 12th 2017

Alain Celisse:

New assessment of the cross-validation performance, Montpellier, 24th November, 2017.

Change-point detection with kernels, IHP, 3rd October, 2017.

Cristian Preda:

C. Preda, P. Bastien (2017), Functional models applied to data from image analysis, 61st World Statistics Congress - ISI2017, Marrakech, Morocco, 16-21 July, 2017

A. Amarioarei, C. Preda, Scan statistics for some dependent models and applications, 17th Conference of the ASMDA, London, 6-9 June, 2017.

C. Preda, Gilbert Saporta's contributions to functional data analysis, 17th Conference of the ASMDA, London, UK, 6-9 June, 2017.

A. Amarioarei, C. Preda, Approximation for the scan statistics distribution of a three dimensional Poisson process, IMS China 2017, Nanning, China, June 28 - July 3, 2017.

Vincent Vandewalle gave several invited talks in 2017:

V. Vandewalle, C. Preda, Clustering categorical functional data. Application to medical discharge letters, 20th conference of the society of probability and statistics of Roumania, Brasov (Roumania), April 28, 2017.

V. Vandewalle, C. Biernacki, Dealing with missing data through mixture models, 154th ICB Seminar on "Statistics and clinical practice" Warsaw May 11, 2017.

V. Vandewalle, C. Biernacki, Survival analysis with complex covariates: a model-based clustering preprocessing step, IEEE PHM Dallas June 19th, 2017.

V. Vandewalle, Simultaneous dimension reduction and multi-objective clustering, IFCS Meeting Tokyo August 8th, 2017.

Benjamin Guedj gave several invited talks in 2017:

University College London (3/2017)

Université Paris 5 (3/2017)

Hélioparc (Pau, 3/2017)

Inria SequeL seminar (3/2017)

KU Leuven (5/2017)

Institut de Recherche en Informatique de Toulouse (9/2017)

Inria TAU seminar (10/2017)

Machine Learning in the Real world workshop at Criteo (11/2017).

### ***10.1.5. Leadership within the Scientific Community***

Benjamin Guedj is an elected member of the board of the **French Statistical Society** (SFdS). He is also deputy general secretary since June 2017.

Benjamin Guedj is a member of the board of **AMIES**, the French Agency fostering collaborations between mathematicians and the private sector.

Guillemette Marot is responsible of bilille, the bioinformatics and bioanalysis platform of Lille. More information about the platform is available at <https://wikis.univ-lille1.fr/bilille/>.

Christophe Biernacki is the president (since 1012) of the data mining and learning group of the French statistical association (SFdS, <http://www.sfds.asso.fr/>).

### 10.1.6. Scientific Expertise

Sophie Dabo-Niang is expert for the l'Oréal "Women in Science" award since 2014.

Christophe Biernacki acted as a President of a HCERES committee for research evaluation. He was also an elected member to the "Conseil National des Universités" (CNU) from October 2015 to September 2017. From October 2017, he is member of the "Commission d'Evaluation" (CE) of Inria.

Alain Celisse is reviewer for the annual Research Fellowship Competition of Cambridge.

Guillemette Marot reviewed one project as expert for the ANR.

### 10.1.7. Research Administration

Benjamin Guedj is a member of the scientific Council of the **Laboratoire Paul Painlevé** (Maths Department of the University of Lille).

Benjamin Guedj is an elected member of **Inria's Evaluation Committee** (CE).

Sophie Dabo is the head of the MeQAME research team of Laboratory LEM-CNRS 9221.

Christophe Biernacki is "Délégué Scientifique" of the Inria Lille center from June 2017.

Guillemette Marot was member of the Research Commission of the University of Lille 2 until December 2017.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Benjamin Guedj is teaching

Master: Machine learning, Theory and Algorithms, 10h, Université du Maine, Le Mans, France

Master: Machine learning, Theory and Algorithms, 30h, ISUP, Paris, France

Master: Machine learning, Theory and Algorithms, 20h, Université Pierre et Marie Curie, Paris, France

Guillemette Marot is teaching:

Licence: Biostatistics, 9h, L1, U. Lille Droit et Santé, France

Licence: Health care Informatics, 6h, L1, U. Lille Droit et Santé, France

Master: Biostatistics, 45h, M1, U. Lille Droit et Santé, France

Master: Supervised classification, 22h, M1, Polytech Lille, France

Master: Statistics for Human Genetics, 1h, U. Lille Droit et Santé, France

Doctorat: Data analysis with R, 14h, U. Lille Droit et Santé, France

Doctorat: Data analysis with R, 7h, COMUE Lille Nord de France, France

Doctorat: RNA-Seq analysis, 6h, U. Lille Droit et Santé, France

Sophie Dabo is teaching:

Licence: Probability, 24h, U. Lille 3, France

Master: Advanced Statistics, 24h, U. Lille 3, France

Master: Biostatistics Statistics, 40h, U. Lille 1, France

Master: Non-parametric Statistics, 24h, UGB, Senegal

Master: Sophie Dabo: Spatial Statistics, 24h, U. Lille 3, France

Christophe Biernacki is head of the M2 “Ingénierie Statistique et Numérique” (<http://mathematiques.univ-lille1.fr/Formation/>) at University Lille 1. He has also the following teaching activities at the same University:

Master: Coaching project, 10h, M1

Master: Data analysis, 97.5h, M2

Master: Coaching internship, 20h, M2

From September 2017, he is on secondment at Inria, without any teaching duty.

Cristian Preda is teaching:

L1: Probability, 40h, Polytech Lille

L1: Inferential Statistics, 50h, Polytech Lille

M1: Data Analysis, 40h, Polytech Lille

M2: Biostatistics, 12h, Polytech Lille

M2: Functional data analysis, 12h, U. Lille 1

Serge Iovleff is teaching:

DUT-S1: Mathématiques discrètes, TD, 68h

DUT-S1: Algèbre linéaire, TD, 32h

DUT-S2: Analyse et méthodes numériques, TD/TP, 56h

DUT-S3: Modélisation Mathématiques, TD, 24h

DUT-S4: R.O. et aide à la décision, TD, 32h

Master Mathématiques Appliquées, Statistique - Ingénierie Mathématique: Object Oriented programming, CTD, M1, U. Lille 1, 20h

Master Mathématiques Fondamentales: Statistics, CTD, M2, U. Lille 1, 24h

Vincent Vandewalle was in CRCT last year without any teaching.

### 10.2.2. Supervision

PhD: Jérémie Kellner, Gaussian processes and reproducing kernels, Université Lille 1, 11/12/2016, supervision: C. Biernacki, A. Celisse.

PhD: Emad Drwesh, Spatial Statistics in Discrete-Choice Models, University Lille 3, december, 11th, 2017, supervision: Sophie Dabo-Niang, Jérôme Foncel.

PhD: Mohamed Salem Ahmed, Contribution to spatial statistics and functional data analysis, University Lille 3, december, 12th, 2017, Sophie Dabo-Niang, Mohamed Attouch.

PhD in progress: Zied Gharbi (Contribution to Spatial autoregressive models), 2014, supervision: Sophie Dabo-Niang, Laurence Broze.

PhD in progress: Dang Khoi Pham (Planning and re-planning of nurses in an oncology department using a multi-objective and interdisciplinary approach), 2016, supervision: Alejandra Duenas, Christine Di Martinelli, Sophie Dabo-Niang. item PhD in progress: H. Sarter, Outils statistiques pour la sélection de variables et l'intégration de données "cliniques" et "omiques" : développement et application au registre EPIMAD, December 1st, 2016, supervision: C. Gower, G. Marot.

PhD in progress: Le Li, "PAC-Bayesian Online Clustering: theory and algorithms", iAdvize & Université d'Angers, since 11/2014, Benjamin Guedj, Sébastien Loustau.

PhD in progress: Arthur Leroy, "Machine learning algorithms to improve athletes' performance", INSEP, since 10/2017, supervision: Benjamin Guedj, Servane Gey, Jean-François Toussaint.

PhD in progress: Maxime Brunin, Etude du compromis entre précision statistique et temps de calcul, 1/10/2014, supervision: C. Biernacki, A. Celisse.

PhD in progress: Yaroslav Averyanov, New early stopping times and reproducing kernels, 1/10/2017, supervision: C. Preda, A. Celisse.

PhD in progress: Anne-Lise Bedenel, June 2015, supervision: Christophe Biernacki, Laetitia Jourdan.

PhD in progress: Adrien Ehrhardt, June 2016, supervision: Christophe Biernacki, Philippe Heinrich and Vincent Vandewalle.

PhD in progress: Margot Seloisse, October 2017, Christophe Biernacki and Julien Jacques.

Serge Iovleff supervises dYawo Mamoua Kobara's Master thesis "*Estimation of a hierarchical Bayesian model for penalized regression*" at African Institute for Mathematical Sciences (AIMS), Senegal, 2017.

### 10.2.3. Juries

Guillemette Marot was examiner at the PhD defense of M. Canouil, Univ. Lille, September 29, 2017.

Sophie Dabo-Niang was member of the jury of the thesis of Hiba Alawieh, University of Lille 1, March 13th, 2017.

Sophie Dabo-Niang was referee and member of the thesis jury of Rim Ben Elouefi, INSA Rennes, September 5th, 2017.

Sophie Dabo-Niang was president of the thesis jury of Alban Mbinan Mbina, University of FranceVille (Gabon) and University of Lille 1, October 28th, Gabon (FranceVille).

Christophe Biernacki participated as a reviewer to 4 PhD theses and as an examiner to 1 PhD thesis. He was president of a recruitment committee for an assistant professor position.

## 10.3. Popularization

Pascal Germain gave a short talk vulgarizing a research topic for first year university students. Part of the presentation of the Painlevé Mathematic Laboratory (University of Lille), December, 1st 2017.

Christophe Biernacki has given about 10 talks during 2017 for institutions (Inria, universities...), companies and other related events. He organized also a first short meeting in February 2017 in Lille for obtaining a feedback from company and academic users about the MASSICCC platform developed by the Modal and Select teams (<https://massiccc.lille.inria.fr/#/>).

Alain Celisse gave a talk at the Meetup in Pau in January, 23rd 2017: Change-point detection with structured objects.

Benjamin Guedj gave a Meetup talk in Pau (3/2017) on quasi-Bayesian learning and an application to digits recognition.

## MOEX Project-Team

# 6. Dissemination

## 6.1. Promoting Scientific Activities

### 6.1.1. Scientific Events Organisation

#### 6.1.1.1. Member of Organizing Committees

- Jérôme Euzenat was organiser of the 12th Ontology matching workshop of the 16th ISWC, Wien (AT), 2017 (with Pavel Shvaiko, Ernesto Jiménez Ruiz, Michele Cheatham and Oktie Hassanzadeh)
- Jérôme Euzenat was organiser of the 1st Workshop on Interaction-Based Knowledge Sharing (WINKS) of the 3rd Joint Ontology Workshop (JOMO), Bozen-Bolzano (IT), 2017 (with Dagmar Gromann and Kemo Adrian)

### 6.1.2. Scientific Events Selection

#### 6.1.2.1. Member of Conference Program Committees

- Jérôme David and Jérôme Euzenat have been programme committee members of the “International joint conference on artificial intelligence (IJCAI)” 2017
- Manuel Atencia, Jérôme David and Jérôme Euzenat have been programme committee members of the “International semantic web conference (ISWC)” 2017
- Jérôme David and Jérôme Euzenat have been programme committee members of the “European Semantic Web Conference (ESWC)” 2017
- Jérôme Euzenat has been programme committee member of the “International Worldwide web Conference (WWW)” 2017
- Jérôme Euzenat has been programme committee member of the “13th International Conference on Semantic Systems (Semantics)” 2017
- Jérôme Euzenat has been programme committee member of the “International Conference on Web Information Systems and Technologies (WebIST)” 2017
- Manuel Atencia and Jérôme David have been programme committee members of the ISWC “Ontology matching” workshop (OM) 2017
- Jérôme David and Jérôme Euzenat have been programme committee members of the “French Extraction and gestion des connaissances conference (EGC)” 2017
- Jérôme David has been programme committee member of the “28es Journées francophones d’ingénierie des connaissances (IC)” 2017

#### 6.1.2.2. Reviewer

- Jérôme David has been a reviewer for the 31st “AAAI Conference on artificial intelligence (AAAI)”, 2017.

### 6.1.3. Journal

#### 6.1.3.1. Member of Editorial Boards

- Jérôme Euzenat is member of the editorial board of *Journal of web semantics* (area editor), *Journal on data semantics* and the *Semantic web journal*.

#### 6.1.3.2. Reviewer - Reviewing Activities

- Manuel Atencia has been reviewer for *Knowledge-based systems* and the *VLDB journal*.
- Jérôme Euzenat has been reviewer for *ACM transactions on the web*, and *Mobile information systems*.



### **6.1.4. Invited Talks**

- “Symbolic methods for RDF data interlinking”, Lecture at EGC, Grenoble (FR), 2017-01-23 (Jérôme David)
- “Data interlinking using link keys”, Seminar Trinity college, Dublin (IE), 2017-04-13 (Jérôme Euzenat)
- “Cultural knowledge evolution: motivations and experiments”, Seminar Trinity college, Dublin (IE), 2017-04-13 (Jérôme Euzenat)
- “Linked data“, Tutorial at the 4th Journées du développement logiciel (JDEV) 2017, Marseille (FR), 2017-07-06 (Manuel Atencia)
- “Knowledge diversity under socio-environmental pressure”, Invited talk, International Conference on Computational Approaches to Diversity in Interaction and Meaning, Venezia (IT), 2017-10-08 (Jérôme Euzenat)
- “Ontology matching, adaptation and evolution”, GDRI in Web science Workshop, PUC-Rio, Rio de Janeiro (BR), 2017-12-04 (Jérôme Euzenat, Fernanda Baião, Kate Revoredo)

### **6.1.5. Leadership within the Scientific Community**

- Jérôme Euzenat is member of the executive committee and the scientific council of the CNRS Pre-GDR “Artificial intelligence”.

### **6.1.6. Research Administration**

- Jérôme David is member of the organising committee of the LIG keynote speeches

## **6.2. Teaching - Supervision - Juries**

### **6.2.1. Teaching**

- Jérôme David is coordinator of the Master “Mathématiques et informatiques appliquées aux sciences humaines et sociales” (Univ. Grenoble Alpes)
- Manuel Atencia is responsible of the option “Web, Informatique et Connaissance” of the Master 2nd year “Mathématiques et informatiques appliquées aux sciences humaines et sociales” (Univ. Grenoble Alpes)
- Jérôme Euzenat is, with Sihem Amer-Yahia, coordinator of the “AI and the web” option of the M2R in computer science and applied mathematics (Univ. Grenoble Alpes)

#### **6.2.1.1. Lectures**

Licence: Jérôme David, Algorithmique et programmation par objets, 70h, L2 MIASHS, UGA, France

Licence: Jérôme David, Introduction à Python, Licence ESSIG, 24h, UGA, France

Licence: Manuel Atencia, Technologies du web, LP ESSIG, 18h, UGA, France

Master: Jérôme David, Programmation Java 2, 30h, M1 MIASHS, UGA, France

Master: Jérôme David, Formats de données du web, 15h, M1 MIASHS, UGA, France

Master: Jérôme David, JavaEE, 30h, M2 MIASHS, UGA, France

Master: Jérôme David, Développement Web Mobile, 22h30, M2 MIASHS, UGA, France

Master: Manuel Atencia, Formats de données du web, 15h, M1 MIASHS, UGA, France

Master: Manuel Atencia, Introduction à la programmation web, 30h, M1 MIASHS, UGA, France

Master: Manuel Atencia, Intelligence artificielle, 7.5h, M1 MIASHS, UGA, France

Master: Manuel Atencia, Web sémantique, 27h, M2 MIASHS, UGA, France

Master: Manuel Atencia, Semantic web: from XML to OWL, 22.5h, M2R MoSIG, UGA, France

Master: Jérôme David, Stage de programmation, 10h, M2 MIASHS, UGA, France

### **6.2.2. Supervision**

- MSc: Jérémy Vizzini, Data interlinking with relational concept analysis, M2R Informatics Data science, Univ. Grenoble Alpes, June 2017 (Jérôme David and Jérôme Euzenat)

### **6.2.3. PhD committees**

- Jérôme Euzenat has been committee chair of the computer science PhD of Anthony Hombiat (Université Grenoble Alpes) “OF4OSM: Un méta-modèle pour structurer la folksonomie d’OpenStreetMap en une nouvelle ontologie” supervised by Jérôme Gensel and Marlène Villanova-Oliver, 2017
- Jérôme Euzenat has been reviewer of the computer science PhD of Nguyen Thinh Dong (Université Paris 8 – Vincennes) “Révision d’ontologies fondée sur tableaux” supervised by Myriam Lamolle and Chan Le Duc, 2017
- Jérôme Euzenat has been external examiner of the computer science PhD of Zlatan Dragisic (Linköping university) “Completion of ontologies and ontology networks” supervised by Patrick Lambrix, 2017
- Jérôme Euzenat has been committee chair of the computer science PhD of Jie Sun (Université Clermont-Auvergne) “Intelligent flood adaptive context-aware system” supervised by Kun Mean Hou, Gil de Sousa and Catherine Roussey, 2017
- Jérôme Euzenat has been external examiner of the computer science PhD of Abdelfettah Feliachi (Université Paris-Est) “Interconnexion et visualisation de ressources géoréférencées du Web de données à l’aide d’un référentiel topographique de support” supervised by Bénédicte Bucher, Fayçal Hamdi and Nathalie Abadie, 2017
- Jérôme Euzenat has been committee chair of the computer science PhD of Abdullah Abbas (Université Grenoble-Alpes) “Static analysis of semantic web queries with ShEx schema constraints” supervised by Nabil Layaïda, Pierre Genevès and Cécile Roisin, 2017
- Jérôme Euzenat has been reviewer of the computer science PhD of Quentin Cohen-Solal (Université de Caen-Normandie) “Un cadre algébrique pour le raisonnement qualitatif en présence d’informations hétérogènes: application aux raisonnements multi-échelle et spatio-temporel” supervised by Maroua Bouzid and Alexandre Niveau, 2017

## **6.3. Popularization**

- Jérôme Euzenat gave a talk to the local #FranceIA day “Intelligence artificielle et communication”, Grenoble (FR), 2017-03-02
- Manuel Atencia animated the workshop “Modéliser les ontologies: cas d’application d’une ontologie pour l’annotation de photos” at the 4th Journées du développement logiciel (JDEV), Marseille (FR), 2017-07-06
- Jérôme David animated the workshop “Comment faire une application avec des données liées: annotation de photos en utilisant les technos du web sémantique avec Jena” at the 4th Journées du développement logiciel (JDEV), Marseille (FR), 2017-07-06
- Jérôme Euzenat gave an interview “Dans 50 ans, les ordinateurs écriront des succès littéraires?” for the Inria web site, Montbonnot (FR), 2017-10-24

## MOKAPLAN Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

G. Carlier has organized CMO-BIRS 17w5093.

J-D. Benamou has co-organized Brenier 60.

J-D. Benamou has co-organized MFO workshop 1705 (February).

#### 9.1.2. Journal

##### 9.1.2.1. Member of the Editorial Boards

Guillaume Carlier is in the board of Journal de l'école Polytechnique, Applied Mathematics and optimization (since 2016) and Mathematics and financial economics, with Filippo Santambrogio and Thierry Champion he co-edited a special issues of RICAM Series devoted to optimal transport. G. Peyré is editor for SIAM Journal of Imaging Sciences and Springer Journal of Mathematical Imaging and Vision. He co-edited a special issues of RICAM Series devoted to inverse problems.

##### 9.1.2.2. Reviewer - Reviewing Activities

The members of the team are frequently reviewing papers in SIIMS (SIAM Journal on Imaging Sciences), JMAA (Journal of Mathematical Analysis and Applications), IPol (Image Processing Online), JVCi (Journal of Visual Communication and Image Representation), COCV, M2AN ... Discrete and computational geometry, Journal of the London Math Society, JOTA, JCP, "Information and Inference: A Journal of the IMA", JMIV, Optimization Letters, PAMI, SIAM optimization and control, IPMI, MICCAI (leading conferences in medical imaging), IEEE Information Theory, ICLR, NIPS, ICML (important machine learning conferences).

#### 9.1.3. Invited Talks

Y. De Castro gave talks at Séminaire d'Informatique de l'Ecole Normale Supérieure, Lyon, and Séminaire de Probabilités de l'Ecole Normale Supérieure, Lyon, Groupe de Travail "Gaussian Process" Université Jean Monnet, St-Etienne, Séminaire de Probabilités de Lille, Séminaire de Probabilités et Statistique de Liège, Séminaire de Probabilités et Statistique de Versailles, LMV, Séminaire de Statistique de Toulouse, IMT, Groupe de Travail "Sequential Structured Statistical Learning", IHES, Cambridge Statistics Seminar, Cambridge, UK.

G. Carlier gave talks in Banff, Victoria, Naples, Le Teich, Toulouse (conference in honor of P. Cattiaux and C. Léonard), Paris (conference in honor of Y. Brenier, functional analysis seminar at IMJ and Game theory seminar at IHP), PGMO Days Paris Saclay.

J-D. Benamou was invited speaker at FOCM (Barcelona, July), CEMRACS (CIRM, July), Conf. in Honor of P. Joly (Gif, September) SPO (IHP, October) .

I. Waldspurger gave talks at Journées EDP (Roscoff, June), and at workshops on phase retrieval (Minneapolis, August) and on generative models, parameter learning and sparsity (Cambridge, October). She also gave a mini-course at Journées de géométrie algorithmique (Aussois, December).

V. Duval has given talks at the SPOC seminar (Université de Dijon, January) and Statistics seminar (Télécom ParisTech, September).

F-X. Vialard gave talks at MIT, csail, in the medical imaging group, in Chapell Hill University (April), workshop on applied geometric mechanics (Darryl Holm's anniversary) in Madrid (July), Classic and Stochastic Approaches to Mathematical Fluid Dynamics at Imperial College (September), workshop in Cambridge about growth and form (November), and about mathematics for imaging (December), Geometric Functional Data Analysis Workshop in Tallahassee (September), GMO (Paris-Saclay).

T. Gallouët gave a talk at the ANEDP seminar of Paris Sud University (December 2017).

#### 9.1.4. Research Administration

J-D. Benamou is an elected member of the "Conseil Académique" of the PSL COMUE.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master : V. Duval, Student project supervision, October 2017 to March 2018, M2, INSA Rouen-Normandie

Licence : I. Waldspurger, Analyse 1, Université Paris-Dauphine, 72h.

Master : Y. De Castro, Master 1 course on Statistics at Orsay.

### 9.2.2. Supervision

Internship :

PhD in progress : Miao Yu, *Optimal Transport distances and Geophysical imaging* J-D. Benamou (co-direction J.-P. Vilotte, IPGP).

PhD in progress : Paul Catala, *Low-rank approaches for off-the-grid superresolution*, October 2016, G. Peyré and V. Duval.

PhD in progress : Lucas Martinet *Multi-Marginal OT* Oct. 2017 , J-D. Benamou.

PhD in progress : Aude Genevay, *Optimal Transport for Machine Learning* , october 2015, G. Peyré.

PhD in progress : Quentin Denoyelle, *Off-the-grid super-resolution: theory, algorithms and applications in fluorescence imaging*, October 2014, G. Peyré and V. Duval.

Postdoc completed:

PhD completed: Lenaic Chizat

Postdoc in progress : A. Natale (Inria/Prestige)

Postdoc in progress : J.B. Courbot (PSL IRIS, in collaboration with LMD, ENS).

PhD in progress : Ernesto Araya, *Measures on graphs* , Y. De Castro

### 9.2.3. Juries

J-D. Benamou F-X. Vialard were in the PhD committee of Lenaic Chizat (Paris-Dauphine, November).

J-D. Benamou was in the HDR committee of F-X. Vialard (Paris-Dauphine, December).

G. Carlier and F-X. Vialard were in the PhD committee of Xianglong Duan (École Polytechnique, September).

G. Carlier was in the HDR committee of Francisco Silva (Limoges) and Daniela Tonon (Dauphine), in the PhD committee of Fatima Al Reda (Orsay), Xianglong Duan (Polytechnique), Van-Thanh Nguyen (Limoges) and Luigia Ripani (Lyon). G. Carlier was president of the committee for the PGMO PhD. award.

## MONC Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Selection

#### 9.1.1.1. Member of the Conference Program Committees

- Sébastien Benzekry: Membre du comité scientifique des *Mathematical Biology Modeling days of Besançon, MB<sup>2</sup>* (<http://mb2.univ-fcomte.fr/index.html>).
- Clair Poignard: Inria at Silicon Valley BIS'2017 at Berkeley. Session on level-set methods, parallel computing and uncertainty quantifications. (Chairs: C. Poignard F. Gibou).
- Clair Poignard: Organisation of the Theoretical Physics Day at the University of Bordeaux.

### 9.1.2. Journal

#### 9.1.2.1. Member of the Editorial Boards

- Sébastien Benzekry: Invited editor of a special issue of the journal *Complexity* : "Mathematical Oncology: Unveiling Biological Complexity Using Mathematical Methods"
- Clair Poignard: Member of the editorial committee of DCDS-S.

#### 9.1.2.2. Reviewer - Reviewing Activities

- Sébastien Benzekry: Bull Math Biol, Computational and Applied Mathematics.
- Clair Poignard: Radiology, Bioelectrochemistry, Math. Medi Biol, J. Sci Comp., M2AN, JMPA, ESAIM Proc.
- Olivier Saut : PLOS One, Nature Comm, Medical Image Analysis.

### 9.1.3. Invited Talks

- Sébastien Benzekry: December 2017, Seminar at the Rappaport Faculty of Medicine of the Technion Israel Institute of Technology (invitation by Yuval Shaked). Contributions in Mathematical Oncology: When Theory Meets Reality. Haifa, Israel. <http://www.rappaport.org.il/Rappaport/Templates/ShowPage.asp?DBID=&TMID=10000&FID=78>
- Sébastien Benzekry: December 2017, Mathematical methods and modeling of biophysical phenomena. Mathematical modeling and prediction of metastasis. Rio de Janeiro, Brazil. <https://impa.br/eventos-do-imp/imp/2017/mathematical-methods-and-modeling-of-biophysical-phenomena/>
- Sébastien Benzekry: September 2017, Première session du GDR MAMOV. Mathematical Modeling and Prediction of Clinical Brain Metastases in Non-Small Cell Lung Cancer. Lyon, France <http://gdr-mamovi.math.cnrs.fr/spip/spip.php?article12>
- Sébastien Benzekry: June 2017, XXV Congreso de ecuaciones diferenciales y aplicaciones / XV congreso de matematica aplicada, Optimization of the timing of sequential administration of bevacizumab plus cytotoxics in non-small cell lung cancer by a mathematical model. Cartagena, Spain. <http://www.cedya2017.org/>
- Sébastien Benzekry: May 2017, Laboratoire d'Analyse Topologie et Probabilites, Institut de Mathématiques de Marseille. Mathematical Oncology: Theory Meets Reality. Marseille, France.
- Clair Poignard: Conference in honor of the 60th Birthday of Y. Maday. Electroporation modeling, from cell to tissue.
- Olibier Galinato: Sept. 2017, Journées Françaises de Radiologie, Numerical Workflow for Clinical IRE Ablation, Paris, France.

### 9.1.4. Scientific Expertise

- Sébastien Benzekry: Reviewer for the Foundation for Polish Science (TEAM programme), European funds Smart Growth
- Clair Poignard: Member of the evaluation committee of the call of the Plan Cancer «Physique pour le Cancer »
- Olivier Saut: O. Saut is an expert for the French Ministry of Research (for various programs including PHC and EGIDE programs).
- Olivier Saut: reviewer for IDEX Université Grenoble Alpes projects.

### 9.1.5. Research Administration

- Clair Poignard: Member of the Inria evaluation committee.
- Clair Poignard: PI of the Plan Cancer projects NUMEP (2016–2019), and DYNAMO (2015–2018).
- Olivier Saut: member of the steering committee of Labex TRAIL (Translational Imaging) <http://trail.labex.u-bordeaux.fr>.
- Olivier Saut: member of the steering committee of ITMO consortium HTE (on tumor heterogeneity) and coordinator of work package Model and Data.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence: S. Benzekry, Analyse numérique, 24h ETD, L3, Bordeaux INP, France

Licence : A. Collin, TD EDO, 48h, niveau L3, INP Bordeaux, France.

Master : A. Collin, TP C++, 96h, niveau M1, INP Bordeaux, France.

Master : A. Collin, Cours de maillage, 36h, niveau M2, INP Bordeaux, France.

Master : A. Collin, Encadrement de projets, 30h, niveaux M1, M2, INP Bordeaux, France.

Licence : C. Poignard, Undergraduate teaching in Numerical and Applied Mathematics (L3, M1) 80heqTD: IPB, ENSAM.

### 9.2.2. Supervision

- HdR: S. Benzekry, *Contributions in Mathematical Oncology: When Theory Meets Reality*, Université de Bordeaux, 13 Novembre 2017.
- PhD: Manon Deville, *Mathematical Modeling of enhanced drug delivery by mean of Electroporation or Enzymatic treatment*, University of Bordeaux (cotutelle with R. Natalini, University of Rome Tor Vergata), 22 Novembre 2017, Clair Poignard.
- PhD: Agathe Peretti, *Quantification de l'hétérogénéité tumorale à partir de l'imagerie médicale. Application à la classification de tumeurs rénales*, Université de Bordeaux, 20 décembre 2017, Thierry Colin, Olivier Saut.
- PhD in progress: C. Nicolò, *Mathematical modeling of systemic aspects of cancer and cancer therapy*, 12/2016, S. Benzekry and O. Saut.
- PhD in progress: T. Kritter, *Primary tumors modeling with a view to the gliomas and adenocarcinomas study*, Sep 2015, C. Poignard and O. Saut
- PhD in progress: S. Corridore, *Mathematical Model for Electroporation*, A. Collin, C. Poignard.
- PhD in progress: C. Perier, 2016-2019, B. Denis de Senneville and O. Saut, *Combining texture analysis and modeling for evaluation therapies and clinical outcome*.
- PhD in progress: A. Crombé, 2017-2020, O. Saut, *Beyond radiomics for soft-tissue sarcoma*.

- PhD in progress: C. Vaghi, *Improving intra-tumor drug distribution of anti-cancer nanoparticles by data-informed mathematical modeling* (beginning November 1st 2017), S. Benzekry, R. Fanciullino and C. Poignard.

### 9.2.3. Juries

- Sébastien Benzekry: Committee member of the PhD thesis of K. El Alaoui Lasmali, Université de Lorraine (mention Sciences de la Vie et de la Santé), 4 Avril 2017.
- Clair Poignard: reviewer of the PhD thesis of A. Barlukova (Université Aix-Marseille),
- Clair Poignard: reviewer of the PhD thesis of K. Van Nguyen (Ecole Polytechnique X)
- Clair Poignard: Committee member of the PhD thesis of T. Wintz: Super-resolution in wave imaging. (ENS Paris)
- Clair Poignard: Committee member of the PhD thesis of Z. Wenlong: Forward and Inverse Problems Under Uncertainty (ENS Paris).
- Olivier Saut: reviewer of the PhD thesis of Guila Fabrini. (Paris VI - Univ. Genova, Italy).
- Olivier Saut: reviewer of the PhD thesis of Clément Chesseboeuf. (Univ. Poitiers).

## 9.3. Popularization

- Sébastien Benzekry: Interview pour le journal « Sciences et Avenir ».
- A. Collin : Printemps de la mixité (une présentation sur le calcul scientifique devant 2 classes de première), Institut Mathématiques de Bordeaux, 04/04/17, <https://www.u-bordeaux.fr/Actualites/De-l-universite/Le-Printemps-de-la-mixite>.
- A. Collin: Filles & Maths (table ronde avec des lycéennes autour des études mathématiques et des applications des mathématiques), Université de Bordeaux, 05/06/2017, <https://math-interactions.u-bordeaux.fr/Centres-de-ressources/IREM/Actions/Journee-Filles-et-Maths>.
- A. Collin: Fête de la Science, Inria Bordeaux, 10/10/2017.
- A. Collin: Nuit des chercheurs, Cap Sciences, Bordeaux.
- A. Collin: Cinéma Sciences (discussion avec le public sur les mathématiques après la projection du film "Les figures de l'ombre"), Cinéma de Mérignac 18/05/2017.
- O. Saut: Les Entretiens de l'Excellence 2017 <http://www.lesentretiens.org/>.
- O. Saut: Table ronde "Comment l'innovation transforme les métiers de la santé", Journées Nationales de l'Innovation en Santé, 27-29 janvier 2017, cité des Sciences et de l'Industrie / webradio Cnrs.

## MORPHEME Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Selection

#### 8.1.1.1. Member of the Conference Program Committees

Laure Blanc-Féraud was a Associated Editor for the Workshop NCMIP 2017 New Computational method in Inverse Problems and the Conference IEEE ISBI 2018.

Eric Debreuve was a member of the Program Committee of ACIVS 2017 (Advanced Concepts for Intelligent Vision Systems).

#### 8.1.1.2. Reviewer

Laure Blanc-Féraud was a reviewer for the conferences ISBI, GRETSI, NCMIP.

Eric Debreuve was a reviewer for the conferences IEEE International Symposium on Biomedical Imaging (ISBI) and IEEE International Conference on Image Processing (ICIP).

Xavier Descombes was reviewer for the conferences ISBI, ICIP, ICASSP, and GRETSI.

Grégoire Malandain was reviewer for the conferences EMBC, ISBI, MICCAI, and GRETSI.

### 8.1.2. Journal

#### 8.1.2.1. Member of the Editorial Boards

Laure Blanc-Féraud was Associated Editor for the journals SIAM Imaging Sciences and the Revue Traitement du Signal.

Xavier Descombes was Associated Editor for the journal Digital Signal Processing.

#### 8.1.2.2. Reviewer - Reviewing Activities

Laure Blanc-Féraud was a reviewer for the journals ...

Eric Debreuve was a reviewer for the journals ...

Xavier Descombes was reviewer for the journals IEEE Signal Processing and IEEE TMI.

Grégoire Malandain was reviewer for the journals BMC Medical Imaging and International Journal of Computer Assisted Radiology and Surgery.

### 8.1.3. Invited Talks

Florence Besse was invited to DENA 2017 (Workshop on Expanding Networks Dynamics : Modeling, Analysis and Simulation of multi-scale spatial exploration under constraints), Nov 2017, Nice and to the Canceropole PACA annual meeting, June 2017, Saint-Raphaël.

Laure Blanc-Féraud was invited to the Workshop on Sparsity in Applied Mathematics and Statistics, Brussels Belgium, 1-2 June 2017.

### 8.1.4. Leadership within the Scientific Community

Florence Besse is a member of the scientific council of the IDEX JEDI Academy 2, and a member of the scientific council of the LabeX Signalife program.

Laure Blanc-Féraud is the directrice of the GdR 720 ISIS du CNRS: standard scientific animation (see website gdrisis.fr) and organization of the general meeting in november 2017 (100 participants over 3 days). She was also chair of the scientific council of Academy 1 of IDEX UCA JEDI.



Xavier Descombes is member of the Scientific Committee of the competitiveness pole Optitech, member of IEEE BISP (Biomedical Imaging Signal Processing) Technical Committee and member of the Scientific Committee of Labex SIGNALIFE.

Grégoire Malandain is member of the IEEE/EMB Technical Committee on Biomedical Imaging and Image Processing (BIIP). He is an member of the Scientific Committee of the MIA department of INRA.

### 8.1.5. Scientific Expertise

Laure Blanc-Féraud was expert for the Italian Ministry of Research (MUIR) and for the FNRS (Belgium).

Eric Debreuve was an expert for a CIFRE PhD proposal.

Xavier Descombes is an expert for the DRRT (Paca, Ile de France, Bretagne) and for the ANR.

### 8.1.6. Research Administration

Laure Blanc-Féraud was member of the Academic Council of COMUE UCA and member of the scientific council of ITAV (Toulouse) and GdR MIV (Microscopie Fonctionnelle du Vivant).

Xavier Descombes is member of the "comité des projets" and the "comité de centre" of Inria CRI-SAM.

Eric Debreuve is a member of the Comité Permanent des Ressources Humaines (CPRH), UNS, section 61.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

IUT: Agustina Razetti, principes des transmissions radio, 12h Eq. TD, IUT Nice Côte d'Azur, Université de Nice Sophia Antipolis, France.

IUT: Agustina Razetti, initiation Matlab, 6h Eq. TD, IUT Nice Côte d'Azur, Université de Nice Sophia Antipolis, France.

Licence: Arne Bechensteen, Outils pour la physique , 36h, L1, Polytech Nice Sophia , France.

Licence: Arne Bechensteen, Programmation impérative PeiP1 , 29.5h, L1, Polytech Nice Sophia, France.

Master: Gaël Michelin, Traitement Numérique des Images, 10h Eq. TD, Niveau M2, EPU, Université de Nice Sophia Antipolis, France.

Master: Laure Blanc-Féraud, management of the module Traitements numériques des images (24h), teaching 5h CM.

Master: Florence Besse, genetic tools for the study of neuronal networks, 4h, Université Côte d'Azur, France.

Master: Florence Besse, RNA localization and neuronal morphology, 4h, Université Côte d'Azur, France.

Licence: Caroline Medioni, Imagerie tissulaire, 15H, L3, Université Nice Côte d'Azur, France

Master: Caroline Medioni, Master "Sciences de la vie" jury , juin 2017

Master/Engineer: Eric Debreuve, Data Mining, 27.5h EqTD, Master 2/Engineer 5th year, UNS.

Master: Xavier Descombes, Traitement d'images, Analyse de données, Techniques avancées de traitement d'images, 10h Eq. TD, Niveau M2, ISAE, France.

Master: Xavier Descombes, Traitement d'images, master VIM, 12h Eq. TD, Niveau M2, Université Côte d'Azur, France.

Master: Xavier Descombes, Bio-imagerie, master IRIV, 6h Eq. TD, Niveau M2, Université de Strasbourg, France

Master: Xavier Descombes, Analyse d'images, master GBM, 9h Eq. TD, Niveau M2, Université Côte d'Azur, France.

### 8.2.2. Supervision

PhD: Lola Baustista, Reconstruction de phase pour la microscopie à Contraste Interférentiel Différentiel, Université Côte d'Azur, 30 June 2017.

PhD in progress: Agustina Razetti, Modelling and characterizing axon growth from in vivo data, 1st november 2014, Xavier Descombes (advisor), Florence Besse, Caroline Medioni (co-supervisors).

PhD in progress: Emmanuelle Poulain, Fluoroscopy/CTA dynamic registration, 1st february 2016, Grégoire Malandain.

PhD in progress: Arne Bechensteen, TIRF-MA and super-resolution by sparse estimation method, 2 October 2017, Laure Blanc-Féraud, Gilles Aubert, Sébastien Schaub.

PhD in progress: Anca-Ioana Grapa, Characterization of the organization of the Extracellular Matrix (ECM) by Image Processing , 19 September 2016, Laure Blanc-Féraud, Xavier Descombes.

### 8.2.3. Internships

Arne Henrik Bechensteen: INSA Toulouse, Towards a continuous relaxation of the  $\ell_0$  constrained problem. Supervisors: L. Blanc-Féraud, G. Aubert.

Kévin Giulietti: M2 SVS, Université Nice Sophia Antipolis, Détection et caractérisation de réseaux mitochondriaux à partir d'images de microscopie. Supervisor: X. Descombes.

Nadège Guiglielmoni: M2 AMIB, université Paris Sud, Reconstruction 3D d'axones uniques et multiples et analyse quantitative des branches sur des données temporelles dans le cerveau de la drosophile. Supervisors: C. Medioni, G. Malandain.

Christelle Requena: M2 SVS, Université Nice Sophia Antipolis, Détections d'extensions membranaires impliquées dans les communications cellulaires à partir d'images de microscopie in vivo. Supervisor: X. Descombes.

Sarah Laroui: M2 SVS-BIM, UNS, Automatic recognition of fungi phenotype by extraction and classification of morphometric parameters. Supervisors: E. Debreuve, X. Descombes.

### 8.2.4. Juries

Laure Blanc-Féraud participated to the PhD thesis committees of Lola Bautista (MORPHEME) as supervisor and of Simon Labouesse (Institut fresnel) as reviewer, and to the HDR jury of Aurelia Fraisse (L2S, Gif sur Yvette) as reviewer and of El-Hadi Djermoune (CRAN, Nancy).

Florence Besse participated to the PhD thesis committee of A. Samacoits (Pierre et Marie Curie univ.).

Xavier Descombes participated as reviewer to the PhD thesis committee of Vincent Briane (Rennes univ.) and Zhilin Li (CMLA Cachan).

Grégoire Malandain participated as reviewer to the PhD thesis committee of Hoai-Nam Nguyen (Rennes univ.).

## 8.3. Popularization

Anca Grapa, Kévin Giulietti and Gaël Michelin participated as exhibitors to the "Fête de la science 2017" manifestation in Juan-les-Pins (palais des congrès). The objective was to initiate non-scientific audience to the research issues in Morpheme team, and more generally to numerical science.

Laure Blanc-Féraud gave a talk for the PhD students association of the doctoral school STIC of Université Côte d'Azur "Voir l'intérieur d'une cellule vivante : lunettes numériques au secours du microscope" , mai 2017.

## MORPHEO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Selection

#### 10.1.1.1. Member of the Conference Program Committees

- Franck Hétroy-Wheeler was a PC member for the Eurographics 2017 conference (short papers track).
- Edmond Boyer was area chair for BMVC and 3DV 2017.

#### 10.1.1.2. Reviewer

- Jean-Sébastien Franco reviewed for CVPR and ICCV 2017.
- Franck Hétroy-Wheeler reviewed for Eurographics 2017 (short papers), ACM Multimedia 2017 and 3DV 2017.
- Julien Pansiot reviewed for CVPR and MobiHealth 2017.
- Stefanie Wuhrer reviewed for CVPR and ICCV 2017.
- Edmond Boyer reviewed for CVPR, ICCV, SIGGRAPH 2017.

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

- Edmond Boyer is associate editor of the International Journal of Computer Vision (Springer).

#### 10.1.2.2. Reviewer - Reviewing Activities

- Franck Hétroy-Wheeler reviewed for Frontiers in Plant Science and Journal of Mathematical Imaging and Vision.

### 10.1.3. Invited Talks

- Julien Pansiot talked at the INNOVACS Conférence "L'Innovation et la recherche pour le Sport, la Santé et le Bien-être"
- Edmond Boyer gave invited talks at: Inria Sophia Antipolis (February) , Journées scientifiques Inria (June) , ICCV Workshop on people capture (October), IPTA Montreal (December) 2017.

### 10.1.4. Scientific Expertise

- Edmond Boyer reviewed research proposals for EPSRC (UK) and KAUST (Saudi Arabia) in 2017.
- Edmond Boyer was a member of the recruiting committee of Ecole Central Paris for a professor position in 2017.
- Edmond Boyer was a member of the Inria Grenoble Rhône-Alpes recruiting committee for postdocs and visiting researchers in 2017.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence: Jean-Sébastien Franco, Introduction to Imperative Programming, 55h, Ensimag 1st year, Grenoble INP.

Licence: F. Hétroy-Wheeler, Algorithmics and data structures, 42h, Ensimag 1st year, Grenoble INP.

Master: Jean-Sébastien Franco, Introduction to Computer Vision, 27h, Ensimag 1st year, Grenoble INP.

Master: F. Hétroy-Wheeler, 3D graphics, 16h, Master of Science in Informatics, Université Grenoble Alpes.

Master: F. Hétroy-Wheeler, co-responsability of the Mathematical Modeling, Image and Simulation (MMIS) track of Ensimag, Grenoble INP.

Master: Edmond Boyer, 3D Modeling, 18h, M2R Mosig GVR, Grenoble INP.

Master: Edmond Boyer, Introduction to Visual Computing, 30h, M1 MoSig, Université Grenoble Alpes.

### 10.2.2. Supervision

PhD: Adnane Boukhayma, Surface Motion Capture Animation, Université de Grenoble, defended 06/12/2017, supervised by Edmond Boyer.

PhD in progress: Victoria Fernández Abrevaya, 3D Dynamic Human Motion Representations, Université de Grenoble Alpes, started 01/10/2016, supervised by Edmond Boyer and Stefanie Wuhrer.

PhD in progress: Claude Goubet, Modeling of 3D Foot, Université de Grenoble Alpes, started 01/10/2017, supervised by Edmond Boyer and Julien Pansiot.

PhD in progress: Roman Klakov, Deep Learning for 3D Shape Modeling Environment, Université de Grenoble Alpes, started 01/10/2017, supervised by Edmond Boyer and Jakob Verbeek.

PhD in progress: Vincent Leroy, 4D shape reconstruction from photoconsistency cues, Université de Grenoble Alpes, started 01/10/2015, supervised by Edmond Boyer and Jean-Sébastien Franco.

PhD in progress: Abdullah-Haroon Rasheed, Cloth Modeling and Simulation, Université de Grenoble Alpes, started 01/11/2017, supervised by Florence Bertails-Descoubes, Jean-Sébastien Franco and Stefanie Wuhrer.

PhD in progress: Romain Rombourg, Digital tree: from the acquisition to a high-level geometric model, Université Grenoble Alpes, started 01/10/2015, supervised by Franck Hétroy-Wheeler and Eric Casella.

PhD in progress: Nitika Verma, Deep Learning on Irregular Grids, Université de Grenoble Alpes, started 01/10/2017, supervised by Edmond Boyer and Jakob Verbeek.

PhD: Li Wang, Algorithms and criteria for volumetric Centroidal Voronoi Tessellations, Université Grenoble Alpes, defended 27/01/2017, supervised by Edmond Boyer and Franck Hétroy-Wheeler.

PhD in progress: Jinlong Yang, Learning shape spaces of dressed 3D human models in motion, Université de Grenoble Alpes, started 01/10/2015, supervised by Franck Hétroy-Wheeler and Stefanie Wuhrer.

### 10.2.3. Juries

- Jean-Sébastien Franco was a member of the defense committee of Adnane Boukhayma (Univ. Grenoble Alpes).
- Franck Hétroy-Wheeler is a member of the PhD monitoring committee of Van Tho Nguyen (University of Lorraine, INRA Nancy and Office National des Forêts).
- Edmond Boyer was a member of the defense committee of Rodrigo Ortiz Cayon.

## MULTISPEECH Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

Elected chair, Steering Committee of the Latent Variable Analysis and Signal Separation (LVA/ICA) conference series (E. Vincent)

General co-chair, AVSP 2017 - 14th International Conference on Auditory-Visual Speech Processing (S. Ouni)

#### 10.1.1.2. Member of the Organizing Committees

Co-organizer of the Task “Large-scale weakly supervised sound event detection for smart cars”, DCASE 2017 Challenge on Detection and Classification of Acoustic Scenes and Events (E. Vincent)

Member of the organizing committee, 2017 IEEE Automatic Speech Recognition and Understanding Workshop, Okinawa, Japan, December 2017 (E. Vincent)

Member of the steering committee, Detection and Classification of Acoustic Scenes and Events (DCASE) challenge series (E. Vincent)

Co-organizer of AVSP 2017 - International Conference on Auditory-Visual Speech Processing (S. Ouni)

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

Program chair, DCASE 2017 Workshop on Detection and Classification of Acoustic Scenes and Events (E. Vincent)

Review chair, IEEE Technical Committee on Audio and Acoustic Signal Processing, responsible for organizing the review of the 313 papers submitted to the 2018 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) in the general AASP domain (E. Vincent)

Proceedings co-chair (editor), AVSP 2017 - 14th International Conference on Auditory-Visual Speech Processing [76] (S. Ouni)

#### 10.1.2.2. Member of the Conference Program Committees

AVSP 2017 - 14th International Conference on Auditory-Visual Speech Processing (S. Ouni)

ICNLSSP'2017 - International Conference on Natural Language, Signal and Speech Processing (D. Fohr, D. Jouvét, O. Mella)

Area chair, 2017 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA) (E. Vincent)

ISSP 2017 - International Seminar On Speech Production (Y. Laprie)

#### 10.1.2.3. Reviewer

ASRU'2017 - IEEE Automatic Speech Recognition and Understanding Workshop (D. Jouvét, I. Illina, E. Vincent)

AVSP 2017 - 14th International Conference on Auditory-Visual Speech Processing (S. Ouni)

DCASE'2017 - Workshop on Detection and Classification of Acoustic Scenes and Events (R. Serizel, E. Vincent)

EUSIPCO'2017 - European Signal Processing Conference (D. Jouvét, A. Liutkus)  
 GLU'2017 - International Workshop on Grounding Language Understanding (D. Jouvét)  
 GRETSI 2017 - Colloque du Groupe d'Etudes du Traitement du Signal et des Images (R. Serizel)  
 HSCMA'2017 - Joint Workshop on Hands-free Speech Communication and Microphone Arrays (E. Vincent)  
 ICASSP'2017 - IEEE International Conference on Acoustics, Speech and Signal Processing (D. Jouvét, A. Liutkus, R. Serizel, E. Vincent)  
 ICNLSSP'2017 - International Conference on Natural Language, Signal and Speech Processing (D. Jouvét, O. Mella, E. Vincent)  
 INTERSPEECH 2017 (A. Bonneau, D. Jouvét, I. Illina, Y. Laprie, S. Ouni, E. Vincent)  
 ISSP 2017 - International Seminar On Speech Production (Y. Laprie)  
 LVA/ICA'2017 - International Conference on Latent Variable Analysis and Signal Separation (A. Liutkus, E. Vincent)  
 PaPE 2017 - Phonetics and Phonology in Europe (A. Bonneau)  
 SLaTE'2017 - ISCA Workshop on Speech and Language Technology in Education (A. Bonneau, D. Jouvét)  
 WASPAA 2017 - IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (A. Liutkus, R. Serizel, E. Vincent)

### **10.1.3. Journal**

#### *10.1.3.1. Member of the Editorial Boards*

ANAE Approche Neuropsychologique des Apprentissages chez l'enfant. Coordination of a special issue: N°147 : "Troubles de l'apprentissage du langage écrit et prise en charge multidisciplinaire: De la science à la salle de classe" (A. Piquard-Kipffer)  
 Computer Speech and Language, special issue on Multi-Microphone Speech Recognition in Everyday Environments (E. Vincent)  
 EURASIP Journal on Audio, Speech, and Music Processing (Y. Laprie)  
 Speech Communication (D. Jouvét)  
 Speech Communication, special issue on Realism in Robust Speech and Language Processing (E. Vincent)  
 Traitement du signal (E. Vincent)

#### *10.1.3.2. Reviewer - Reviewing Activities*

Computer Speech and Language (D. Jouvét)  
 Computers in Biology and Medicine (R. Serizel)  
 IEEE Transactions on Audio, Speech and Language Processing (A. Liutkus, S. Ouni, R. Serizel)  
 IEEE Transactions on Emerging Topics in Computational Intelligence (R. Serizel)  
 IET Signal Processing (R. Serizel)  
 Journal of the Acoustical Society of America (B. Elie, Y. Laprie)  
 Jasa Express Letters (Y. Laprie, S. Ouni, R. Serizel)  
 Logopedics Phoniatrics Vocology (S. Ouni)  
 Speech Communication (V. Colotte, S. Ouni)

### **10.1.4. Invited Talks**

Dyslexia-dysorthographie, « Dyslexie-Dysorthographie. Du repérage à la prise en charge ». Unaape, Le Chesnay, Jan 2017 (A. Piquard-Kipffer)

- New paradigms in speech recognition, SIIE 2017, Feb 2017 (D. Fohr, I. Illina) [35]
- Speech processing techniques for far-end spoken interactions in noisy environments, Sonos, Santa Barbara (US), March 2017 (R. Serizel)
- A tutorial on probabilistic modeling for audio source separation, Kyoto University, March 2017 (A. Liutkus)
- An articulatory model of the complete vocal tract from medical images, Electronic Speech Signal Processing 2017, Saarbrücken, March 2017 (Y. Laprie)
- Language pathology, Séminaire “Dépistage des troubles des apprentissages” in EHESP, Rennes, March 2017 (A. Piquard-Kipffer)
- Speech synthesis, Ecole Nationale d’Ingénieurs de Tunis (Tunisia), May 2017 (V. Colotte)
- Speech recognition, Ecole Nationale d’Ingénieurs de Tunis (Tunisia), May 2017 (D. Jouvét)
- Deep learning for distant-microphone enhancement and recognition — Expected and unexpected results, Audio Analytic, Cambridge (UK), June 2017 (E. Vincent)
- Deep learning for speech and audio processing, Journées scientifiques Inria, Sophia-Antipolis, June 2017 (R. Serizel)
- Deep learning for distant-microphone enhancement and recognition — Expected and unexpected results, Inria Rennes - Bretagne Atlantique (France), July 2017 (E. Vincent)
- When mismatched training data outperform matched data, Erwin Schroedinger Institute Workshop on “Systematic approaches to deep learning methods for audio”, Vienna (Austria), Sep 2017 (E. Vincent)
- Rehaussement et reconnaissance robuste de la parole, Université Grenoble - Alpes (France), Nov 2017 (E. Vincent)
- Reading predictors, “les habiletés associées à la lecture. Comment être le mieux outillé(e) pour apprendre à lire ?”. Canopé, Nancy, Nov 2017 (A. Piquard-Kipffer)
- Beginning of reading, “Les premiers apprentissages de la lecture”. Conférences de circonscriptions 1 et 2. Longwy, Nov 2017 (A. Piquard-Kipffer)

### ***10.1.5. Leadership within the Scientific Community***

- Elected chair, ISCA Special Interest Group on Robust Speech Processing (E. Vincent)
- Secretary/Treasurer, executive member of AVISA (Auditory-VISual Speech Association), an ISCA Special Interest Group (S. Ouni)

### ***10.1.6. Scientific Expertise***

- Expertise of an ANR project proposal (D. Jouvét, Y. Laprie)
- Expertise of an ERC project proposal (E. Vincent)
- Expertise of the ÖAW - Austrian Academy of Sciences Fund (S. Ouni)

### ***10.1.7. Research Administration***

- Vice Scientific Deputy of Inria Nancy - Grand Est from Sep 2017 (E. Vincent)
- Elected Member of the board of the AM2I Scientific Pole - Université de Lorraine (E. Vincent)
- Member of Comité Espace Transfert (E. Vincent)
- Member of the Comipers of Inria Nancy - Grand Est until Aug 2017 (E. Vincent)
- Member of the Comité de Centre of Inria Nancy - Grand Est until Aug 2017 (E. Vincent)
- Vice-Chair of the Recruitment Jury for Junior Research Scientists, Inria Nancy - Grand Est (E. Vincent).
- Member of the “Commission de développement technologique” (A. Bonneau)

Head of the AM2I Scientific Pole of Université de Lorraine (Y. Laprie)

Member of the Scientific Committee of an Institute for deaf people, La Malgrange (A. Piquard-Kipffer)

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

DUT: I. Illina, Programming in Java, 150 hours, L1, University of Lorraine, France

DUT: I. Illina, Linux System, 65 hours, L1, University of Lorraine, France

DUT: I. Illina, Supervision of student projects and stages, 50 hours, L2, University of Lorraine, France

DUT: S. Ouni, Programming in Java, 24 hours, L1, University of Lorraine, France

DUT: S. Ouni, Web Programming, 24 hours, L1, University of Lorraine, France

DUT: S. Ouni, Graphical User Interface, 96 hours, L1, University of Lorraine, France

DUT: S. Ouni, Advanced Algorithms, 24 hours, L2, University of Lorraine, France

DUT: R. Serizel, Computer science basics, 90 hours, L1, University of Lorraine, France

DUT: R. Serizel, Introduction to office software applications, 18h, L2, University of Lorraine, France

DUT: R. Serizel, Multimedia and web applications, 20h, L1, University of Lorraine, France

DUT: R. Serizel, Digital image processing basics

Licence: V. Colotte, C2i - Certificat Informatique et Internet, 50h, L1, University of Lorraine, France

Licence: V. Colotte, System, 115h, L3, University of Lorraine, France

Licence: O. Mella, C2i - Certificat Informatique et Internet, 20h, L1, University of Lorraine, France

Licence: O. Mella, Introduction to Web Programming, 30h, L1, University of Lorraine, France

Licence: O. Mella, Computer Networking, 128h, L2-L3, University of Lorraine, France

Licence: O. Mella Supervision of student internships, 4 hours, L3, University of Lorraine, France

Licence: A. Piquard-Kipffer, Education Science, 32 hours, L1, Département Orthophonie, University of Lorraine, France

Licence: A. Piquard-Kipffer, Learning to Read, 34 hours, L2, Département Orthophonie, University of Lorraine, France

Licence: A. Piquard-Kipffer, Psycholinguistics, 12 hours, L2, Département Orthophonie, University Pierre et Marie Curie-Paris, France

Licence: A. Piquard-Kipffer, Dyslexia, Dysorthographie, 22 hours, L3, Département Orthophonie, University of Lorraine, France

Master: A. Bonneau, Ecole d'audioprothèse (Phonetics), 16h, University of Lorraine, France

Master: A. Bonneau, Ecole d'orthophonie (Speech Manipulation with Praat), 2h, University of Lorraine, France

Master: V. Colotte, Introduction to Speech Analysis and Recognition, 18h, M1, University of Lorraine, France

Master: D. Jovet, Modélisation sensorielle (partie reconnaissance de la parole), 12h, M2, University of Lorraine, France

Master: Y. Laprie, Master de Sciences Cognitives (Analyse, perception et reconnaissance de la parole), 30h, University of Lorraine, France

Master: O. Mella, Computer Networking, 60h, M1, University of Lorraine, France



Master: O. Mella, Introduction to Speech Analysis and Recognition, 12h, M1, University of Lorraine, France

Master: S. Ouni, Multimedia in Distributed Information Systems, 31 hours, M2, University of Lorraine, France

Master: A. Piquard-Kipffer Agnès, Dyslexia, Dysorthographia diagnosis, 4 hours, Département Orthophonie, University of Lorraine, France

Master: A. Piquard-Kipffer, Deafness & reading, 21 hours, Département Orthophonie, University of Lorraine, France

Master: A. Piquard-Kipffer, French Language Didactics, 73 hours, ESPE, University of Lorraine, France

Master: A. Piquard-Kipffer, Special educational needs, 18 hours, ESPE, University of Lorraine, France

Master: A. Piquard-Kipffer, Psychology, 6 hours, University of Lorraine, France

Continuous training : O. Mella, Computer science courses for secondary school teachers (ISN courses), 10h, ESPE, University of Lorraine, France

Doctorat: A. Piquard-Kipffer, Language Pathology, 20 hours, EHESP, University of Sorbonne- Paris Cité, France

Doctorat: A. Piquard-Kipffer, Language Pathology, 20 hours, University of Lorraine, France

Other: V. Colotte, Responsible for “Certificat Informatique et Internet” for the University of Lorraine, France (50000 students, 30 departments)

Other: S. Ouni, Responsible of Année Spéciale DUT, University of Lorraine, France

### 10.2.2. Supervision

PhD : Quan Nguyen, “Mapping of a sound environment by a mobile robot”, University of Lorraine, November 3, 2017, Francis Colas and Emmanuel Vincent.

PhD : Aditya Nugraha, “Deep neural networks for source separation and noise-robust speech recognition”, December 5, 2017, Antoine Liutkus and Emmanuel Vincent.

PhD in progress: Ken Deguernel, “Apprentissage de structures musicales en situation d’improvisation”, March 2015, Emmanuel Vincent and Gérard Assayag (Ircam).

PhD in progress: Amal Houdihk, “Élaboration et analyse d’une base de parole arabe pour la synthèse vocale”, December 2015, cotutelle, Denis Juvet and Vincent Colotte (France) and Zied Mnasri (Tunisia).

PhD in progress: Imène Zangar, “Amélioration de la qualité de synthèse vocale par HMM pour la parole arabe”, December 2015, codirection, Denis Juvet and Vincent Colotte (France) and Zied Mnasri (Tunisia).

PhD in progress: Amine Menacer, “Traduction automatique de vidéos”, May 2016, Kamel Smaïli and Denis Juvet.

PhD in progress: Mathieu Fontaine, “Processus alpha-stable pour le traitement du signal”, May 2016, Antoine Liutkus and Roland Badeau (Télécom ParisTech).

PhD in progress: Anastasiia Tsukanova, “Coarticulation modeling in articulatory synthesis”, May 2016, Yves Laprie.

PhD in progress: Nathan Libermann, “Deep learning for musical structure analysis and generation”, October 2016, Frédéric Bimbot (IRISA) and Emmanuel Vincent.

PhD in progress: Lauréline Perotin, “Séparation aveugle de sources sonores en milieu réverbérant”, November 2016, Romain Serizel, Emmanuel Vincent, and Alexandre Guérin (Orange).

PhD in progress: Théo Biasutto, “Multimodal coarticulation modeling: Towards the animation of an intelligible speaking head”, December 2016, Slim Ouni.

PhD in progress: Sara Dahmani, “Modeling facial expressions to animate a realistic 3D virtual talking head”, January 2017, Slim Ouni and Vincent Colotte.

PhD in progress: Guillaume Carbajal, “Apprentissage profond bout-en-bout pour le rehaussement de la parole”, March 2017, Romain Serizel, Emmanuel Vincent, and AÉric Humbert (Invoxia).

PhD in progress: Sunit Sivasankaran, “Exploiting contextual information in the speech processing chain”, July 2017, Dominique Fohr and Emmanuel Vincent.

PhD in progress: Ioannis Douros, “Combining cineMRI and static MRI to analyze speech production”, July 2017, Pierre-André Vuissoz (IADI) and Yves Laprie.

PhD in progress: Lou Lee, “Du lexique au discours: les particules discursives en français”, October 2017, Yvon Keromnes and Mathilde Darnat (ATILF) and Denis Jouvét.

### **10.2.3. Participation in HDR and PhD juries**

Participation in Habilitation Jury for Damien Lolive (Université de Rennes 1, November 2017), Y. Laprie, reviewer.

Participation in PhD thesis Jury for Dionyssos Kounades-Bastian (Université Grenoble - Alpes, February 2017), E. Vincent, reviewer.

Participation in PhD thesis Jury for Emilio Molina Martínez (University of Málaga, Spain, March 2017), E. Vincent, reviewer.

Participation in PhD thesis Jury for Simon Durand (Télécom ParisTech, May 2017), E. Vincent, reviewer.

Participation in PhD thesis Jury for Mathieu Baqué (Université du Maine, June 2017), E. Vincent, reviewer.

Participation in PhD thesis Jury for Waad Ben Kheder (Université d’Avignon et des Pays du Vaucluse, July 2017), R. Serizel.

Participation in PhD thesis Jury for Waad Ben Kheder (Université d’Avignon et des Pays du Vaucluse, July 2017), D. Jouvét, reviewer.

Participation in PhD thesis Jury for Gabriel Bustamante (Université Fédérale Toulouse Midi-Pyrénées, September 2017), E. Vincent, reviewer.

Participation in PhD thesis Jury for Fangchen Feng (Université Paris - Sud, September 2017), E. Vincent, reviewer.

Participation in PhD thesis Jury for Gregory Gelly (Université Paris-Saclay, September 2017), D. Jouvét, reviewer.

Participation in PhD thesis Jury for Andrew Szabados (Université de Grenoble Alpes, November 2017), Y. Laprie, reviewer.

Participation in PhD thesis Jury for Natalia Tomashenko (Université du Mans, December 2017), D. Jouvét, reviewer.

Participation in PhD thesis Jury for Daniele Battaglino (EURECOM - Télécom ParisTech, December 2017), E. Vincent, reviewer.

Participation in PhD thesis Jury for Mohamed Bouaziz (Université d’Avignon, December 2017), I. Illina, reviewer.

Participation in PhD thesis Jury for Inaki Frenandez (Université de Lorraine, December 2017), I. Illina.

### **10.2.4. Participation in other juries**

Participation in CAFIPEMPF Jury - Master Learning Facilitator, Académie de Nancy-Metz & Université de Lorraine, April, May 2017, A. Piquard-Kipffer

Participation in the Competitive Entrance Examination into Speech-Language Pathology Department, Université de Lorraine, June 2017, A. Piquard-Kipffer.

### 10.3. Popularization

Interview for “Quand les machines apprennent à parler l’humain — Le Zoom de la Rédaction”, *France Inter*, February 2, 2017 (E. Vincent)

Interview for “Les prochains défis de la reconnaissance vocale”, *Le Figaro*, April 11, 2017 (E. Vincent)

Interview for “2017 : Alexa, la voix d’Amazon”, *Les Échos*, August 31, 2017 (E. Vincent)

Interactions vocales, Grand-Est Numérique, September 2017 (R. Serizel)

Demonstrations at Fête de la Science, University of Lorraine, October 13, 2017 (G. Carbajal, L. Perotin, R. Serizel, E. Vincent)

Demonstrations at the Rencontre Inria Industrie “Les données et leurs applications”, October 18, 2017 (E. Vincent)

Interview for “Les assistants vocaux vont bousculer la radio”, *Le Monde*, October 19, 2017 (E. Vincent)

Interview for *France Culture*, November 2017 (E. Vincent)

Talk at “Fresh from the Labs”, Station F, Paris (France), November 30, 2017 (E. Vincent)

Demonstration at Journée des métiers, Collège Péguy, le Chesnay, March 2017 (A. Piquard-Kipffer).

Demonstration of Dynalips at “50 ans Inria”, Paris, November, 7-8, 2017 (S. Ouni)

## MYCENAE Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

- **Reprosciences 2017**, April 10-12, Tours, co-organized by Frédérique Clément, Yves Combarous, Florian Guillou, Joëlle Cohen-Tannoudji and François Vialard.

### 9.1.2. Journal

#### 9.1.2.1. Member of the Editorial Boards

Jonathan Touboul participates in the editorial boards of *Plos One* and *Frontiers in neuronal circuits*

#### 9.1.2.2. Reviewer - Reviewing Activities

*Journal of Ovarian research*, *Journal of Mathematical Biology*, *SIAM Journal on Applied Dynamical Systems*

### 9.1.3. Invited Talks

Frédérique Clément gave a talk dedicated to “Multiscale modeling in reproductive and developmental biology : A middle-out, cell dynamics-based approach” during the **Journées Scientifiques Inria**, June, 14-16, Sophia-Antipolis.

Our study on the analysis and calibration of a linear model for structured cell populations with unidirectional motion was the matter of an invited presentation, given by Romain Yvinec, at the annual meeting of GDR MaMovi , September 27-29, Villeurbanne (<https://gdr-mamovi-2017.sciencesconf.org>).

### 9.1.4. Scientific Expertise

Frédérique Clément belongs to the expert board of the **BCDE** (Cell Biology, Development and Evolution) ITMO (Multi OrganizationThematic Institute) of the French National Alliance for Life and Health Sciences **Aviesan**.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Frédérique Robin gave lectures in the framework of the UFR de Mathématiques de Jussieu (L2 and L3 level)

UE P2.2M003 Vector analysis (L3) 85h

UE E.2M261 Integer and integral series with parameters (L2), 20h

UE 3M100 Initiation to Python language (L3), 15h

### **9.2.2. Supervision**

PhD in progress : Richard Bailleul. Modeling of the developmental mechanisms underlying the formation of color and appendage patterns in birds, since September 2015. Université Pierre & Marie Curie (ED515), supervisors: Benoît Perthame, Marie Manceau and Jonathan Touboul (funded by the ERC starting grant of Marie Manceau)

PhD in progress: Yi Cui. Role of Pax6 in neurodevelopment: experiments and models, since September 2014, Université Pierre & Marie Curie (ED158), supervisors: Jonathan Touboul, Alain Prochiantz and Alessandra Pierani

PhD in progress: Frédérique Robin. Multiscale modeling of the morphodynamics in ovarian follicles, since October 2016, Université Pierre & Marie Curie (ED386), supervisors: Frédérique Clément and Romain Yvinec (INRA)

Master degree: Matthieu Perez. Simulations de modèles déterministes et stochastiques de la neurogène corticale. INSA Rouen, supervisors: Frédérique Clément and Marie Postel

### **9.3. Popularization**

Frédérique Robin participated in a regional committee in the framework of the “Tournoi français des jeunes mathématiciennes et mathématiciens” (TFJM).

Book chapter in the new edition of the Encyclopedia of Endocrine Diseases

D. Monniaux, V. Cadoret, F. Clément, R. Dalbies-Tran, S. Elis, S. Fabre, V. Maillard, P. Monget, and S. Uzbekova

Editors Ilpo Huhtaniemi and Luciano Martini, Section Editor Sophie Christin-Maitre  
Folliculogenesis (2017) p1-26.

## MYRIADS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- Martin Quinson was the main organizer of the research school SUD gathering the SimGrid user community, held on 20-24 November, in Le Bono, Brittany.
- Guillaume Pierre was a co-organizer of the NetV IRISA/Technicolor Workshop on Network Virtualization (Rennes, February 1st 2017)

#### 10.1.1.2. Member of the Organizing Committees

Guillaume Pierre is general chair for the ACM/IFIP/Usenix Middleware 2018 conference. Christine Morin and Benjamin Camus are respectively sponsor and publicity & web chairs for this conference.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- Anne-Cécile Orgerie was Program vice co-chair for GreenCom 2017: IEEE International Conference on Green Computing and Communications.
- Anne-Cécile Orgerie was co-chair of the Track on Performance Modeling and Evaluation for ICA3PP 2017: International Conference on Algorithms and Architectures for Parallel Processing.

#### 10.1.2.2. Member of the Conference Program Committees

- Christine Morin served as program committee member for the following conferences: ACM International Conference on High Performance Distributed Systems (**HPDC**) 2017, IEEE International Conference on Distributed Computing Systems (**ICDCS**) 2017, ACM/IEEE **SC** 2017, IEEE **Big Data** 2017, IEEE **CloudCom** 2017, IEEE/ACM *International Symposium on Cluster, Cloud and Grid Computing* (**CC-GRID**) 2017, *IEEE Conference on Network unction Virtualization and Software Defined Networks* (**NFV-SDN**) 2017, **CompPas** 2017 and workshop: **Resilience** 2017.
- Anne-Cécile Orgerie served as a program committee member for the following conferences: PDP 2017, ICC 2017, I-SPAN 2017, Compas 2017, CBDCOM 2017, SC'17, SD3C 2017, and ISPA 2017.
- Guillaume Pierre served as a program committee member of ACM SAC 2017, ISFEC 2017, ISPDC 2017, CloudCom 2017, and HotWeb 2017.
- Nikos Parlavantzas served as a program committee member of ISPDC 2017, VHPC 17, and CLOSER 2017.
- Cédric Tedeschi served as a program committee member for ICCS 2017, Closer 2017 and Compas 2017.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

Christine Morin is associate editor in the IEEE's Transactions on Parallel and Distributed Systems' Editorial Board.

#### 10.1.3.2. Reviewer - Reviewing Activities

- Anne-Cécile Orgerie served as a reviewer for SIMPAT Simulation Modelling Practice and Theory in 2017.
- Cédric Tedeschi served as a reviewer for TPDS in 2017.

#### 10.1.4. Invited Talks

- Anne-Cécile Orgerie gave a talk for the seminar organized at CEA *maison de la simulation* in December 2017 on modeling and simulating the energy consumption of HPC infrastructures.
- Anne-Cécile Orgerie gave a talk for the Inria Scientific Days in June 2017 on measuring the energy consumption and improving the energy efficiency of computing infrastructures.
- Anne-Cécile Orgerie gave a talk for a seminar organized by ENS Rennes for high school students in March 2017 on greening ICT.
- Anne-Cécile Orgerie gave a talk for a seminar organized by the Seine-et-Marne DSDEN during a training day for teachers of primary, secondary and high schools on ICT and sustainability in March 2017 on the energy consumption of ICT.
- Anne-Cécile Orgerie gave a talk for a public conference organized by ArmorScience, an association based in Lannion, in February 2017 on reducing the energy impacts of ICT.
- Anne-Cécile Orgerie gave a talk for a seminar at ENSSAT in Lannion in the Informatics department in February 2017 on saving energy in large-scale distributed systems.
- Anne-Cécile Orgerie gave a talk for the IRISA-Technicolor Workshop on Network Virtualization on February 2017 on greening the networks.
- Guillaume Pierre gave invited talks at the RESCOM summer school on virtualization and containerization (Le Croisic, France, June 2017), the 11th Cloud Control Workshop (Sweden, June 2017), in a seminar of the DIMA team at TU Berlin (November 2017), and a guest lecture at INSA Rennes (France, November 2017).

#### 10.1.5. Leadership within the Scientific Community

- Anne-Cécile Orgerie is co-responsible for the Green axis of the CNRS GDR RSD (Network and Distributed Systems working group).
- Anne-Cécile Orgerie is secretary of the ASF: the French chapter of ACM SIGOPS.
- Cédric Tedeschi is a member of the steering committee of the Compas conference.

#### 10.1.6. Scientific Expertise

Christine Morin was a member of the junior researcher selection committee at Inria Rennes Bretagne Atlantique.

Christine Morin was a member of the selection committee for an assistant-professor position at the University of Lyon.

Guillaume Pierre and Martin Quinson were members of the selection committee for a professor position at the University of Rennes 1.

Anne-Cécile Orgerie was the coordinator of the scientific challenge on “Digitizing Energy” for the Inria’s scientific strategic plan 2018-2022.

Anne-Cécile Orgerie was a member of the selection committee for two assistant professor positions at IMT-Atlantique in Nantes.

Anne-Cécile Orgerie was a member of the admission jury for the *second concours* to recruit normalien students at Ecole Normale Supérieure of Rennes.

Jean-Louis Pazat is the coordinator of experts in Information Technology for the evaluation of international bilateral collaborations at the ministry of research and education.

Nikos Parlavantzas acted as an expert reviewer for ANR and SNSF projects.

### 10.1.7. Research Administration

- Christine Morin is a member of the board of the Project-Team Committee of Inria Rennes Bretagne Atlantique.
- Christine Morin is a member of the University of Rennes 1 board of directors and of the International Affairs Commission and its board.
- Anne-Cécile Orgerie is officer (chargée de mission) for the IRISA cross-cutting axis on Green IT.
- Martin Quinson is the leader of the “Large Scale Systems” department of IRISA.
- Louis Rilling is a member of the scientific board of the research component (“club recherche”) of “Pôle d’Excellence Cyber”.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Christine Morin is responsible for the "Advanced Cloud Infrastructures" (ACI) teaching unit of the Master in Computer Science (SIF) of the University of Rennes 1 and of the EIT Digital Master School at the University of Rennes 1.

Christine Morin:

- Master 1: FreeRoom project (spanning the two semesters) co-supervised with Cédric Tedeschi, Adrien Capaine, and Paul Couderc, University of Rennes 1, France.
- Master 2: Advanced Computing Infrastructures" (ACI), 15 hours ETD, EIT Digital Master School, University of Rennes 1, France.

Anne-Cécile Orgerie:

- Master 1: Cloud & Big Data - 12 hours of lecture and 12 hours of practical sessions at ENS Rennes
- Master 2: Green ICT - 3 hours of invited lecture at Telecom SudParis
- Master 2: Green ICT - 15 hours of lecture at IMT-Atlantique Nantes

Guillaume Pierre (at the University of Rennes 1):

- License 3 MIAGE: Systèmes (25 hours ETD)
- License 3 informatique: Organisation et utilisation des systèmes d’exploitation 2 (67 hours ETD)
- Master 1: Service Technologies (24 hours ETD)
- Master 1: Approche algorithmique des applications et systèmes répartis (32 hours ETD)
- Master 2: Techniques de développement logiciel dans le Cloud (39 hours ETD)
- Master 2: Advanced Cloud Infrastructures (10 hours ETD)

Martin Quinson (at ENS Rennes):

- Licence 3: Programming and Software Engineering (30 hours ETD); ARCSYS - architecture et systèmes (60 hours ETD); Pedagogy (15 hours ETD).
- Agrégation Science Industrielle: Programming and Software Engineering (20 hours ETD); Operating Systems and C programming (20 hours ETD); Networking (20 hours ETD).
- Master 2: Pedagogy and Scientific Mediation for Computer Science (30 hours EDT)

Jean-Louis Pazat (at INSA Rennes):

- Licence 3: Parallel and Multicore Programming (36 hours ETD)
- Master 1: Parallel and Distributed Programming (36 hours ETD)
- Master 1: Scientific Parallel Programming (36 hours ETD)
- Licence 3: Networks and SOA (20 hours ETD)
- Master1 / Master 2: Introduction to IoT (24 hours ETD)
- Master2: Student Project in Cloud Computing (12 hours ETD)



Nikos Parlavantzas (at INSA Rennes):

- Master 2: Project in Large-Scale Systems (26 hours ETD)
- Master 1: Clouds (20 hours ETD)
- Master 1: Performance Evaluation (32 hours ETD)
- Master1/2: Introduction to IoT (8 hours ETD)
- Master 1: Operating Systems (36 hours ETD)
- Master 1: Big Data and Applications (15 hours ETD)
- Master 1: Parallel and Distributed Programming (12 hours ETD)
- Licence 3: Multicore Programming (12 hours ETD)
- Licence 3: Networks and SOA (14 hours ETD)
- Master 1: Software Development Project (30 hours ETD)

Cédric Tedeschi ( 220 hours ETD at Univ. Rennes 1):

- Master 1: Cooperation and concurrency in Systems and Networks
- Master 1: Parallel programming
- Master 2: Internet of Services and Infrastructures

#### **E-learning**

MOOC : Christine Morin, *Défis technologiques des villes intelligentes participatives*, 1 week in March 2017 and 1 week in November 2017, FUN (<http://www.fun-mooc.fr/courses/inria/41009S02/session02/about>), Inria MOOC-Lab, leaders, engineers, students, continuing education, respectively 3857 and 3022 registered participants for the March and November sessions.

SPOC : Christine Morin, Technological challenges of participatory smart cities, 1 week, eitdigitalx, EIT Digital professional school, leaders and engineers, continuing education, unknown number of registered participants

Pedagogical resources : Christine Morin, cloud-based urban data management , video and quizz, Master, <https://www.eitdigital.eu/news-events/news/article/eit-digital-professional-school-launches-a-smart-cities-course-for-companies-and-cities/>

### **10.2.2. Supervision**

HdR: Cédric Tedeschi, Distributed Chemically-Inspired Runtimes for Large Scale Adaptive Computing Platforms, defended on April 11th, 2017.

PhD: Anna Giannakou, Self-adaptable security monitoring for IaaS Cloud environments, defended on July 6th, 2017, Louis Rilling, Christine Morin, Jean-Louis Pazat.

PhD: Yunbo Li, Resource allocation in a Cloud partially powered by renewable energy sources, defended on June 12th, 2017, Anne-Cécile Orgerie, Jean-Marc Menaud (Ascola).

PhD: Sabbir Hasan, SLA Driven Cloud autoscaling for optimizing energy footprint, defended on May 3rd, 2017, Thomas Ledoux (Ascola), Jean-Louis Pazat.

PhD: Ismael Cuadrado Cordero, Energy-efficient and network-aware resource allocation in Cloud infrastructures, defended on February 9th, 2017, Christine Morin, Anne-Cécile Orgerie.

PhD in progress: Mehdi Belkhiria, Dynamic Stream Processing for Maritime Traffic Surveillance, started in December 2017, advised by Cédric Tedeschi and Christine Morin

PhD in progress: Ali Jawad Fahs, “Decentralized Fog Computing Infrastructure Control”, started in October 2017, Guillaume Pierre.

PhD in progress: Clément El Baz, Reactive security monitoring in clouds, started in October 2017, Louis Rilling, Christine Morin.

PhD in progress: Loic Guegan, Simulating Internet of Things, started in October 2017, advised by Martin Quinson and Anne-Cécile Orgerie

PhD in progress (*co-tutelle*): Yasmina Bouizem, Energy-efficient, fault-tolerance mechanisms for containerized cloud applications, started in November 2016, Didi Fedoua (Tlemcen University, Algeria), Djawida Dib (Tlemcen University, Algeria), Christine Morin, Nikos Parlavantzas.

PhD in progress: The Anh Pham, Dynamic Formal Verification of High Performance Runtimes and Applications, started in November 2016, Martin Quinson, Thierry Jéron.

PhD in progress: Arif Ahmed, “Scalable Decentralized Edge Cloud Infrastructures”, started in October 2016, Guillaume Pierre.

PhD in progress: Baptiste Goupille-Lescar, Designing agile, distributed cyber-physical systems with advanced collaboration capabilities, started in January 2016, Eric Lenormand (Thales), Christine Morin, Nikos Parlavantzas.

PhD in progress: Pernelle Mensah, Security policy adaptation driven by risk evaluation in modern communication infrastructures, started in December 2015, Samuel Dubus (Alcatel-Lucent), Christine Morin, Guillaume Piolle (Cidre), Eric Totel (Cidre).

PhD in progress: Genc Tato, Locality-aware Lazy Overlay Networks for WANS, started in December 2015, Marin Bertier, Cédric Tedeschi.

PhD in progress: Amir Teshome, Definition and enforcement of Service-Level Agreements for Cloud security monitoring, started in October 2015, Louis Rilling, Christine Morin.

PhD in progress: Issam Rais, Multi criteria scheduling for large scale High Performance Computing environments, started in October 2015, Anne-Cécile Orgerie, Anne Benoît (ROMA), Laurent Lefèvre (Avalon).

PhD in progress: David Guyon, Supporting energy-awareness for cloud users, started in September 2015, Anne-Cécile Orgerie, Christine Morin.

PhD in progress: Bruno Stevant, Resource allocation strategies for service distribution at the Internet edge to optimize end-to-end latency, started in December 2014 (part-time), Jean-Louis Pazat.

### 10.2.3. Juries

- Christine Morin was a member in the HdR committee of Cédric Tedeschi, University of Rennes 1, April 11th, 2017.
- Christine Morin chaired the PhD committee of Sabbir Hasan, Insa Rennes, May 3rd, 2017.
- Christine Morin was an external reviewer in the PhD committee of Jiajun Cao, Northeastern University, September 2017.
- Christine Morin was the external reviewer in the PhD committee of Faiza Samreen, Lancaster University, November 23rd, 2017.
- Christine Morin chaired the PhD committee of Pedro Silva, ENS Lyon, December 11th, 2017.
- Anne-Cécile Orgerie was a member in the PhD committee of Millian Poquet, Université de Grenoble, December 19th, 2017.
- Anne-Cécile Orgerie was a member in the PhD committee of Inès de Courchelle, Université de Toulouse 3, November 20th, 2017.
- Jean-Louis Pazat chaired the PhD committee of Jean-Baptiste Barreau, INSA de Rennes, July 10, 2017.
- Jean-Louis Pazat was an external reviewer in the PhD committee of Riadh Karchoud, December 14, 2017.
- Guillaume Pierre was a member in the PhD committee of George Ioannidis, Ecole Polytechnique Fédérale de Lausanne, December 4th, 2017.

### **10.3. Popularization**

Martin Quinson is a member of the ISO national working group (Info Sans Ordi – CS without computer), that aims at inventing, improving and spread unplug activities. These outreach activities are meant to introduce fundamental concepts of Computer Science in schools without the need of any electrical devices. In 2017, the group produced a special issue to the *Tangente* magazine (read by maths teachers in France). Martin Quinson authored two articles in this special issue.

Martin Quinson is on the scientific board of the Blaise Pascal foundation, boosting the scientific outreach in the domains of Maths and Computer Science. He participated this year to a working group aiming at the development of an online game that teaches maths to pupils.

Martin Quinson was in the scientific organizing committees for several outreach events toward the popularization of Maths and Computer Science this year: «Maths Vivantes» had a very general audience: a booth on a public space of Rennes for one afternoon (March). «Maths C2+» invited about 20 pupils invited at ENS Rennes for 3 days (March). «Metier en tout Genre» invited several dozen of high-school students for one day on the Rennes university campus (November).

## NACHOS Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Scientific events organisation

##### 8.1.1.1. General chair, scientific chair

The team has organized the first workshop of the CLIPhTON (advanCed numerical modelIng for multiscale and multiphysics nanoPhoTONics) network that took place at the Inria Sophia Antipolis-Méditerranée research center on November 30-December 1st, 2017.

##### 8.1.2. Invited Talks

Claire Scheid, "Numerical contributions in nanophotonics" Women in PDE's @ Karlsruhe, KIT, Karlsruhe, Germany, April 27-28 2017.

Claire Scheid, "A structure preserving numerical discretization framework for the Maxwell Klein Gordon equations in 2D", CRC Seminar, KIT, Karlsruhe, 22 June 2017

Stéphane Lanteri, "Méthodes de type élément fini hybride d'ordre élevé et solveurs par décomposition de domaine pour le calcul de DAS et de SER", Journée Electromagnétisme et Guerre Electronique, Toulouse, France, November 23, 2017.

Stéphane Lanteri, "High order hybridized methods for time-domain and frequency-domain electromagnetics", Congrès Mathias 2017, Paris, France, October 25-27, 2017.

Stéphane Lanteri, "High order DG methods for computational electromagnetics", Barcelona Supercomputing Center, Barcelona, Spain, September 15, 2017.

Stéphane Lanteri, "Discontinuous Galerkin method for computational nanophotonics", Institut Fresnel, Marseille, France, June 9, 2017.

##### 8.1.3. Scientific Expertise

Stéphane Lanteri is a member of the Scientific Committee of CERFACS.

##### 8.1.4. Research Administration

Stéphane Descombes is the head of the Center of Modeling, Simulation and Interactions (MSI) of the UCA JEDI Excellence Initiative. See also: <http://univ-cotedazur.fr/en/uca-innovation/msi/home>.

Stéphane Lanteri is a member of the Project-team Committee's Bureau of the Inria Sophia Antipolis-Méditerranée research center.

Stéphane Lanteri is a member of the Sciences Fondamentales et Appliquées Doctoral School Committee.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Stéphane Descombes, *Scientific computing*, M1, 36 h, University Côte d'Azur.

Stéphane Descombes, *Principal components analysis*, M2, 30 h, Université Nice Sophia Antipolis.

Stéphane Lanteri, *High performance scientific computing*, MAM5, 24 h, Polytech Nice Sophia.

Claire Scheid, *Analyse, Lecture and practical works*, Master 2 Agrégation, 27h, University Côte d'Azur.

Claire Scheid, *Analyse Hilbertienne et analyse de Fourier, Practical works*, Master 1 MPA, 36h, University Côte d'Azur.

Claire Scheid, *Méthodes numériques en EDP, Lectures and practical works*, Master 1 MPA and IM, 63h, University Côte d'Azur.

Claire Scheid, *Option Modélisation, Lectures and practical works*, Master 2 Agrégation, 48h, University Côte d'Azur.

### **8.2.2. Supervision**

PhD in progress: Alexis Gobé, *Multiscale hybrid-mixed methods for time-domain nanophotonics*, November 2016, Stéphane Lanteri.

PhD in progress: Nikolai Schmitt, *Numerical modeling of electron beam interaction with nanostructures*, October 2015, Stéphane Lanteri and Claire Scheid.

PhD in progress: Georges Nehmetallah, *Efficient finite element type solvers for the numerical modeling of light transmission in nanostructured waveguides and cavities*, November 2017, Stéphane Descombes and Stéphane Lanteri.

## NANO-D Project-Team

# 7. Dissemination

## 7.1. Promoting Scientific Activities

### 7.1.1. Scientific Events Organisation

#### 7.1.1.1. Schools

- We organized SAMSON School 2017 in Lyon, for users and developers of SAMSON.

#### 7.1.1.2. Member of the Organizing Committees

- Stephane Redon is a member of the steering committee of the Nanosciences Foundation in Grenoble

### 7.1.2. Scientific Events Selection

#### 7.1.2.1. Member of the Conference Program Committees

Sergei Grudinin was an editorial member of the ACM-BCB'17 conference.

#### 7.1.2.2. Reviewer

- Leonard Jaillet was a reviewer for ICRA (International Conference on Robotics and Automation), IROS (International Conference on Intelligent Robots and Systems), ISRR (International Symposium on Robotics Research) and for RA-L (Robotics and Automation Letters).
- Sergei Grudinin served as a reviewer at the ACM-BCB'17 conference.

### 7.1.3. Journal

#### 7.1.3.1. Reviewer - Reviewing Activities

Sergei Grudinin served a reviewer for the following journals, several D3R assessment submissions in Journal of Computer-Aided Molecular Design; Bioinformatics, several CASP12 assessment submissions in PROTEINS: Structure, Function, and Bioinformatics; PLOS Computational Biology; PLoS One; Spectrochimica Acta Part A; Chemical Research in Toxicology; Journal of Computational Chemistry; The Journal of Physical Chemistry; Journal of Chemical Information and Modeling.

### 7.1.4. Invited Talks

- Sergei Grudinin gave an invited talk entitled "On the Nonlinear Normal Mode Analysis and its Applications to Structural Bioinformatics" at the Second International Conference on Computational Genomics and Proteomics, Aug 14 - 18 2017, Playa Blanca, Panama.
- Guillaume Pagès gave an invited talk entitled "Algorithms and Software for Symmetry Detection and Analysis in Large Macromolecular Assemblies" at the Second International Conference on Computational Genomics and Proteomics, Aug 14 - 18 2017, Playa Blanca, Panama.
- Sergei Grudinin gave an invited talk entitled "Some problems in computational electron-cryo microscopy" at the DROITE workshop on tomography: mathematics and applications, on the 27 Jan, 2017 in Grenoble.
- Sergei Grudinin gave an invited talk entitled "On the Nonlinear Normal Mode Analysis and its Applications to Structural Bioinformatics" at the rencontre nationales sur les modes normaux, May 30 2017, Institute Pasteur, Paris, France.
- Sergei Grudinin gave an invited talk entitled "Using machine learning and fast conformational space exploration techniques for some problems in structural bioinformatics" at the SMAI-2017 congress, June 4-9 2017, Azureva Ronce-les-Bains, France.

- Sergei Grudinin gave an invited talk entitled "Using Machine Learning and Integrative Approaches for Current Problems in Structural Biology" at the University Paris 6, Biologie Computationnelle et Quantitative lab on the 29th of May 2017.
- Sergei Grudinin gave an invited talk entitled "Application of machine learning to structural bioinformatics" on the 28th of February 2017 at the Thoth team of Inria Grenoble, France.
- Sergei Grudinin gave an invited talk entitled "Using Machine Learning and Integrative Approaches for Current Problems in Structural Biology" on the 14th of June 2017, at the ABS team of Inria Sophia-Antipolis, France.
- Sergei Grudinin gave an invited talk entitled "Using Machine Learning and Integrative Approaches for Current Problems in Structural Biology" at INRA Toulouse, France.
- Sergei Grudinin gave an invited talk entitled "On the Nonlinear Normal Mode Analysis and its Applications to Structural Biology" at LAAS CNRS, Toulouse, France.
- Sergei Grudinin gave an invited talk entitled "On the Nonlinear Normal Mode Analysis and its Applications to Structural Biology Including SAXS and Cryo-EM Experiments" at IBT Vilnius, Lithuania, on the 15th of September 2017.
- Sergei Grudinin gave an invited talk entitled "On some aspects of computational predictions of protein structure and organization" at the Institute of Bioorganic Chemistry NASB, Minsk, Belarus, on the 19th of September 2017.
- Sergei Grudinin gave an invited talk entitled "On some aspects of computational predictions of protein structure and organization" at the Interdisciplinary Laboratory Of Biological Systems Modelling, Warsaw, Poland, on the 9th of October 2017.
- Sergei Grudinin gave an invited talk entitled "Computational predictions of protein structure and organization" at the Laboratory For Biomolecular Modeling, EPFL, Lausanne, Switzerland, on the 24th of October 2017.
- Sergei Grudinin gave an invited talk entitled "On some methods for structural bioinformatics" at the Methodes Algorithmiques pour les Structures et Interactions des Macromolecules (GT MASIM) meeting on Nov. 16-17, Paris, France.
- Alexandre Hoffmann gave an invited talk entitled "On fast Fourier transform (FFT)-accelerated flexible exhaustive search for cryo-EM fitting" at the CryoEM Structure Challenges Workshop, Oct 6-8, Stanford, USA,

#### ***7.1.5. Other Talks, Presentations and Participations in the Scientific Events***

- Sergei Grudinin gave a talk entitled "On the non-linear normal mode analysis and its applications" at the GGMM 2017 conference, May 9-11 2017, Reims, France.
- Guillaume Page`s, Sergei Grudinin, Alexandre Hoffmann, and Maria Kadukova presented 3 posters at the GGMM 2017 conference, May 9-11 2017, Reims, France.
- Sergei Grudinin participated in the Journees Scientifiques Inria 2017, Jun 14-16 2017, Antibes, France.
- Sergei Grudinin and Alexandre Hofmann gave a talk entitled "FFT-accelerated exhaustive flexible docking method" at the Mapping2017 conference, May 21-26 2017, Lyon, France.
- Sergei Grudinin, Guillaume Page`s, Alexandre Hoffmann, and, Maria Kadukova presented two posters at the Mapping2017 conference, May 21-26 2017, Lyon, France.
- Sergei Grudinin and Yassine Naimi gave a talk entitled "On the Small-angle X-ray Scattering modeling in SAMSON" at the SAMSON School 2017, Lyon, France.
- Sergei Grudinin gave a talk entitled "On the development of knowledge-based approaches for structural predictions of macromolecules in Nano-D team" at the seminaire d'evaluation Nano-D, Apr 15-16 2017, Paris, France.

- Sergei Grudinin gave a talk entitled "Using Machine Learning for Protein-Ligand Interactions" at the SBDD2017 conference, Sep 4-8 2017, Lausanne, Switzerland.
- Sergei Grudinin presented a poster entitled "On the Normal Modes, Small-Angle Scattering and Convex Optimization for Protein Structure Prediction" at the Coarse-graining of biomolecules and beyond workshop, on the 7th of October 2017, Warsaw, Poland.

## **7.2. Teaching - Supervision - Juries**

### **7.2.1. Teaching**

- Stephane Redon is teaching INF572 (Introduction to C++) at Ecole polytechnique
- Stephane Redon is teaching INF473S (Computational nanoscience with SAMSON) at Ecole polytechnique

### **7.2.2. Supervision**

- Leonard Jaillet is advising the PhD of Minh Khoa Nguyen
- Sergei Grudinin is advising the PhD of Alexandre Hoffmann
- Sergei Grudinin is advising the PhD of Maria Kadukova
- Sergei Grudinin is advising the PhD of Guillaume Pages
- Stephane Redon was co-advising the PhD of Krishna Kant Singh in collaboration with Jean-Francois Mehaut
- Stephane Redon is advising the PhD of Francois Rousse
- Stephane Redon is advising the PhD of Semeho Eдорh

### **7.2.3. Juries**

- Stephane Redon was a member of the PhD committee of Laurent Denarie
- Sergei Grudinin was a member of the "Suivi individuel" PhD committee of Serge Nader

## **7.3. Popularization**

- Sergei Grudinin co-advised the team of high-school student "Cantor se Gauss d'un Poincare'" in the team competitions "Tournoi Franais Des Jeunes Mathe´matically" (TFJM).
- NANO-D was involved in several popularization activities, including a participation to Fete de la Science, and a participation to the GameLab project in Grenoble, where SAMSON modules were developed for high school students.
- Leonard Jaillet was involved in the development of a demonstration of SAMSON in the Inria showroom. Several scenarii were proposed where the user can interact with molecular systems and test different possible applications of the SAMSON software platform.



## NECS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

C. Canudas de Wit has been appointed General Chair of the 58th IEEE Conference on Decision and Control, 2019.

#### 9.1.1.2. Member of the Organizing Committees

The team organized the international ERC Scale-free Back workshop on “Modelling reduction tools for large-scale complex networks”, Grenoble, September 2017.

P. Frasca organized an open Invited session on “Dynamics and control in social networks”, IFAC World Congress, July 2017 (with G. Como) .

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

Paolo Frasca has served as Associate Editor in the IEEE Robotics and Automation Society CASE Conference Editorial Board for the 13th IEEE International Conference on Automation Science and Engineering, 2017 .

Federica Garin is Associate Editor in the IEEE Control System Society Conference Editorial Board (this year, she served for CDC 2017, ACC 2018)., and Associate Editor in the European Control Association (EUCA) Conference Editorial Board (this year, she served for ECC 2018).

Hassen Fourati was a member of the International and Scientific Program Committees of the International Conference on Control, Automation and Diagnosis (ICCAD'17), 2017, and the International Conference on Sciences and Techniques of Automatic Control and Computer Engineering STA2017, 2017.

#### 9.1.2.2. Reviewer

Team members, and in particular faculty, have been reviewers for several conferences (including the most prestigious ones in their research area): IEEE Conference on Decision and Control CDC, European Control Conference ECC, American Control Conference ACC, European Signal Processing Conference, IEEE International Conference on Robotics and Automation ICRA, IEEE/RSJ International Conference on Intelligent Robots and Systems IROS, IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys), Indian Control Conference, IFAC World Congress, IFAC Workshop on Control for Transportation Systems (CTS).

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

Carlos Canudas de Wit is Associate Editor of IEEE Transactions on Control of Networks Systems IEEE-TCNS (since June 2013), Associate Editor of IEEE Transactions on Control System Technology IEEE-TCST (since January 2013), and Editor of the Asian Journal of Control AJC (since 2010).

Hassen Fourati is guest editor of the special issue titled “Multi-sensor Integrated Navigation and Location based services applications” for International Journal of Distributed Sensor Networks (IJDSN), 2017 and Associate Editor of the Asian Journal of Control AJC (since January 2016). Paolo Frasca is Subject Editor of the International Journal of Robust and Nonlinear Control (Wiley) (since February 2014), Associate Editor of IEEE Control System Letters (from February 2017) and Associate Editor of the Asian Journal of Control (Wiley) (since January 2017).

### 9.1.3.2. Reviewer - Reviewing Activities

Team members, and in particular faculty, have been reviewers for several journals (including the most prestigious ones in their research area): IEEE Trans. on Automatic Control, IEEE Trans. on Control of Network Systems, IEEE Trans. on Signal Processing, Automatica, IEEE Signal Processing Letters, Systems and Control Letters, IEEE Transactions on Information Theory, Elsevier Signal Processing, Int. Journal of Robust and Nonlinear Control, IET Communications, IET Wireless Sensor Networks. IEEE/ASME Trans. on Mechatronics, IEEE Trans. on Instrumentations and Measurements, IEEE Sensors journal, IEEE Trans. on Robotics, AIMS Networks and Heterogeneous Network (NHM), Wiley Mathematical Methods in the Applied Sciences (MMAS), Journal of Mathematical Analysis and Applications (JMMA), Journal of Nonlinear Science and Applications (JNSA), Journal of the Franklin Institute, AMS Mathematical Reviews, IEEE Journal of Intelligent Transportation Systems, Asian Journal of Control, IEEE Transaction on Intelligent Transportation Systems, Elsevier Transportation Research Part B.

### 9.1.4. Invited Talks

- M. L. Delle Monache, “Traffic regulation via controlled speed limit”, SIAM Conference on Optimization, Vancouver, Canada, May 22, 2017.
- M. L. Delle Monache, “Control of traffic flow via ramp metering and automated vehicles”, France Berkeley Fund Symposium, Collège de France, Paris, France, June 7, 2017.
- M. L. Delle Monache, “Coupled PDE-ODE systems: applications to traffic flow modeling and control”, Institute de Mathematiques de Marseille, Marseille, France, November 14, 2017.
- M. L. Delle Monache, “Control of Traffic: from ramp metering to autonomous vehicles”, The Finite volume schemes and traffic modeling workshop, Besançon, France, November 23, 2017.
- P. Frasca, “Message-passing computation of the harmonic influence in social networks”, L2S, Paris-Saclay, November 21, 2017.
- P. Frasca, “Harmonic influence in social networks and identification of influencers by message passing”, WUDS’17 workshop, Banyuls-sur-mer, July 6, 2017.
- P. Frasca, “Non-smooth dynamical systems in opinion dynamics”, University of Twente, Enschede, NL, June 15, 2017.
- P. Frasca, “The observability radius of network systems”, University of Cagliari, Cagliari, Italy, May 4, 2017.
- F. Garin, “Input-and-state observability of structured network systems”, LCCC Focus Period on Large-Scale and Distributed Optimization, Lund, Sweden, June 2017.

### 9.1.5. Leadership within the Scientific Community

C. Canudas de Wit has been president of the European Control Association (EUCA) until June 2015, and is now (until 2017) Past-president and member of the EUCA Council.

### 9.1.6. Scientific Expertise

Team members participate to the following technical committees of IEEE Control Systems Society and of the International Federation of Automatic Control:

CSS Technical Committee “Networks and Communications Systems” (P. Frasca and F. Garin);

IFAC Technical Committee 1.5 on Networked Systems (P. Frasca and C. Canudas de Wit);

IFAC Technical Committee 2.5 on Robust Control (P. Frasca);

IFAC-TC7.1 Automotive Control (C. Canudas de Wit);

IFAC-TC7.4 Transportation systems (C. Canudas de Wit).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master: F. Garin, Distributed Algorithms and Network Systems, 13.5h, M2, Univ. Grenoble Alpes, France.

Licence: H. Fourati, Informatique Industrielle, 105h, L1, IUT 1 (GEII), Univ. Grenoble Alpes, France;

Licence: H. Fourati, Réseaux locaux industriels, 30h, L2, IUT1 (GEII), Univ. Grenoble Alpes, France.

Licence: H. Fourati, Automatique, 38h, L3, UFR physique, Univ. Grenoble Alpes, France.

Licence: H. Fourati, Automatique échantillonnée, 15h, L2, IUT 1 (GEII), Univ. Grenoble Alpes, France.

Licence: H. Fourati, Automatique complément, 12h, L2, IUT 1 (GEII), Univ. Grenoble Alpes, France.

Licence: H. Fourati, Mathématiques, 18h, L2, IUT1 (GEII1), Univ. Grenoble Alpes, France.

Licence: A. Kibangou, Automatique, 52h, L2, IUT1(GEII1), Univ. Grenoble Alpes, France.

Licence: A. Kibangou, Mathématiques, 33h, L2, IUT1 (GEII1), Univ. Grenoble Alpes, France.

Licence: A. Kibangou, Mathématiques, 44h, L1, IUT1 (GEII1), Univ. Grenoble Alpes, France.

Licence: A.Kibangou, Automatique, 16h, L3, IUT1 (GEII1), Univ. Grenoble Alpes, France.

### 9.2.2. Supervision

PhD: Pietro Grandinetti, Control of large-scale traffic networks, Sept. 2017, co-advised by C. Canudas de Wit and F. Garin.

PhD: Thibaud Michel, Mobile Augmented Reality Applications for Smart Cities, Nov. 2017, co-advised by N. Layaïda, H. Fourati and P. Geneves.

PhD in progress: Andrés Alberto Ladino Lopez, Robust estimation and prediction in large scale traffic networks, from Oct. 2014, co-advised by C. Canudas de Wit, A. Kibangou and H. Fourati.

PhD in progress: Sebing Gracy, Cyber-physical systems: a control-theoretic approach to privacy and security, from Oct. 2015, co-advised by A. Kibangou and F. Garin.

PhD in progress: Stéphane Durand, Coupling distributed control and game theory: application to self-optimizing systems, from Oct. 2015, co-advised by B. Gaujal and F. Garin.

PhD in progress: Stéphane Mollier, Aggregated Scale-Free Models for 2-D Large-scale Traffic Systems, from Oct. 2016, co-advised by C. Canudas de Wit, M. L. Delle Monache and B. Seibold.

PhD in progress: Nicolas Martin, On-line partitioning algorithms for evolutionary scale-free networks, from Dec. 2016, co-advised by C. Canudas de Wit and P. Frasca.

PhD in progress: Martin Rodriguez-Vega, Traffic density, traveling time and vehicle emission estimation in large - scale traffic networks, from Oct. 2017, co-advised by C. Canudas de Wit and H. Fourati.

PhD in progress: Muhammad Umar B Niazi, State-state estimation design and optimal sensor placement algorithms for large-scale evolutionary dynamical networks, from Dec. 2017, co-advised by C. Canudas de Wit and A. Kibangou.

### 9.2.3. Juries

- P. Frasca was committee member of the PhD defence of Florian Dietrich. Analyse et controle de systemes de dynamiques d'opinions. CRAN, Université de Lorraine, Nancy, France. Ph.D. advisors: Marc Jungers and Samuel Martin, November 22, 2017
- H. Fourati was committee member of the PhD defense of Alexis Nez, Univ. Poitiers, July 2017

- F. Garin was member of the recruiting committee, held in March-May 2017, for two Researcher ('CR2') positions at Inria Grenoble-Rhône Alpes.
- F. Garin was Member of the recruiting committee, held in April-May 2017, for an Associate Professor position ('poste de Maître de Conférences, section 61') at Univ. Grenoble Alpes and the Automatic Control Departement of GIPSA-lab.
- F. Garin was opponent for the licentiate thesis of Riccardo Lucchese, LuleåUniversity of Technology, Luleå, Sweden, May 2017.
- P. Frasca was member of the recruiting committee, held in March-May 2017, for two Researcher ('CR2') positions at Inria Saclay.

### **9.3. Popularization**

The GTL webpage (<http://gtl.inrialpes.fr/status>) is public in November: more generally the traffic activities have been popularized via the following public talk.

- G. Casadei, V. Bertrand, DEMO on the GTL at the "Rencontres Inria Industrie", Inria, Paris, Oct. 2017

## NEO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- D.Politaki was member of the organization committee of the workshop “Monde des mathématiques industrielles (MOMI)”, Inria Sophia Antipolis, 27-28 February 2017.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- International Conference on Computing, Networking and Communications (ICNC 2018), symposium on Communication QoS and System Modeling (CQSM) (**G. Neglia**)

#### 10.1.2.2. Member of the Conference Program Committees

- 18th Conference of the Société Française de Recherche Opérationnelle et d’Aide à la Décision (ROADEF 2017, Metz, France) (**A. Jean-Marie**)
- 8th Conference on Decision and Game Theory for Security (GameSec 2017, Vienna, Austria) (**K. Avrachenkov**)
- IFIP Networking 2017 Conference and Workshops: IFIP/TC6 Networking Poster and Demo Session (Stokholm, Sweden) (**G. Neglia**)
- IEEE Intl. Conference on Computer Communications (INFOCOM 2018, Honolulu, Hawaii, USA) (**G. Neglia**)
- 24th Intl. Conference on Analytical & Stochastic Modelling Techniques & Applications (ASMTA 2017, Newcastle Upon Tyne, UK) (**K. Avrachenkov**)
- 7th Intl. Conference on Game Theory for Networks (GameNets 2017, Knoxville, Tennessee, USA) (**K. Avrachenkov**)
- 29th Intl. Teletraffic Conference (ITC 2017, Genoa, Italy) (**S. Alouf**)
- 14th Workshop on Algorithms and Models for the Web Graph (WAW 2017, Toronto, Canada) (**K. Avrachenkov**)
- 19th Workshop on Mathematical Performance Modeling and Analysis (MAMA 2017, Urbana-Champaign, Illinois, USA) (**A. Jean-Marie**)

#### 10.1.2.3. Reviewer

The members of the team reviewed numerous papers for numerous international conferences.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- *ACM Transactions on Modeling and Performance Evaluation of Computing Systems (ACM ToM-PECS)* (**K. Avrachenkov** since 2015);
- *Wiley Transactions on Emerging Telecommunications Technologies (ETT)* (**S. Alouf** since July 2016);
- *Elsevier Computer Communications journal (COMCOM)* (**G. Neglia** since February 2014);
- *Elsevier International Journal of Performance Evaluation* (**K. Avrachenkov** since 2008).

#### 10.1.3.2. Reviewer - Reviewing Activities (list in alphabetical order of journal name)

- *Elsevier Transportation Research Part C* (**G. Neglia**);
- *IEEE Transactions on Mobile Computing (TMC)* (**S. Alouf**);
- *IEEE/ACM Transactions on Networking (ToN)* (**S. Alouf, G. Neglia**);
- *Mathematical Methods of Operations Research (MMOR)* (**S. Alouf**);
- *Performance Evaluation (PEVA)* (**S. Alouf, G. Neglia**);
- *Wiley Transactions on Emerging Telecommunications Technologies (ETT)* (**S. Alouf**).

### 10.1.4. Invited Talks

- G. Neglia gave an invited talk at the GdR ISIS workshop “PHY-Aware Edge Caching in 5G: Convergence of Network and Information Theory in Cache-aided Wireless Networks” on “Implicit Coordination of Caches in Small Cell Networks under Unknown Popularity Profiles”.

### 10.1.5. Leadership within the Scientific Community

- E. Altman is a fellow member of IEEE (Class of 2010).
- E. Altman and A. Jean-Marie are (elected) members of IFIP WG7.3 on “Computer System Modeling”. E. Altman is also Member of WG 6.3 of IFIP on Performance of Communication Systems.

### 10.1.6. Research Administration

#### S. Alouf

- is member of the scientific committee of the joint laboratory Inria-Alstom since May 2014;
- is vice-head of project-team NEO since January 2017.

#### K. Avrachenkov

- together with Arnaud Legout (DIANA team) and Fabien Gandon (WIMMICS team) is co-responsible of the multi-disciplinary research theme (Action Transversale) “Semantic and Complex Networks” at Inria Sophia Antipolis - Méditerranée.

#### A. Jean-Marie

- is the scientific coordinator of Inria activities in Montpellier (since 2008); as part of this duty, he represents Inria at: the Scientific Council of the Doctoral School “Sciences and Agrosciences” of the Univ. of Avignon; at the Regional Conference of Research Organisms (CODOR);
- is a member of the Steering Committee of the GDR RO, a national research initiative on Operations Research sponsored by the CNRS;
- is Head of project-team NEO since January 2017.

#### G. Neglia

- is the scientific delegate for European partnerships for Inria Sophia Antipolis – Méditerranée since 2014;

- is member of the Inria COST GTRI (International Relations Working Group of Inria’s Scientific and Technological Orientation Council since 2016);
- is member of the scientific animation committee for the IDEX UCA<sup>JEDI</sup> research program “Social Interactions and Complex Dynamics” since 2017.

NEO members are in the following committees of Inria Sophia Antipolis-Méditerranée

- CLFP: Training Committee (**S. Alouf**, since November 2014);
- CSD: Doctoral Committee (**S. Alouf**, until February 2017);
- MASTIC: a commission in charge of popularization and regional and internal scientific animation (**D. Politaki**, since July 2016);
- PhD Seminars organizing committee of CRISAM (**D. Politaki**, since November 2016);
- NICE: Invited Researchers Committee (**K. Avrachenkov**, since 2010).

NEO members are in charge of the following tasks for the research center:

- Supervision and validation of the project-teams’ yearly activity reports (**K. Avrachenkov**, since 2010).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence:

S. Alouf, “Probability”, 33H, Undergraduate Water Engineering degree (L3), Univ. of Nice Sophia Antipolis (UNS), France.

G. Neglia, “Probability”, 33.5H, Undergraduate Water Engineering degree (L3), Univ. of Nice Sophia Antipolis (UNS), France.

D. Politaki, “Langage de programmation Java”, 21H, L1, IUT, France.

D. Politaki, “Programmation Avancée”, 42H, M1, UNS, France.

Master:

S. Alouf, “Performance Evaluation of Networks”, 31.5H, M2 IFI Ubinet, UNS, France.

A. Kadavankandy, “Random-walk based algorithms for complex network analysis” at “Winter School on Complex Networks”, 2H, M1 Computer Science, UNS, France.

G. Neglia, “Distributed Optimization and Games”, 31.5H, M2 IFI Ubinet, UNS, France.

G. Neglia, responsible for the “Winter School on Complex Networks”, 22.5H, M1 Computer Science, UNS, France.

Doctorat:

A. Jean-Marie, “Markov Chains” and “Optimal Stochastic Control”, 20h, Facultad de Ciencias Económicas y Empresariales, Univ. Valladolid, Spain.

### 10.2.2. Supervision

HDR defended:

Sara Alouf, Université Côte d’Azur, “From Wireless Networks to Green IT: A Journey Through Stochastic Models and Tools”, 20 December 2017.

Giovanni Neglia, Université Côte d’Azur, “Delay Tolerant Networks: from modeling to optimization”, 27 February 2017.

PhD defended:

Arun Kadavankandy, “Spectral analysis of random graphs with application to clustering and sampling”, Université Côte d’Azur, 18 July 2017, advisors: Konstantin Avrachenkov and Laura Cottatellucci (EURECOM).

Hlib Mykhailenko, “Distributed Edge Partitioning”, Université Côte d’Azur, 14 June 2017, advisor: Fabrice Huet (SCALE team).

PhD in progress:

Said Boularouk, “Helping space apprehension by visually impaired people”, 1 October 2015, advisors: Eitan Altman and Didier Josselin (UAPV).

Zaid Allybokus, “Scalable Online Algorithms for SDN Controllers”, 1 July 2016, advisors: Konstantin Avrachenkov and Lorenzo Maggi (Huawei).

Dimitra Politaki, “Greening data center,” 1 February 2016, advisors: Sara Alouf and Fabien Hermenier (UNS).

PhD interrupted:

Alina Tuholukova, “Caching at the Edge: Distributed Phy-aware Caching Policies for 5G Cellular Networks,” 1 July 2016 – 31 July 2017.

### 10.2.3. Juries

NEO members participated in the Ph.D. committees of (in alphabetical order):

- George Arvanitakis, “An Analytical Model for Flow-level Performance in Heterogeneous Wireless Networks”, Télécom ParisTech, 27 September 2017, (**S. Alouf** as jury member)
- Victor Bucarey López, “Addressing Problem Size in Stackelberg Security Games”, Univ. of Chile, 1 September 2017, (**A. Jean-Marie** as jury member)
- Justina Gianatti, “Métodos numéricos para resolver problemas de control óptimo”, National Univ. of Rosario, 30 October 2017, (**A. Jean-Marie** as jury member)
- Arun Kadavankandy, “Spectral analysis of random graphs with application to clustering and sampling”, Univ. Côte d’Azur, 18 July 2017, (**A. Jean-Marie** as jury president)
- Christelle Rovetta, “Simulation parfaite de réseaux fermés de files d’attente et génération aléatoire de structures combinatoires”, Univ. Paris Sciences Lettres, 20 June 2017, (**A. Jean-Marie** as reviewer)
- Luigi Vigneri, “Vehicles as a Mobile Cloud: Modelling, Optimization and Performance Analysis”, Univ. Côte d’Azur, 11 July 2017, (**G. Neglia** as jury member)
- Jingjing Zhang, “Interplay between caching, feedback and topology in the wireless broadcast channel”, Télécom ParisTech, 26 April 2017, (**K. Avrachenkov** as jury president)

## 10.3. Popularization

- S. Alouf gave a radio interview to journalist J. Colombain; the interview aired on France Info on 6 August 2017 and is available here (audio + abstract): [http://www.francetvinfo.fr/replay-radio/nouveau-monde/nouveau-monde-faut-il-dire-le-ou-la-wi-fi\\_2294141.html](http://www.francetvinfo.fr/replay-radio/nouveau-monde/nouveau-monde-faut-il-dire-le-ou-la-wi-fi_2294141.html);
- D. Politaki participated to the “Fête de la science”, Antibes Juan-les-Pins (7-8 October). She animated two games based on the pythagorean theorem and finding the shortest path respectively, Thymio and scratch.
- D. Politaki participated in the organization of MOMI: Le MOnde des Mathématiques Industrielles. This is a two-day event organized by PhD candidates of Inria’s center in Sophia-Antipolis, dedicated to discovering how Mathematics are useful in the Industrial world.
- D. Politaki participated to Stage MathC2+ (18-21 Juin 2017) which is organised by Inria (SAM).



## NEUROSYS Project-Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

Laurent Bougrain is a member of the steering committee of the research network in neuroscience of the university of Lorraine.

Laure Buhry is an elected member of the "Pôle Scientifique AM2I" council of university of Lorraine.

Sébastien Rimbart is an elected member of the doctoral school IAEM of university of Lorraine.

#### 9.1.1. Scientific Events Organisation

##### 9.1.1.1. Member of the Organizing Committees

- Member of the organization committee of the launch day of the French society of brain-computer interfaces, January 24th 2017, Paris (L. Bougrain) <http://openvibe.inria.fr/the-2nd-international-openvibe-workshop-2016-contents/>
- Member of the organization committee of the iPAC seminar (Image, Perception, Action et Cognition) (L. Buhry)
- Member of the organization committee of the scientific days of the research network in neuroscience of the university of Lorraine, June 9th & November 9th 2017, Nancy (L. Bougrain)

#### 9.1.2. Journal

##### 9.1.2.1. Reviewer - Reviewing Activities

PeerJ (S. Rimbart)

#### 9.1.3. Research Administration

Juries for the recruitment of assistant professors: job MCF4289 IUT university of Cergy Pontoise (2017), L.Buhry

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Engineering school: L. Bougrain, *Interfaces cerveau-ordinateur*, 4.5h, 3rd year, Supélec, France  
 Polytechnical university of Kiev: L. Bougrain, *Brain-Computer Interfaces*, 10h, master, Ukraine  
 Engineering School: F. Giovannini, *Artificial Intelligence*, 32h, 3rd year, Telecom Nancy, France  
 UFR Math/Info: S. Rimbart, *Brain-Computer Interface*, 17h, Master 2, UFR Math/Info, France  
 UFR Math/Info: S. Rimbart, *Introduction to Neurosciences*, 15h, 1st year, UFR Math/Info, France  
 UFR Math/Info: A. Aussel, *Computational Neurosciences*, 20h, Master 2, UFR Math/Info, France  
 Engineering school: A. Aussel, *Python Programming*, 40h, 1st year, Mines Nancy, France

### 9.2.2. Supervision

PhD: Francesco Giovannini, Mathematical modelling of neural oscillations in hippocampal memory networks during waking and under general anaesthesia, university of Lorraine, September 19th 2017, Laure Buhry and Axel Hutt [1]

PhD: Cecilia Lindig-León, Multilabel classification of EEG-based combined motor imageries implemented for the 3D control of a robotic arm, January 10th 2017, A. Hutt and L. Bougrain [2]

PhD in progress: Amélie Aussel, Extraction of electrophysiological markers and mathematical modelling of the epileptic hippocampus, October 1st 2016, Laure Buhry and Radu Ranta (CRAN)

PhD in progress: Sébastien Rimbart, Study of the dynamic of cerebral motor patterns during general anesthesia, January 1st 2016, Axel Hutt and Laurent Bougrain

### 9.2.3. *Juries*

Ph.D. thesis juries: Loïc Botrel, Brain-computer interfaces (BCIs) based on sensorimotor rhythms Evaluating practical interventions to improve their performance and reduce BCI inefficiency, university of Würzburg, September 27th 2017, L. Bougrain (member)

Ph.D. thesis juries: Marie-Caroline Schaeffer, Traitement du signal ECoG pour Interface Cerveau Machine à grand nombre de degrés de liberté pour application clinique, university Grenoble-Alpes, June 6th 2017, L. Bougrain (member)

## 9.3. Popularization

Talk during the National Brain Awareness Week: Brain-Robot interactions, Mar. 14th, 2017, middle school Ernest Bichat, Lunéville (L. Bougrain)

Expert for the MGEN (a French mutual benefit insurance company)'s day about "réparer les vivants", Mar. 15th, 2017, Maisons-Alfort (L. Bougrain)

Scientific education on Information Technology with Marie Duflot-Kremer in the Marcel Leroy elementary school (20-22 students per class: CM2, CE2 / CM1, CE1 / CE2), 3h (three times 1h), May 30th 2017 (Tamara Tošić)

Exhibit of the Grasp-IT system to improve motor activity at the Interactions Homme-Machine conference 2017, August 2017, Poitiers (Sébastien Rimbart)

Exhibit of the Grasp-IT system to improve motor activity at Inria-Industry Meeting on data and their applications, October 18th 2017, Paris (L. Bougrain & Sébastien Rimbart)

## NON-A Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- W. Perruquetti is the chairman of the IFAC Technical Committee “Social Impact of Automation”, International Federation of Automatic Control, TC 9.2, and a member of the IFAC Technical Committees “Nonlinear Control Systems”, TC 2.3, and “Discrete Event and Hybrid Systems”, TC 1.3.
- A. Quadrat is a member of the IFAC Technical Committee “Linear Control Systems”, International Federation of Automatic Control, TC2.2
- J.-P. Richard is a member of the IFAC Technical Committee “Linear Control Systems”, International Federation of Automatic Control, TC2.2
- G. Zheng is a member of the IFAC Technical Committee “Social Impact of Automation”, International Federation of Automatic Control, TC9.2
- G. Zheng is co-chair of the working group “Commande et pilotage en environnement incertain” of GRAISYHM

#### 10.1.1.2. Member of the Organizing Committees

A. Quadrat is a member of the organization committee of the Journées Nationales de Calcul Formel (JNCF), Luminy, France, 22–26/01/2018.

J.-P. Richard is associate editor of the conferences EUCA-IEEE ECC 2018, Limassol, Cyprus (16th European Control Conference), 12–15/06/2018, IFAC TDS 2018, Budapest, Hungary (14th IFAC Workshop on Time Delay Systems), 28–30/06/2018, and IEEE MED 2017, Valletta, Malta (25th IEEE Mediterranean Conference on Control and Automation), 3–6/06/2017.

### 10.1.2. Scientific Events Selection

J.-P. Richard was the coordinator of the Inria Evaluation Seminar of the theme “Optimization and control of dynamical systems” à Rungis, 13–17/03/2017.

#### 10.1.2.1. Member of the Conference Program Committees

A. Quadrat was a member of the Program Committee of the 10th International Workshop on Multidimensional (nD) Systems (nDS 2017), University of Zielona Góra, Poland, 13-15/09/2017.

J.-P. Richard was a member of the Program Committee of the conference IARA VEHICULAR 2017, Nice, France (6th Int. Conf. on Advances in Vehicular Systems, Technol. & Appl.), 23-27/06/2017. He will also be a member of the Program Committee of IARA VEHICULAR 2018, Venice, Italy (7th Int. Conf. on Advances in Vehicular Systems, Technol. & Appl.), 24-28/06/2018.

#### 10.1.2.2. Reviewer

The members of NON-A team are reviewers and contributors of all top-ranked conferences in the field of automatic control (IEEE Conference on Decision and Control, IFAC World Congress, European Control Conference, American Control Conference, etc.).

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

D. Efimov is associate editor of:

- Associate editor, IFAC Journal on Nonlinear Analysis: Hybrid Systems
- Associate editor, Asian Journal of Control

He was also guest editor of two special issues on differentiators and on interval and set-membership estimation for International Journal of Control.

A. Polyakov is associate editor of:

- International Journal of Robust and Nonlinear Control
- Journal of Optimization Theory and Applications
- Automation and Remote Control

A. Quadrat is associate editor of Multidimensional Systems and Signal Processing.

#### 10.1.3.2. Reviewer - Reviewing Activities

The members of NON-A team are reviewers and contributors of all top-ranked conferences in the field of automatic control (IEEE Conference on Decision and Control, IFAC World Congress, European Control Conference, American Control Conference, etc.).

### 10.1.4. Invited Talks

A. Quadrat was invited to give a talk at the conference “Questions algorithmiques en algèbre, analyse, géométrie et topologie”, I.H.E.T, Tunis, Tunisia, 24–26/10/2017, and at the “1st DECOD Workshop – Delays and Constraints on Distributed Parameter Systems”, CentraleSupélec, Gif-sur-Yvette, France, 22–24/11/2017.

### 10.1.5. Leadership within the Scientific Community

The NON-A team is the leader in the field of non-asymptotic control and estimation using homogeneity framework.

Moreover, the NON-A team is also leader in algebraic systems theory. In particular, two invited sessions “Algebraic Methods and Symbolic-Numeric Computation in Systems Theory” and “New Results in Multidimensional Systems Theory” were organized at the IFAC 2017 World Congress, Toulouse (France), 09-14/07/2017. Finally, the book “Algebraic and Symbolic Computation Methods in Dynamical Systems” was edited by A. Quadrat and E. Zerz (RWTH Aachen, Germany) for the collection “Advances in Delays and Dynamics” (ADD), volume 9, Springer, and will appear in 2018.

### 10.1.6. Scientific Expertise

Since 2016, R. Ushirobira and D. Efimov have been working with the start-up Neotrope (Tourcoing). Following a first contract (2016) on the treatment of electro-dermal signals from their connected bracelet, a second part of the collaboration is underway for the filtering of the heart rate signal (HR). A second contract should be implemented in the coming months.

### 10.1.7. Research Administration

- W. Perruquetti is Vice-deputy of INS2I CNRS.
- J.-P. Richard is an Expert for the French Ministry of Research, MENESR/MEIRIES.
- A. Quadrat is a member of the “Bureau du Comité des Equipes-Projets” (BCEP) and of the “Commission des Emplois de Recherche”, Inria Lille.
- R. Ushirobira continues to participate in our local commissions: technological development (CDT, since January 2012); IT users (CUMI, since March 2016); sustainable development (CLDD since September 2016). Since 2013, she has been leading the “30 minutes of science” cycle (monthly seminar for the center’s scientific staff).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

From September 2016 to June 2017, Y. Bouzidi was ATER at Ecole Centrale de Lille. He completed 192 hours of computer science courses/TD, as well as algorithmic courses, for students in L3 and M1.

Since February 2017, R. Ushirobira has completed 24 hours of Linear Algebra course / TD at Polytech'Lille, 8 h of Automatic TP in L3 at the University of Lille1 and 38 h TD of Mathematics in Mathematics. 1st year at Centrale Lille. She supervises this year students in 4th and 3rd grades of Arthur Rimbaud College Villeneuve d'Ascq, as part of 'Math in Jeans'.

### 10.2.2. Supervision

PhD: Maxime Feingesicht, "Dynamic Observers for Control of Separated Flows", Ecole Centrale de Lille, 11/12/2017, supervisors: J.-P. Richard, F. Kerherve, A. Polyakov

PhD in progress: Haik Jan Davtjan, "Estimation in complex systems", EC Lille, 2016, UCoCoS EU project, supervisors: D. Efimov, J.-P. Richard

PhD in progress: Nadhynee Martinez Fonseca, "Non-asymptotic control and estimation problems in robotic system designed for manipulation of micro-organisms", National Polytechnic Institute of Mexico, 2015, supervisors: I. Chairez-Oria, A. Polyakov

PhD in progress: Tatiana Kharkovskaya, "Interval Observers for Distributed Parametr Systems", ITMO University-EC Lille, 2015, supervisors: D. Efimov, J.-P. Richard and A. Kremlev

PhD in progress: Langueh Désiré Kokou, "Inversion à gauche, singularités d'inversion, immersion et formes normales pour les systèmes dynamiques", 2015, supervisors: Thierry Floquet, Gang Zheng

PhD in progress: Gabriele Perozzi, "Save exploration of aerodynamic field by microdrone", Onera-Region, 2015, supervisors: D. Efimov, J.-M. Biannic and L. Planckaert

PhD in progress: Francisco Lopez-Ramirez, "Control and estimation via implicit homogeneous Lyapunov function", Inria, 2015, supervisors: D. Efimov, W. Perruquetti and A. Polyakov

PhD in progress: Guillaume Rance, "Asservissement paramétrique de systèmes flexibles à retard et application aux viseurs", CIFRE Safran Electronics & Defense, 2014, supervisors: A. Quadrat, A. Quadrat, H. Mounier

PhD in progress: Haik-Jan Silm, "Estimation in complex systems", 2016, supervisors: D. Efimov, R. Ushirobira, W. Michels, J.-P. Richard

PhD in progress: Yue Wang, "Development of a blimp robot for indoor operation", 2016, supervisors: Wilfrid Perruquetti, Denis Efimov, Gang Zheng

PhD in progress: Siyuan Wang, "Robust control of quadrotors", 2017, supervisors: Andrey Polyakov, Gang Zheng

### 10.2.3. Juries

- A. Quadrat was member of a selection committee for a MCF position (CNU 15-17), University of Limoges.
- R. Ushirobira was a jury member of the CR2 Inria 2017 competition for the Lille - Nord Europe center. She was also invited to participate in 3 selection committees for MCF positions (CNU 61, ENSEA and CNAM in May, Ecole Centrale de Nantes in September).

**NUMED Project-Team (section vide)**

## ORPAILLEUR Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organization, General Chairs, Scientific Chairs

- The 25<sup>th</sup> international conference on case-based reasoning (ICCBR-2017) has taken place in Trondheim (Norway) from 26 to 28 June (<http://www.iccbr.org/iccbr17/>). The program chairs were David W. Aha and Jean Lieber.
- Amedeo Napoli was the co-chair with Davide Ciucci and Sergei Kuznetsov of the special session “Special Session on Knowledge Discovery with Formal Concept Analysis and related formalisms (FCA4KD++)”, held between June 26-29 at ISMIS Warsaw (23rd International Symposium on Methodologies for Intelligent Systems [http://ismis2017.ii.pw.edu.pl/s\\_kd\\_fca.php](http://ismis2017.ii.pw.edu.pl/s_kd_fca.php)).
- Amedeo Napoli was the co-chair with Sergei Kuznetsov of the track “General Topics of Data Analysis” at the AIST Conference in Moscow in July 2017 (6th International Conference on Analysis of Images, Social Networks, and Texts <http://aistconf.org/>).
- Amedeo Napoli was the general chair of BDA 2017 held between November 14-17 2017 at Inria Nancy Grand Est/LORIA, “33ième conférence sur la Gestion de Données, Principes, Technologies et Applications” <https://project.inria.fr/bda2017/>.

#### 9.1.1.1. Scientific Animation

- The scientific animation in the Orpailleur team is based on the Team Seminar which is called the “Malotec” seminar (<http://malotec.loria.fr/?p=1>). The Malotec seminar is held in general twice a month and is used either for general presentations of members of the team or for invited presentations of external researchers.
- Members of the Orpailleur team are all involved, as members or as head persons, in various national research groups.
- The members of the Orpailleur team are involved in the organization of conferences and workshops, as members of conference program committees (AAAI, ECAI, ECML-PKDD, ESWC, ICCBR, ICDM, ICFCA, IJCAI, ISWC, KDD, SDM...), as members of editorial boards, and finally in the organization of journal special issues.

## 9.2. Teaching - Supervision - Juries

- All the permanent members of the Orpailleur team are involved in teaching at all levels and mainly at University of Lorraine. Actually, most of the members of the Orpailleur team are employed on “Université de Lorraine” positions.
- The members of the Orpailleur team are also involved in student supervision, at all university levels, from under-graduate until post-graduate students, engineers, PhD, postdoc students.
- Finally, the permanent members of the Orpailleur team are involved in HDR and thesis defenses, being thesis referees or thesis committee members.

## PACAP Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

A. Sez nec is member of the ACM/IEEE ISCA symposium steering committee.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

Isabelle Puaut is Program Chair of the 2017 IEEE Real-Time Systems Symposium (RTSS), held in Paris, France. She is general Chair of RTSS 2018, to be held in Nashville, Tennessee.

#### 9.1.2.2. Member of the Conference Program Committees

Sylvain Collange was PC member of Compas'2017.

Pierre Michaud was a member of the program committees of the ISCA 2017 and MICRO 2017 conferences.

Isabelle Puaut is member of the program committees of the Euromicro Conference on Real Time Systems (ECRTS) 2017 and 2018, the IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS) 2017 and 2018.

André Sez nec is a member of IEEE Micro 2018 Top Picks selection committee.

André Sez nec was a member of the IEEE Micro 2017 and SAMOS 2017 conference program committee.

#### 9.1.2.3. Reviewer

Members of PACAP routinely review submissions to numerous international conferences and events.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

Isabelle Puaut is Associate Editor of IEEE Transactions on Computers (IEEE TC).

André Sez nec is a member of the editorial boards of IEEE Micro and ACM Transactions on Architecture and Compiler Optimization.

#### 9.1.3.2. Reviewer - Reviewing Activities

Members of PACAP routinely review submissions to numerous international journals.

### 9.1.4. Invited Talks

Erven Rohou was invited to the seminar "WCET meets compilation". He presented an invited talk.

### 9.1.5. Leadership within the Scientific Community

Isabelle Puaut is member of the steering committee of RTNS (Real-Time Networks and Systems).

Isabelle Puaut is member of the steering committee of the Worst Case Execution Time (WCET) workshop, held in conjunction with the Euromicro Conference on Real Time Systems (ECRTS).

### 9.1.6. Research Administration

Isabelle Puaut is member of the Research Council (Commission Recherche) of the University of Rennes I. She is member of the working group "Habilitation à Diriger des Recherches".



Isabelle Puaut is member of the board of directors (Conseil d'Administration) of ISTIC (computer science and electrical engineering departement of University of Rennes I).

Erven Rohou is a member of the Inria CDT (Commission du Développement Technologique).

As “correspondant scientifique des relations internationales” for Inria Rennes Bretagne Atlantique, Erven Rohou is a member of the Inria COST GTRI (Groupe de Travail “Relations Internationales” du Comité d'Orientation Scientifique et Technologique).

André Seznec is an elected member of the Administration Council of Inria.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence: Damien Hardy, Linux and C programming, 22 hours, L3, Université de Rennes I, France

Licence: Damien Hardy, Real-time systems, 46 hours, L3, Université de Rennes I, France

Master: Damien Hardy, Operating systems, 60 hours, M2, Université de Rennes I, France

Master: Isabelle Puaut, Operating systems: concepts and system programming under Linux (SEL), 75 hours, M1, Université Rennes I, France

Master: Isabelle Puaut, Operating systems internals (NOY), 55 hours, M1, Université Rennes I, France

Master: Isabelle Puaut, Optimizing and Parallelizing Compilers (OPC), 6 hours, M2, Université Rennes I, France

Master: Isabelle Puaut, Real-time systems, 48 hours, M1, Université Rennes I, France

Master: Isabelle Puaut, Writing of scientific publications, 20 hours, M2/PhD, Université Rennes I, France

Master: Sylvain Collange, Parallel Programming, 22 hours, M1, Université Rennes I, France

Master: Sylvain Collange, GPU programming, 32 hours, M2, ESIR, France

Master: Sylvain Collange, Advanced computer architecture, 4 hours, M2, Université Rennes I, France

Master: Sylvain Collange, Advanced CUDA programming, 8 hours, M2, Université Pierre et Marie Curie Paris 6, France

Master: André Seznec, Advanced Architectures, 8 hours, M2, Université de Rennes I, France

### 9.2.2. Supervision

PhD: Nabil Hallou, *Runtime Optimization of Binary Through Vectorization Transformations*, Université Rennes I, Dec 2017, co-advisors E. Rohou and P. Clauss (EPI Camus Inria Strasbourg)

PhD: Andrea Mondelli, *Revisiting Wide Superscalar Microarchitecture*, Université Rennes I, Sep 2017, co-advisors P. Michaud and A. Seznec

PhD in progress: Rabab Bouziane, *Compilation techniques to exploit novel low-power architecture and technology solutions*, Université Rennes I, started Nov 2015, advisor E. Rohou and Abdoulaye Gamatié (LIRMM, Montpellier)

PhD in progress, Viet Anh Nguyen, *Worst-Case Execution Time (WCET) Estimation for Many-core Architectures*, Université Rennes I, started Jan 2015, co-advisors I. Puaut and D. Hardy.

PhD in progress, Benjamin Rouxel, *Code optimizations for WCET calculation on many-core platforms*, started Oct 2015, co-advisors I. Puaut (70 %) and S. Derrien (30 %) from the CAIRN group.

PhD in progress: Arif Ali Ana-Pparakkal, *Dynamic Function Specialization*, Université Rennes I, started Feb 2015, advisor E. Rohou

PhD in progress: Simon Rokicki, *Compilation dynamique hybride logiciel/matériel*, Université Rennes I, started Sep 2015, co-advisors E. Rohou and Steven Derrien (CAIRN)

PhD in progress: Kalitzidis Kleovoulos, *Ultrawide Issue Superscalar Processors*, Université Rennes I, started Dec 2016, advisor A. Seznec

PhD in progress: Niloofar Charmchi, *Hardware prefetching and related issues*, Université Rennes I, started Jan 2017, advisor A. Seznec

PhD in progress: Daniel Rodriguez Carvalho, *Towards a compressed memory hierarchy*, Université Rennes I, started Oct 2017, advisor A. Seznec

### 9.2.3. Juries

Isabelle Puaut was a member of the following committees:

- Antoine Blin, Vers une utilisation efficace des processeurs multi-cœurs dans les systèmes embarqués à criticités multiples, Université Pierre et Marie Curie (UPMC), January 2017 (reviewer)
- Laure Abdallah, Worst-case delay analysis of core-to-IO flows over many-cores architectures, Université de Toulouse, April 2017 (reviewer)
- Stefanos Skalistis, Efficient adaptive hard real-time multi-processor systems, École Polytechnique Fédérale de Lausanne (EPFL), October 2017 (reviewer)
- Fabrice Guet, Étude de l'application de la théorie des valeurs extrêmes pour l'estimation fiable et robuste du pire temps d'exécution probabiliste, Université de Toulouse, December 2017 (examiner)
- Nabil Hallou, Runtime optimization of binary through vectorization transformations, Université de Rennes I, December 2017 (examiner)
- Quentin Perret, Predictable execution on many-core processors, Université de Toulouse, April 2017 (examiner)
- Soukayna Msirdi, Modular Avionics Software Integration on Multi-Core COTS, Université de Toulouse, July 2017 (reviewer)

Erven Rohou was a member of the following committees:

- Nabil Hallou, Runtime optimization of binary through vectorization transformations, Université de Rennes I, December 2017.
- Laurent Georget, Suivi de flux d'information correct pour les systèmes d'exploitation Linux, Université de Rennes I, September 2017
- Mohammed Boussaa, Automatic Non-Functional Testing and Tuning of Configurable Generators, Université de Rennes I, September 2017.
- Thierno Barry, Sécurisation à la compilation de logiciels contre les attaques en fautes, Université de Lyon, CEA Grenoble, November 2017.
- Shixiong Xu, Data Layout Oriented Compilation Techniques in Vectorization for Multi-/Many-cores, Trinity College, Dublin, Ireland, June 2017.

Erven Rohou was an external expert in the recruitment committee of Alexandra Jimborean, Uppsala Universitet, Sweden.

Erven Rohou was a member of the selection committee of Université de Paris-Est Marne-la-Vallée.

## 9.3. Popularization

Nicolas Kiss, Damien Hardy and Erven Rohou presented a poster at the “European Cyber Week”, organized by the “Pôle d'Excellence Cyber”.

Erven Rohou presented a poster at the Teratec Café, describing the ANTAREX H2020 project.

## PANAMA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

Antoine Deleforge was elected member of the IEEEAudio and Acoustic Signal Processing Technical Committee.

Rémi Gribonval is a member of the IEEE Technical Committee on Signal Processing Theory and Methods (2012–2017), and a member of the Awards sub-committee.

Rémi Gribonval is a member of the program committee of the GRETSI.

Rémi Gribonval is a member of the EURASIP Special Area Team (SAT) on Signal and Data Analytics for Machine Learning (SiG-DML) since 2015.

Rémi Gribonval has been a member of the Steering Committee of the SPARS international workshop (chairman until 2013) until 2017.

Frédéric Bimbot is the Head of the "Digital Signals and Images, Robotics" department in IRISA (UMR 6074).

Frédéric Bimbot is a member of the International Advisory Council of ISCA (International Speech Communication Association).

Rémi Gribonval and Frédéric Bimbot are the scientific coordinators of the Science and Music Day (Journée Science et Musique) organized by IRISA.

Nancy Bertin and Frédéric Bimbot are the coordinators of the Science and Music Young Researcher Award (Prix Jeune Chercheur Science et Musique).

Antoine Deleforge organized and will co-chair with Ivan Dokmanic and Robin Schreiber a special session on "Geometry-Aware Auditory Scene Analysis" at ICASSP 2018, Calgary, Canada.

N. Bertin, A. Deleforge, and R. Gribonval co-organized a special session entitled "From Source Position to Room Properties : Learning Methods for Audio Scene Geometry Estimation", at the 2017 LVA/ICA Conference, Grenoble, February 2017

Antoine Deleforge is Area Chair in Bayesian Inference for the 14th International Conference on Latent Variable Analysis and Signal Separation (LVA/ICA 2018).

R. Gribonval was an invited speaker at the Learning Theory Workshop during the conference on Foundations of Computational Mathematics (Barcelona, July 2017) and the Les Houches Workshop on Statistical Physics (Les Houches, February 2017).

R. Gribonval has been a member of the jury of the **GDR ISIS / GRETSI / Club EAA thesis prize in signal and image processing** from 2014 to 2017.

R. Gribonval is the scientific organizer of the **13th Peyresq summer school in signal and image processing**, jointly organized in July 2018 by **GRETSI** and **GDR ISIS**.

R. Gribonval has joined in 2017 the Scientific Advisory Board of the Acoustics Research Institute from the Austrian Academy of Sciences in Vienna.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Bachelor : N. Bertin, "Discovery of selected topics in audio signal processing research", 6 hours, L3, École Supérieure de Réalisation Audiovisuelle (ESRA), France.

Master : N. Bertin, "Vocal and Audio Interactions", 4 hours, M2, Université Rennes 1, France.

Master : N. Bertin, "Fundamentals of Signal Processing", 24 hours, M1, Ecole Normale Supérieure (ENS) de Bretagne, Rennes, France.

Master : N. Bertin, "Sparse representations and compressive sensing", 15 hours, M2, Ecole Nationale de la Statistique et de l'Analyse de l'Information (ENSAI), Rennes, France.

Master : N. Bertin, "Sparsity in Signal and Image Processing", 12 hours, M2, Institut National des Sciences Appliquées (INSA) de Rennes, France.

Master : R. Gribonval, "High dimensional statistical learning", 12 hours, M2, Université Rennes 1, France.

Master: R. Gribonval, coordination of the HDL module "High dimensional statistical learning" within the SIF M2, 20 hours, Université Rennes 1, France.

Master : R. Gribonval, "Sparsity in Signal and Image Processing", 4 hours, M2, Institut National des Sciences Appliquées (INSA) de Rennes, France.

Master : R. Gribonval, coordination of the module "Sparsity in Signal and Image Processing", 48 hours, M2, Institut National des Sciences Appliquées (INSA) de Rennes, France.

Bachelor : A. Deleforge, "Discovery of selected topics in audio signal processing research", 6 hours, L3, École Supérieure de Réalisation Audiovisuelle (ESRA), France.

Master : A. Deleforge, "Sparsity in Signal and Image Processing", 4 hours, M2, Institut National des Sciences Appliquées (INSA) de Rennes, France.

Master : A. Deleforge, "Vocal and Audio Interaction", 6 hours, M2, Université Rennes 1, France.

Master : F. Bimbot, coordination of the VAI module "Vocal and Acoustic Interactions" within the SIF M2, 20 hours, Université de Rennes 1, France

## 10.3. Popularization

### 10.3.1. Journée Science et Musique

**Participants:** Antoine Deleforge, Rémi Gribonval, Frédéric Bimbot, Romain Lebarbenchon, Clément Gaultier, Nancy Bertin, Ewen Camberlein, Stéphanie Lemaile, Corentin Louboutin, Corentin Guichaoua, Cásio Fraga Dantas, Valentin Gillot, Antoine Chatalic, Yann Traonmilin.

*with contributions and support from: Valérie Gouranton, Ronan Gagne, Evelyne Orain, Agnès Cottais, Catherine Jacques-Orban and many more.*

PANAMA coordinated the organization of a public event called "Journée Science et Musique" ("Music and Science Day"). This yearly event organized by the METISS/ PANAMA Team since 2011 aims at sharing with the wide audience the latest innovations and research projects in music. The motivation for hosting this event is to explain and promote the technology behind audio-processing that people face in their daily lives. The event is free to everyone and people have the possibility to attend talks by selected speakers or meet numerous experts that demonstrate current projects in which people can interactively participate. Edition 2017 hosted more than 800 visitors and was a partner of the "Festival des Sciences" and "Festival Maintenant" in Rennes.

## PARIETAL Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Selection

#### 10.1.1.1. Member of the Conference Program Committees

##### 10.1.1.1.1. Gaël Varoquaux

MICCAI, NIPS, IPMI, ICML, CCN

##### 10.1.1.1.2. Bertrand Thirion

NIPS, IPMI, OHBM, PRNI

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

- Gaël Varoquaux, Editor, Neuroimage
- Alexandre Gramfort, Editor, Frontiers in Brain Imaging Methods, Journal of Machine Learning Research (JMLR)
- Bertrand Thirion, Editor, Frontiers in Brain Imaging Methods

#### 10.1.2.2. Reviewer - Reviewing Activities

##### 10.1.2.2.1. Gaël Varoquaux

Nature Methods, JMLR, PLOS Comp Bio, NeuroImage, IEEE TBME, Annals of Applied Statistics, Biological Psychiatry, MedIA

##### 10.1.2.2.2. Alexandre Gramfort

JMLR, PLOS Comp Bio, NeuroImage, IEEE TBME, IEEE TMI, IEEE TSP, MedIA, Brain Topography, NIPS, ICML, ICLR.

##### 10.1.2.2.3. Philippe Ciuciu

PLOS One, NeuroImage, HBM, IEEE TMI, IEEE TSP, IEEE SP letters, MedIA, J of Neuroscience, JCBFM, ISBI, ICASSP, EUSIPCO.

##### 10.1.2.2.4. Denis Engemann

PLOS Biology, PLOS Computational Biology, Nature Scientific Reports, Neuroimage, Neuroimage Clinical, Human Brain Mapping, Journal of Machine Learning Research, Brain Topography, Brain Connectivity, Journal of Alzheimer's Disease, PLOS ONE, Frontiers in Neuroscience, Psychiatry and Clinical Neurosciences, Sensors

##### 10.1.2.2.5. Bertrand Thirion

Nature communications, Neuroimage, Medical Image Analysis, IEEE TMI, PNAS, PLOS Comp Bio.

### 10.1.3. Invited Talks

- Gaël Varoquaux, Keynote, BDEC Workshop 2017, Wuxi, China
- Gaël Varoquaux, Keynote, scipy 2017, Austin TX
- Gaël Varoquaux, Keynote, Swiss Python summit 2017, Zurich, Switzerland
- Gaël Varoquaux, Keynote, NIPS learning with limited labels workshop, Long Beach, CA
- Philippe Ciuciu, Seminar in the neuroscience Department, NYU, School of Medicine, May 2017, NYC.
- Philippe Ciuciu, Laufer Center Seminar Series, May 2017, Stony Brook Univ, NY.
- Philippe Ciuciu, Dedale workshop on Dictionary learning on manifolds, Sep. 2017, Nice, France
- Philippe Ciuciu, Colloquium at Perform centre, Dec 2017, Montreal, Canada
- Philippe Ciuciu, Seminar at Ecole Polytechnique Montreal, Dec 2017, Montreal, Canada
- Alexandre Gramfort, 2017 EU-US Frontiers of Engineering Symposium, UC Davis, CA
- Alexandre Gramfort, Computational Challenges in Image Processing, Turing Institute, Cambridge Univ., UK
- Alexandre Gramfort, Machine learning for functional brain imaging Symposium and Workshop, Karolinska Institute, Sweden
- Denis A. Engemann, Lessons learned from high-dimensional statistics and M/EEG: From automated preprocessing to detection of consciousness, University of Naples, Italy, March 2017
- Denis A. Engemann, Learning from Oscillations – New Vistas for Translational Neuroimaging, MIT, Cambridge MA, April 2017
- Denis A. Engemann, Building better biomarkers using M/EEG and statistical learning, Eespo University, Finland, June 2017
- Bertrand Thirion, ARSEP, February 2017, Paris
- Bertrand Thirion, AI for Medical Imaging symposium, June 2017, Paris
- Bertrand Thirion, Causality and big data workshop, October 2017, Saclay
- Bertrand Thirion, Machine learning workshop, Telcom Paris Sud, October 2017, Evry
- Bertrand Thirion, Icube seminary, Strasburg, July 2017
- Bertrand Thirion, Laboratoire de Mathématiques d'Orsay, December 2017

### 10.1.4. Scientific Expertise

- Philippe Ciuciu, Member of the "ANR evaluation committee (CES 45) in Mathématique, informatique, automatique, traitement du signal"
- Philippe Ciuciu, Member of the IEEE BISP committee for the international symposium in biomedical imaging
- Philippe Ciuciu, Member of the Biomedical Imaging & Signal Analytics special area team (SAT) in Eurasip
- Bertrand Thirion, Member of the prospective group of ITMO Neurosciences

### 10.1.5. Research Administration

- Gaël Varoquaux, Member of the Inria Saclay CDT, "Comission de développement technologique"
- Gaël Varoquaux, Member of the Inria Saclay CSD, "Comission de suivi doctoral"
- Gaël Varoquaux, Member of the Inria Saclay cluster committee
- Alexandre Gramfort, Member of the "comité de pilotage" DataIA
- Alexandre Gramfort, Member of the "comité de pilotage" DIM RFSI
- Philippe Ciuciu, Member of the "Inria Saclay scientific committee"

- Philippe Ciuciu, Member of the CEA/DRF Impulsion evaluation committee
- Philippe Ciuciu, Member of the "jury du prix de thèse de la société EEA et du GDR ISIS"
- Bertrand Thirion, Deputy scientific director of Inria Saclay research center
- Bertrand Thirion, Leader of the Datasense research axis of the Digicosme Labex
- Bertrand Thirion, Member of the steering committee of the Dataia Convergence Institute
- Bertrand Thirion, Member of the steering committee of the Computer Science Department of Paris Saclay University.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

#### 10.2.1.1. Gaël Varoquaux

Master : Machine learning with scikit-learn, 2 heures équivalent TD, M1, ENSAE, France  
 Master : Brain functional connectivity, 8 heures équivalent TD, M2, Télécom Paris Tech, France  
 Doctorat : Machine learning for brain imaging with Nilearn, 16 heures équivalent TD, Université de Montréal, Canada  
 Doctorat : Ecole d'hiver, Computational Brain Connectivity Mapping, Juan-Les-Pins, 1h30  
 Doctorat : Ecole d'hiver, Computational Brain Connectivity Mapping, 1h30, Juan-Les-Pins  
 Doctorat : Machine learning for brain imaging, 1h00, IPAM, UCLA, Los Angeles, USA  
 Doctorat : Scipy: numerical algorithms in Python, 1h30, Euroscipy 2017, Erlangen, Germany  
 Doctorat : Estimation of brain functional connectomes, 30mn, OHBM 2017, Vancouver, Canada  
 Doctorat : Software engineering for reproducible science, Open science summer school 2017, EPFL, Lausanne, Switzerland

#### 10.2.1.2. Philippe Ciuciu

Master 2 : "Functional MRI: From data acquisition to analysis", 3h, Univ. Paris V René Descartes & Télécom-Paristech, Master of Biomedical Engineering  
 Master 2 : "fMRI data analysis", 3h, Univ. Paris-Saclay, Master of medical Physics

#### 10.2.1.3. Alexandre Gramfort

Master 2 : "Functional Brain Imaging with EEG and MEG", 6h, Univ. Paris V René Descartes & Télécom-Paristech, Master of Biomedical Engineering  
 Master 2 : "Optimization for Data Science", 20h, Univ. Paris-Saclay, Master of Mathematics / Data Science  
 Master 2 : "Data Camp", 18h, Univ. Paris-Saclay, Master of Mathematics / Data Science  
 Ecole d'hiver, Computational Brain Connectivity Mapping, Juan-Les-Pins, 1h30  
 Scikit-learn tutorial, Scipy Conf., Austin, USA, 6h  
 MNE tutorial, Univ. Libre de Bruxelles, Belgique, 6h

#### 10.2.1.4. Denis A. Engemann

MNE-Python workshop, University of Bari, June 2017, 14h

#### 10.2.1.5. Bertrand Thirion

Master : Functional Neuroimaging and brain-computer interfaces, 12h, MVA, ENS Paris-Saclay, France  
 Doctorat : OHBM course 2017, Pattern Recognition for brain Imaging, Vancouver, Canada  
 Master: Resting-State Functional Magnetic Resonance Imaging, 3h, Paris V, France.

### 10.2.2. Supervision

PhD in progress : Patricio Cerda, Statistical methods for analysis across datasets, started 01/09/2016, supervisors: Balazs Kegl (CNRS, LAL), Gaël Varoquaux

PhD in progress : Jérôme Dockès, Mining text and brain activity to learning the semantics of cognitive science, started 01/09/2016, supervisors: Fabian Suchanek (Télécom Paristech), Gaël Varoquaux

PhD in progress : Arthur Mensch, Learning representations of fMRI, started 01/09/2015, supervisors: Bertrand Thirion, Gaël Varoquaux, Julien Mairal (Inria Grenoble)

PhD: Elvis Dohmatob, Amélioration de connectivité fonctionnelle par utilisation de modèles déformables dans l'estimation de décompositions spatiales des images de cerveau, defended sept 2017, supervisors Bertrand Thirion, Gaël Varoquaux

#### 10.2.2.1. Philippe Ciuciu

PhD in progress: Carole Lazarus (3rd year, Director)

PhD in progress: Loubna El Gueddari (2nd year, Director)

PhD in progress: Hamza Cherkaoui (1st year, Director)

PhD in progress: Sylvain Lannuzel (1st year, co-director)

#### 10.2.2.2. Alexandre Gramfort

PhD defended: Albert Thomas

PhD defended: Romain Laby

PhD in progress: Yousra Bekhti

PhD in progress: Mainak Jas

PhD in progress: Tom Dupré La Tour

PhD in progress: Stanislas Chambon

PhD in progress: Pierre Ablin

PhD in progress: Mathurin Massias

PhD in progress: Hicham Janati

#### 10.2.2.3. Denis A. Engemann

PhD in progress: Mainak Jas (co-supervision on 1 main project)

PhD in progress: Sami about (co-supervision on 1 main project)

PhD in progress: Kamalakar Reddy (co-supervision)

#### 10.2.2.4. Bertrand Thirion

PhD defended: Elvis Dohmatob (co-supervision with G.Varoquaux)

PhD in progress: Arthur Mensch (co-supervision with G. Varoquaux and J. Mairal)

PhD in progress: Jérôme Dockès (co-supervision with G. Varoquaux and F. Suchanek)

PhD in progress: Kamalakar Reddy (co-supervision with G.Varoquaux and D. Engemann)

PhD in progress: Jérôme-Alexis Chevalier (co-supervision with J.Salmon)

### 10.2.3. Juries

#### 10.2.3.1. Philippe Ciuciu

12/15: Reviewer of Lucie Thiebaut-Lonjaret PhD Thesis, Univ. Aix-Marseille, France.

04/23: Reviewer of Yosra Marnissi PhD Thesis, Univ. Paris-Est, France.

#### 10.2.3.2. Gaël Varoquaux

external reviewer, PhD defence of Christian Dansereau, Université de Montréal.



#### *10.2.3.3. Alexandre Gramfort*

12/19: Examiner of Thomas Moreau, Univ. Paris Saclay / ENS Paris-Saclay

12/13: Reviewer of Etienne Combrisson PhD Thesis, Univ. Lyon 1, France.

11/10: Reviewer of Lankinen Kaisu PhD Thesis, Univ. Aalto, Finland.

04/26: Reviewer of Seyed Mostafa Kia PhD Thesis, Trento FBK Univ., Italy.

#### *10.2.3.4. Bertrand Thirion*

18/01: Reviewer of Jonathan Vacher PhD thesis, Univ. Paris VI

30/05: Examiner of Brahim Bougacha PhD thesis, University Nice

### **10.3. Popularization**

#### ***10.3.1. Gaël Varoquaux***

Présentation "Démocratisation de l'IA", Station F, (Dec 2017).

Présentation sur les logiciels libres de machine learning aux journées annuelles du groupe de travail sur les logiciels libres (Oct 2017)

Présentation sur scikit-learn au "Paris ML meetup" (Dec 2017)

Présentation sur scikit-learn au "Paris Pydata meetup" (Mars 2017)

#### ***10.3.2. Alexandre Gramfort***

Présentation sur "L'intelligence artificielle au service de la société" à l'UNESCO dans le cadre des journées des ingénieurs et scientifiques de France (IESF) (Oct 2017). <sup>0</sup>.

Présentation sur l'Intelligence Artificielle au conseil d'administration de l'Institut National du Cancer (INCA) (Nov 2017).

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<sup>0</sup>[http://home.iesf.fr/752\\_p\\_49913/l-intelligence-artificielle.html](http://home.iesf.fr/752_p_49913/l-intelligence-artificielle.html)

## **PARKAS Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific Events Organisation**

#### *9.1.1.1. General Chair, Scientific Chair*

- Albert Cohen was the General Chair of PLDI 2017.

### **9.1.2. Scientific Events Selection**

#### *9.1.2.1. Member of the Conference Program Committees*

- Timothy Bourke was a member of the PC of EMSOFT 2017.
- Timothy Bourke was a member of the PC of the Modelica Conference 2017.
- Timothy Bourke was a member of the PC of SCOPES 2017.
- Timothy Bourke was a member of the Student Research Competition panel of PLDI 2017.
- Francesco Zappa Nardelli was a member of the PC of POPL 2017.
- Francesco Zappa Nardelli was a member of the PC of ECOOP 2017.
- Marc Pouzet was a member of the PC of SCOPES 2017, EOOLT 2017, FADL 2017.
- Albert Cohen was a PC member of CGO 2018, Supercomputing 2017, PACT 2017.
- Albert Cohen was the area co-chair for programming models at IPDPS 2018.

### **9.1.3. Journal**

#### *9.1.3.1. Member of the Editorial Boards*

- Albert Cohen is associate editor of the ACM Transactions on Architecture and Code Optimization

#### *9.1.3.2. Reviewer - Reviewing Activities*

- Timothy Bourke was a reviewer for the Springer Real-Time Systems Journal.
- Timothy Bourke was a reviewer for IEEE Transactions on Software Engineering.

### **9.1.4. Invited Talks**

- Timothy Bourke was invited to talk about the seL4 project at the Forum Méthodes Formelles: “Méthodes formelles et cyber-sécurité” in Toulouse in January 2017.
- Timothy Bourke was invited to speak on the “Verified Compilation of Lustre” at the University of Birmingham in March 2017.
- Francesco Zappa Nardelli is an invited speaker at the Entropy Workshop, January 2018.
- Francesco Zappa Nardelli was an invited speaker at Dagstuhl Seminar 17502 “Testing and Verification of Compilers”, December 2017.
- Francesco Zappa Nardelli was an invited speaker at the ETH Workshop on Software Correctness and Reliability, October 2017.
- Marc Pouzet was an invited speaker of the GT OVSTR Digicosme (CEA - Telecom Paris), in April 2017; the GDR Glace (part of GPL), in June 2017.

### **9.1.5. Leadership within the Scientific Community**

Albert Cohen is a steering committee member of the PLDI, PPOPP and Compiler Construction conferences.

### 9.1.6. Scientific Expertise

Albert Cohen has been a visiting scientist at Facebook Artificial Intelligence Research.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master: F. Zappa Nardelli: "A Programmer's introduction to Computer Architectures and Operating Systems" (M1), 45h, École Polytechnique, France

Master: A. Cohen & F. Zappa Nardelli, "Semantics, languages and algorithms for multicore programming", Lecture, 12h+9h, M2, MPRI: Ecole normale supérieure and Université Paris Diderot, France

Licence: F. Zappa Nardelli: "Concurrent Programming" (L3), PCs, 32h, École Polytechnique, France

Master : M. Pouzet & T. Bourke: "Synchronous Systems" (M2), Lectures and TDs, MPRI, France

Master: M. Pouzet : "Synchronous reactive Languages" (M2), Lectures. Master Comasic (Polytechnique), France.

Master: T. Bourke participated in reviewing the M1 internships of students at the ENS, France.

Licence : M. Pouzet & T. Bourke: "Operating Systems" (L3), Lectures and TDs, ENS, France.

Licence : T. Bourke, "Digital Systems" (L3), Lectures and TDs, ENS, France

Marc Pouzet is Director of Studies for the CS department, at ENS.

### 9.2.2. Supervision

- PhD : Guillaume Baudart, 3rd year, supervised by T. Bourke and M. Pouzet. This thesis was defended in March 2017.
- PhD in progress : Ulysse Beaugnon, 3rd year, supervised by A. Cohen and M. Pouzet.
- PhD in progress : Lélío Brun, 2nd year, supervised by T. Bourke and M. Pouzet.
- PhD : Robin Morisset, 3rd year, supervised by F. Zappa Nardelli. This thesis was defended in April 2017.
- PhD in progress : Chandan Reddy, 3rd year, supervised by A. Cohen.
- PhD in progress : Jie Zhao, 3rd year, supervised by A. Cohen.

### 9.2.3. Juries

Francesco Zappa Nardelli was jury member of the PhD thesis of Yannick Zakowski, ENS Rennes, Dec 2017.

Francesco Zappa Nardelli will be jury member of the PhD thesis of Francois Ginraud, Grenoble, Jan 2018.

## PARSIFAL Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. General Chair, Scientific Chair

D. Miller has been selected to be the LICS General Chair for three years starting in July 2018.

#### 8.1.1.2. Member of the Organizing Committees

Lutz Straßburger was member of the organizing committee for the second FISP meeting in Paris

### 8.1.2. Scientific Events Selection

#### 8.1.2.1. Chair of Conference Program Committees

D. Miller was the Program Committee chair for the FSCD'17: Second International Conference on Formal Structures for Computation and Deduction, Oxford, 3-6 September.

D. Miller was on the Steering Committee for the FSCD series of International Conference on Formal Structures for Computation and Deduction.

D. Miller was a member of the jury for selecting the 2017 Ackermann Award (the EACSL award for outstanding doctoral dissertation in the field of Logic in Computer Science).

D. Miller was a member of the 2012, 2016, and 2017 Herbrand Award Committee of the Association for Automated Reasoning.

D. Miller is also a member of the SIGLOG advisory board, starting November 2015.

B. Accattoli was one of the two Program Committee chairs of the 6th International Workshop on Confluence (IWC 2017).

K. Chaudhuri as a co-chair of the Program Committee for the workshop on Structures and Deduction, co-located with FSCD.

#### 8.1.2.2. Member of the Conference Program Committees

D. Miller was on the Program Committee of the following international conferences.

- 26th International Conference on Automated Deduction, Gothenburg, Sweden, 6-11 August.

B. Accattoli was on the Program Committee of the following international workshops.

- LOLA 2017: Syntax and Semantics of Low-Level Languages, Reykjavik, Iceland, 19 June.
- WPTE 2017: 4th Workshop on Rewriting Techniques for Program Transformations and Evaluation, Oxford, UK, 8 September.
- DICE-FOPARA 2017: 8th Workshop on Developments in Implicit Computational complexity and 5th Workshop on Foundational and Practical Aspects of Resource Analysis, Uppsala, Sweden, 22–23 April.

S. Graham-Lengrand was on the Program Committee of the following international workshops.

- AFM 2017: Automated Formal Methods, Menlo Park, USA, 19 May.
- PxTP 2017: 5th Workshop on Proof eXchange for Theorem Proving, Brasilia, Brazil, 4 September.

K. Chaudhuri was on the Program Committee of the following international workshops.

- LFMTTP 2017: Logical Frameworks and Meta-languages: Theory and Practice, Oxford, U.K.
- LSFA 2017: Logical and Semantic Frameworks with Applications, Brasilia, Brazil

G. Scherer was on the Program Committee of the following international conference.

- Trends in Functional Programming, University of Kent at Canterbury, UK, 19-21 June.

#### 8.1.2.3. Reviewer

- Lutz Straßburger reviewed submissions for the following conferences: LICS 2017, LPAR-21, FoSSaCS 2018, LFCS 2018
- B. Accattoli was a reviewer for the international conferences LICS 2017 (twice) and FSCD 2017.
- F. Lamarche was reviewer for CSL 2017.
- S. Graham-Lengrand was a reviewer for the international conferences LICS 2017 (three times), CADE 2017, AFM 2017, CSL 2017, TYPES 2017, PxTP 2017, FOSSACS 2018.
- G. Scherer reviewed submissions for the following conferences: JFLA 2018, FoSSaCS 2018, as well as for the PriSC 2018 (Principle of Secure Compilation) workshop.

### 8.1.3. Journal

#### 8.1.3.1. Member of the Editorial Boards

D. Miller is on the editorial board of the following journals: ACM Transactions on Computational Logic, Journal of Automated Reasoning (Springer), and Journal of Applied Logic (Elsevier).

K. Chaudhuri served as a guest editor for a special issue of Mathematical Structures of Computer Science devoted to Logical Frameworks.

#### 8.1.3.2. Reviewer - Reviewing Activities

- Lutz Straßburger did reviewing work for the following journals: Journal of Applied Logic (JAL), Studia Logica, Mathematical Structures in Computer Science (MSCS), Logical Methods in Computer Science (LMCS), Journal of Logic and Computation (JLC), Journal of Automated Reasoning (JAR).
- B. Accattoli was a reviewer for the international journals Transactions on Computational Logic (TOCL, ACM), Mathematical Structures in Computer Science (MSCS, Cambridge University Press), Logical Methods in Computer Science (LMCS), Journal of Automated Reasoning (JAR, Springer), Annals of Pure and Applied Logic (APAL, Elsevier).
- S. Graham-Lengrand was a reviewer for the following international journals: Theory of Computing Systems (TOCS), Annals of Pure and Applied Logic (APAL), Mathematical Structures in Computer Science (MSCS), Logical Methods in Computer Science (LMCS), Journal of Automated Reasoning (JAR), Bulletin of Symbolic Logic (BSL).
- G. Scherer was a reviewer for the international journal Mathematical Structures in Computer Science (MSCS).

#### 8.1.4. Invited Talks

- D. Miller gave invited talks at the following two regularly held international meetings.
  - LAP 2017: Sixth Conference on Logic and Applications, 18-22 September 2018, Dubrovnik, Croatia.
  - PADL 2017: Nineteenth International Symposium on Practical Aspects of Declarative Languages, 16-17 January 2017, Paris.
- Lutz Straßburger gave an invited talk at the 4th International Workshop on Structures and Deduction (SD 2017), affiliated with FSCD'17.
- B. Accattoli gave an invited talk at LSFA 2017, the 12th Workshop on Logical and Semantic Frameworks with Applications, Brasilia, Brazil, 23-24 September.
- S. Graham-Lengrand gave an invited talk at CSLI 2017, the 6th CSLI Workshop on Logic, Rationality & Intelligent Interaction, University of Stanford, Palo Alto, USA, 3-4 June.

### 8.1.5. Research Administration

L. Straßburger serves on the “commission développement technologique (CDT)” for Inria Saclay–Île-de-France (since June 2012).

F. Lamarche was “responsable de centre” Saclay – Ile de France for Raweb.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master: D. Miller, “*MPRI 2-1: Logique linéaire et paradigmes logiques du calcul*”, 12 hours, M2, Master Parisien de Recherche en Informatique, France.

Lutz Straßburger gave a course on “Efficient Proof Systems for Modal Logics” at ESSLLI 2017 (joint with Roman Kuznets, TU Wien)

Master: B. Accattoli, “*MPRI 2-1: Logique linéaire et paradigmes logiques du calcul*”, 9 hours, M2, Master Parisien de Recherche en Informatique, France.

B. Accattoli taught the mini-course *the complexity of  $\beta$ -reduction*, 3 hours, at the International School on Rewriting 2017, Eindhoven, The Netherlands, 3-7 July.

Licence: S. Graham-Lengrand, “*INF412: Fondements de l’Informatique: Logique, Modèles, Calcul*”, 32 hours eq. TD, L3, École Polytechnique, France.

Master: S. Graham-Lengrand, “*INF551: Computational Logic*”, 45 hours eq. TD, M1, École Polytechnique, France.

Licence: K. Chaudhuri, “*INF431: Concurrency*” and “*INF441: Programmation avancée*”, 80 hours eq. TD, L2, Ecole polytechnique, France.

### 8.2.2. Supervision

PhD in progress: Sonia Marin, 1 Nov 2014, supervised by L. Straßburger and D. Miller

PhD in progress: Roberto Blanco, Ulysse Gérard, and Matteo Manighetti, supervised by D. Miller

PhD in progress: François Thiré (since 1st October 2016), supervised by S. Graham-Lengrand (joint with G. Dowek)

### 8.2.3. Juries

D. Miller was a reporter for the habilitation of Olivier Hermant, 20 April 2017.

## PERCEPTION Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

Xavier Alameda-Pineda was area chair of IEEE/CVF *International Conference on Computer Vision* 2017.

#### 9.1.1.2. Member of the Organizing Committees

Xavier Alameda-Pineda co-organized a special session at ACM *International Conference on Multimedia Retrieval* 2017, and a workshop at ACM *International Conference on Multimedia* 2017.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Reviewer

In 2017, Xavier Alameda-Pineda reviewed for IEEE Conference on *Computer Vision and Pattern Recognition* 2017, *Advances on Neural Information Processing Systems* 2017, IEEE *International Conference on Audio Speech and Signal Processing* 2018 and *International Conference on Learning Representations*.

Xavier was awarded with the CVPR 2017 **Outstanding Reviewer Award**.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

Radu Horaud is a member of the following editorial boards:

- advisory board member of the *International Journal of Robotics Research*, Sage,
- associate editor of the *International Journal of Computer Vision*, Kluwer, and
- area editor of *Computer Vision and Image Understanding*, Elsevier.

#### 9.1.3.2. Reviewer - Reviewing Activities

Xavier Alameda-Pineda regularly acts as reviewer for IEEE *Transactions on Pattern Analysis and Machine Intelligence*, IEEE *Transactions on Audio, Speech, and Language Processing*, IEEE *Transactions on Multimedia*, IEEE *Transactions on Image Processing*, IEEE *Transactions on Affective Computing*, *International Journal on Computer Vision* and *Computer Vision and Image Understanding*.

### 9.1.4. Invited Talks

- Xavier Alameda-Pineda gave an invited talk at GIPSA-Lab on Multi-speaker tracking with auditory data.
- Radu Horaud gave invited talks at two IEEE ICCV Workshops:  
<https://www.msf-workshop.com/>  
<https://mvr3d.github.io/>.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Supervision

PhD defended February 2017: Dionyssos Kounades-Bastian, October 2013, Radu Horaud, Laurent Girin, and Xavier Alameda-Pineda.

PhD defended in December 2017: Vincent Drouard, October 2014, Radu Horaud and Sileye Ba.

PhD in progress: Benoit Massé, October 2014, Radu Horaud and Sileye Ba.

PhD in progress: Stéphane Lathuilière, October 2014, Radu Horaud.

PhD in progress: Yutong Ban, October 2015, Radu Horaud and Laurent Girin

PhD in progress: Guillaume Delorme, September 2017, Radu Horaud and Xavier Alameda-Pineda

PhD in progress: Sylvain Guy, October 2017, Radu Horaud and Laurent Girin

## **PERSVASIVE INTERACTION Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific Events Organisation**

#### *9.1.1.1. General Chair, Scientific Chair*

- Sabine Coquillart General co-chair, "Nouveaux Défis de l'Internet des Objets 2017 - Technique, Usage, Ethique", Fès-ESISA (Maroc), 17-18 mai 2017.

#### *9.1.1.2. Member of the Organizing Committees*

- Dominique Vaufreydaz organised the workshop "Behavior, Emotion and Representation: Building Blocks of Interaction" (BER 2017) at the 5th International Conference on Human-Agent Interaction (HAI 2017), Bielefeld Germany, Oct 2017.
- Patrick Reignier is a member of the organizing committee for the workshop "Context in the Home", at conference Context 17 in Paris in June 2017.

### **9.1.2. Scientific Events Selection**

#### *9.1.2.1. Chair of Conference Program Committees*

- James Crowley served as chairman of the awards committee for the 2017 International Conference on Multimodal Interaction.

#### *9.1.2.2. Member of Conference Program Committees*

Patrick Reignier was a member of the program committee

- SmartObject 2017

Thierry Fraichard was a member of the international program committee

- the European Conference on Mobile Robots (ECMR 2017)

Sabine Coquillart has served as a member of the program committee for the following conferences.

- GRAPP 2017 - The 12nd International Conference on Computer Graphics Theory and Applications, Porto, Portugal, February 2017
- IEEE VR - IEEE Virtual Reality 2017, Los Angeles, USA, March 2017
- IEEE 3DUI - IEEE 3D User Interfaces 2017, Los Angeles, USA, March 2017
- WSCG 2017 - International Conferences in Central Europe on Computer Graphics, Visualization and Computer Vision, Plzen, Czech Republic, May 2017
- CENTRIC 2017 - The Tenth International Conference on Advances in Human-oriented and Personalized Mechanisms, Technologies, and Services, Athens, Greece, October 2017
- ICAT-EGVE 2017 - International Conference on Artificial Reality and Telexistence and Eurographics Symposium on Virtual Environments, Adelaide, Australia, November 2017
- VRST 2017 - 23rd ACM Symposium on Virtual Reality Software and Technology, Gothenburg, Sweden, November 2017



### 9.1.2.3. Reviewer

- James Crowley reviewed papers for ICCV 2017 - International conference on Computer Vision.
- James Crowley reviewed papers for CVPR 2017 - International conference on Computer Vision and Pattern Recognition.
- James Crowley reviewed papers for ICVS 2017 - International conference on Vision Systems.
- Dominique Vaufreydaz was in Program committee members and reviewed articles for seventh International Conference on Affective Computing and Intelligent Interaction (ACII2017), which will be held in San Antonio, Texas on October 23-26, 2017.
- Dominique Vaufreydaz reviewed articles for the Interactive Technology and Smart Education, 2017.
- Dominique Vaufreydaz reviewed articles for the 13th Annual ACM/IEEE International Conference on Human Robot Interaction (HRI)Chicago, IL, USA, March 5–8, 2018.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

- Patrick Reignier is a member of the editorial board of the Modeling and Using Context Journal (ISTE OpenScience)
- Sabine Coquillart is a member of the Scientific Committee of the Journal of Virtual Reality and Broadcasting.
- Sabine Coquillart is a member of the Advisory/Editorial Board for the International Journal of Computer Graphics – SERSC.
- Sabine Coquillart is a Member of the Academic Editors Board of “PeerJ Computer Science” – open access Journal in Computer Science.
- Sabine Coquillart is Review Editor for the “Frontiers in Virtual Environments” journal.
- Thierry Fraichard is serving as an Associate Editor for IEEE Robotics and Automation Letters. He also served as an Associate Editor for IEEE/RSJ Int. Conf. on Robots and Systems (IROS).
- Thierry Fraichard is an Associate Editor for IEEE Robotics and Automation Letters (RA-L).

#### 9.1.3.2. Reviewer - Reviewing Activities

- Thierry Fraichard reviewed articles for the Int. Journal of Aerospace Engineering, IEEE Trans. Intelligent Vehicles, and IEEE Trans. on Industrial Electronics.
- Thierry Fraichard reviewed articles for IEEE Trans. on Robotics (TRO) and IEEE Robotics and Automation Letters (RA-L).
- Patrick Reignier served as a reviewer for the 2 educational call for projects of the University Grenoble Alps Idex

### 9.1.4. Invited Talks

James Crowley gave the following invited talks in 2017

- "Câblé, connecté ou écologique : trois visions pour l'habitat de demain " Journées de l'habitat intelligent et innovation dans le logement social, Absise - Les Bailleurs Sociaux de l'Isere, Grenoble, 23 May 2017.
- "Interaction avec le monde, avec autrui et soi-même : trois facettes de l'intelligence", Ideas Day, Ideas Laboratory, Grenoble, 4 Jul 2017.

Sabine Coquillart gave the following invited talk

- "Pseudo-Haptique : Etat de l' Art et Challenges", LIMSI, December 1st, 2017

Thierry Fraichard gave an invited talk

- "Formal methods will not prevent self-driving cars from having accidents" at the Forum Méthodes Formelles in Toulouse (FR), October 2017.

Dominique Vaufreydaz gave the following invited talk in 2017

- "Pedestrian detection and behaviors modelling in Urban environment" at "Smart Mobility and Intelligent Vehicles" (SMIV2017), Vedecom Institute, 8/9 November 2017.

### **9.1.5. Leadership within the Scientific Community**

- James Crowley is a member of the Steering Committee for the ACM International Conference on Multimodal Interaction.
- Sabine Coquillart is serving as member of the steering committee for the ICAT conference – International Conference on Artificial Reality and Telexistence.
- Sabine Coquillart is chairing the steering committee for the EGVE Working Group – EUROGRAPHICS Working group on Virtual Environments.
- Sabine Coquillart is elected member of the EUROGRAPHICS Executive Committee.
- Sabine Coquillart is member of the EUROGRAPHICS Working Group and Workshop board.

### **9.1.6. Scientific Expertise**

- James L. Crowley served on the selection committee for the Institut Université de France (IUF)
- James L. Crowley served as Vice chairman for the selection panel for H2020 FET Open.
- James L. Crowley served on the selection panel for the H2020 ICT Robotics program
- James L. Crowley served on the ANR committee CE 33 Interaction, Robotics.
- Sabine Coquillart served as an expert reviewer for the Austrian Science Fund (FWF).
- Dominique Vaufreydaz served as evaluator pour l'ANR
- Thierry Fraichard served as an expert reviewer for the European Commission
- Patrick Reignier is a member of the Scientific Council of the Amiqua4Home Equipex

### **9.1.7. Research Administration**

- James Crowley is director for the Amiqua4Home Innovation Platform (EquipEx).
- James Crowley serves on the Administrative Committee (Bureau) for the Laboratoire Informatique de Grenoble.
- James Crowley served on the Scientific Committee (CoS) for the CRI Inria Grenoble-Rhone Alpes.
- James Crowley served on the orientation committee for the Competitivy Pole Minalogic
- Patrick Reignier is head of the engineering support group of the Laboratoire d'Informatique de Grenoble (13 members). He is currently supervising the moving of the Domus Living lab to a new site on Campus.
- Patrick Reignier serves on the Administrative Office (Bureau) for the Laboratoire Informatique de Grenoble.
- Patrick Reignier is a member of the comité de pilotage of the Domus Living Lab
- Patrick Reignier is a member of the Comité Executif of the Amiqua4Home Equipex

## **9.2. Teaching - Supervision - Juries**

### **9.2.1. Teaching**

#### *9.2.1.1. James Crowley*

James Crowley is co-director of the Master of Science in Informatics at Grenoble (MoSIG).

Master : Computer Vision, Course 27h EqTD, M2 year, Master of Science in Informatics at Grenoble

Master 1: Intelligent Systems, Cours 54h EqTD, ENSIMAG and UFRIM2AG

ENSIMAG 3 : Pattern Recognition and Machine Learning, Cours 27h EqTD, ENSIMAG

#### 9.2.1.2. Patrick Reignier

- Patrick Reignier has been elected member of the Conseil des Etudes et de la Vie Universitaire of Grenoble INP
- Patrick Reignier has been nominated as a member of the Conseil de la Formation Continue de Grenoble INP
- Patrick Reignier participated in the editing of an successful Idex Educational program proposal "FromLivingLab".
- Patrick Reignier is co-director of the "formation en apprentissage" of Ensimag (3 years program : 1 year for the Licence and 2 years for the Master)
- Patrick Reignier Supervises the industrial part of the "formation en apprentissage" of the Ensimag engineering school.
- Master: Patrick Reignier, Projet Genie Logiciel, 55h eqTD, M1, Ensimag/Grenoble INP, France.
- Master: Patrick Reignier, Développement d'applications communicantes, 18h eqTD, M2, Ensimag/Grenoble-INP, France
- Master: Patrick Reignier, Introduction aux applications reparties, 18h eqTD, M2, Ensimag/Grenoble-INP, France
- Master: Patrick Reignier, Applications Web et Mobiles , 27h eqTD, M1, Ensimag/Grenoble-INP, France
- Master: Patrick Reignier, Projet Systeme, 12h eq TD, M1, Ensimag/Grenoble-INP, France
- Licence: Patrick Reignier, Projet C, 20h eqTD, L3, Ensimag/Grenoble-INP, France.

#### 9.2.1.3. Dominique Vaufreydaz

- Co-responsibility of the Graphic, Vision and Robotics track of the MOSIG Master program.
- In charge of the transversal numerical competence courses at the Grenoble Faculty of Economics (Grenoble and Valence campuses)
- Licence: Compétences Numériques, 126h eq TD,L1, Université Grenoble Alpes, France.
- Licence: Informatique appliquée à l'économie et à la gestion, 32 h eq TD, enseignement à distance, Licence, Université Grenoble Alpes, France.
- Licence: Pratique avancée du Tableur, 72 h eq TD, L3, Université Grenoble Alpes, France.
- Licence Professionnelle: Enquêtes et traitement d'enquêtes avec le logiciel Sphinx, 12h eq TD, Licence pro Métiers de l'Emploi et de la Formation, Université Grenoble Alpes, France.
- Licence Professionnelle: Administration en environnement hétérogène, 20h eq TD, Licence pro Administration et Sécurité des Systèmes et des Réseaux, Université Grenoble Alpes, France.
- IUT année spéciale: Programmation C++, 18h eq TD, Année Spéciale IUT Informatique, Université Grenoble Alpes, France.
- Master: Pratique avancée du Tableur, 24 h eq TD, M1 économie internationale et stratégies d'acteurs, Université Grenoble Alpes, France.
- Master: Traitement des données du Web, 15h eq TD, M2 Mathématiques et Informatique Appliquées aux Sciences Humaines et Sociales, Université Grenoble Alpes, France
- Master: Développement Web Mobile, 15h eq TD, M2 Mathématiques et Informatique Appliquées aux Sciences Humaines et Sociales, Université Grenoble Alpes, France

#### 9.2.1.4. Thierry Fraichard

- Master: Thierry Fraichard, Autonomous Robotics, 22.5h eqTD, M2 MOSIG, Univ Grenoble Alpes.

### 9.2.2. Supervision - Doctoral theses completed in 2017

- PhD : Marvin Faix, Conception d'un ordinateur probabiliste, Univ Grenoble Alpes, Janvier 2017, Emmanuel Mazer and Laurent Fesquet
- PhD Jingtao Chen, "Biomechanical Analysis of Different Aspects in Virtual Reality. Application", PhD UGA, January 30th, 2017, Peter Mitrouchev, Franck Quaine and Sabine Coquillart
- PhD : Gregoire Nieto, Light Field Remote Vision, Univ Grenoble Alpes, 3 Oct 2017, Frederic Devernay and James Crowley
- PhD : Ta Viet Cuong, Smartphone-based indoor positioning using Wi-Fi, Inertial sensors and Bluetooth, Univ Grenoble Alpes, 15 Dec 2017, Dominique Vaufreydaz and Eric Castelli

### **9.2.3. Supervision - Current Doctoral Students**

- PhD in progress : Romain Bregier, Détection et estimation de pose d'instances d'objet rigide pour la manipulation robotisée, Octobre 2014, Frederic Devernay and James Crowley
- PhD in progress : Rémi Paulin, socially aware navigation, Octobre 2014, Patrick Reignier and Thierry Fraichard.
- PhD in progress : Etienne Balit, expressive social robot design, Octobre 2014, Patrick Reignier and Dominique Vaufreydaz.
- PhD in progress : Interaction-Aware Tracking and Lane Change Detection in Highway Driving, David Sierra Gonzales, Octobre 2014, Dizan Vasquez and Emmanuel Mazer
- PhD in progress : Minh-khoa Nguyen, Robotics-inspired methods for modeling and simulation of large nanosystems, Octobre 2014, Leonard Jaillet and Emmanuel Mazer
- PhD in progress : Amr Alyafi, explanatory observation of energy usage, Octobre 2015, Stephane Ploix and Patrick Reignier.
- PhD in progress : Amine Awada, activity recognition for smart energy management, Octobre 2015, Stephane Ploix and Patrick Reignier.
- PhD in progress : Liliya Tsetanova, Social Robotics, Octobre 2015, Veronique Aubergé and Patrick Reignier.
- PhD in progress : Julien Cumin, Learning Patterns of Activities for Context Aware Services, Octobre 2015, James Crowley and Fano Ramparany
- PhD in progress : Sandra Nabil, Synthesis of Panoramic Videos, Octobre 2015, Frederic Devernay and James Crowley
- PhD in progress : Jose Grimaldo Da Silva Filho, "Human-Robot Motion, a Shared Effort Approach", Octobre 2015, Thierry Fraichard.
- PhD in progress : Thomas Guntz, Multimodal Observation of Subjects Engaged in Problem Solving, Octobre 2016, James Crowley and Dominique Vaufreydaz
- PhD in progress : Nashwa Abubakr, Observation of Kitchen Activities, Octobre 2016, James Crowley and Remi Ronfard
- PhD in progress : Raphael Frisch, conception de machine stochastique pour la localisation et la séparation de source sonore, Octobre 2016, Emmanuel Mazer
- PhD in progress: Matteo Ciocca, "Safe Robot Motion", Octobre 2016, Thierry Fraichard and Pierre-Brice Wieber.

### **9.2.4. Juries**

- James Crowley served as President of the Doctoral Jury for Tiana Rakotovao Andriamahefa, University Grenoble Alps, March 2017
- Patrick Reignier served as a jury member of the Doctoral Jury of Nadine Mandran (University Grenoble Alps)

- Patrick Reignier served as a president of the Doctoral Jury of Sarah Bouzit (University Grenoble Alps)
- Patrick Reignier served as a president of the Doctoral Jury of Manar Amayri (University Grenoble Alps)
- Patrick Reignier served as a president of the Doctoral Jury of Antoine Foulonneau (University Grenoble Alps)
- Sabine Coquillart served as reporter for the doctoral jury of B. Le Gouis at INSA Rennes
- Sabine Coquillart served as examiner for the doctoral jury of P. Isartel at LIMSI, Univ. Paris-Orsay.
- Thierry Fraichard served as an expert evaluator in the PhD Jury of Suhyeon Gim, Univ. of Toulouse (FR), May 2017.
- Thierry Fraichard served as an expert evaluator in the PhD Jury of Alexandre Boeuf, Univ. of Clermont-Ferrand (FR), July 2017.

## PESTO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

V. Cortier was auditioned by the chamber of the workers in Luxembourg, on the security of electronic voting.

### 10.1.1. Scientific Events Selection

#### 10.1.1.1. Program Committee Chair

- A. Imine: FPS 2017, 10th International Symposium on Foundations & Practice of Security, Nancy, October 23-25, 2017 (co-chair with J. M. Fernandez, Polytechnique Montreal, Canada)
- M. Rusinowitch: SCSS 2017, The 8th International Symposium on Symbolic Computation in Software Science, Gammarth, Tunisie, April 6-9, 2017 (co-chair with M. Mosbah, Univ Bordeaux)

#### 10.1.1.2. Program Committee Member

- V. Cortier: E-VoteID 2018, POST 2018, E-VoteID 2017, CCS 2017, LICS 2017, SAC 2017, HotSpot 2017
- S. Kremer: Voting 2018, EuroS&P 2018, PLAS 2017, ESORICS 2017, Voting 2017, EuroS&P 2017
- C. Ringeissen: IJCAR 2018, UNIF 2018, WRLA 2018, FroCoS 2017, UNIF 2017
- M. Rusinowitch: CRISIS 2017, FPS 2017, ICISSP 2018, IWSPA 2018
- V. Cheval: TMPA 2017, SEC@SAC 2017

### 10.1.2. Journal

#### 10.1.2.1. Editorial Board Member

- V. Cortier: Information & Computation, Journal of Computer Security, ACM Transactions on Privacy and Security (TOPS, previously TISSEC), Foundations and Trends (FnT) in Security and Privacy
- S. Kremer: ERCIM News

#### 10.1.2.2. Scientific Committee Member

- L. Vigneron: Technique et Sciences Informatiques, Lavoisier

### 10.1.3. Invited Talks

- V. Cortier. Invited tutorial at Highlights 2017, London, UK, September 12th, 2017
- V. Cortier. Invited talk at FPS 2017, Nancy, France, October 2017
- V. Cortier. Invited talk at CIAA 2017, Marne-la-Vallée, France, June 2017
- V. Cortier. Invited talk at Workshop on the 20th Anniversary of LSV, Cachan, France, May 11th 2017
- V. Cortier. Invited tutorial at ETAPS 2017, Uppsala, Sweden, April 22nd, 2017
- V. Cortier. Invited talk at Models and Tools for Security Analysis and Proofs Workshop, affiliated with Eurocrypt 2017, Paris, France, April 29th 2017

### 10.1.4. Research Administration

Inria evaluation committee (S. Kremer)

Jury Junior Research Position Inria Rennes-Bretagne Atlantique (S. Kremer)

Jury Junior Research Position Inria Nancy-Grand Est (V. Cortier, committee chair)

Jury Professor at UMPC, LIP6 (V. Cortier)

Computer science commission of the Doctoral School, Univ Lorraine (L. Vigneron, chair)

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Licence:
  - V. Cheval, Introduction to Theoretical Computer Science (Logic, Languages, Automata), 69 hours (ETD), TELECOM Nancy
  - J. Dreier, Introduction to Theoretical Computer Science (Logic, Languages, Automata), 146 hours (ETD), TELECOM Nancy
- Master:
  - V. Cortier, Security of flows, 20 hours, M2 Computer Science, TELECOM Nancy and Mines Nancy
  - A. Imine, Security for XML Documents, 12 hours (ETD), M1, Univ Lorraine
  - S. Kremer, Security Theory, 24 hours (ETD), M2 Computer science, Univ Lorraine
  - C. Ringeissen, Decision Procedures for Software Verification, 18 hours (ETD), M2 Computer science, Univ Lorraine
  - L. Vigneron, Security of information systems, 22.5 hours (ETD), M2 Computer science, Univ Lorraine
  - L. Vigneron, Security of information systems, 24 hours (ETD), M2 MIAGE – Distributed Information Systems, Univ Lorraine
  - L. Vigneron, Security of information systems, 16 hours (ETD), M2 MIAGE – Audit and Design of Information Systems, Univ Lorraine
- Summer School:
  - V. Cortier and S. Kremer: Summer School on Models and Tools for Cryptographic Proofs, Nancy, June 2017

### 10.2.2. Supervision

- PhD in progress:
  - Younes Abid, Privacy control for social networks, started in March 2015 (M. Rusinowitch)
  - Antoine Dallon, Decision procedures for equivalence properties, started in November 2015 (V. Cortier and S. Delaune)
  - Alicia Filipiak, Design and validation of security services for mobile platforms: smartphones and tablets, started in March 2015 (V. Cortier)
  - Abreha Haftay Gebreslasie, Compressed and Verifiable Filtering Rules in Software-defined Networking, started in September 2017 (A. Lahmadi, M. Rusinowitch and A. Bouhoula)
  - Charlie Jacomme, Security protocols: new properties, new attackers, new protocols, started in September 2017 (H. Comon and S. Kremer)
  - Joseph Lallemand, Type systems for equivalence properties, started in September 2016 (V. Cortier)
  - Itsaka Rakotonirina, Efficient verification of equivalence properties in cryptographic protocols, started in October 2017 (V. Cheval and S. Kremer)
  - Ludovic Robin, Verification of cryptographic protocols using weak secrets, started in October 2014, defense scheduled early 2018 (S. Delaune and S. Kremer)

### 10.2.3. Juries

Examiner for Robin David, CEA and Loria (S. Kremer)

Reviewer for Ryan Stanley-Oakes, Univ Bristol (S. Kremer)

Examiner and president of the jury for Wazen Shbair, Univ Lorraine, Loria (V. Cortier)

Examiner and president of the jury for Hubert Godefroy, Univ Lorraine, Loria (V. Cortier)

Reviewer for Fabienne Eigner, Univ Saarbruecken (V. Cortier)

Reviewer for Mnacho Echenim, HDR, Univ Grenoble (M. Rusinowitch)

### 10.3. Popularization

- How to Explain Modern Security Concepts to your Children [11] (J. Dreier)
- Vote par Internet [41] (V. Cortier and S. Kremer)
- 2 days of debate on privacy at *Moments d'invention 2016*, organized by Grand Nancy (V. Cortier)
- booth at the *Open Government Summit* organized at Sénat (V. Cortier)
- Conference and debate at the *ISN day*, conference for teachers in computer science (V. Cortier)
- Interview for *silicon.fr* on weakening cryptosystems to allow limited access by authorities (S. Kremer)
- France 3 Lorraine radio interview on computer security (S. Kremer)
- Interview for *AFP* on electronic voting (S. Kremer)
- Interview for *AFP* and *Huffington Post* on electronic voting (V. Cortier)



## PETRUS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Selection

#### 9.1.1.1. Member of the Conference Program Committees

- Nicolas Ancaux: VLDB'18, SIGMOD'17, PAP'17, DATA'17
- Luc Bouganim: Associate Editor for VLDB'18, VLDB'17, BDA'17
- Philippe Pucheral: EDBT'17, DATA'17, MOBILITY'17
- Iulian Sandu Popa: APWeb-WAIM'17, DATA'17, IEEE MobileCloud'17

#### 9.1.1.2. Reviewer

- Guillaume Scerri: CCS'17

### 9.1.2. Journal

#### 9.1.2.1. Member of the Editorial Boards

- Nicolas Ancaux: Associate Editor of the VLDB Journal

#### 9.1.2.2. Reviewer - Reviewing Activities

- Iulian Sandu Popa: ACM Transactions on Spatial Algorithms and Systems, International Journal of Geo-Information, Journal of Intelligent Transportation Systems

### 9.1.3. Invited Talks

- Nicolas Ancaux: "A new Approach for the Secure Personal Cloud", Security Seminar, Loria, 23 Mar. 2017. <http://seminaire-securite.loria.fr/seances-passees.fr.html>

### 9.1.4. Research Administration

Philippe Pucheral: Member of the HDR committee of the STV doctoral school (UVSQ) since 2014

Philippe Pucheral: Member of the steering committee of the ED STIC doctoral school of University Paris-Saclay, 'Data, Knowledge and Interactions' committee (about 250 PhD students) since 2014

Nicolas Ancaux: Member of the council of the doctoral college of the University Paris-Saclay since 2017

Nicolas Ancaux: Correspondent for Inria Saclay at ED STIC doctoral school of University Paris-Saclay since 2017

Nicolas Ancaux: Responsible for the 'Mission Jeunes Chercheurs' at Inria Saclay since 2017

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : Iulian Sandu Popa, Bases de données (niveau L3), 96, UVSQ, France. Guillaume Scerri , Initiation aux bases de données (niveau L2), 63, UVSQ, France. Guillaume Scerri, Fondements de l'informatique (niveau L1), 72, UVSQ, France. Guillaume Scerri, Théorie des Langages (niveau L2), 36, UVSQ, France.

Master : Iulian Sandu Popa, Bases de données relationnelles (niveau M1), Gestion des données spatiotemporelles (niveau M2), Sécurité des bases de données (niveau M2), 96, UVSQ, France. Philippe Pucheral, responsable of the DataScale master, courses in M1 and M2 in databases and in security, introductory courses for jurists, UVSQ, France. Luc Bouganim, Bases de données relationnelles et XML (niveau M1 et M2), 20, AFTI, France. Guillaume Scerri, Bases de données relationnelles (niveau M1), 36, UVSQ, France. Guillaume Scerri, Sécurité et bases de données pour juristes, 4.5, UVSQ, France.

Engineers school : Nicolas Anciaux, courses on Databases (module IN206, niveau M1), 21, and Advanced databases (module ASI13, niveau M2), 24, at ENSTA ParisTech. Nicolas Anciaux, Systèmes d'Information "privacy by design" (niveau M1), 15, at ENSIIE Evry, France. Luc Bouganim, Systèmes d'Information "privacy by design" (niveau M1), 38, ENSIIE Evry et INSA CVL, France. Luc Bouganim, Bases de données et sécurité (niveau M2), 20, Telecom ParisTech.

### 9.2.2. Supervision

PhD in progress : Paul Tran Van, Partage de documents sécurisé dans le Cloud Personnel, October 2014, Nicolas Anciaux and Philippe Pucheral

PhD in progress : Axel Michel, Secure Distributed Computations, October 2015, Benjamin Nguyen and Philippe Pucheral

PhD in progress : Julien Loudet, Personal Queries on Personal Clouds, July 2016, Luc Bouganim and Iulian Sandu Popa

PhD in progress : Riad Ladjel, Secure Distributed Computation for the Personal Cloud, October 2016, Nicolas Anciaux and Philippe Pucheral

PhD in progress : Dimitri Tsoulovos, Privacy-by-design Middleware for Urban-scale Mobile Crowdsensing, April 2017, Nicolas Anciaux and Valérie Issarny (Inria Mimove)

### 9.2.3. Juries

Philippe Pucheral : reviewer of the PhD thesis of Yifan Li (CNAM Paris, 15/12/2017)

Nicolas Anciaux : Jury member of the PhD thesis of David Montoya (ENS Paris-Saclay, 6/3/2017)

Luc Bouganim : Reviewer of the HDR of Jalil Boukhobza (University of Bretagne Sud, 4/7/2017)

Luc Bouganim : Reviewer of the PhD of Levent Demir (University of Grenoble Alpes, 7/12/2017)

## 9.3. Popularization

MOOC "Défis technologiques des villes intelligentes participatives", du 6 Nov. 2017 au 31 Dec. 2017. Auteur(s): Nicolas Anciaux, Stéphane Grumbach, Valérie Issarny, Nathalie Mitton, Christine Morin, Animesh Pathak, Hervé Rivano. <http://www.sup-numerique.gouv.fr/cid94187/mooc-villes-intelligentes-defis-technologiques-et-societaux.html>

EIT Digital Professional School course "Technological challenges of participatory Smart Cities". Course for companies and cities. By Nicolas Anciaux, Stéphane Grumbach, Valérie Issarny, Nathalie Mitton, Christine Morin, Animesh Pathak, Hervé Rivano. <https://www.eitdigital.eu/newsroom/news/article/eit-digital-professional-school-launches-a-smart-cities-course-for-companies-and-cities/>

Nicolas Anciaux: interview pour le magazine La Recherche. Numéro de Juin 2017, dossier "Données personnelles: Notre vie privée est-elle en danger?", pp.81-86, par Vincent Glavieux et Denis Delbecq.

Rencontre Inria - Industrie, Les données et leurs applications, Conférence "Sécurité des données", Philippe Pucheral et Eric Léandri (fondateur et PDG de Qwant), 6 Juin 2017. <https://www.inria.fr/centre/paris/innovation/rii-les-donnees-17-18-octobre-2017/programme>

Rencontre Inria - Industrie, Les données et leurs applications, Démonstration du projet Domycile, Nicolas Anciaux, , 6 Juin 2017. <https://www.inria.fr/centre/paris/innovation/rii-les-donnees-17-18-octobre-2017/demos/domycile>

Rencontre Inria - Industrie, Les données et leurs applications, Démonstration du projet Domycile, Paul Tran Van, , 6 Juin 2017.

Round table: Accès aux données et aux compétences, Convention Systematic Paris-Région, Luc Bouganim, June 2017.

Demonstration: PlugDB and the Secure Mobile Laboratory, Turing building inauguration, Luc Bouganim, Iulian Sandu Popa, Riad Ladjel, February 2017.

## PHOENIX Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

Hélène Sauzéron & Bernard N’Kaoua, in cooperation with E. Morales & B. JMcFadyen, co-organized the Summer school 2017 of Alliance Bordeaux-Laval: “Mobility in urban environment: a systemic approach centered on the person and his/her environment”, 3-5 july 2017 at University of Laval (Québec, Canada).

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

Charles Consel was member of the following Program Committees:

- ICSE 2018 SEIS Track (Software Engineering in Society)
- 3rd IEEE International Conference on Collaboration and Internet Computing
- International Workshop on Pervasive Systems Integration (PerSysT 2018)
- 2018 IEEE International Conference on Cloud Computing (CLOUD 2018)

#### 9.1.2.2. Reviewer

Hélène Sauzéron served as a reviewer for the ACM CHI Conference on Human Factors in Computing Systems 2018.

### 9.1.3. Journal

#### 9.1.3.1. Reviewer - Reviewing Activities

Hélène Sauzéron served as a reviewer for the following journals: British Journal of Psychology , Gerontology, Journal of Cognitive Psychology, PlosOne, Memory & Cognition, Aging, Neuropsychology & Cognition.

### 9.1.4. Invited Talks

Charles Consel was invited to give talks in the following contexts:

- University of Reading
- University of Toronto
- University of Illinois at Urbana-Champaign
- University of Indiana
- Digital Silver Forum on November 28 in Helsinki.

### 9.1.5. Scientific Expertise

Hélène Sauzéron participated as a scientific expert for:

- National call for proposals: IRSEP call “Autism and Technology”, 2017
- Recruiting committees for:
  - Lecturer on Psychology et Ergonomics, Toulouse 2 University, 2017
  - Young researchers, Inria Bordeaux, since 2015
- The scientific committee of “Expertise center Calyxis for domestic risks” (Niort, France), working on R&D of technologies for preventing everyday accidents, thru collaboration programs between public labs and private companies.

### 9.1.6. Research Administration

Hélène Sauzéon has been a member of the Committee launching a new institute of advanced studies at the University of Bordeaux since 2016. In this context she participated at the design of this institute, leveraging his expertise in cognitive sciences and interdisciplinary research at Inria Bordeaux. Indeed, the aim of the institute is fostering interdisciplinary research, innovation, and creativity, by providing adequate financial support, educative and participative resources to researchers on the Bordeaux campus.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Master (M2) : Charles Consel, “Advanced topics — Technology surveys”, 17h, Bordeaux INP, France
- Licence (L2): Hélène Sauzéon, “Modeling cognitive functions”, 24h, University of Bordeaux, France.
- Licence (L3): Hélène Sauzéon, “Handicap, Executive functions, Cognitive neuropsychology”, 12h, University of Bordeaux, France.
- Master (M1): Hélène Sauzéon, “Cognitive psychology, Aging, Human factors”, 30h, University of Bordeaux, France.
- Master (M2): Hélène Sauzéon, “Handicap and assistive technology, Human factors and reliability of complex systems”, 30h, University of Bordeaux, France.
- Master (M2): Hélène Sauzéon, “Neuropsychology: Evaluation, Language-related models and syndromes, Executive functions and syndromes”, 30h, University of Bordeaux, France.
- Master (M2): Hélène Sauzéon, “Neuropsychology: Language-related models, Aging”, 9h, University of Bordeaux, France.
- Master (M2) : Nic Volanschi, “Advanced topics — Technology surveys”, 17h, Bordeaux INP, France
- Licence (L3) : Nic Volanschi, “Introduction to imperative programming”, 24h, Bordeaux INP, France
- Master (M2) : Antoine Riché, “Software Engineering for Smart Spaces”, 8h, Bordeaux INP, France
- Licence (L3) : Cécile Mazon, “Outils pour les enfants avec troubles cognitifs et apports de la psychologie cognitive”, 6h, École d’Ergothérapie, CHU Bordeaux, France
- Licence (L3) : Cécile Mazon, “École inclusive et Technologies Numériques : Quels solutions pour les enfants avec troubles cognitifs ?”, 8h, École d’Ergothérapie, CHU Bordeaux, France
- Licence (L2) : Cécile Mazon, “Handicap cognitif et Technologies d’assistance à la vie quotidienne”, 8h, École d’Ergothérapie, CHU Bordeaux, France
- Licence (L2) : Bernard Serpette, “Functional Programming”, 35h, Université de Bordeaux, France.

#### E-learning

MOOC: Hélène Sauzéon and Pascal Guitton, “Digital Accessibility”, open for unrestricted attendance, on the FUN national platform, supported by the Inria Learning Lab:

- 1st session in november 2016: about 3800 registered students from 60 different countries
- 2nd session in june 2017: about 1900 registered students

The MOOC contents is still currently available on “Canal U”.

### 9.2.2. Supervision

PhD : Adrien Carteron, “An event-based approach to the development of home assistance services for various stakeholders”, University of Bordeaux, defended on December 22nd, 2017, co-directed by Charles Consel and Nic Volanschi.

PhD in progress : Cécile Mazon, “Personalization and evaluation of a digital assistant for school inclusion of college students with autism and/or intellectual disability”, University of Bordeaux, started in September 2016, co-directed by H  l  ne Sauz  on and Charles Consel.

PhD in progress: Antoine Rich  , “Architectures of assistive services based on software sensors”, started in October 2016, directed by Charles Consel.

PhD in progress: Rafik Belloum, “A methodology for developing assistive services”, started in 2016, directed by Charles Consel.

PhD in progress: Audrey Landuran, “Design, adaptation and validation of digital tools for people with intellectual disabilities”, started in 2016, directed by Bernard N’Kaoua.

PhD in progress: P.A. Cinquin, “Conception et validation d’un lecteur accessible aux personnes avec troubles cognitifs pour un syst  me d’enseignement num  rique”, started in 2016, co-directed by H  l  ne Sauz  on and Pascal Guitton.

PhD in progress: A. Delmas, “Conception et validation d’un site internet interactif sur l’asthme    vis  e   ducative pour les enfants avec asthme”, started in 2015, co-directed by H  l  ne Sauz  on and Pierre-Yves Oudeyer.

### 9.2.3. *Juries*

Charles Consel was member of the thesis committee for Tizneem Jiancaro, for her thesis entitled “Technology, Design and Dementia: Design approaches, implications and considerations for an emerging field”. Supervisor: Alex Mihailidis, Ph.D P.Eng. Scientific Director AGE-WELL Network of Centres of Excellence, University of Toronto.

H  l  ne Sauz  on was member of the thesis committee for Castor Naomie, who performed her PhD in the Lab CHART-LUTIN (Paris 8 University).

Charles Consel and Nic Volanschi were members of the thesis committee for Adrien Carteron (as co-supervisors), for his thesis in Computer Science called “An event-based approach to the development of home assistance services for various stakeholders”, University of Bordeaux, on December 22nd 2017.

## 9.3. Popularization

Nic Volanschi participated on October 12th to the “Science fest” at Inria Bordeaux, where he gave 3 workshop sessions on “Manual digital sciences” for children aged 11 to 15. These workshop sessions were aimed to communicate basic notions of computer science to young students by using puzzles and games.

Antoine Rich   and Nic Volanschi presented, to a professional audience coming from various digital-related industries, some of the technologies developed in the team, at the Inria-Industry Meeting on October 17th-18th in Paris centered on “Data and their applications”.

C  cile Mazon participated to the following popularization events:

- “1er Salon du livre et du num  rique pour les dys”, on 3rd may 2017. Representing the research center jointly with P.-A. Cinquin (Potioc team); presenting and demonstrating the Coll  ge+ app for iPad.
- “PubHD Bordeaux”, on 24th october 2017. Event consisting in presenting her PhD work “Technologies pour la scolarisation des coll  giens avec TSA” without slides nor scientific jargon.
- Guest of the radio show “Que cherchent-ils”, on RCF Bordeaux. 25 minutes for presenting her PhD work around autism and technologies. The show was recorded in december 2017 and will be broadcast in february – march 2018.
- Largely open congress “ITASD”, in july 2017, Valencia, Spain. “Effectiveness and Usability of Technology-based interventions for children and adolescents with ASD: A systematic review of reliability, consistency, durability and generalization related to the effects of interventions”. The abstract is available within the conference proceedings.

## PI.R2 Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. General Chair, Scientific Chair

Pierre-Louis Curien is organising a Day of Hommage to the memory of Maurice Nivat on February 6, 2018, at University Paris 7.

#### 8.1.1.2. Member of the Organising Committees

Yann Régis-Gianas was multimedia chair of the organising committee of POPL 2017 that took place in Paris in January 2017.

Yves Guiraud, Philippe Malbos and Samuel Mimram have organised the third edition of the Higher-Dimensional Rewriting and Algebra (HDRA) workshop of the Formal Structures for Computation and Deduction conference (FSCD), held in Oxford in September 2017.

Yves Guiraud and Samuel Mimram, with Dimitri Ara (Univ. Aix-Marseille) have organised the “Categories in Homotopy and Rewriting” one-week international conference, at the CIRM, in Marseille, in September 2017. As the closing conference of the Cathre ANR project, focused on higher-dimensional algebra, this conference attracted 80 participants, working in category theory, algebraic topology, logic and theoretical computer science.

Matthieu Sozeau co-organised with Nicolas Tabareau the 3rd Coq Implementors Workshop in Le Croisic, France, June 12-16 2017. It included presentations from developers, both from France and abroad and a large amount of hacking.

### 8.1.2. Scientific Events Selection

#### 8.1.2.1. Member of the Conference Program Committees

Hugo Herbelin was a member of the program committees of the conference FSCD’17, of the TYPES’17 venue, as well as of the PxTP’17 and CoqPL’18 workshops.

Matthieu Sozeau was member of the program committee of CoqPL’17.

Yann Régis-Gianas was member of the program committee of JFLA’18.

Alexis Saurin was a member of the program committee of the workshop Coinduction in Type Theory which took place in Chambéry from the 3rd to the 6th of July, 2017

Alexis Saurin was a member of the program committee of the workshop on Trends in Linear Logic and Applications which took place in Oxford on the 3rd of September 2017 as a satellite event of FSCD conference.

#### 8.1.2.2. Member of the Conference Steering Committees

Hugo Herbelin was a member of the steering committee of the conference *Formal Structures for Computation and Deduction* (FSCD) until September 2017.

Hugo Herbelin is a member of the steering committee of the conference *TYPES*.

Pierre-Louis Curien is member of the steering committee of the international workshop Games for Logic and Programming Languages (GaLop).

Matthieu Sozeau is member of the steering committee of the Dependently Typed Programming international workshop (DTP).

### **8.1.3. Journal**

#### *8.1.3.1. Member of the Editorial Boards*

Pierre-Louis Curien is editor in chief of the Cambridge University Press journal *Mathematical Structures in Computer Science* (since January 2016).

Alexis Saurin is editing a special issue of *MSCS* dedicated to contributions in honour of Dale Miller for his 60th birthday.

#### *8.1.3.2. Reviewer - Reviewing Activities*

The members of the team reviewed papers for numerous journals and international conferences.

### **8.1.4. Invited Talks**

Pierre-Louis Curien gave an invited talk at the Conference Categories for Homotopy Theory and Rewriting on “A syntactic approach to polynomial functors, polynomial monads and opetopes” (September 2017).

Yann Régis-Gianas gave an invited talk at the Conference for Trends in Functional Programming In Education on the OCaml MOOC (April 2017).

### **8.1.5. Scientific Expertise**

Pierre-Louis Curien and Yves Guiraud have been members of the “Comité de sélection” for an assistant professor position in mathematical foundations of computer science at the University Paris 7 (spring 2017).

### **8.1.6. Research Administration**

Pierre-Louis Curien, Hugo Herbelin and Yves Guiraud are members of the scientific council of the Computer Science department of University Paris 7.

Yves Guiraud is the head of the “Preuves, Programmes and Systèmes (PPS)” pole of the IRIF laboratory (since April 2016), a member of the IRIF council (January 2016 - December 2017), and of the IRIF direction council (since September 2017).

Pierre-Louis Curien is a member of the Scientific Council of the CIRM (Centre International de Rencontres Mathématiques).

### **8.1.7. Presentation of papers**

Hugo Herbelin gave a talk at the GT Geocal-Lac on a proof of Gödel’s completeness theorem using side-effects.

Hugo Herbelin gave a talk at the PPS pole days on the intuitionistic reverse mathematics properties of Gödel’s completeness theorem.

Étienne Miquey gave a talk at the ESOP conference in Uppsala (Sweden) on “A classical sequent calculus with dependent types” (April 2017).

Jovana Obradović gave a talk at the Conference Topology in Ecuador (Galapagos Islands) on “Categorified cyclic operads” (August 2017).

Théo Zimmermann gave a talk on Coq’s Prolog and application to defining semi-automatic tactics at the TTT’17 workshop (Type-Theory Based Tools).

Cyprien Mangin gave a talk on Equations at the TTT’17 workshop.

Matthieu Sozeau gave a talk on Coq 8.6 at the CoqPL’17 workshop in January 2017.

### **8.1.8. Talks in seminars**

Pierre-Louis Curien gave talks at NII (Hasuo’s Lab, Tokyo) and at Shanghai Jiaotong University on “Triangular structures on faces of some families of polytopes” (October-November 2017).

Théo Zimmermann gave a talk on transfer of isomorphisms at the Deducteam seminar (April 2017).



### 8.1.9. Attendance to conferences, workshops, schools,...

Hugo Herbelin attended TTT'17, TYPES'17 and FSCD'17.

Cyrille Chenavier, Maxime Lucas, Philippe Malbos and Samuel Mimram attended the HDRA workshop in Oxford (September 2017).

Cyrille Chenavier, Pierre-Louis Curien, Yves Guiraud, Maxime Lucas, Philippe Malbos and Samuel Mimram attended the "Categories in Homotopy and Rewriting" conference in Marseille (September 2017).

Hugo Herbelin attended the conferences Types 2017 in Budapest (Hungaria, May), the Coq implementors workshop in Le Croisic (June), the FSCD conference in Oxford (UK, September). He attended various workshops of the POPL'17 and FSCD'17 conference, including TTT'17 and CoqPL'17. He participated to the Big Proofs seminar in Cambridge (July).

Jean-Jacques Lévy participated to CAV and VSTTE 2017 conferences, Heidelberg, Germany, July 21-28 where his co-author Ran Chen presented the article [36].

Matthieu Sozeau attended POPL'17, CPP'17 and CoqPL'17 in Paris (January), TYPES'17 in Budapest (Hungaria, May) and the Coq implementors workshop in Le Croisic (June).

Étienne Miquey attended the conference ESOP in Uppsala (Sweden) in April 2017.

Pierre-Louis Curien and Jovana Obradović attended the conference Topology in Ecuador (Galapagos Islands) in August 2017, and the conference Geometry and combinatorics of associativity in Dublin in October 2017.

Pierre-Louis Curien and Claudia Faggian attended the CRECOGI meeting in Ito (Japan), and Claudia Faggian gave a talk on "Proof techniques in Probabilistic Reduction Systems" (November 2017).

Théo Zimmermann attended the TTT'17 workshop (January 2017) and the Coq implementors workshop in Le Croisic (June 2017).

### 8.1.10. Groupe de travail Théorie des types et réalisabilité

This is one of the working groups of PPS, jointly organised by Hugo Herbelin and Matthieu Sozeau.

The speakers in 2017 were Pierre-Marie Pédro, Guilhem Jaber, Francesco A. Genco, Ludovic Patey.

### 8.1.11. Groupe de travail Catégories supérieures, polygraphes et homotopie

Several members of the team participate actively in this weekly working group of PPS, organised by François Métayer (IRIF) since 2009.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master: Pierre-Louis Curien teaches in the course Models of programming languages: domains, categories, games of the MPRI (together with Thomas Ehrhard and Paul-André Melliès).

Master: Hugo Herbelin teaches the course on the proof-as-program correspondence for classical logic and beyond at the LMFI.

Master: Pierre Letouzey teaches two short courses to the LMFI Master 2 students : "Models of programming" and "Introduction to computed-aided formal proofs". These two courses come in addition to Pierre Letouzey's regular duty as teacher in the Computer Science department of Paris 7 (including a course on Compilation to M2-Pro students).

Master: Yves Guiraud gave a course on the applications of rewriting methods in algebra in the M2 Mathématiques Fondamentales of Lyon (Univ. Lyon 1 and ENS Lyon).

Master: Matthieu Sozeau taught the MPRI course on Advanced uses of proof assistants (12 hours + a project), together with Bruno Barras (Inria Deducteam).

Matthieu Sozeau taught a course at the EJCP'17 summer school in Toulous in June 17, on an introduction to interactive theorem proving.

Master: Alexis aurin taught the proof theory and lambda-calculus part of the cours fondamental de logique in M2 “Logique Mathématique et Fondements de l’Informatique”, Université Paris 7.

Alexis Saurin chairs LMFI M2 since September 2013.

### 8.2.2. *Supervision*

Internship: Hugo Herbelin has supervised the M2 internship of Charlotte Barot.

Internship: Yann Régis-Gianas has supervised the L3 internship of Kostia Chardonnet.

Internship: Yann Régis-Gianas has supervised the M2 internship of Colin Gonzalez.

PhD (completed) Amina Doumane, supervised by Alexis Saurin, David Baelde and Pierre-Louis Curien, successfully defended in June 2017 (title: On the infinitary proof theory of logics with fixed points).

PhD (completed): Étienne Miquey, co-supervised by Hugo Herbelin and Alexandre Miquel, Réalisabilité classique et effets de bords, September 2014, successfully defended in November 2017.

PhD (completed): Jovana Obradović, supervised by Pierre-Louis Curien, successfully defended in September 2017 (title: Cyclic operads: syntactic, algebraic and categorified aspects).

PhD (completed): Maxime Lucas, supervised by Yves Guiraud and Pierre-Louis Curien, successfully defended in December 2017 (title: Cubical categories for homotopy and rewriting).

PhD in progress: Guillaume Claret, Programmation avec effets en Coq, (started in September 2012), supervised by Hugo Herbelin and Yann Régis-Gianas, the dissertation was completed in 2015 but Guillaume Claret moved in the meantime to a private company and the defense has been delayed to 2018.

PhD in progress: Thibaut Girka, Differential semantics (started in January 2014), supervised by Roberto Di Cosmo and Yann Régis-Gianas.

PhD in progress: Cyprien Mangin, Dependent Pattern-Matching, induction-induction and higher inductive types (started in September 2015), supervised by Matthieu Sozeau and Bruno Barras

PhD in progress: Théo Zimmermann (started in September 2016), supervised by Hugo Herbelin.

PhD starting: Cédric Ho Thanh, on Opetopes for higher-dimensional rewriting and koszulity, supervised by Pierre-Louis Curien and Samuel Mimram.

The following are cosupervisions of PhD students who are not formally part of the team:

PhD in progress: Rémi Nollet, Functional reactive programming and temporal logics: their syntax and semantics - from discrete to continuous time (started in September 2016), supervised by Alexis Saurin and Christine Tasson.

PhD in progress: Gaëtan Gilbert (at Inria Nantes), Definitional proof-irrelevance in the Calculus of Inductive Constructions (started in September 2016), supervised by Nicolas Tabareau and Matthieu Sozeau.

PhD in progress: Simon Forest (at École Polytechnique), Rewriting in semistrict higher categories (started in September 2017), supervised by Samuel Mimram and Yves Guiraud.

PhD in progress: Théo Winterhalter (at Inria Nantes), Extensional to Intensional type theory and meta-theory of proof-irrelevance (started in September 2017), supervised by Nicolas Tabareau and Matthieu Sozeau.

### 8.2.3. *Juries*

Pierre-Louis Curien was referee for the Habilitation of Russ Harmer (ENS Lyon, May 2017).

Pierre-Louis Curien and Alexis Saurin were members of the jury of the thesis of Amina Doumane (Paris 7, June 2017).

Pierre-Louis Curien was president of the jury of the Habilitation of Matthieu Picantin (Paris 7, July 2017).

Pierre-Louis Curien was president of the jury of the thesis of Simon Castellan (ENS Lyon, July 2017).

Pierre-Louis Curien was member of the jury of the thesis of Jovana Obradović (Paris 7, September 2017).

Pierre-Louis Curien was referee for the Habilitation of Paul-André Melliès (Paris 7, November 2017).

Pierre-Louis Curien was president of the jury of Habilitation of Damiano Mazza (Paris 13, December 2017).

Pierre-Louis Curien was referee for the Habilitation of Samuele Giraudo (Marne la Vallée, December 2017).

Pierre-Louis Curien was member of the jury of the thesis of Nicolas Ninin (Paris Saclay, December 2017).

Pierre-Louis Curien was president of the jury of the thesis of Luc Pellissier (Paris 13, December 2017).

Pierre-Louis Curien was referee for the thesis of Christopher Nguyen (Macquarie University, Sydney, December 2017).

Pierre-Louis Curien and Yves Guiraud were members of the jury of the thesis of Maxime Lucas (Paris 7, December 2017).

### **8.3. Popularization**

Hugo Herbelin wrote with Sandrine Blazy and Pierre Castéran an introduction to Coq for engineers edited by Techniques de l'Ingénieur.

## PLEIADE Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. General Chair, Scientific Chair

Alain Franc organized on September 25-29, 2017 an ANF (Action Nationale de Formation) of CNRS on “Data analysis for massive data”. There were about 20 participants, from Astronomy to Bioinformatics, over Fluid Mechanics.

### 8.1.2. Journal

#### 8.1.2.1. Member of Editorial Boards

Alain Franc is member of the editorial board of BMC Evolutionary Biology.

Pascal Durrens is a member of the editorial board of the journal ISRN Computational Biology.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Juries

David Sherman was a thesis reviewer for Julie Laniau (University of Nantes) and member of her defense jury, October 23, 2017. The title of the dissertation was “Structure de réseaux biologiques : rôle des nœuds internes *vis-a-vis* de la production de composés” and concerned the methodological analysis of metabolite essentiality in metabolic modeling, applied to algae.

Alain Franc was a thesis reviewer for Cyril Noël (University of Pau and the Pays d’Adour) and member of his defense jury, 2017. The title of the dissertation was “Réseaux microbiens de dégradation des hydrocarbures aux interfaces oxic/anoxie des sédiments marins côtiers” and concerned metabarcoding, metagenomics and functional metagenomics of some Bacteria and Archea.

Alain Franc was president of the jury for PhD defense of Pierre Blanchard (University of Bordeaux and Inria project-team HiePACS) on February 16, 2017. The title of the dissertation was “Fast hierarchical algorithms for the low-rank approximation of matrices with applications to materials physics, geostatistics and data analysis”

## 8.3. Popularization

David Sherman of PLEIADE coached two teams in Thymio R2T2 Challenges<sup>0</sup>, organized by the Mobsya association and the EPFL in Spring and in Summer 2017. An R2T2 challenge brings together 16 teams (for the Mars mission, 4 teams for the Lunar mission) of children who must cooperate to remotely program Thymio robots. The Lunar mission in July was a public demonstration during the Scratch 2017 conference in Bordeaux.

David Sherman contributes open-source software development to the Aseba platform for educational robotics<sup>0</sup>, deployed in Thymio II robots used by children as well as in the simulator used by Class’Code<sup>0</sup> to train teachers.

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<sup>0</sup>Remote Rescue Thymio II <https://www.thymio.org/en:thymio-r2t2>

<sup>0</sup><http://aseba.io/>

<sup>0</sup><https://pixees.fr/classcode-la-formation-associee-a-pixees/>

## POEMS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Advisory and management activities

- P. Joly is a member of the scientific committee of CEA-DAM.
- E. Lunéville is the Head of UMA (Unité de Mathématiques Appliquées) at ENSTA ParisTech.

### 10.1.2. Scientific events organisation and selection

- E. Bécache, A. S. Bonnet-Ben Dhia, M. Bonnet, S. Fliss, C. Hazard, P. Joly and E. Lunéville were members of the scientific committee for the 13rd international conference on mathematical and numerical aspects of wave propagation (WAVES 2017), which took place in Minneapolis in May 2017.
- A. Modave co-organized with B. Thierry (CNRS/UPMC) a Young Researchers' Meeting on "Solving Large-Scale Time-Harmonic Wave Problems", which took place at UPMC on November, 2017. There were 8 talks, 2 tutorials and 20 participants, including young researchers from the Inria teams Magique3D, HiePACS and Alpines. The meeting was funded in part by the SMAI through a BOUM project.

### 10.1.3. Journal

- A. S. Bonnet-Ben Dhia is associate editor of SINUM (SIAM Journal of Numerical Analysis) and SIAP (SIAM Journal of Applied Mathematics).
- M. Bonnet is associate editor of Engineering Analysis with Boundary Elements
- M. Bonnet is in the editorial board of Inverse Problems.
- M. Bonnet is in the editorial board of Computational Mechanics.
- M. Bonnet is in the editorial board of Journal of Optimization Theory and Application.
- P. Ciarlet is an editor of CAMWA (Computers & Mathematics with Applications).
- P. Ciarlet is an editor of ESAIM:M2AN (Mathematical Modeling and Numerical Analysis).
- P. Joly is an editor of ESAIM:M2AN (Mathematical Modeling and Numerical Analysis).
- P. Joly is a member of the editorial board of AAMM (Advances in Applied Mathematics and Mechanics).
- P. Joly is a member of the Book Series Scientific Computing of Springer Verlag.
- The team members regularly review papers for many international journals.

## 10.2. Teaching - Supervision

### 10.2.1. Teaching

Eliane Bécache

- *Méthode des éléments finis*, ENSTA ParisTech (2nd year)
- *Compléments sur la méthode des éléments finis*, ENSTA ParisTech, (2nd year)
- *Fonctions d'une variable complexe*, ENSTA ParisTech (1st year)
- *Résolution des problèmes de diffraction par équations intégrales*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Marc Bonnet

- *Problèmes inverses*, Master MS2SC (Centrale Paris and ENS Cachan)
- *Méthodes intégrales*, Master TACS (ENS Cachan)
- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA Paris-Tech (1st year)

Anne-Sophie Bonnet-Ben Dhia

- *Fonctions d'une variable complexe*, ENSTA ParisTech (1st year)
- *Propagation dans les guides d'ondes*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Non Destructive Testing*, Master "Acoustics" (M2)
- *Théorie spectrale des opérateurs autoadjoints et applications aux guides optiques*, ENSTA ParisTech (2nd year)

Laurent Bourgeois

- *Outils élémentaires pour l'analyse des équations aux dérivées partielles*, ENSTA Paris-Tech (1st year)
- *Fonction d'une variable complexe*, ENSTA ParisTech (1st year)

Stéphanie Chaillat

- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Fonctions d'une variable complexe*, ENSTA ParisTech (1st year)
- *Equations intégrales et multipôles rapides*, Ecole doctorale MODES (Univ. Paris Est, Marne la Vallée)
- *Résolution des problèmes de diffraction par équations intégrales*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Colin Chambeyron

- *Analyse réelle: optimisation libre et sous contraintes*, Dauphine University (1st year)
- *Outils mathématiques*, Dauphine University (1st year)
- *Algèbre linéaire*, Dauphine University (2nd year)

Patrick Ciarlet

- *Advanced Finite Element Methods*, ENSTA ParisTech (2nd year)
- *Parallel Scientific Computing*, ENSTA ParisTech (3rd year), and Master "Analysis, Modelling, Simulation" (M2)
- *Mathematical Models and their Discretisation in Electromagnetism*, ENSTA ParisTech (3rd year), and Master "Analysis, Modelling, Simulation" (M2)
- *Deputy Head of the Master's Program Analysis, Modelling, Simulation*, Paris-Saclay University

Sonia Fliss

- *Méthode des éléments finis*, ENSTA ParisTech (2nd year)
- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA ParisTech (1st year).
- *Propagation des ondes dans les milieux périodiques*, ENSTA ParisTech (3rd year) and Master "Analysing, Modeling and Simulation" (M2)
- *Homogénéisation périodique*, Masters ANEDP, M4S et AMS "Analysing, Modeling and Simulation" (M2)

Christophe Hazard

- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Théorie spectrale des opérateurs autoadjoints et applications aux guides optiques*, ENSTA ParisTech (2nd year)

Patrick Joly

- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Propagation des ondes dans les milieux périodiques*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Nicolas Kielbasiewicz

- *Programmation scientifique et simulation numérique*, ENSTA ParisTech (2nd year)
- *Parallélisme et calcul réparti*, ENSTA ParisTech (Master 2)

Marc Lenoir

- *Fonctions d'une variable complexe*, ENSTA ParisTech (2nd year)
- *Equations intégrales*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Méthodes asymptotiques hautes fréquences pour les équations d'ondes - course notes*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Eric Lunéville

- *Introduction au Calcul Scientifique*, ENSTA ParisTech (2nd year).
- *Programmation scientifique et simulation numérique*, ENSTA ParisTech (2nd year).
- *Propagation dans les guides d'ondes*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Jean-François Mercier

- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Fonctions d'une variable complexe*, ENSTA ParisTech, ENSTA ParisTech (1st year)
- *Théorie spectrale des opérateurs autoadjoints et application aux guides optiques*, ENSTA ParisTech (2nd year)

Axel Modave

- *Finite Element Methods*, ENSTA ParisTech (2nd year)
- *High Performance Scientific Computing*, ENSTA ParisTech (2nd year)
- *Parallel Scientific Computing*, ENSTA ParisTech (3rd year), and Master "Analysis, Modelling, Simulation" (M2)
- *Mathematical Models and their Discretisation in Electromagnetism*, ENSTA ParisTech (3rd year), and Master "Analysis, Modelling, Simulation" (M2)

### 10.2.2. Supervision

PhD: Luca Desiderio, "H-matrix based Solvers for 3D Elastodynamic Boundary Integral Equations", January 2017, Stéphanie Chaillat and Patrick Ciarlet

PhD: Laure Pesudo, "Modélisation de la réponse ultrasonore de défauts de type fissure par méthode BEM et couplage à un modèle de propagation - Application à la simulation des contrôle non destructifs", October 2017, Marc Bonnet

PhD in progress : Zouhair Adnani, "Modélisation numérique tridimensionnelle des effets de site en interaction sol-structure par une méthode adaptée aux problèmes sismiques de très grande taille", October 2014, Marc Bonnet and Stéphanie Chaillat

PhD in progress : Antoine Bensalah, "Une approche nouvelle de la modélisation mathématique et numérique en aéroacoustique par les équations de Goldstein et applications en aéronautique", October 2014, Patrick Joly and Jean-François Mercier

PhD in progress : Antoine Bera, "Conception de perturbations invisibles pour les ondes électromagnétiques ou acoustiques", October 2016, Anne-Sophie Bonnet-Ben Dhia and Lucas Chesnel

PhD in progress :Léandre Giret, "Development of a domain decomposition method on non-conforming meshes: application to the modeling of a Reactivity-Initiated Accident (RIA) in a Pressurized Water Reactor (PWR)", October 2014, Patrick Ciarlet

PhD in progress :Sandrine Paolantoni, "Analyse spectrale et simulation numérique de la diffraction électromagnétique par des métamatériaux", October 2016, Christophe Hazard and Boris Gralak

PhD in progress : Arnaud Recoquillay, "Identification de défauts dans un guide d'ondes en régime temporel", October 2014, Laurent Bourgeois

PhD in progress : Yohanes Tjandrawidjaja, "Modélisation de la propagation d'ondes guidées et de leur interaction avec des défauts localisés dans une plaque élastique anisotrope pour des applications en SHM", October 2016, Anne-Sophie Bonnet-Ben Dhia and Sonia Fliss

PhD in progress : Emile Parolin, "Non overlapping domain decomposition methods with non local transmission conditions for electromagnetic wave propagation", October 2017, PPatrick Joly and Xavier Claeys

PhD in progress : Clément Beneteau, "Asymptotic analysis of time harmonic Maxwell equations in presence of metamaterials", October 2017, Sonia Fliss and Xavier Claeys

PhD in progress : Hajer Methenni, "Mathematical modelling and numerical method for the simulation of ultrasound structural health monitoring of composite plates ", October 2017, Sonia Fliss and Sébastien Impériale

PhD in progress : Damien Mavaleix, ""Modeling of the fluid-structure interaction resulting from a remote underwater explosion", December 2017, Marc Bonnet and Stéphanie Chaillat

PhD in progress : Yacine Abourrig, "Boundary element method for modeling electromagnetic non-destructive testing: perturbative techniques for efficient and accurate parametric studies involving multiple simulations", October 2017, Marc Bonnet and Edouard Demaldent



## POLARIS Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- Panayotis Mertikopoulos has been the co-organizer of the *MODE Days* (03/2017).
- Arnaud Legrand has co-organized the International Workshop on Reproducibility in Parallel Computing (RepPar) in conjunction with IPDPS.

#### 10.1.1.2. Member of the Organizing Committees

- Nicolas Gast was co-organizer of the workshop YEQT XI: “Winterschool on Energy Systems” organized in TU Eindhoven in December 2017).
- E. Veronica Belmega was co-organizer of a day of the GdR ISIS about “Game Theory, Optimisation and Learning: Interplay and Applications to Signal Processing” (8 November 2017).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- Nicolas Gast was co-chair of the track “Performance Evaluation, Control, and Optimization (incl. queueing, game theory, machine learning)” of the convergence ITC 29.

#### 10.1.2.2. Member of the Conference Program Committees

- Bruno Gaujal and Nicolas Gast have been member of the *IFIP Performance* Committee.
- Nicolas Gast has been member of the *ACM Sigmetrics* and *ACM E-Energy* committees.
- Arnaud Legrand has been member of the *CCgrid*, *Cluster* and *PPAM* committees.
- E. Veronica Belmega was a member of the technical program committees of Green Computing, Networking and Communications Symposium at ICNC 2017, IEEE BlackSeaComm, IEEE ICC 2017, Wireless Communications Symposium (ICC’17 WCS), and IEEE Wireless Communications and Networking Conference, WCNC.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- E. Veronica Belmega is an executive editor for the Transactions on Emerging Telecommunications Technologies.
- Nicolas Gast is member of the editorial board of Performance Evaluation.
- E. Veronica Belmega serves as an Associate Editor for the IET Signal Processing journal.

#### 10.1.3.2. Reviewer - Reviewing Activities

The members of the POLARIS team regularly review articles for JPDC, DAM, IEEE Transactions on Networking/Automatic Control/Cloud Computing/Parallel and Distributed Computing/Information Theory/Signal Processing/Wireless Communications, SIAM Journal on Optimization/Control and Optimization, and others.

#### 10.1.4. Invited Talks

- Arnaud Legrand has been invited to give invited keynotes on reproducible research: (Keynote at the LIRIS, Lyon, Nov. 2017, at the PRECIS Spring school, Fréjus, May 2017, at the Grenoble Data Science Institute, Apr. 2017, at the LIG, Grenoble, Mar. 2017 and at the ENS Rennes, Feb. 2017.)
- Bruno Gaujal has been invited to give the opening lecture for the class of 2021 at ENS Cachan, Sept. 2017.
- Nicolas Gast gave an invited talk at IBM New-York in April 2017 and at Imperial College London in December 2017.

#### 10.1.5. Leadership within the Scientific Community

- Panayotis Mertikopoulos is a member of the committee of the MODE group of the SMAI.
- Bruno Gaujal is a member of the scientific bureau of the GDRIM.

Arnaud Legrand organize a series of webinars on reproducible research and whose aim is to introduce the audience to one particular aspect of reproducible research and to illustrate how this aspect can be addressed with state-of-the-art tools. To this end, experts of a given topic are invited and their seminar is screencast so that researchers from other universities can easily follow it. This year, the following topics have been covered:

1. Publication Modes Favoring Reproducible Research
2. Artifact evaluation in computer systems' conferences
3. Experimental testbeds in Computer Science
4. Statistical and Reproducibility Issues in Human Computer Interactions
5. An Approach to Practical Falsifiable Research: the Popper Convention

All the corresponding videos and materials are available at the following address: [https://github.com/alegrand/RR\\_webinars/](https://github.com/alegrand/RR_webinars/)

#### 10.1.6. Research Administration

- Bruno Gaujal has been the president of the jury for hiring CR2 Researchers in Inria Grenoble Rhône-Alpes.
- E. Veronica Belmega was member of an Associate Professor (Maître de Conférences) hiring committee, ENSEA.
- Nicolas Gast is member of the “conseil du laboratoire” of the LIG (Laboratoire d’Informatique de Grenoble).
- Bruno Gaujal is member of the “bureau du LIG” (Laboratoire d’informatique de Grenoble)
- Panayotis Mertikopoulos serves as the graduate students liaison (*chargé de mission doctorants*) for the Laboratoire d’Informatique de Grenoble
- Bruno Gaujal was president of the CR2 admissibility jury of Inria-Grenoble.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Bruno Gaujal and Nicolas Gast, “*Advanced Performance Evaluation*”, 18h (M2), ENSIMAG

Master M2R : Nicolas Gast “*Optimization Under Uncertainties*”, 18h (M2), Master ORCO, Grenoble.

Master: Guillaume Huard, “*Conception des Systèmes d’Exploitation*” (M1), Université Grenoble-Alpes

Master: Arnaud Legrand and Jean-Marc Vincent, “*Scientific Methodology and Performance Evaluation*”, 15h (22.5h) M2, M2R MOSIG

- Master: Arnaud Legrand, “*Parallel Systems*”, 21h (31.5h) M2R, M2R Mosig.
- Master: Arnaud Legrand, “*Scientific Methodology and Performance Evaluation*”, 24h (36h), ENS Lyon.
- Master: Panayotis Mertikopoulos, “*Selected Topics in the Theory of Stochastic Processes*”, 16h M2, University of Athens, Athens, Greece
- Master: Florence Perronnin, “*Simulation*”, M1, Université Versailles – Saint-Quentin
- Master: Florence Perronnin, “*Probabilités–Simulation*”, RICM4 Polytech Grenoble
- Master: Arnaud Legrand and Jean-Marc Vincent, Probability and simulation, performance evaluation 72 h, (M1), RICM, Polytech Grenoble.
- Master: Jean-Marc Vincent, Mathematics for computer science, 18 h , (M1) Mosig.
- DU: Jean-Marc Vincent, “*Informatique et sciences du numérique*”, 20 h, (Professeurs de lycée).
- Master M2P: Florence Perronnin *Probability and Simulation, Performance Evaluation*, Polytech Grenoble.
- Master M2R: Panayotis Mertikopoulos *Selected Topics in Probability Theory* University of Athens , *Online Learning and Optimal Decision Making* MIF, ENS Lyon.
- Master M2R: Bruno Gaujal *Online Learning and Optimal Decision Making* MIF, ENS Lyon, *Foundations of Network Performance*, MPRI, Paris.
- Master M2R: Vincent Danjean *Operating Systems*, MOSIG, Grenoble
- Master M2R: Arnaud Legrand *Parallel Systems* and *Scientific Methodology and Performance Evaluation*, MOSIG, Grenoble, *Scientific Methodology and Performance Evaluation*, ENS Rennes.
- Highschool Professors: Vincent Danjean is responsible of the University Dept. for Highschool Professors Training in Computer Science
- Mooc: Arnaud Legrand is currently designing a MOOC on Reproducible Research with Konrad Hinsén (CNRS/Centre de Biophysique Moléculaire) and Christophe Pouzat (CNRS/ Mathématiques Appliquées in Paris 5) with the support of the Inria MOOC-lab. The diffusion of this MOOC is planned for 2018 on FUN-MOOC.

### 10.2.2. Supervision

- Alexandre Marcastel (PhD) - 2015-... (E. Veronica Belmega, Panayotis Mertikopoulos, co-advised with Inbar Fijalkow)
- Irched Chafaa (PhD) - 2017-... 75% (E. Veronica Belmega (co-advised with Merouane Debbah)
- Kimon Antonakopoulos (PhD) - 2017-... (E. Veronica Belmega, Panayotis Mertikopoulos and Bruno Gaujal)
- Pedro Bruel (co-advised with USP 2017-. . . ): Design of experiments and autotuning of HPC computation kernels (co-advised by Arnaud Legrand, Alfredo Goldman and Brice Videau, funded by the Brazilian Government).
- Tom Cornebize (2017-...): Capacity planning and performance evaluation of supercomputers (funded by the French Ministry for Research) (advised by Arnaud Legrand).
- Bruno Luis de Moura Donassolo (CIFRE Orange 2017-...): Decentralized management of applications in Fog computing environments (co-advised by Arnaud Legrand, Panayotis Mertikopoulos and Ilhem Fajari, funded by Orange).
- Vinicius Garcia Pinto (co-tutelle with UFRGS 2013-...): Performance analysis and visualization of dynamic task-based applications (co-advised by Arnaud Legrand, Lucas Schnorr and Nicolas Maillard, funded by the Brazilian government).
- Rafael Tesser (co-tutelle with UFRGS 2013-...): Simulation and performance evaluation of dynamical load balancing of an over-decomposed Geophysics application (co-advised by Arnaud Legrand, Lucas Schnorr and Philippe Navaux, funded by the Brazilian government).

- Christian Heinrich (2015-...): Modeling of performance and energy consumption of HPC systems (advised by Arnaud Legrand) (funded by Inria).
- Stephan Plassard (2016-...), Energy Optimization in Embedded Systems (co-advised by Bruno Gaujal and Alain Girault) (funded by Labex Persyval, Grenoble).
- Stephane Durand (2015-...) Distributed Best Response Algorithms in random Potential Games (co-advised by Bruno Gaujal and Federica Garin) (funded by Labex Persyval, Grenoble).
- Baptiste Jonglez (2016-...) Leveraging Diversity in Communication Networks (co-advised by Bruno Gaujal and Martin Heusse), (funded by Univ Grenoble Alpes).
- Kimon Antonakopoulos (2017-...) Variational Inequalities and Pptimization (co-advised by Bruno Gaujal and Panayotis Mertikopoulos), (funded by Inria)

### 10.2.3. *Juries*

- Arnaud Legrand has served in the PhD jury of Tien-Dat Phan (reviewer) (Nov. 2017).
- Vincent Danjean and Arnaud Legrand have served on the master thesis jury for the MOSIG master program.
- Florence Perronnin have served on the master thesis jury for the MIAGE master program.
- Bruno Gaujal has served in the PhD jurys of Alemayehu Addisu Desta (Dec. 2017) (member), Shabbir Ali (Jul. 2017) (reviewer), and Habilitation Thesis of Lin Chen (Jul. 2017) (reviewer).
- E. Veronica Belmega has served as an examiner on the PhD jury of Dora BOVIZ (Nokia, Paris-Saclay); Faton MALIQI (Centrale Supélec) Chao ZHANG (Centrale Supélec)

## 10.3. Popularization

The POLARIS team is actively involved in various scientific popularization activities. In addition to participating in the Fête de la Science (Guillaume Huard, Florence Perronnin, Jean-Marc Vincent), the POLARIS team also participates in the organization of the “Conference Inria”. Jean-Marc Vincent has also organized (and/or participated in) several training courses for computer science teachers (at a high school level) and has supervised several MathC2+ trainees.

- Vincent Danjean and Florence Perronnin have participated to the “fête de la Science” on the *unplugged computer science* stand. Florence Perronnin was involved in the meeting days between industry and education, organized by the “Maison pour la Science”.
- E. Veronica Belmega: "Introduction à la theorie des jeux et ses applications en communications", invited talk, Lycee Chrestien de Troyes, France, Nov. 2017.

## POLSYS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

Emmanuel Prouff was a member of the organization committee of Eurocrypt 2017 (Paris, France, 2017, April 30 - May 4).

Jean-Charles Faugère and Ludovic Perret were members of the organization committee of the Quantum-Safe Cryptography for Industry (Paris, France, 2017, April 30).

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

Mohab Safey El Din was PC Chair of the International Symposium on Symbolic and Algebraic Computation (ISSAC), Kaiserslautern, Germany, 2017.

Jean-Charles Faugère was PC co-Chair of the International workshop on Parallel Symbolic Computation (PASCO), Kaiserslautern, Germany, 2017.

#### 9.1.2.2. Member of the Conference Program Committees

Ludovic Perret was a member of the program-committee of

- 20th IACR International Conference on Practice and Theory of Public-Key Cryptography (PKC'17), Amsterdam, 28-31 March 2017

Emmanuel Prouff was a member of the steering committees of the following conferences

- Conference on Cryptographic Hardware and Embedded Systems 2017 (CHES 2017) (Taipei, Taiwan, 2017, Sept. 25-28);
- Smart Card Research and Advanced Application Conference (CARDIS 2017) (Lugano, Switzerland, 2017, Nov. 13-17).

Guénaél Renault was a member of the program committee of

- 7th Int'l Conference on Mathematical Aspects of Computer and Information Sciences (MACIS) 2017;

Elias Tsigaridas was a member of the program committees of the following conferences

- 7th Int'l Conference on Mathematical Aspects of Computer and Information Sciences (MACIS) 2017;
- 19th International Workshop on Computer Algebra in Scientific Computing (CASC) 2017.

Dongming Wang was a member of the program committees of the following conferences

- 11th International Workshop on Automated Deduction in Geometry (ADG 2016) (Strasbourg, France, June 27-29, 2016);
- 8th International Symposium on Symbolic Computation in Software Science (SCSS 2017) (Gammarrh, Tunisia, 2017, April 6-9).

Dongming Wang was a member of the steering committees of the following conferences

- International Conference on Mathematical Aspects of Computer and Information Sciences (MACIS),
- International Symposium on Symbolic Computation in Software Science (SCSS).

### **9.1.3. Journal**

#### *9.1.3.1. Member of the Editorial Boards*

Ludovic Perret is an Associate Editor for:

- Designs, Codes and Cryptography (Springer, Berlin).
- The Computer Journal (Oxford University Press)
- Groups, Complexity, Cryptology (De Gruyter)

Emmanuel Prouff is an Associate Editor of the Journal of Cryptographic Engineering (Springer, Berlin).

Mohab Safey El Din is an Associate Editor of the Journal of Symbolic Computation.

Dongming Wang has the following editorial activities:

- Editor-in-Chief and Managing Editor for the journal Mathematics in Computer Science (published by Birkhäuser/Springer, Basel).
- Executive Associate Editor-in-Chief for the journal SCIENCE CHINA Information Sciences (published by Science China Press, Beijing and Springer, Berlin).
- Member of the Editorial Boards for the
  - Journal of Symbolic Computation (published by Academic Press/Elsevier, London),
  - Frontiers of Computer Science (published by Higher Education Press, Beijing and Springer, Berlin),
  - Texts and Monographs in Symbolic Computation (published by Springer, Wien New York),
- Member of the International Advisory Board for the Communications of JSSAC (Japan Society for Symbolic and Algebraic Computation) (published by JSSAC).

#### **9.1.4. Invited Talks**

Jean-Charles Faugère was a plenary invited speaker at the

- SIAM Conference on Applied Algebraic Geometry, Atlanta (August 2017).

Ludovic Perret was invited speaker at the

- HEXATRUST Summer school 2017 (Paris, September 2017)

Emmanuel Prouff was invited speaker at the

- Journées du GDR-IM (Montpellier, France, 2017, Mar. 14-16).
- Aix-Marseille Cyber Security Forum (AMUSEC) (Marseille, France, 2017, Oct. 12-13).

Guénaél Renault was invited speaker at the

- Third French-Japanese Meeting on Cybersecurity (Tokyo, Japan, April 2017)

Mohab Safey El Din was invited speaker at:

- The mini-symposium on Euclidean Distance Degree at the 2017 SIAM Conference on Applied Algebraic Geometry, Atlanta, USA 2017;
- The math. seminar of the University of Dortmund, Germany;
- The Berlin-Leipzig Seminar on Algebra, Geometry and Combinatorics, Germany;
- The mini-symposium on Numeric and Symbolic Convex Programming for Polynomial Optimization, at the PGMO days, Saclay, France.

Dongming Wang invited speaker at the

- 7th International Conference on Mathematical Aspects of Computer and Information Sciences (Vienna, Austria, 2017, Nov. 15-17).
- 19th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (Timisoara, Romania, 2017, Sept. 21-24).
- 5th Summer School in Symbolic Computation (Nanning, China, 2017, July 16-22).

### 9.1.5. Scientific Expertise

Mohab Safey El Din was evaluator for the FWF International Program (Austrian funding agency).

Jean-Charles Faugère was the head of the hiring Committee for an associate professor in Grenoble.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Jérémy Berthomieu had the following teaching activities:

Master : Computation Modeling, 35 hours, M1, Université Pierre-et-Marie-Curie, France.

Master : In charge of Basics of Algebraic Algorithms, 73 hours, M1, Université Pierre-et-Marie-Curie & Polytech' UPMC, France.

Master : Introduction to Security, 20 hours, M1, Université Pierre-et-Marie-Curie, France.

Master : Projects supervision, 8 hours, M1, Université Pierre-et-Marie-Curie, France.

Licence : Introduction to Algorithmics, 40,5 hours, L2, Université Pierre-et-Marie-Curie, France.

Licence : Representations and Numerical Methods, 38,5 hours, L2, Université Pierre-et-Marie-Curie, France.

Licence : Projects supervision, 10 hours, L2, Université Pierre-et-Marie-Curie, France.

Jean-Charles Faugère had the following teaching activities:

Master: Fundamental Algorithms in Real Algebraic Geometry, 13,5 hours, M2, ENS de Lyon, France.

Master : Polynomial Systems solving, 12 hours, M2, MPRI, France.

Ludovic Perret is teaching a full service (192 hours), balanced between master and licence in cryptography, complexity and introduction to algorithms.

Mohab Safey El Din had the following teaching activities:

Master : In charge of Modeling and problems numerical and symbolic solving through MAPLE and MATLAB software, 36 hours, M1, Université Pierre-et-Marie-Curie, France

Master : In charge of Introduction to polynomial system solving, 48 hours, M2, Université Pierre-et-Marie-Curie, France

Master : In charge of the Security, Reliability and Numerical Efficiency Program in Master, 40 hours, M1 and M2, Université Pierre-et-Marie-Curie, France

Licence : Introduction to Cryptology, 20 hours, L3, Université Pierre-et-Marie-Curie, France

### 9.2.2. Supervision

PhD in progress : Ivan Bannwarth, Fast algorithms for studying real algebraic sets, started in Sept. 2014, Mohab Safey El Din.

PhD in progress : Matías Bender, Algorithms for Sparse Gröbner basis and applications, started in Dec. 2015, Jean-Charles Faugère and Elias Tsigaridas.

PhD in progress : Eleonora Cagli, Analysis and interest points research in the attacks by observation context, Emmanuel Prouff.

PhD in progress : Loïc Masure, Recognition and Side Channel Analysis, Emmanuel Prouff.

PhD in progress, Olive Chakraborty, Design and Analysis of Post-Quantum Schemes, started in May 2017, Jean-Charles Faugère and Ludovic Perret.

PhD in progress, Nagardjun Chinthamani Dwarakanath, Design and Analysis of Fully Homomorphic Schemes, started in Dec. 2017, Jean-Charles Faugère and Ludovic Perret.

PhD in progress, Solane El Hirsch Design and Analysis of Post-Quantum Schemes, started in June 2017, Jean-Charles Faugère and Ludovic Perret.

PhD in progress, Xuan Vu. Algorithms for solving structured semi-algebraic systems, started in October 2017, Jean-Charles Faugère and Mohab Safey El Din.

### 9.2.3. Juries

Emmanuel Prouff was examiner in the PhD committee of N. Bruneau and M. Dugardin and in the HDR committees of J.-M. Dutertre and N. El Mrabet.

Guénaël Renault was referee in the Phd committee of T. Mefenza.

## 9.3. Popularization

The activity of POLSYS in post-quantum cryptography has been covered in several large audience magazines:

- “Enfin! La révolution quantique”, L’Usine Nouvelle, November 2017.
- “QUANTIQUE : THE NEXT BIG THING(K)”, L’Informaticien, November 2017.
- “L’ORDINATEUR QUANTIQUE VA-T-IL METTRE À MAL LA CYBERSÉCURITÉ MONDIALE?”, Bouygues Blog, October 2017.

Ludovic Perret is member of the Cloud Security Alliance (CSA) quantum-safe security working group. In particular, he contributed to the following documents:

- B. Huttner, J. Melia, G. Carter, L. Perret and L. Wilson. “[Applied Quantum-Safe Security](#)”, Feb. 2017.
- B. Huttner, J. Melia, G. Carter, L. Perret and L. Wilson. “[Quantum Safe Security Glossary](#)”, January 2017.

Ludovic Perret is also member of the quantum-safe cryptography specification group of the European Telecommunications Standards Institute (ETSI) where is the referee for a document on quantum-safe signatures.

Since May 2010, Daniel Lazard is engaged in a strong edition work on the English Wikipedia (more than 6 000 contributions, including vandalism revert and talk pages). Initially focused on the themes of POLSYS, these contributions were later enlarged to general algebra and algebraic geometry, because many elementary articles require to be expanded to be useful as a background for computer algebra. Examples of articles that have been subject of major editing: “System of polynomial equations” (created), “Computer algebra”, “Algebra”, “Algebraic geometry”, “Polynomial greatest common divisor”, “Polynomial factorization”, “Finite field”, “Hilbert series and Hilbert polynomial”,...

For the year 2017, this contribution amounts to about 2,000 edits on the English Wikipedia.

Mohab Safey El Din was invited by FMJH to present and popularize symbolic and algebraic computation to Master students in Mathematics following the curricula proposed by Univ. Paris-Saclay.



## POTIOC Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- EduIHM, Workshop at IHM 2017, Martin Hachet
- “Kick-off conference of CORTICO, the French BCI association”, Paris, France, January 2017, Fabien Lotte
- “2nd National congress on Neurofeedback: NeXT Steps”, Paris, France, January 2017, Fabien Lotte

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- Program Chair IHM 2017, Martin Hachet

#### 10.1.2.2. Member of the Conference Program Committees

- ACM CHI Conference, 2018, Anke Brock
- ACM ASSETS Conference, 2017, Anke Brock
- Late Breaking Work Committee ACM CHI Conference, 2017, Anke Brock
- Augmented Human Conference (AH), 2018, Fabien Lotte
- Eurographics STA,R 2017, Martin Hachet
- IEEE VR, 2017, Martin Hachet
- 7th International Brain-Computer Interface Conference, 2017, Fabien Lotte
- Neuroadaptive Technology conference (NAT), 2017, Fabien Lotte
- Symbiotic, 2017, Fabien Lotte

#### 10.1.2.3. Reviewer

- ACM CHI 2018, Pascal Guitton, Fabien Lotte, Joan Sol Roo
- ACM ISS 2017, Joan Sol Roo
- ACM CHI-Play 2017, Joan Sol Roo
- ACM UIST 2017, Fabien Lotte
- Augmented Human Conference (AH), 2018, Fabien Lotte, Jelena Mladenovic
- Haptics Symposium 2018, Anke Brock
- ICASSP 2018, Fabien Lotte
- IEEE VR 2018, Joan Sol Roo
- 7th International Brain-Computer Interface Conference, 2017, Fabien Lotte
- JJ-ICON 2017, Fabien Lotte
- MobileHCI 2017, Anke Brock
- Symbiotic 2017, Fabien Lotte

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- Special Issue Chair TACCESS ACM ASSETS Conference, 2017, Anke Brock

- Member of the Editorial board of Journal of Neural Engineering, Fabien Lotte
- Member of the Editorial Board (Associate Editor) of the Brain-Computer Interface journal, Fabien Lotte
- Review Editor for the Frontiers in Human-Media Interaction journal, Fabien Lotte
- Review Editor for the Frontiers in Neuroprosthetics journal, Fabien Lotte
- Guest Editor, Frontiers in Neurosciences on “Detection and Estimation of Working Memory States and Cognitive Functions Based on Neurophysiological Measures”, 2017, Fabien Lotte

#### *10.1.3.2. Reviewer - Reviewing Activities*

- ACM Transactions on Computer-Humans Interactions (TOCHI), Fabien Lotte
- BioMed Research International, Fabien Lotte
- Frontiers in Human Neurosciences, Fabien Lotte
- IEEE Access, Fabien Lotte
- IEEE Transactions on Biomedical Engineering, Fabien Lotte
- IEEE Transactions on Human-Machine Systems, Fabien Lotte
- International Journal of Human-Computer Studies, Fabien Lotte
- Journal of Accessibility and Design for All (JACCESS ), Anke Brock
- Journal of Neural Engineering, Fabien Lotte
- Nature Scientific Reports, Fabien Lotte
- PLOS One, Fabien Lotte
- Transactions on Haptics, Anke Brock

#### *10.1.4. Invited Talks*

- Which feedback should be given to maximize Brain-Computer Interface training, 2nd National Day about Neurofeedback at ESPCI school in Paris, France, Jan. 2017, Léa Pillette
- The impact of flow on BCI neurofeedback training, 2nd National Day about Neurofeedback at ESPCI school in Paris, France, Jan. 2017, Jelena Mladenovic
- Engagement des publics et genre, Séminaire Projet RRI-Practice, CEA Saclay, Feb. 2017, Pascal Guitton
- Comment apprendre à contrôler un ordinateur avec son activité cérébrale ? Le projet BrainConquest, Journée 10 ans ERC - 50 ans Inria, Paris, March 2017, Fabien Lotte
- Art and Sciences at Potioc, Ministry of Culture, Paris, March 2017, Martin Hachet
- Multisensory Maps for Visually Impaired People, Robotics, Brain and Cognitive Sciences dept, Italian Institute of Technology, Genova, Italy, April 2017, Anke Brock
- Designing for Accessibility, University Bordeaux, OpenCare Project Meeting (H2020), June 2017, Anke Brock
- L'éthique en Sciences du numérique, Ecole du Management Inria, Paris, June 2017, Pascal Guitton
- Creating, learning, and meditating; a trip in tangible hybrid spaces, ETIS, Luxembourg, June 2017, Martin Hachet
- Augmented reality & tangible interaction for accessibility, University Stuttgart, HCI Lab, July 2017, Anke Brock
- Understanding and improving BCI user training to boost brain-computer communications, International Graz Brain-Computer Interfaces Conference, opening Keynote, Graz, Austria, Sep. 2017, Fabien Lotte
- Brain-Computer Interfaces technologies for the benefit of all: Neuroergonomics and Neuroeducation, Tokyo University of Agriculture and Technology (TUAT), Tokyo, Japan, Oct. 2017, Fabien Lotte

- Brain-Computer Interfaces: design, user training and new applications, Japanese French Laboratory for Informatics (JFLI), Tokyo University, Tokyo, Japan, Oct. 2017, Fabien Lotte
- L'accessibilité des systèmes numériques d'enseignement, GT Handicap, FCS Paris-Saclay, Nov. 2017, Pascal Guitton
- Interactive projection and 3D gestures for Artistic performances, OARA, Bordeaux, Nov. 2017, Martin Hachet
- Combining machine learning and psychology to design usable Brain-Computer Interfaces, RIKEN Advanced Intelligence Project, Tokyo, Japan, Dec. 2017, Fabien Lotte

### **10.1.5. Scientific Expertise**

- Reviewer for the Millennium Science Initiative 2017, Chile, Fabien Lotte
- Membre du comité ANR CE33 (Interaction, Robotics) 2017, Fabien Lotte
- Member of Inria Cellule de veille et de prospective, Pascal Guitton
- Reviews of projects : ANR, DFG, Crédit Impôt Recherche (Ministère de la recherche), Anke Brock, Martin Hachet
- Member of COSAE, scientific board of SCRIME, Martin Hachet
- Member of the scientific board of ULLO, Martin Hachet, Fabien Lotte

### **10.1.6. Research Administration**

- Representative of Inria at NEM (New European Media), Fabien Lotte
- Member of Commission de recrutement des Inspecteurs Généraux de l'Education Nationale (IGEN), Pascal Guitton
- Member of Comité de Pilotage de Software Heritage, Pascal Guitton
- Femmes & Sciences Deputy Board Member, Anke Brock
- Member of Inria Ethical Committee (COERLE), Pascal Guitton
- Member of Inria Comité Parité et Egalité, Anke Brock & Pascal Guitton
- Responsable of Inria RA2020 Committee (new annual Activity Report), Pascal Guitton
- Member of Inria International Chairs Committee, Pascal Guitton
- Member of Comité de sélection Professeur d'informatique, Université de Rennes, Pascal Guitton
- Jury member for the competitive selection - Young graduate scientist (Chargé de Recherche 2) at Inria Bordeaux (2017), Anke Brock
- Jury member for an Assistant Professorship (MCF section CNU 63, "Photonics and digital sciences") at Institut Optique / Université Paris-Sud, Anke Brock
- Jury member for the competitive selection Research scientist (CR 2) at Inria Bordeaux, Anke Brock
- Member of Bureau du comité des projets, Inria Bordeaux Sud-Ouest, Martin Hachet
- Member of Comité de Développement Technologique (CDT), Inria Bordeaux Sud-Ouest, Fabien Lotte
- Member of Comité Jeunes Chercheurs at Inria Bordeaux Sud-Ouest, Anke Brock
- Member of Comité de Pilotage Responsabilité Sociétale de l'Université, Université de Bordeaux, Pascal Guitton

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

Licence Pierre-Antoine Cinquin, Assistive technologies for cognition, CM, 3h, 2nd year Institut de formation en ergothérapie, Bordeaux, France

Master: Pascal Guitton, Virtual and Augmented Realities, CM, 36h eqtd, M2 Computer Science, University of Bordeaux, France

Master: Pascal Guitton, Digital accessibility, CM, 12h eqtd, M1 Cognitive Science, University of Bordeaux, France

Master: Pascal Guitton, Assistive technologies, CM, 30h eqtd, M2 Cognitive Science, University of Bordeaux, France

Master: Martin Hachet, Virtual Reality and 3D Interaction, CM, 12h eqtd, M2 Cognitive Science, University of Bordeaux, France

Master: Martin Hachet, Interaction and Ergonomics, CM-TD, 8h eqtd, 3rd year (M2), Enseirb, Bordeaux, France

Master: Fabien Lotte, Brain-Computer Interfaces, CM, 2h, M2 Neuroergonomics & Human Factors International Master, ISAE, Toulouse, France

Master: Léa Pillette, Virtual Reality and 3D Interaction, CM, 5h eqtd, M2 Cognitive Science, University of Bordeaux, France

Master: Léa Pillette, Knowledge and Representations, TD, 54h, 1ère année, Ecole Nationale Supérieure de Cognitique, INP, Bordeaux, France

#### **E-learning**

MOOC : Pascal Guitton & Hélène Sauzéon, Accessibilité numérique, 5 semaines, Plateforme France Université Numérique (FUN), Inria, 2ème session (1900 inscrits)

### **10.2.2. Supervision**

PhD: Lorraine Perronnet, Combining EEG and fMRI for Neurofeedback, Université de Rennes, Sep. 2017, Anatole Lécuyer, Christian Barillot, Maureen Clerc & Fabien Lotte

PhD: Damien Clergeaud, Collaborative interaction for aerospace scenarios, Oct. 2017, Pascal Guitton

PhD: Joan Sol Roo, One Reality, Augmenting the Human Experience through the Combination of Physical and Digital Worlds, Dec. 2017, Martin Hachet

PhD in progress: Stephanie Lees, Ulster University, UK, Assessing and Optimising Human-Machine Symbiosis through Neural signals for Big Data Analytics, since Feb. 2014, Damien Coyle, Fabien Lotte, Paul McCullagh and Liam Maguire

PhD in progress: Jelena Mladenovic, BCI user modelling for adaptive BCI training and operation, since Jan. 2016, Fabien Lotte & with Jérémie Mattout

PhD in progress: Pierre-Antoine Cinquin, Design and Experimental Validation of Accessible E-learning systems for people with cognitive disabilities, since Sept. 2016, Pascal Guitton & Hélène Sauzéon

PhD in progress: Léa Pillette, Redefining Formative Feedback in Brain-Computer Interface User Training, since Oct. 2016, Fabien Lotte & Bernard N'Kaoua

PhD in progress: Aurélien Appriou, Estimating learning-related mental states from EEG signals, since Oct. 2017, Fabien Lotte

PhD in progress: Philippe Giraudeau, One Reality, Augmented Reality and Tangible Interaction to support Collaborative Learning, since Oct. 2017, Martin Hachet

PhD in progress: Stephanie Rey, Design and evaluation of a tool for personalized museum visits, Bourse CIFRE with Berger-Levrault, joint supervision by Anke Brock & Nadine Couture

PhD in progress: Rajkumar Darbar, Actuated Tangible User Interfaces, since Dec. 2017, Martin Hachet

### **10.2.3. Juries**

- PhD (Reviewer): Paul Issartel, Université Paris Sud, Saclay, 2017 April 3rd, Martin Hachet
- PhD (Reviewer): Mariacarla Memeo, University of Genova and Italian Institute of Technology, April 2017, Anke Brock
- PhD (Reviewer): Jean-Baptiste Barreau, INSA Rennes, 2017 July 10th, Pascal Guitton
- PhD (Reviewer): Kireth Dhindsa, McMaster University, Canada, 2017 Aug., Fabien Lotte
- PhD (Reviewer): Lonni Besançon, Université Paris Sud, Saclay, 2017 Dec. 14th, Martin Hachet
- PhD (Jury member): Cecilia Lindig-Leon, University of Lorraine, France, Jan. 2017, Fabien Lotte
- PhD (Jury member): Philippe Roussille, Université Toulouse 3 (IRIT), Jan. 2017, Anke Brock
- PhD (Jury member): Sarah Buchanan, University of Central Florida, USA, April 7th, Martin Hachet
- PhD (comité de suivi): Fanny Grosselin, UPMC / ICM / MyBrain technologies, France, 2017, Fabien Lotte

## 10.3. Popularization

### Duties

- Member of the Editorial board of Blog Binaire - Le Monde, Pascal Guitton

### Teaching and Education

- Participation à la création du MOOC Informatique et Création Numérique, Plate-forme FUN, Anke Brock & Pascal Guitton, <https://www.fun-mooc.fr/courses/inria/41014/session01/about>

### Talks and Hands-on

- Collaborer avec la réalité virtuelle, Pint of Sciences, Bordeaux, May 14th, Damien Clergeaud
- Demonstration of VISTE project at Colloque Robotique et Éducation 2017, Bordeaux, July 2017, Anke Brock & Jérémy Albouys
- Demonstration and presentation of VISTE project at Fête de la science, Oct 2017, Jérémy Albouys
- Demonstration and presentation of VISTE project at Nuits des chercheurs at Cap Sciences, Oct. 2017, Jérémy Albouys
- Collaborative Interaction in Virtual Reality, Airbus PhD's Days, Saint Médard en Jalles, Nov. 8th, Damien Clergeaud
- La Table de Shanghai, Open Lab FACTS Festival, Nov. 14-25th
- Organization of an Hackathon on Cognitive Science and Artificial Intelligence at Bordeaux, Dec 9-10th, Philippe Giraudeau
- Interview, Martin Hachet, Inriality, <https://www.inriality.fr/culture-loisirs/se-divertir-en-2067/>
- Interview, Martin Hachet, RFI - autour de la question, <http://www.rfi.fr/emission/20171113-comment-imaginer-notre-futur>
- Interview, Martin Hachet, Libération, [http://next.liberation.fr/musique/2017/01/27/un-nouveau-chant-de-vision\\_1544507](http://next.liberation.fr/musique/2017/01/27/un-nouveau-chant-de-vision_1544507)

### Popularizing inside Inria

- Comment favoriser l'accessibilité numérique, Unithé ou Café, Bordeaux, April 6th, Pascal Guitton
- Teegi, 50th anniversary Inria, Nov 7-8, Paris, Philippe Giraudeau, Martin Hachet

### Written, Oral or Video Content

- "Fabien Lotte about his goal to improve BCI usability", g.tec medical engineering blog, <http://blog.gtec.at/interview-fabien-lotte/>, 2017
- Interview about VISTE project for LUDOVIAMAGAZINE : <https://www.youtube.com/watch?v=Hdw5O0myifY>, Anke Brock

## PRIVATICS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

C. Castelluccia: Co-chair of the DTL Grant program (<http://datatransparencylab.org/grants-program/>), Co-chair of the Workshop on "Intelligence Oversight", (Nov., Montbonnot).

D. Le Métayer: APVP 2017 (Jun., Autrans), panel on "Algorithms: too intelligent to be intelligible ?" at CPDP 2017 (Jan., Brussels).

M. Cunche: APVP 2017 (Jun., Autrans).

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

C. Castelluccia: DTL Grant program, ACM Symposium on Applied Computing (Privacy by Design in Practice track).

D. Le Métayer: CSF 2017, IWPE 2017, APF 2017, CPDP 2017, Conference "Converging trends between law and digital technologies".

V. Roca: VTC 2017, SPACOMM 2017, SpaCCS 2017.

M. Cunche: Ubiquitous 2017, ICISSP 2017.

### 9.1.3. Invited Talks

D. Le Métayer on *Intelligence and the scientific community*, organized by the French Intelligence Academy in partnership with the Academy of Technologies, (Paris, Jun. 2017).

D. Le Métayer on *Personal data protection*, organized by ANVIE (Association nationale de valorisation interdisciplinaire de la recherche en sciences humaines et sociales auprès des entreprises), (Paris, May 2017).

D. Le Métayer on *The ethics of algorithms*, organized by FFA (Fédération Française des Assurance), (Paris, Jul. 2017).

D. Le Métayer on *Algorithmes prédictifs: Quels enjeux éthiques et juridiques?*, organized by CREOGN (Centre de recherche de l'École des officiers de la gendarmerie nationale), (Paris, Oct. 2017).

D. Le Métayer on *Capacity: an abstract model of control over personal data* invited talk at Chalmers University, (Göteborg, Nov. 2017).

Claude Castelluccia on *Promoting Peace on the Internet*, organized by Unesco (Paris, Apr. 2017).

Claude Castelluccia Oxford Internet Institute, (Oxford, Jul. 2017).

### 9.1.4. Leadership within the Scientific Community

C. Castelluccia: member of the scientific committee of the CNIL-Inria Privacy Award, co-creator and board member of the Amnesys (Alpine Multidisciplinary NETwork on CYber-security Studies) group (<http://amnecys.inria.fr>), co-leader of the WP5 of the Data Institute of UGA (<https://data-institute.univ-grenoble-alpes.fr>).

D. Le Métayer: member of the scientific committee of the CNIL-Inria Privacy Award, member of the editorial committee of the Transalgo Inria platform.

V. Roca: co-chair of the research group NWCRG (Network Coding Research Group) of IRTF (Internet Research Task Force).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Undergraduate course : Vincent Roca, *On Wireless Communications*, 12h, L1, Polytech' Grenoble, France.

Undergraduate course : Vincent Roca, *On Network Communications*, 44h, L1, IUT-2 (UPMF University) Grenoble, France.

Undergraduate course : Mathieu Cunche, *Introduction to computer science*, 120h, L1, INSA-Lyon, France.

Master : Mathieu Cunche, *Wireless Security*, 6h, M2, INSA-Lyon, France.

Undergraduate course : Mathieu Cunche, *On Wireless Network Security*, 10h, L1, IUT-2 (UPMF - Grenoble University) , France.

Undergraduate course : Mathieu Cunche, *Advanced Topics in Security*, 20h, L3, ENSIMAG, France.

Undergraduate course : Mathieu Cunche, *Security & Privacy*, 21h, L3, INSA-Lyon, France.

Undergraduate course : Daniel Le Métayer, *Security & Privacy*, 17h, L3, INSA-Lyon, France.

Undergraduate course : Daniel Le Métayer, *Privacy*, 12h, L3, INSA-Lyon, France.

Master : Cédric Lauradoux, *Introduction to Cryptology*, 30h, M1, University of Grenoble Alpes, France.

Master : Cédric Lauradoux, *Internet Security*, M2, University of Grenoble Alpes, France.

Master : Claude Castelluccia, *Advanced Topics in Security*, 20h, M2, Ensimag/University of Grenoble Alpes, France.

Master : Claude Castelluccia, *Advanced Topics in Security*, 15h, M2, Ensimag/INPG, France.

Master : Claude Castelluccia, *Security & Privacy*, 18h, Master MOSIG, University of Grenoble Alpes, France.

Master : Claude Castelluccia, *Privacy*, 4h, M2, College de droit University of Grenoble Alpes, France.

Master : Mathieu Cunche, *Wireless Security*, 6h, M2, INSA-Lyon, France.

Master : Daniel Le Métayer, *Privacy*, 6h, M2 MASH, Université Paris Dauphine, France.

### 9.2.2. Supervision

PhD defended : Jessye Dos Santos, *Sensor Networks and Privacy*, Claude Castelluccia and Cedric Lauradoux.

PhD defended : Levent Demir, *Trusted module for data outsourcing in the Cloud*, Vincent Roca.

PhD defended : Celestin Matte, *Wi-Fi tracking: Fingerprinting Attacks and Counter-Measures*, Mathieu Cunche.

PhD in progress : Victor Morel, *IoT privacy*, September 2016, Daniel Le Métayer and Claude Castelluccia.

PhD in progress : Mathieu Thiery, *IoT privacy* , September 2016, Vincent Roca.

PhD in progress : Guillaume Celosia, *Wireless Privacy in the Internet of Things* , November 2017, Mathieu Cunche and Daniel.

Intern (M2): Jean-Yves Franceschi, *Accountability of Decision Algorithms*, Daniel Le Métayer Le Métayer.

Intern (M2): Amine Mansour, *Algorithmes d'aide à la décision : des questions éthiques aux défis techniques*, Daniel Le Métayer.

Intern (M2): Jean-Yves Franceschi, *Accountability of Decision Algorithms*, Daniel Le Métayer.

Intern (M2): Coline Boniface, *Laws and Cyberweapons*, Cédric Lauradoux and Claude Castelluccia.

Intern (M2): Jennifer Ridgers, *Surveillance and Social Networks*, Claude Castelluccia and Cédric Lauradoux.

Intern (M1): Iris Lohja, *Mail-Analytics*, Cédric Lauradoux.

### 9.2.3. Juries

HdR: Melek ONEN, *Security and Privacy for Emerging Technologies*, Eurecom, 12/01/2017, Claude Castelluccia.

PhD: Jessye Dos Santos, *Sensor Networks and Privacy*, 18/10/2016, Claude Castelluccia and Cédric Lauradoux.

PhD: Levent Demir, *Trusted module for data outsourcing in the Cloud*, Université Grenoble Alpes, Grenoble, 07/12/2017, Vincent Roca.

PhD: Celestin Matte, *Wi-Fi tracking: Fingerprinting Attacks and Counter-Measures*, Université Claude Bernard Lyon 1, 8/9/2016, Mathieu Cunche.

PhD: Pierre Laperdrix, *Browser Fingerprinting: Diversity to Augment Authentication and Build Client-side Countermeasures*, Rennes University, 03/10/2017, Claude Castelluccia.

PhD: Alban Petit, *Introducing Privacy in Current Web Search Engines*, Insa Lyon, 15/03/2017, Claude Castelluccia.

PhD: Raphaël Gellert, *Understanding the risk-based approach to data protection: An analysis of the links between law, regulation, and risk*, Vrije Universiteit Brussel (VUB), Belgium, 15/06/2017, Daniel Le Métayer.

PhD: Walid Benghabrit, *A formal model for accountability*, IMT Atlantique Bretagne-Pays de la Loire, 27/10/2017, Daniel Le Métayer.

PhD: Raul Pardo, 22 November 2017, Privacy policies for social network – A formal approach, Chalmers University, Göteborg, Sweden, 22/11/2017, Daniel Le Métayer.

## 9.3. Popularization

### 9.3.1. Hearings

D. Le Métayer at the French National Assembly about the implementation of the General Data Protection Regulation (Jan. 2017).

D. Le Métayer at the Conseil national du numérique (CNNum) about the regulation of algorithms (Jul. 2017).

M. Cunche at le Comité Consultatif National d'Éthique (CCNE)<sup>0</sup> (Mar. 2017).

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<sup>0</sup><http://www.ccne-ethique.fr/fr>



### 9.3.2. Interviews

- M. Cunche by Valentine Faure in Glamour, Donner ses données, juin-juillet 2017.
- M. Cunche by Martin Untersinger in lemonde.fr, Apple donne à nouveau des gages en matière de vie privée, 27/09/2017, [http://www.lemonde.fr/pixels/article/2017/09/27/apple-donne-a-nouveau-des-gages-en-matiere-de-vie-privee\\_5192469\\_4408996.html](http://www.lemonde.fr/pixels/article/2017/09/27/apple-donne-a-nouveau-des-gages-en-matiere-de-vie-privee_5192469_4408996.html)
- M. Cunche by Arnaud Devillard in Sciences et Avenir, Même coupé, le Wi-Fi sous Android peut suivre le téléphone, Oct. 2017, [https://www.sciencesetavenir.fr/high-tech/meme-coupe-le-wi-fi-sous-android-peut-suivre-le-telephone\\_116061](https://www.sciencesetavenir.fr/high-tech/meme-coupe-le-wi-fi-sous-android-peut-suivre-le-telephone_116061)
- M. Cunche by Camille Gruhier in Que-choisir, Smartphones Android Même une fois le Wi-Fi désactivé, vous êtes pisté, Oct. 2017 <https://www.quechoisir.org/actualite-smartphones-android-meme-une-fois-le-wi-fi-desactive-vous-etes-piste-n46076/>
- M. Cunche by Emilie Brouze in Rue89 - L'Obs, Tu es resté 22 minutes chez l'opticien jeudi. Le centre commercial le sait, le 12 juillet 2017, <http://tempsreel.nouvelobs.com/rue89/rue89-nos-vies-connectees/20170711.OBS1939/vous-etes-reste-22-minutes-chez-l-opticien-jeudi-et-le-centre-commercial-le-sait.html>
- M. Cunche by ZDnet.fr, <http://www.zdnet.fr/actualites/android-desactiver-le-wi-fi-n-empeche-pas-d-etre-espionne-39856640.htm>
- M. Cunche by 01Net, <http://www.01net.com/actualites/sur-android-le-wi-fi-peut-vous-tracer-meme-sil-est-desactive-1245292.html>
- M. Cunche by l'informaticien, <https://www.linformaticien.com/actualites/id/44894/desactiver-le-wifi-pour-eviter-le-flicage-une-protection-illusoire.aspx>
- M. Cunche by Nextinpack, <https://m.nextinpack.com/news/105038-suivi-clients-dans-magasins-question-wi-fi-nest-pas-seule-a-se-poser.htm>
- C. Lauradoux by Sophie Eremian in Inriality, Quand l'énergie devient intelligente, Oct. 2017, <https://www.inriality.fr/environnement/quand-lenergie-devient-intelligente/>.

### 9.3.3. Press articles

- D. Le Métayer in Slate, *Designing, explaining and controlling algorithms*, in Presidential election, 100 proposals from the research community (Mar. 2017).
- D. Le Métayer in Le Monde, *Gouverner les algorithmes pour éviter qu'ils nous gouvernent*, (Nov. 2017).
- C. Castelluccia and D. Le Métayer in Inria Analysis note, *Secure electronic documents: is the centralisation of biometric data really inevitable?*, (Feb. 2017).

### 9.3.4. Conferences

- M. Cunche and C. Matte, *le traçage cyberphysique via Wi-Fi*, Exposition Terra Data at Cité des Sciences et de l'Industrie, Apr. 2017.
- M. Cunche and C. Matte, *le traçage cyberphysique via Wi-Fi*, Fête de la science at Cité des Sciences et de l'Industrie, Oct. 2017 (broadcasted by Science et Vie TV and animated by l'Esprit Sorcier).
- C. Lauradoux, *Email et vie privée: pourquoi utiliser GPG ?*, Cours Master 2, Nov. 2017.
- C. Lauradoux, *Mathématiques et la protection de la vie privée*, Olympiades académiques de Mathématiques, May 2017.
- C. Lauradoux, *Cryptographie visuelle*, Collège/Lycée Jean Prévost, 01/06/2016.
- C. Lauradoux, *Cryptanalyse*, stage MathC2+, 06/2017.

## PROSECCO Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

- Prosecco organized the 2nd IEEE European Symposium on Security and Privacy in Paris, 26-28 April 2017. Catalin Hritcu was General Chair, Bruno Blanchet was Finance Chair, and Karthikeyan Bhargavan was Local arrangements Chair.
- Harry Halpin co-chaired the IEEE Security and Privacy on the Blockchain workshop, colocated with IEEE EuroS&P, on 29 April 2017.
- Catalin Hritcu is Artifact Evaluation Co-Chair of POPL 2018
- Catalin Hritcu created a New Workshop on Principles of Secure Compilation (PriSC) colocated with POPL 2017 and 2018. He is PC Chair for PriSC 2018.
- Prosecco organized a Project Everest Workshop at Inria Paris, 2 October 2017
- Prosecco organized an ESOP PC workshop at Inria Paris, 15 December 2017 Workshop at POPL: 13 January 2018, Los Angeles, USA

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

- Bruno Blanchet was PC member at TAP 2017.
- Harry Halpin was a PC member for ISWC 2017 and WWW 2017.
- Catalin Hritcu was PC member at ESOP 2018 and EuroS&P 2018
- Karthikeyan Bhargavan was a PC member at ACM CCS 2017-18, IEEE S&P 2017-18, POST 2018.

#### 9.1.2.2. Reviewer

- Harry Halpin served as a reviewer for LatinCrypt, AsiaCrypt, JAIST, TCS

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

Associate Editor

- of the *International Journal of Applied Cryptography (IJACT)* – Inderscience Publishers:  
Bruno Blanchet

### 9.1.4. Invited Talks

- Bruno Blanchet gave an invited talk at the workshop on Models and Tools for Security Analysis and Proofs, 2017.
- Bruno Blanchet gave an invited talk at the workshop TLS:DIV (TLS 1.3: Design, Implementation & Verification), 2017.
- Bruno Blanchet gave an invited talk at the workshop TMSP (Trends in Mechanized Security Proofs), 2017.
- Bruno Blanchet gave an invited talk at the Summer Research Institute, EPFL, 2017.
- Harry Halpin gave an invited talk at SPACE 2017
- Harry Halpin gave an invited talk at Conference on Privacy and Data Protection, January 2017.

- Harry Halpin gave an invited talk at RightsCon, March 2017.
- Harry Halpin gave an invited talk at E-CRYPT Cryptosymposium, March 2017.
- Harry Halpin gave an invited talk at La Firma Digital, July 2017.
- Harry Halpin gave an invited talk at Google, October 2017.
- Harry Halpin gave an invited talk at IMMWorld, November 2017.
- Harry Halpin gave an invited talk at Boston University Law School, November 2017.
- Harry Halpin gave an invited talk at University of North Carolina-Chapel Hill, December 2017.
- Harry Halpin gave a keynote talk at Security, and Privacy, and Cryptographic Engineering, December 2017.
- Catalin Hritcu was an invited speaker at TFP 2017
- Catalin Hritcu gave talks at Infoiasi, ESOP PC Workshop, Everest Workshop, TFP (Keynote), FADEX 2017, EuroS&P 2017, Université Clermont Auvergne, University Paris-Sud.
- Karthikeyan Bhargavan gave a keynote at ACNS 2017, Kanazawa, Japan.
- Karthikeyan Bhargavan gave an invited talk at Apple, Cupertino, USA.

### 9.1.5. Scientific Expertise

- Bruno Blanchet is a member of the specialized temporary scientific committee of ANSM (*Agence nationale de sécurité du médicament et des produits de santé*), on the cybersecurity of software medical devices.
- Karthikeyan Bhargavan advises the TLS working group at the IETF and consults for Mozilla, Apple, and Microsoft Research.
- Catalin Hritcu consults for Microsoft Research and the DARPA SSITH/HOPE grant.

### 9.1.6. Research Administration

- Bruno Blanchet is a member of the Inria hiring committee for PhD, post-docs, and *délégations* (*Commission des Emplois Scientifiques*, CES).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Master: Catalin Hritcu, Cryptographic protocols: formal and computational proofs, 31.5h equivalent TD, master M2 MPRI, université Paris VII, France
- Doctorat: Catalin Hritcu: Verifying Cryptographic Implementations with F\* at Computer-aided security proofs summer school. Aarhus, Denmark, October, 2017
- Doctorat: Catalin Hritcu: Verifying Cryptographic Implementations with F\* course at Models and Tools for Cryptographic Proofs summer school, Nancy, France, July 2017
- Master: Karthikeyan Bhargavan, Cryptographic protocols: formal and computational proofs, 31.5h equivalent TD, master M2 MPRI, université Paris VII, France
- Master: Karthikeyan Bhargavan, Protocol Verification and Safety, 18h equivalent TD, master ACN, Ecole Polytechnique et Telecom ParisTech, France

### 9.2.2. Supervision

- PhD: Evmorfia-Iro Bartzia, *A formalization of elliptic curves for cryptography*, Université Paris-Saclay, February 2017. Co-supervised by Pierre-Yves Strub and Karthikeyan Bhargavan.
- PhD in progress: Kenji Maillard, *Semantic Foundations for F\**, started January 2017, supervised by Catalin Hritcu and Karthikeyan Bhargavan

- PhD in progress: Jean Karim Zinzindohoue, *A Verified Cryptographic Library*, supervised by Karthikeyan Bhargavan
- PhD in progress: Nadim Kobeissi, 2015-, *Verified Web Security Applicaitons*, supervised by Karthikeyan Bhargavan
- PhD in progress: Benjamin Beurdouche, 2016-, *Verified Cryptographic Protocols for the Internet of Things*, supervised by Karthikeyan Bhargavan
- PhD in progress: Natalia Kulatova, 2017-, *Verified Hardware Security Devices*, co-supervised by Karthikeyan Bhargavan and Graham Steel
- PhD in progress: Marina Polybelova, 2017-, *Verified Cryptographic Web Applications*, supervised by Karthikeyan Bhargavan
- PhD in progress: Yaëlle Vincont, 2017-, *Software Security: combining fuzzing and symbolic execution for vulnerability detection*, co-supervised by Karthikeyan Bhargavan and Sebastien Bardin

### **9.2.3. Juries**

- Bruno Blanchet was reviewer of Lucca Hirschi's PhD thesis.
- Harry Halpin served on the PhD jury of Evo Busseniers (Vrije Universitat Bruxelles)

## **9.3. Popularization**

- Karthikeyan Bhargavan, Benjamin Beurdouche, Jean Karim Zinzindohoue published a paper in the Communications of the ACM.

## QUANTIC Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Journal

#### 8.1.1.1. Member of the Editorial Boards

Pierre Rouchon is member of the editorial board of Annual Reviews in Control (since 2016).

Mazyar Mirrahimi was a guest editor for the journal "Quantum Science and Technology" (Institute Of Physics, 2016-2017), Special issue on "Quantum coherent feedback and quantum reservoir engineering".

#### 8.1.1.2. Reviewer - Reviewing Activities

Zaki Leghtas served as a referee for Physical Review Journals.

Mazyar Mirrahimi served as a referee for Physical Review Journals.

Pierre Rouchon has been a reviewer for several automatic control and dynamical systems journals and conferences.

Alain Sarlette has been a reviewer for several automatic control and dynamical systems journals and conferences.

### 8.1.2. Invited Talks

Mazyar Mirrahimi, July 2017, ICTS (Workshop Open Quantum Systems), Bangalore, India.

Mazyar Mirrahimi, June 2017, 22ème conférence Claude Itzykson, CEA Saclay, France.

Mazyar Mirrahimi, June 2017, CIFAR Workshop on Quantum Cavities, Jouvence, Quebec, Canada.

Mazyar Mirrahimi, May 2017, L2S, Supelec, France.

Mazyar Mirrahimi, April 2017, Conference of Optical Society of America, Quantum Information and Measurement, Paris, France.

Mazyar Mirrahimi, March 2017, CMAP, Ecole Polytechnique, France.

Mazyar Mirrahimi, February 2017, UVSQ, France.

Pierre Rouchon, November 2017, Control and Optimization Conference on the occasion of Frédéric Bonnans 60th birthday, Palaiseau, France.

Pierre Rouchon, June 2017, 22ème conférence Claude Itzykson, CEA Saclay, France.

Pierre Rouchon, April 2017, workshop on Quantum Control Theory: Mathematical Aspects and Physical Applications, TUM-IAS, Garching, Germany.

Pierre Rouchon, April 2017, 4th Workshop on Quantum Non-Equilibrium Dynamics, University of Nottingham, UK.

Alain Sarlette, July 2017, Praeqsys: Principles and Applications of Control in Quantum Systems, Seattle, USA.

Alain Sarlette, June 2017, L2S, Supelec, France.

Rémi Azouit, February 2017, Sherebrooke University, Canada.

### 8.1.3. Scientific Expertise

Mazyar Mirrahimi is a member of the Technical Committee on "Distributed Parameter Systems" in IFAC (International Federation of Automatic Control).

Pierre Rouchon is a member of the scientific committee of LAGEP (Laboratoire d'Automatique et de Génie des Procédés) since 2017

Pierre Rouchon is a membre of the "Conseil Scientifique du DIM Math Innov" since 2017.

Pierre Rouchon is a member of the "Conseil de la recherche de PSL " since 2016.

Pierre Rouchon is a member of the "Conseil Scientifique du Conservatoire National des Arts et Metiers" since 2014.

Pierre Rouchon was a member of the scientific committee of PRACQSYS 2017

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Zaki Leghtas taught a course on Quantum Mechanics at Paris Sciences et Lettres (40 hours).

Zaki Leghtas taught a course on Quantum Mechanics and Statistical Physics at Mines ParisTech (12 hours).

Zaki Leghtas taught a course on Complex Analysis at Mines ParisTech (10 hours).

Mazyar Mirrahimi and Pierre Rouchon have given a course (20 hours) entitled "UE : Analyse et contrôle de systèmes quantiques " in the "Master de sciences et technologies, mention mathématiques et applications, Université Pierre et Marie Curie".

Mazyar Mirrahimi is hired as a professeur chargé de cours à temps partiel of Applied Mathematics at Ecole Polytechnique. His teaching will start during winter 2018.

Mazyar Mirrahimi has given TDs of the courses on Probabilities and on Stochastic Processes at Ecole des Mines de Paris.

Pierre Rouchon gave a course on "Cryptographie, théorie des nombres et information quantique" at Mines ParisTech (24 hours).

Pierre Rouchon gave a course on "Modelling, simulation and feedback of open quantum systems" in the PSL-Master, PSL-IT, IQ Ingénierie Quantique (12 hours).

Alain Sarlette has given a master course on "Probabilistic robotics" at Ghent University (30 hours) and has given TDs of the courses on Probabilities and on Stochastic Processes at Ecole des Mines de Paris.

Alain Sarlette has given a quantum-related lecture in the course on Stochastic Processes (5 hours), Ecole des Mines de Paris.

### 8.2.2. Supervision

PhD in progress: Raphael Lescanne. ENS. "Engineering Multi-Photon Dissipation In Superconducting Circuits For Quantum Error Correction". September 2016. (advisors: Zaki Leghtas and Benjamin Huard).

PhD: Rémi Azouit. Mines Paristech. "Adiabatic elimination for open quantum systems". 2014-2017. (advisors: Pierre Rouchon and Alain Sarlette), Defended on Oct 2017.

PhD in progress: Gerardo Cardona. Mines ParisTech. "Beyond static gains in analog quantum feedback control". Nov 2016 (advisors: Pierre Rouchon and Alain Sarlette).

PhD in progress: Alain Sarlette is co-supervising 3 PhD students with his former institution UGent (Simon Apers, Zhifei Zhang, Arash Farnam). Simon Apers is working on (quantum) network algorithms accelerations and intends to address other quantum control questions.

PhD: Joachim Cohen. ENS. "Autonomous quantum error correction with superconducting circuits". 2013-2017 (advisor: Mazyar Mirrahimi), Defended on Feb 2017.

PhD in progress: Lucas Verney. ENS. "Robust quantum information processing with superconducting circuits". Sept 2016. (advisors: Zaki Leghtas and Mazyar Mirrahimi).

PhD in progress: Jérémie Guillaud. ENS. "Modular architecture for quantum information processing". Sept 2017. (advisors: Mazyar Mirrahimi and Pierre Rouchon).

### 8.2.3. *Juries*

Mazyar Mirrahimi was a member the PhD defense committees of Serguei Fedortchenko (Jury president, University Paris Diderot).

Pierre Rouchon was a referee for the PhD thesis of Muhammad Emzi, Australian National University, and for the Habilitation thesis of Marco Caponigro, UMPC.

Alain Sarlette was a jury member for the PhD of Stavros Lopatzidis (UGent, Belgium) and of Bram Vervisch (UGent, Belgium).

## 8.3. Popularization

Mazyar Mirrahimi has been interviewed by Le Monde for a dossier on quantum information.

Mazyar Mirrahimi gave an invited talk on "Quantum computing" at the CRiP's ITES Innovation Summit at Deauville, France in Mars 2017.

Mazyar Mirrahimi gave an invited talk on "Quantum computing" at X-Creation (X-Drahi) in May 2017.

Pierre Rouchon was invited to give a talk "Contrôle des systèmes: du classique au quantique", Journée d'inauguration du programme PSL-maths, 19 October 2017 at ENS-Paris.

Alain Sarlette has been speaking at inria-organized dissemination events:

- 03/07 "fresh from the labs" talk about quantum technology hardware (at Boston Consulting Group, Paris – team gamma)

- 06-08/06 Keynote speech at Journées DGD

- 10/07 presentation at inria-Paris-labs visit by high-level managers and stakeholders

Alain Sarlette is answering questions about quantum control and quantum computing on the website "ik-heb-een-vraag.be" where Flemish layman can ask questions to scientific experts.

## RANDOPT Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

- A. Auger, program chair of the PPSN 2018 conference Coimbra, Portugal

#### 9.1.1.2. Member of the Organizing Committees

- Anne Auger, Dimo Brockhoff, Nikolaus Hansen, and Dejan Tušar, co-organizer of the ACM-GECCO-2017 workshop on Black Box Optimization Benchmarking, together with Tea Tušar
- Anne Auger, Dimo Brockhoff and Nikolaus Hansen, co-organizer of the ACM-GECCO-2018 workshop on Black Box Optimization Benchmarking, together with Julien Bect, Rodolphe Le Riche, Victor Picheny, and Tea Tušar

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

- Anne Auger: theory track chair for the ACM-GECCO conference 2018, Kyoto, Japan
- Nikolaus Hansen: co-track chair at ACM-GECCO-2018 for the “Evolutionary Numerical Optimization” track, Kyoto, Japan
- Nikolaus Hansen: co-track chair at ACM-GECCO-2017 for the “Evolutionary Numerical Optimization” track, Berlin, Germany

#### 9.1.2.2. Member of the Conference Program Committees or Reviewer

- Dimo Brockhoff reviewed for ACM-GECCO
- Anne Auger is reviewer for ACM-GECCO, ACM-FOGA, NIPS, ICML

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

- Anne Auger and Nikolaus Hansen, members of the editorial board of the Evolutionary Computation Journal
- Dimo Brockhoff, co-guest editor of a special issue on Evolutionary Multiobjective Optimization in the Computers & Operations Research journal (issue 79), together with Joshua Knowles, Boris Naujoks, and Karthik Sindhya

#### 9.1.3.2. Reviewer - Reviewing Activities

- Dimo Brockhoff reviewed in 2017 for IEEE Transactions on Evolutionary Computation, the Evolutionary Computation Journal, Natural Computing, PLoS One, Algorithmica, and Optimal Control, Applications and Methods
- Anne Auger reviewed in 2017 for IEEE Transactions on Evolutionary Computation, the Evolutionary Computation Journal, Algorithmica, SIAM Journal on Optimization

### 9.1.4. Invited Talks and Tutorials

- Dimo Brockhoff: invited tutorial on benchmarking (multiobjective) optimizers at the Symposium on Search-based Software Engineering (SSBSE'2017) in September 2017 in Paderborn, Germany
- Dimo Brockhoff: two invited talks (one on Evolutionary Multiobjective Optimization, one on Benchmarking) at the Mascot-Num conference in March 2017 in Paris, France



- Anne Auger and Nikolaus Hansen, tutorial on *Introduction to randomized continuous optimization* at the ACM-GECCO conference, Berlin, Germany
- Dimo Brockhoff: introductory tutorial on Evolutionary Multiobjective Optimization at the ACM-GECCO conference, Berlin, Germany
- Nikolaus Hansen: tutorial “A Practical Guide to Benchmarking and Experimentation” at the ACM-GECCO conference, Berlin, Germany
- Nikolaus Hansen: tutorial “CMA-ES and Advanced Adaptation Mechanisms” at the ACM-GECCO conference, Berlin, Germany, together with Youhei Akimoto

### 9.1.5. Leadership within the Scientific Community

- Since 2011, Anne Auger **Elected** member of the **ACM-SIGEVO executive board**, re-elected in 2017.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master: Dimo Brockhoff, “Introduction to Optimization”, 31.5h ETD, M2, Université Paris-Sud, France

Master: Anne Auger and Dimo Brockhoff, “Advanced Optimization”, 31.5h ETD, M2, Université Paris-Sud, France

Master: Anne Auger, “Derivative-free Optimization”, Paris-Saclay, Optimization Master

Master: Anne Auger : Anne Auger (Introduction to Machine Learning, Advanced Machine Learning), Ecole Polytechnique, c.a. 50h

Summer school: Anne Auger and Dimo Brockhoff, July 3-7, 2017. CEA-EDF-Inria **summer school** on *Design and optimization under uncertainty of large-scale numerical models*. Course on *Introduction to Randomized Black-Box Numerical Optimization and CMA-ES*, Paris.

### 9.2.2. Supervision

PhD in progress: Cheikh Touré, topic: multiobjective optimization, started in October 2017, supervised by Anne Auger and Dimo Brockhoff

PhD in progress: Konstantinos Varelas, topic: constrained and expensive optimization, started in December 2017, supervised by Anne Auger and Dimo Brockhoff

### 9.2.3. Juries

- A. Auger in the PhD jury of Paul Feliot (defense July 2017)

## RAP2 Team

## 7. Dissemination

### 7.1. Promoting Scientific Activities

#### 7.1.1. Journal

##### 7.1.1.1. Member of the Editorial Boards

- *Nicolas Broutin* is member of the steering committee of the international meeting on analysis of algorithms (AofA).
- *Philippe Robert* is Associate Editor of the Book Series “Mathématiques et Applications” edited by Springer Verlag and Associate Editor of the journal “Queueing Systems, Theory and Applications”.

##### 7.1.1.2. Member of the Conference Program Committees

- *Philippe Robert* has been in the TPC of Performance’2017, Caching and Delivery in Wireless Networks Workshop (CCDWN)’2017 and Stochastic Networks’2018.

#### 7.1.2. Conferences

- *Nicolas Broutin* has given lectures at the probability seminar in Marseille on Jan 9, the probability seminar in Nice on March 21, and the annual days of the ANR project GRAAL on May 10.
- *Christine Fricker* has given a talk “Analysis of large scale closed networks with reservation” at the 2017 INFORMS 19th Applied Probability Conference, Northwestern University, USA on 10-12 July, 2017. *Christine Fricker* gave a talk at the day “Filles et math: une équation lumineuse” for 100 high school girls organised by Animath and Femmes et maths (19/12/2017).
- *Wen Sun* has given a talk “A Large Scale Network with Moving Servers” on 5-9 June 2017 at the Sigmetrics workshop MAMA in Urbana-Champaign, Illinois, USA and a talk “An asymptotic study of allocation policies in a large balls and bins model” at the 2017 INFORMS 19th Applied Probability Conference, Northwestern University, USA on 10-12 July, 2017.
- *Guilherme Thompson* has given a talk “Studying an offloading policy for multi-resource Cloud services under Kelly’s Regime” at the 2017 INFORMS 19th Applied Probability Conference, Northwestern University, USA on 10-12 July, 2017. *Philippe Robert* has given a talk “Asymptotics of Stochastic Protein Assembly Models” at the PDMP workshop in Seillac, France, June 2017. He has given a talk “Analysis of a Stochastic Model of Replication in Large Distributed Storage Systems: A Mean-Field Approach” at the ACM Sigmetrics conference, Urbana-Champaign, USA on 5-9 June 2017, and also a talk “A Large Scale Analysis of Unreliable Stochastic Networks” at the 2017 INFORMS 19th Applied Probability Conference, Northwestern University, USA on 10-12 July, 2017. He has given a talk “Stochastic Models of Gene Expression” at the SBF-Kolloquium, Institut für Mathematik, Universität Potsdam, October 2017. He gave a seminar “Asymptotic Studies of Large Distributed systems with Failures” at Inria Rhône-Alpes (Polaris team).

#### 7.1.3. Scientific Expertise

- *Christine Fricker* is member of the jury of agrégation

## 7.2. Teaching - Supervision - Juries

### 7.2.1. Teaching

- Master : *Nicolas Broutin* Master Parisien de Recherche en Informatique (MPRI), in the course 2.15 on Analysis of Algorithms.
- *Philippe Robert* Master, Probabilités et Applications, UPMC

### 7.2.2. Supervision

- *Renaud Dessalles* [17] (January 2017) and *Guilherme Thompson* [2] (December 2017) have defended their PhD thesis.
- *Christine Fricker* got her habilitation to supervise research on 20/11/2017. The manuscript is entitled “Stochastic Networks”. Reviewers: Alexandre Proutière (professor, KTH Stockohlm), Isi Mitrani (professor, Newcastle University), Laurent Massoulié (research position, Inria-Microsoft Research leader). Jury: Alexandre Proutière (professor, KTH Stockohlm), Laurent Massoulié (Inria-Microsoft Research leader), reviewers, Irina Kurkova (professor, UPMC), Laurent Decreusefond (professor, Telecom Paristech), Carl Graham (research position, CNRS, Ecole Polytechnique).

### 7.2.3. Juries

*Philippe Robert* has been a member of the juries of PhD defenses by R. Dessalles (Ecole Polytechnique, January 2017), Y. Petot (Nancy, October 2017), G. Thompson (UPMC< December 2017) and V. Bœuf (Saclay, December 2017).

## RAPSODI Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

Claire Chainais-Hillairet was general chair of the organisation committee of FVCA8 held in Lille on June 12-16, 2017. Clément Cancès was general chair for the Journée de la Fédération de Recherche Mathématique du Nord-Pas-de-Calais on October, 4. He also organized the closing day of the ANR Geopor on Nov. 7, 2017.

Emmanuel Creusé is a member of the organizing committee of the Study Week Mathematics-Enterprises, which will take place in Lille from January 2018, 29 to February 2018, 02. (see <https://indico.math.cnrs.fr/event/2413/>).

Thomas Rey was a main organizer of the Microturbu workshop held in Lille on Oct. 19–20, 2017.

#### 9.1.1.2. Member of the Organizing Committees

The whole team RAPSODI was involved in the organization of the FVCA8 conference.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

Clément Cancès edited the proceedings of FVCA8 together with Pascal Omnes (CEA Saclay & Univ. Paris Nord).

#### 9.1.2.2. Reviewer

Several member of the team RAPSODI were deeply involved in the reviewing process for the FVCA8 proceedings.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

C. Chainais-Hillairet is a member of the editorial board of the North-Western European Journal of Mathematics (<http://math.univ-lille1.fr/nwejm/>) and of the International Journal on Finite Volumes (<http://www.i2m.univ-amu.fr/IJFV/>).

#### 9.1.3.2. Reviewer - Reviewing Activities

The members of the team RAPSODI reviewed numerous papers for numerous international journals.

### 9.1.4. Invited Talks

- C. Cancès was an invited speaker at the MAMERN'11 conference organized at Oujda (Morocco) on May 17-20, 2017: <http://mamern11.ump.ma/>. He was invited to give talks in several workshops (Oberwolfach ×2, workshop on Finite Volumes in Nice, minisymposium on porous media flows in ENUMATH). He was also invited to give several seminars in France (Inria Paris-LJLL, ENS Rennes, IFPEN Rueil-Malmaison) or abroad (Bonn).
- C. Chainais-Hillairet was an invited plenary speaker at the SMAI Conference held in Ronce les Bains in June 2017. She gave talks in workshops: workshop on Finite Volumes in Nice and Journées multiphasiques et incertitudes in Nantes in October 2017. She was invited to give lectures in two CIMPA Summer Schools: 10 hours lectures in Ifrane (Summer school on numerical analysis and partial differential equations, May 2017) and 8 hours lectures in Kanpur (Summer school on multiscale computational methods and error control, July 2017).

- E. Creusé was invited to give a seminar at LAMFA in Amiens. He also gave talks in International conferences (NUMELEC, Paris and ACOMEN, Ghent) and workshops (GATIPOR, Paris).
- I. Lacroix-Violet was invited to give a seminar at LAMFA in Amiens.
- T. Rey was invited to give plenary talks in several workshops: Mafran Days in Cambridge, Computational Methods in Kinetic Theory and Related Models in Toulouse, and Mathematical Aspects of Fluids: Kinetic and Dynamics at ENS Paris

### 9.1.5. Scientific Expertise

C. Cancès reported on scientific proposals for the Croatian Science Foundation (HRZZ).

### 9.1.6. Research Administration

C. Cancès is the head of the MaNu Research Group (GdR MaNu, <http://gdr-manu.math.cnrs.fr/>) funded by the Institute for Mathematical Sciences and Interaction (INSMI) of the French National Center for Research (CNRS).

During the training year 2016-2017, E. Creu  got an Inria partial delegation (50%). He had in charge to develop some actions promoted by AMIES (Agency for Mathematics in Interaction with Business and Society). More particularly, his action was devoted to several characteristic points:

Management of some PEPS (First support for exploratory projects). Discussions to initiate collaborations between academic researchers in Mathematics and industrial partners,

Talks and meeting animations to promote mathematical studies to high school pupils and their teachers, as well as to bachelor students (in Lens, Lille, Douai).

Presentation of AMIES to the Mathematical Laboratories of the region Hauts-de-France (Lille, Calais, Lens, Amiens, Valenciennes).

Creation of CIME, a node of the network "MSO" (Modélisation - Simulation - Optimisation) developed by AMIES (<http://cime.math.cnrs.fr/>). CIME is a structure which allows enterprises to find easier mathematician collaborators in the Hauts-de-France, either in the mathematical teams of Inria Lille Nord Europe, or in the mathematical laboratories of the region.

Participation to some national events (RUE (Paris, March 2017) - TERATEC (Palaiseau, June 2017), FEM (Paris, December 2017)).

Participation to the monthly AMIES meeting.

Organisation of the Mathematical Study Week in Mathematics, which will take place in Lille in January 2018.

C. Chainais-Hillairet is head of the Commission Emplois de Recherche of the Lille - Nord Europe Inria research center.

C. Calgato is a member of the Commission de la Formation et de la Vie Universitaire of the Academic Council of Université Lille 1.

I. Lacroix-Violet, B. Merlet and Thomas Rey are members of the Conseil du Laboratoire Paul Painlevé.

C. Cancès and B. Merlet are members of the commission des thèses of the Ecole doctorale.

I. Lacroix-Violet was organizing the weekly seminar of the ANEDP team of the Paul Painlevé laboratory until last July. She was substituted by T. Rey in September 2017.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

The group is strongly involved in teaching at the Université Lille 1. C. Calgato is in charge respectively of the Master of Mathematical Engineering. C. Chainais-Hillairet was in charge of the Master 2 of Scientific Computing until July 2017. She was substituted by B. Merlet for this task. E. Creusé is responsible of the "Cursus Master Ingénierie" in Mathematics, Lille 1 University. C. Cancès gave lectures at Polytech' UPMC.

### 9.2.2. Supervision

HdR: Ingrid Lacroix-Violet defended her habilitation thesis on Nov. 24, 2017. *Comportements asymptotiques, conditions aux limites et analyse numérique pour des modèles fluides*, Univ. Lille 1.

PhD: Ahmed Ait Hammou Oulhaj defended his PhD thesis on Dec. 11, 2017. *Design and analysis of nonlinear numerical schemes for solving parabolic problems: application to porous media flows*, Univ. Lille 1, advisors: C. Cancès & C. Chainais-Hillairet. *Design and analysis of nonlinear numerical schemes for solving parabolic problems: application to porous media flows*, since 01/10/2014, advisors: C. Cancès & C. Chainais-Hillairet.

PhD in progress: Claire Colin, *Analyse numérique et simulations de modèles multifluides*, since 01/10/2015, advisors: C. Calgaro & E. Creusé.

PhD in progress: Luca Ferrari, *Line energies and applications to image reconstruction of partially masked objects*, since 01/09/2015, advisors: A. Chambolle (CNRS & CMAP, École Polytechnique) & B. Merlet.

PhD in progress: Nicolas Peton, *Numerical methods for a stratigraphic model with nonlinear diffusion and moving frontier areas*, 15/10/2015, C. Cancès, Q. H. Tran (IFPEN) & S. Wolf (IFPEN).

PhD in progress: Antoine Zurek, *Numerical and theoretical analysis of models describing the corrosion of materials*, since 01/10/2016, advisors: C. Chainais-Hillairet & B. Merlet.

Master internship: Aymeric Nayet, *Development and parallelization on GPU of a C++ code for the resolution of a  $2D \times 2D$  kinetic equation with BGK relaxation*, supervisor: T. Rey.

Master internship: Anissa El Keurti, *Study of an upwind finite volume scheme for non-local transport equation*, supervisor: T. Rey.

### 9.2.3. Juries

C. Cancès reported on Laurent Quaglia's PhD thesis, defended on Dec. 13, 2017 at Aix-Marseille Univ. Title: *Contribution à l'étude des écoulements diphasiques avec capillarité*.

C. Chainais-Hillairet reported on:

- Clémentine Courtès' PhD thesis, defended on Nov. 23, 2017 at Univ. Paris-Sud (Orsay). Title: *Analyse numérique de systèmes hyperboliques-dispersifs*.
- Laurent Quaglia's PhD thesis, defended on Dec. 13, 2017 at Aix-Marseille Univ. Title: *Contribution à l'étude des écoulements diphasiques avec capillarité*.
- Christophe Le Potier's HdR, defended on Nov. 15, 2017 at Univ. Paris-Est (Marne-la-Vallée). Title: *Construction et développement de nouveaux schémas pour des problèmes elliptiques ou paraboliques*.

E. Creusé reported on:

- Sarah Ali Hassan's PhD thesis, defended on June 26, 2017 at UPMC Paris 6. Title: *Estimations d'erreur a posteriori et critères d'arrêt pour des solveurs par décomposition de domain et avec des pas de temps locaux*.
- Rita Riedlbeck's PhD thesis, defended on November 27, 2017 at Montpellier University. Title: *Algorithmes adaptatifs pour la poro-mécanique et la poro-plasticité*.

B. Merlet reported Sylvain Dotti's PhD thesis, defended on Dec. 4, 2017 at Aix-Marseille Univ. Title: *Numerical approximation of hyperbolic stochastic scalar conservation laws*.

C. Calgaro and E. Creusé were members of the PhD's jury of Abdullatif Ellawy, defended on Dec. 14, 2017, at Lille 1 University. Title : *Propriétés qualitatives de quelques systèmes de la mécanique des fluides incompressibles*.

C. Cancès was a member of the jury of the PhD thesis of Van Thanh Nguyen, defended on Oct. 3, 2017 at the University of Limoges. Title: *Problèmes de transport partiel optimal et d'appariement avec contrainte*.

C. Chainais-Hillairet was a member of the following juries:

- PhD's jury of Maxime Herda defended on September 20, 2017 at the University of Lyon 1. Title: *Analyse asymptotique et numérique de quelques modèles pour le transport de particules chargées*.
- PhD's jury of Sarah Leclavier defended on December 12, 2017 at the University of Rouen. Title: *Volumes finis et solutions renormalisées, application à des systèmes couplés*.
- HdR's jury of Ingrid Lacroix-Violet defended on November 24, 2017 at Lille 1 University. Title: *Comportements asymptotiques, conditions limites et analyse numérique pour des modèles fluides*.

T. Rey was a member of the PhD's jury of Ward Melis, defended in March 2017 at KU Leuven. Title: *Projective integration for hyperbolic conservation laws and multiscale kinetic equations*.

C. Calgario and C. Cancès are members of the Jury de l'Agrégation de Mathématiques, which is a national hiring committee for the highest level of high-school teachers.

### 9.3. Popularization

C. Calgario is in charge of the communication of "Laboratoire Paul Painlevé" and she is in charge of the relation between the University of Lille 1 and high schools. Accordingly, she organizes various events which promote mathematics among young peoples like:

Les Mathématiques itinérantes (<http://mathematiques.univ-lille1.fr/Ouvertures/Mathematiques-itinerantes/>)

La semaine des Mathématiques (<http://mathematiques.univ-lille1.fr/Ouvertures/Mathematiques-itinerantes/>)

Stage en sciences pour les élèves de seconde (<http://www.univ-lille1.fr/etudes/stageseconde>)

Members of the team participate regularly in these actions.

## REALOPT Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- Arnaud Pêcher, François Clautiaux and Pierre Pesneau have organized "Journées Graphes et Algorithmes", Bordeaux, Novembre 15-17, 2017

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- Olivier Beaumont is the Chair of the Algorithm Track of Super Computing 2017 (November, Denver, USA); "The International Conference for High Performance Computing, Networking, Storage and Analysis" <https://sc17.supercomputing.org>
- Olivier Beaumont is the Chair of the Algorithm Track of HIPC 2017 (December, Jaipur, India); "24th Ieee International Conference On High Performance Computing, Data, And Analytics" <http://hipc.org>
- Lionel Eyraud-Dubois is Chair of the "Cloud Computing and Data Center Management" track of I-SPAN 2017; the 14th International Symposium on Pervasive Systems, Algorithms, and Networks

#### 10.1.2.2. Member of the Conference Program Committees

The team members are members of the following program committees:

- Francois Clautiaux, Arnaud Pecher, and Francois Vanderbeck: ROADEF 2017: French Operational Research Society Conference.
- Lionel Eyraud-Dubois and Olivier Beaumont: HiPC 2017: 24th IEEE International Conference on High Performance Computing, Data, and Analytics
- Lionel Eyraud-Dubois: REPPAR 2017: 4th International Workshop on Reproducibility in Parallel Computing
- Olivier Beaumont: Primary PC Member, IPDPS 2017, 31st IEEE International Parallel & Distributed Processing Symposium May 29 – June 2, 2017, Orlando, Florida USA <http://www.ipdps.org/ipdps2017/index.html>
- Olivier Beaumont: HeteroPar 2017 (a EuroPar workshop), Fifteenth International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms, August 28th, 2017, Santiago de Compostela, Spain <https://web.fe.up.pt/~heteropar2017/index.php?pane=home>
- Olivier Beaumont: IPDPSW 2017, IPDPS 2017, 31st IEEE International Parallel & Distributed Processing Symposium May 29 – June 2, 2017, Orlando, Florida USA, PC member [http://www.ipdps.org/ipdps2017/2017\\_call\\_for\\_workshops.html](http://www.ipdps.org/ipdps2017/2017_call_for_workshops.html)

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- Olivier Beaumont is editor for IEEE Transactions on Parallel and Distributed Systems (TPDS)
- Francois Vanderbeck is Associate Editor for the EURO Journal on Computational Optimization
- Francois Clautiaux is Associate Editor for Mathematical Programming and Exact Methods in the journal ISTE "Recherche Opérationnelle"

#### 10.1.3.2. Reviewer - Reviewing Activities

The team members are regular referees for the best journals of the field.



#### 10.1.4. Invited Talks

Arnaud Pêcher: *Lovasz's theta function and perfect graphs*, “The beauty of discrete mathematics” workshop, Montréal, Canada, October 2017.

François Vanderbeck: *Revisiting Benders Decomposition*, Combinatorial Optimization and Applications Workshop, Edinburgh, Scotland, February 2017.

#### 10.1.5. Leadership within the Scientific Community

Our group is actively preparing the triennial symposium of the international mathematical optimization society. We organize it in Bordeaux in July 2018. 2000 attendees are expected.

#### 10.1.6. Scientific Expertise

- Olivier Beaumont is a member of the **INCITE (math-comp track) panel**
- Olivier Beaumont is an expert for the H2020-FET-OPEN-2016 projects

#### 10.1.7. Research Administration

- Olivier Beaumont is the scientific deputy of Inria Bordeaux Sud-Ouest and a member of the Evaluation Committee of Inria *Verify it!!*.
- François Vanderbeck is taking care of the team OptimAI (“Optimisation Mathématique Modèle Aléatoire et Statistique”) at the Mathematics Institute of Bordeaux.
- Arnaud Pêcher is the head of the Computer Science Department, IUT of Bordeaux.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : A. Pêcher, Programmation Impérative, 10h, DUT, Université de Bordeaux, France

Licence : A. Pêcher, Conception Objet, 42h, DUT, Université de Bordeaux, France

Licence : A. Pêcher, Programmation objet en Java, 44h, DUT, Université de Bordeaux, France

Licence : A. Pêcher, Algorithmique Avancée, 32h, DUT, Université de Bordeaux, France

Licence : A. Pêcher, Assembleur, 24h, DUT, Université de Bordeaux, France

Licence : A. Pêcher, Programmation Mobile, 24h, DUT, Université de Bordeaux, France

Master : F. Clautiaux, Gestion des Opérations et Planification de la Production, 20h, M2, Université de Bordeaux, France

Master : F. Clautiaux, Flot et Combinatoire, 10h, M2, Institut Polytechniques de Bordeaux, France

Master : F. Clautiaux, Introduction à la Programmation en Variables Entières, 20h, M1, Université de Bordeaux, France

Master : F. Clautiaux, Projet d’optimisation pour l’insertion professionnelle, M2, Université de Bordeaux, France

Master : L. Eyraud-Dubois, Optimisation en Cloud Computing et Big Data, 15h, M2, Université de Bordeaux, France

Licence : Licence : P. Pesneau, Optimisation, 37h, L2, Université de Bordeaux, France

Licence : Licence : P. Pesneau, Programmation pour le calcul scientifique, 24h, L2, Université de Bordeaux, France

Licence : Licence : P. Pesneau, Recherche Opérationnelle, 24h, DUT, Université de Bordeaux, France

Licence : Master : P. Pesneau, Algorithmique et Programmation 1, 28h, M1, Université de Bordeaux, France

Licence : Master : P. Pesneau, Programmation linéaire, 29h, M1, Université de Bordeaux, France

Licence : Master : P. Pesneau, Optimisation dans les graphes (partie flots), 15h, M1, Université de Bordeaux, France

Master : O. Beaumont, Approximation et Big Data, 15h, M2, Université de Bordeaux, France

Master : O. Beaumont, Distributed Computing and Data Mining, 4h, M2, Institut National Polytechnique de Bordeaux, France

Licence : B. Detienne, Initiation à l'ingénierie en optimisation, 12h, L1, Université de Bordeaux, France

Licence : B. Detienne, Modèles et Méthodes d'Optimisation, 21h, L2, Université de Bordeaux, France

Licence : B. Detienne, Groupe de travail applicatif, 12h, L3, Université de Bordeaux, France

Master : B. Detienne, Optimisation continue, 43h, M1, Université de Bordeaux, France

Master : B. Detienne, Problèmes combinatoires et routage, 14h, M1, Université de Bordeaux, France

Master : B. Detienne, Problèmes combinatoires et routage, 14h, M1, Institut National Polytechnique de Bordeaux, France

Master : B. Detienne, Optimisation dans l'incertain, 58h, M2, Université de Bordeaux, France

Master : R. Sadykov, Introduction à la Programmation par Contraintes, 30h, M1, Université de Bordeaux, France

Master : I. Tahiri, Recherche Opérationnelle, 16h, M1, Institut National Polytechnique de Bordeaux, France

Master : F. Vanderbeck, Recherche Opérationnelle, 15h, M1, Institut National Polytechnique de Bordeaux, France

Master : F. Vanderbeck, Programmation Entière, 58h, M2, Université de Bordeaux, France

### **10.2.2. Supervision**

PhD : Suraj Kumar, Scheduling of Dense Linear Algebra Kernels on Heterogeneous Resources [10], Université de Bordeaux, 12/04/2017, Olivier Beaumont (dir) and Lionel Eyraud-Dubois (co-dir)

PhD: Thomas Lambert, Placement de tâches et réplication de fichiers sur plates-formes parallèles [11], Université de Bordeaux, 8/09/2017, Olivier Beaumont (dir) and Lionel Eyraud-Dubois (co-dir)

PhD in progress : Jérémy Guillot, Optimisation de problèmes de partitionnement, from September 2014, François Clautiaux (dir) and Pierre Pesneau (dir).

PhD in progress : Quentin Viaud, Méthodes de programmation mathématiques pour des problèmes complexes de découpe, from January 2015, François Clautiaux (dir), Ruslan Sadykov (dir), and François Vanderbeck (co-dir).

PhD in progress : Rodolphe Griset, Robust planning in Electricity production, from November 2015, Boris Detienne (dir) and François Vanderbeck (dir).

PhD in progress : Imen Ben Mohamed, Location routing problems, from October 2015, Walid Klibi (dir) and François Vanderbeck (dir).

PhD in progress : Thomas Bellitto, Infinite graphs, from September 2015, Arnaud Pêcher (dir) and Christine Bachoc (dir).

PhD in progress : Guillaume Marques, Planification de tournées de véhicules avec transbordement en logistique urbaine : approches basées sur les méthodes exactes de l'optimisation mathématique, from September 2017, François Vanderbeck (dir) and Ruslan Sadykov (co-dir).

PhD in progress : Gaël Guillot, Aggregation and disaggregation methods for hard combinatorial problems, from November 2017, François Clautiaux (dir) and Boris Detienne (dir).

### **10.2.3. Juries**

- Lionel Eyraud-Dubois participated in the jury of Raphaël Bleuse, who defended on October 11, 2017, at Université de Grenoble Alpes.
- Olivier Beaumont: Evaluation (rapporteur) and President of the PhD thesis committee of Aymen Jlassi (University of Tours, France)
- Olivier Beaumont: Evaluation (rapporteur) of the PhD thesis committee of Orcun Yildiz (Ecole Normale Supérieure de Rennes, France)
- Olivier Beaumont: Member of the PhD thesis committee of Alexandre Perrot (University of Bordeaux, France)
- Olivier Beaumont: Member of the PhD thesis committee of Noel Gillet (University of Bordeaux, France)
- Francois Vanderbeck: Member of the PhD thesis committee of Nicolas HUIN (Inria Sophia)

### **10.3. Popularization**

- François Clautiaux is a member of the board of AMIES, the French Agency for Interaction in Mathematics with Business and Society. AMIES is a national organization that aims to develop relations between academic research teams in mathematics and business, especially SMEs.
- Olivier Beaumont participated to “Unithé ou Café” (May 19, 2017), a local event dedicated to popular science on the topic of online algorithms.
- Olivier Beaumont participated to “La Fête de la Science” (October 3 and 4, 2017) on the computation of PageRank.

## REGAL Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. General Chair, Scientific Chair

- Marc Shapiro, Organiser of Dagstuhl Workshop on “Data Consistency in Distributed Systems: Algorithms, Programs, and Databases” (19-0117), February 2018.
- Swan Dubois, Co-organizer (with Arnaud Casteigts, University of Bordeaux) of the Second Workshop on Computing in Dynamic Networks, in conjunction with DISC’17, Vienna, Austria, October 20th, 2017.

### 8.1.2. Scientific Events Selection

#### 8.1.2.1. Member of the Conference Program Committees

Pierre Sens, 28th International Symposium on Software Reliability Engineering (ISSRE’2017), IEEE 46th International Conference on Parallel Processing (ICPP’2017), 16th IEEE International Symposium on Network Computing and Applications (NCA 2017).

Marc Shapiro, Steering Committee of Int. Conf. on Principles of Distributed Systems (OPODIS).

Marc Shapiro, Steering Committed of Workshop on Principles and Practice of Consistency for Distr. Data (PaPoC).

Swan Dubois, 19th Workshop on Advances in Parallel and Distributed Computational Models (APDCM’2017), 5th International Symposium on Computing and Networking (CANDAR’2017).

Luciana Arantes, 16th IEEE International Symposium on Network Computing and Applications (NCA 2017), 13th European Dependable Computing Conference (EDCC 2017), 17th IFIP International Conference on Distributed Applications and Interoperable Systems (DAIS 2017)

#### 8.1.2.2. Reviewer

- Marc Shapiro, reviewer for Int. Conf. on Middleware (MIDDLEWARE 2017).
- Swan Dubois, 31st International Symposium on Distributed Computing (DISC’2017), 24th International Colloquium on Structural Information and Communication Complexity (SIROCCO’2017).
- Luciana Arantes, ACM Symposium on Principles of Distributed Computing (PODC 2017), 23rd International European Conference on Parallel and Distributed Computing (Euro-Par 2017).

### 8.1.3. Journal

#### 8.1.3.1. Member of the Editorial Boards

Pierre Sens, Associate editor of International Journal of High Performance Computing and Networking (IJHPCN)

Lucian Arantes, Special Issue of Concurrency and Computation: Practice and Experience, Volume 29, january 2017

#### 8.1.3.2. Reviewer - Reviewing Activities

- Marc Shapiro, reviewer IEEE Transactions on Software Engineering.
- Swan Dubois, Theoretical Computer Science (TCS), Theory of Computing Systems (TOCS), International Journal of Networking and Computing (IJNC).
- Luciana Arantes, reviewer Journal of Parallel and Distributed Systems (JPDC).

#### 8.1.4. Invited Talks

Pierre Sens, *Failure detection in large and dynamic distributed systems*. Univ. Curitiba, Brazil. October 2017.

Pierre Sens, *Failure detection in large and dynamic distributed systems*. Keynote speaker, GDR RSD and ASF Winter School on Distributed Systems, Pleyne, Sept Laux, Mars, 2017

Marc Shapiro, *The Antidote Cloud Database*. Comité de pilotage Groupe de Travail Logiciels Libres, Paris, Jan. 2017.

Marc Shapiro, *Just-Right Consistency*. Invited talk, joint session of PaPoC and LADIS workshops, EuroSys April 2017. Belgrade, Serbia.

Marc Shapiro, *AntidoteDB: a developer-friendly, open-source cloud database*. Invited talk, Datageeks Paris, Vente Privée la Plaine-Saint-Denis, May 2017.

Marc Shapiro, *AntidoteDB: a developer-friendly, open-source cloud database*. Invited talk, Open Source Innovation Spring, Paris May 2017.

Marc Shapiro, *Just-Right Consistency*. *La demie-heure de science*, Inria Paris, Oct. 2017.

Marc Shapiro, *AntidoteDB : Une base de données nuage pour la juste cohérence*. Paris Open Source Summit, Saint-Denis, Nov. 2017.

Marc Shapiro, *Semantics and proof of geo-replicated file system*. Invited talk, ENS Ulm, Nov. 2017.

Marc Shapiro, Invited speaker, workshop of Verification of Distributed Systems, Essaouira, May 2018.

#### 8.1.5. Scientific Expertise

Pierre Sens, Project in Indo-French Centre for the Promotion of Advanced Research

Marc Shapiro, reviewer for ERC Starting Grant panel PE-6.

Marc Shapiro, invited for CACM Technical Perspective [18].

Marc Shapiro, invited for several entries in Springer Encyclopedia of Database Systems [36], [37], [38] and Encyclopedia of Big Data Technologies (to appear).

Marc Shapiro, reviewer for Irish Research Council.

Marc Shapiro, reviewer for Indo French Centre for the Promotion of Advanced Research (CE-FIPRA).

#### 8.1.6. Research Administration

Pierre Sens, since 2016: Member of Section 6 of the national committee for scientific research CoNRS

Pierre Sens, since 2012: Member of the Executive Committee of Labex SMART, Co-Chair (with F. Petit) of Track 4, Autonomic Distributed Environments for Mobility.

Pierre Sens, since 2015, officer at scientific research vice presidency UPMC

Pierre Sens, since 2014: Member of Steering Committee of International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD).

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Julien Sopena is Member of “Directoire des formations et de l’insertion professionnelle” of UPMC Sorbonne Universités, France

Master: Julien Sopena is responsible of Computer Science Master’s degree in Distributed systems and applications (in French, SAR), UPMC Sorbonne Universités, France

Master: Luciana Arantes, Swan Dubois, Jonathan Lejeune, Franck Petit, Pierre Sens, Julien Sopena, Advanced distributed algorithms, M2, UPMC Sorbonne Universités, France

Master: Jonathan Lejeune, Designing Large-Scale Distributed Applications, M2, UPMC Sorbonne Universités, France

Master: Maxime Lorrillere, Julien Sopena, Linux Kernel Programming, M1, UPMC Sorbonne Universités, France

Master: Luciana Arantes, Swan Dubois, Jonathan Lejeune, Pierre Sens, Julien Sopena, Operating systems kernel, M1, UPMC Sorbonne Universités, France

Master: Luciana Arantes, System distributed Programming, M1, UPMC Sorbonne Universités, France

Master: Luciana Arantes, Swan Dubois, Franck Petit, Distributed Algorithms, M1, UPMC Sorbonne Universités, France

Master: Jonathan Lejeune, Julien Sopena, Client-server distributed systems, M1, UPMC Sorbonne Universités, France

Licence: Pierre Sens, Luciana Arantes, Julien Sopena, Principles of operating systems, L3, UPMC Sorbonne Universités, France

Licence: Swan Dubois, Initiation to operating systems, L3, UPMC Sorbonne Universités, France

Licence: Jonathan Lejeune, Oriented-Object Programming, L3, UPMC Sorbonne Universités, France

Licence: Swan Dubois, Franck Petit, Advanced C Programming, L2, UPMC Sorbonne Universités, France

Licence: Swan Dubois, Sébastien Monnet, Introduction to operating systems, L2, UPMC Sorbonne Universités, France

Licence: Mesaac Makpangou, C Programming Language, 27 h, L2, UPMC Sorbonne Universités, France

Ingénieur 4ème année : Marc Shapiro, Introduction aux systèmes d'exploitation, 26 h, M1, Polytech UPMC Sorbonne Universités, France.

### **8.2.2. Supervision**

PhD: Antoine Blin, "Execution of real-time applications on a small multicore embedded system", 30 January 2017, Gilles Muller (Whisper) and Julien Sopena, CIFRE Renault

PhD: Tao Thanh Vinh, "Ensuring Availability and Managing Consistency in Geo-Replicated File Systems", UPMC, CIFRE, 8 December 2017, Marc Shapiro, Vianney Rancurel (Scality).

PhD: Rudyar Cortes, "Un Environnement à grande échelle pour le traitement de flots massifs de données," UPMC, funded by Chile government, 6 April 2017, Olivier Marin, Luciana Arantes, Pierre Sens.

PhD in Progress: João Paulo de Araujo, "L'exécution efficace d'algorithmes distribués dans les réseaux véhiculaires", funded by CNPq (Brésil), since Nov.2015, Pierre Sens and Luciana Arantes.

PhD in progress: Sébastien Bouchard, "Gathering with faulty robots", UPMC, since Oct. 2016, Swan Dubois, Franck Petit, Yoann Dieudonné (University of Picardy Jules Verne)

PhD in progress: Marjorie Bournat, "Exploration with robots in dynamic networks", UPMC, since Sep. 2015, Swan Dubois, Franck Petit, Yoann Dieudonné (University of Picardy Jules Verne)

PhD in progress: Damien Carver, "HACHE : Horizontal Cache cHorEgraphy - Toward automatic resizing of shared I/O caches.", UPMC, CIFRE, since Jan. 2015, Sébastien Monnet, Pierre Sens, Julien Sopena, Dimitri Refauvelet (Magency).

PhD in Progress: Florent Coriat, "Géolocalisation et routage en situation de crise" since Sept 2014, UPMC, Anne Fladenmuller (NPA-LIP6) and Luciana Arantes.

CIFRE PhD in progress: Guillaume Fraysse, Orange Lab - Inria, “Ubiquitous Resources for Service Availability” Since Jul. 2017, advised by Pierre Sens, Imen Grida Ben Yahia (Orange-Lab) , Jonathan Lejeune, Julien Sopena.

PhD in progress: Lyes Hamidouche, “Data replication and data sharing in mobile networks”, UPMC, CIFRE, since Nov. 2014, Sébastien Monnet, Pierre Sens, Dimitri Refauvelet (Magency).

PhD in progress: Denis Jeanneau, “Problèmes d’accord et détecteurs de défaillances dans les réseaux dynamique,” UPMC, funded by Labex Smart, since Oct. 2015, Luciana Arantes, Pierre Sens.

PhD in progress: Francis Laniel, UPMC, since Sept. 2017. Advised by Marc Shapiro, Julien Sopena, Jonathan Lejeune. “Vers une utilisation efficace de la mémoire non volatile pour économiser l’énergie.”

PhD in progress: Ilyas Toumlilt, UPMC, since Sept. 2017, advised by Marc Shapiro. “Bridging the CAP gap all the way to the edge.”

PhD in progress: Alejandro Z. Tomsic, UPMC, since Feb. 2014, Marc Shapiro. “Computing over widely-replicated data in a hybrid cloud.”

CIFRE PhD in progress: Dimitrios Vasilas, UPMC, “Indexing in large-scale storage systems.” Since Sept. 2016, advised by Marc Shapiro.

PhD in progress: Gauthier Voron, “Big-Os : un OS pour les grands volumes de données,” UPMC, since Sep. 2014, Gaël Thomas, Pierre Sens.

### 8.2.3. *Juries*

Pierre Sens was the reviewer of:

- Jalil Boukhobza, HDR, UBO, Brest
- Adrien Lebre, HDR, EMN, Nantes
- Cédric Tedeschi, HDR, IRISA, Rennes
- Ismael Cuadrado-Cordero, PhD, IRSIA, Rennes
- Hana Teyeb, PhD, Telecom SudParis, Evry

Pierre Sens was Chair of

- Georgios Bouloukakis, PhD, UPMC-Inria, Paris, (Advisor: V. Issarny)
- José Manuel Rubio-Hernan, PhD, Telecom SudParis, Evry (Advisor: J. Garcia-Alfaro)
- Luis Eduardo Pineda Morales, PhD, Irisa, Rennes (Advisors: F. Desprez, A. Lebre)

Marc Shapiro was a member of the PhD defense committee of Paolo Viotti, EURECOM, April 2017.

## 8.3. Popularization

Jonathan Lejeune and Julien Sopena animated an activity during the [Science Festival 2017 at UPMC](#)

## REO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- Céline Grandmont
  - Co-organizer of Inria-LJLL meeting in scientific computing
  - Co-organizer of the conference in the honor of Y. Maday for his 60th birthday, may 2017, Roscoff
  - Co-organizer of the conference “Analysis and control of fluid-structure interaction systems”, october 2017, IMB, Bordeaux University
- Irene Vignon Clementel
  - Organized a minisymposium at the ICCB conference, September 2017, Compiègne
  - Organized a minisymposium with A. Marsden (Stanford U.) at the 5th International Conference on Computational & Mathematical Biomedical Engineering, April 2017, Pittsburg, USA.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- Laurent Boudin
  - Coordinator of the 6th “Forum Emploi Maths 2017” organizing committee, with Bertrand Michel (École Centrale Nantes), December 2017, Paris, France

#### 10.1.2.2. Member of the Conference Program Committees

- Jean-Frédéric Gerbeau
  - 5th International conference on Computational & Mathematical Biomedical Engineering (CMBE 2017), Pittsburgh, USA.
  - ENUMATH 2017 conference. Voss, Norway.
  - 9th International Conference on Functional Imaging and Modeling of the Heart (FIMH 2017). Toronto, Canada.
- Céline Grandmont
  - Member of the scientific committee of the “EDP Normandie 2017” conference
- Irene Vignon Clementel
  - Programme committee member, Computational and Mathematical Biomedical Engineering Conference, Pittsburgh 2017
  - Conference steering committee, International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease, 2015-present

#### 10.1.2.3. Reviewer

- Jean-Frédéric Gerbeau
  - Member of the Scientific Program Committee of the Millennium Science Initiative, a program of the Ministry of Economy of Chile.
- Irene Vignon Clementel



- Reviewer for the Netherlands Organisation for Scientific Research (NWO)

### **10.1.3. Journal**

#### *10.1.3.1. Member of the Editorial Boards*

- Jean-Frédéric Gerbeau
  - Member of the editorial board of the SIAM Journal of Scientific Computing (SISC).
  - Series editor of “SEMA SIMAI Series”, Springer.
  - Member of the editorial board of Journal Advances in Computational Mathematics (ACOM), Springer
  - Member of the editorial board of International Journal for Numerical Methods in Biomedical Engineering (IJNMBE), Wiley.
  - Member of the editorial board of Communications in Applied and Industrial Mathematics, SIMAI/De Gruyter.
  - Member of the editorial board of Journal for Modeling in Ophthalmology, Kugler.
- Marc Thiriet
  - Member of the editorial board of Digital Medicine

### **10.1.4. Leadership within the Scientific Community**

- Jean-Frédéric Gerbeau
  - Elected member of the Board of Directors of SMAI (French Society for Industrial and Applied Mathematics), in charge of the SMAI publications (M2AN, COCV, *etc.*)

### **10.1.5. Research Administration**

- Muriel Boulakia
  - Supervisor of the teaching of mathematics at the engineer school Polytech Paris-UPMC
- Miguel Ángel Fernández Varela
  - Deputy Head of Science, Inria Paris (from Sept. 2017)
  - Member of the Inria Evaluation Committee (from Sept. 2017)
  - Co-president of the Scientific Positions Commission, Inria Paris
- Jean-Frédéric Gerbeau
  - Head of science, Inria Paris (until Sept. 2017)
  - Member of the Inria Evaluation Committee (until Sept. 2017)
  - Member of the scientific committee of Labex NUMEV, Montpellier.
  - Service activity abroad: member of the Reference Committee of the PhD program Mathematical Models and Methods in Engineering (Politecnico di Milano, Italy).
- Céline Grandmont
  - Member of the Inria Evaluation Committee
  - Member of the Inria Parity Committee
- Irene Vignon-Clementel
  - Committee member for PhD students at Inria “Commission consultative des doctorants”, since July 2016.
  - Mediator between PhD students and their supervisors for Inria Paris

### **10.1.6. Conferences**

- Matteo Aletti

- Minisymposium talk, International conference on Finite elements in flow problems (FEF), Rome (Italy), 2017
- Chloé Audebert
  - Invited speaker, GDR Mamovi, Sep 27-29, Lyon, France.
  - Minisymposium talk, International Conference on Computational Bioengineering, Sep 6-8, Compiègne, France.
  - Talk, Colloquium 595 Biomechanics and computer assisted surgery meets medical reality, Aug 29-31, Lille, France.
  - Weekend de l'innovation chirurgicale (WIC), Jun 23-25, Cabourg, France.
  - Talk, Congrès SMAI 2017, 8e Biennale Française des Mathématiques Appliquées et Industrielles, Jun 5-9, Ronce-les-bains, France.
  - Minisymposium talk, Computational and mathematical Biomedical Engineering (CMBE), Apr 10-12, Pittsburgh, USA.
  - Seminar, bioMMeda group, Mar 8th, Ghent University, Ghent, Belgium.
  - Seminar, Laboratoire de mathématique MAP5, Mar 3rd, Université Paris Descartes, Paris, France.
- Ludovic Boilevin-Kayl
  - Minisymposium talk, 5th International Conference on Computational and Mathematical Biomedical Engineering (CMBE), April 10th-12th, Pittsburgh, PA, United States.
- Laurent Boudin
  - Contributed talk, Workshop “Franco-Italian meeting on kinetic theory and singular parabolic equations”, Mar 16-17, Paris, France
  - Invited talk, “Aerosolstorming” meeting of the “Société de Pneumologie en Langue Française”, May 2017, Paris, France
  - Invited talk, Summer School on Computational Social and Behavioral Sciences, Sep 2017, Paris, France
  - Seminar, ENS Paris-Saclay Starters scientific talks in mathematics and computer science, Sep 2017, Cachan, France
  - Invited talk, Workshop “Modelling, simulation and study of social behaviour”, Oct 2017, Nancy, France
  - Invited talk, Conference on Partial differential equations and semi-groups, Dec 2017, Besançon, France
- Muriel Boulakia
  - Seminar Analysis, Ceremade, Univ. Paris Dauphine, December 2017
  - Seminar, Univ. Paris Descartes, November 2017
  - Seminar PDE, Univ. Versailles, May 2017
- Miguel Ángel Fernández Varela
  - Invited semi-plenary lecture, International conference on Finite elements in flow problems (FEF), Rome (Italy), 2017
- Jean-Frédéric Gerbeau
  - Invited lectures (6 hours), Maxwell Institute Graduate School on Evolution Equations, ICMS, Edinburgh, UK, 2017
  - Invited lecture, Conference “Quiet 2017”, Quantification of Uncertainty: Improving Efficiency and Technology, SISSA, Trieste, Italy, July 2017

- Invited lecture, Workshop “In Silico Human drug safety and efficacy”, Oxford, UK, September 2017
- Invited lecture, Workshop GDR Mamovi.
- Seminar, Weierstrass Institute for Applied Analysis and Stochastics (WIAS), Berlin, Germany, November 2017
- Minisymposium talk, ICCB conference, Compiègne, France, September 2017
- Céline Grandmont
  - ULB Maths Colloquium, Bruxelles, april 2017
  - Colloquium Univ. Lille, december 2017
- Florian Joly
  - Weekend de l’innovation chirurgicale (WIC), Jun 23-25, Cabourg, France.
  - Talk, GRIC Journées Françaises de Radiologie, Oct 12th, Paris, France.
- Damiano Lombardi
  - CMBE 2017, Pittsburgh (US), invited to the minisymposium on *Adaptation, growth and remodelling*
  - CMBE 2017, Pittsburgh (US), organiser of the minisymposium on *Reliable predictions in biomedical applications*
- Dena Kazerani
  - Talk, Groupe de travail de biologie, Tours-Orléans, October 2017, Orléans, France.
  - Poster, Congrès SMAI 2017, 8e Biennale Française des Mathématiques Appliquées et Industrielles, June 2017, Ronce-les-bains, France.
  - Talk, Ecole EGRIN: Ecoulements Gravitaires et Risques Naturels, June 2017, Cargèse, France.
  - Talk, Séminaire du Laboratoire Hydraulique Saint-Venant, January 2017, Chatou, France
  - Poster, vingt-neuème séminaire sur “la mécanique des fluides numériques” organised by GAMNI-CEA, Institut Herni Poincaré (IHP), January 2017, Paris, France.
- Alexandre This
  - Poster, 9th international conference on Functional Imaging and Modeling of the Heart, FIMH, Toronto, June 2017
- Elliott Tixier
  - Invited talk, Workshop on Mathematical Methods in Cardiac Electrophysiology, Nov 4-6, Ottawa, Canada
  - Invited talk, GdR Mamovi meeting, Sep 27-29, Lyon, France
  - Poster presentation, QUIET 2017 Workshop, Jul 18-21, Trieste, Italy
- Marina Vidrascu
  - Invited talk ,The Sixth International Conference on Scientific Computing and Partial Differential Equations, Hong Kong Baptist University, June 5-8, 2017
- Irene Vignon Clementel
  - Seminar, Universittsklinikum Aachen, Dec 4th 2017, Aachen, Germany
  - Seminar, LiSyM consortium, Nov. 28th 2017, Paris, France
  - Seminar, U. de Caen, Dpt of Mathematics, Nov. 13th 2017, Caen, France
  - Invited, SimInhale workshop, Oct. 4-5th 2017, Athens, Greece
  - Seminar, Ecole Polytechnique, Oct 16th 2017, Palaiseau, France
  - Seminar, Marie-Lannelongue Hospital, Sept 18th 2017, Plessis-Robinson, France

- Keynote (invited), Colloquium 595 Biomechanics and computer assisted surgery meets medical reality, Aug 29-31, Lille, France.
- Invited talk, Weekend de l'innovation chirurgicale (WIC), Jun 23-25, Cabourg, France.
- Minisymposium talk, Computational and mathematical Biomedical Engineering (CMBE), Apr 10-12, Pittsburgh, USA.
- Seminar, Eindhoven U., Dpt of Bioengineering, March 24th 2017, Eindhoven, The Netherlands
- Seminar, Organox - Paul Brousse Hospital, Jan 24th 2017, Villejuif, France

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence:

- Ludovic Boilevin-Kayl
  - Calculus, 80h, L1, UPMC
  - Matrix computations, 18h, L1, UPMC
- Laurent Boudin
  - Introduction to series for signal theory, 18h, L2, UPMC
  - Shared studies supervision in mathematics licence for approximately 500 students, 24h, L2, UPMC (until Aug 31, 2017)
  - Calculus, 38.5h, L1, UPMC
  - Student advising for orientation and professional insertion, 22h, L2, UPMC
  - Numerical methods for ODE, 26.5h, L3, UPMC
- Muriel Boulakia
  - Scilab, 35h, L2, UPMC
  - Nonlinear systems and optimization, 35h, L3, Polytech'Paris
  - Oral tests in in topology and differential calculus, 20h, L3
- Miguel Ángel Fernández Varela
  - Analysis and Scientific Computing, 30h, L3, ENPC
- Jean-Frédéric Gerbeau
  - Control of dynamical systems, 32h, L3, Ecole Polytechnique.
- Céline Grandmont
  - Ordinary differential equations, 24h, L3, UPMC
- Damiano Lombardi
  - Analysis and Scientific Computing, 32h, L3, ENPC
  - Numerical Methods, 48h, L3, Polytech'Paris
- Marc Thiriet
  - Modeling and Simulation for Computer-Aided Medicine and Surgery, 16h, L3-M2, National Taiwan University
- Irene Vignon Clementel
  - Numerical Methods for Ordinary Differential Equations, 24h ETD, L3, UPMC
  - Numerical simulations of blood flow, 1h30, as part of the undergraduate “continuum mechanics”, AgroParisTech

Master:

- Laurent Boudin
  - Basics for numerical methods, 27h, M1, UPMC
  - Student advising for orientation and professional insertion, 20h, M1, UPMC
- Muriel Boulakia
  - Preparatory course for teaching admission examination “Agrégation”, 25h, M2, UPMC
- Miguel Ángel Fernández Varela
  - Modeling and numerical methods for hemodynamics, 30h, M2, UPMC
- Jean-Frédéric Gerbeau
  - Seminar for M2 students of the master “Math SV” (1h), M2, Univ Paris-Sud, December
  - Seminar for M2 students at Ecole des Mines (3h), Paris, February
- Irene Vignon Clementel
  - Modélisation hémodynamique & simulation numérique comme outil pour la chirurgie, 1h, M2, Université Paris Sud

### 10.2.2. Supervision

PhD: Chloé Audebert, Modeling of liver hemodynamics, defended on February 24, 2017. Supervisors: J.-F. Gerbeau & I. Vignon Clementel.

PhD: Matteo Aletti, Multiscale retinal vascular modeling, defended on May 30, 2017. Supervisors: J.-F. Gerbeau & D. Lombardi.

PhD: Eliott Tixier, Variability modeling and numerical biomarkers design in cardiac electrophysiology, defended on December 18, 2017. Supervisors: J.-F. Gerbeau & D. Lombardi.

PhD: Nicolas Pozin, Multiscale lung ventilation modeling in health and disease, defended on October 6, 2017. Supervisors: C. Grandmont & I. Vignon Clementel.

PhD in progress: Andrea Bondesan, Kinetic and fluid models, numerical and asymptotic analysis, since October 2015. Supervisors: L. Boudin, B. Grec & S. Martin.

PhD in progress: Ludovic Boilevin-Kayl, Modeling of cardiac implantable devices, since February 2016. Supervisors: J.-F. Gerbeau & M.A. Fernández Varela

PhD in progress: Alexandre This, Fusion data/simulation for the assessment of mitral regurgitation, since January 2016. Supervisor: J.-F. Gerbeau

PhD in progress: Chen-Yu Chiang, Transport on biological systems and some applications, since February 2016. Supervisor: M. Thiriet

PhD in progress: Felipe Galarce, Enhancing hemodynamics measurements with mathematical modeling, since December 2017. Supervisors: J.-F. Gerbeau & D. Lombardi.

### 10.2.3. Juries

- Muriel Boulakia
  - PhD committee: Charlie Douanla Lonsi, Inria Bordeaux Sud-Ouest
- Jean-Frédéric Gerbeau
  - PhD committees: Ivan Fumagalli, Politecnico di Milano (referee); Rajnesh Lal, Univ Montpellier (referee).
  - HDR committees: Edmond Vigmond, Univ Bordeaux; Sébastien Boyaval, Univ Paris-Est.
  - Hiring committee: Inria Paris (CR2).
- Céline Grandmont
  - Member of the “agrégation” jury in mathematics.

- Hiring committees: Inria Nancy (CR2), Inria DR2, Professor position Paris-Sud University.
- PHD committee: M. Deville, Bordeaux University (Referee), Nicolas Pozin, UPMC (co-advisor).
- Marina Vidrascu
  - Hiring committee: IR CNRS
- Irene Vignon Clementel
  - Hiring committees: Starting Research Positions and Senior Research Positions at Inria
  - PhD committee: Roch Mollero, University of Nice-Sophia Antipolis (Referee), Nicolas Pozin, UPMC, (co-advisor), Arthur Ghigo, UPMC, Chloé Audebert, UPMC, (co-advisor), Andie de Villiers, U. of Cape Town, (Referee), Petru Bucur, Inserm.

### **10.3. Popularization**

- Céline Grandmont
  - Conference “Métier”: Master Maths students, UPMC, Oct 2017
- Irene Vignon Clementel
  - Presentation to celebrate the renewal of UPMC-Inria Paris partnership, June 22nd 2017, Paris, France

## RITS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

Mohammad Abualhoul and Fawzi Nashashibi organized a workshop within the framework of the European project AUTOCITS "Regulation Study for Interoperability in the Adoption of Autonomous Driving in European Urban Nodes". Date: 05/04/2017 - Inria Paris. <https://project.inria.fr/autocits/autoc-its-workshop-paris/>

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

Fawzi Nashashibi: IEEE Intelligent Vehicles Symposium - IV 2017, IEEE 20th International Conference on Intelligent Transportation Systems - ITSC 2017.

#### 9.1.2.2. Reviewer

Carlos Flores: IEEE 20th International Conference on Intelligent Transportation Systems - ITSC 2017.

Francisco Navas: IEEE Intelligent Vehicles Symposium - IV 2017, IEEE 20th International Conference on Intelligent Transportation Systems - ITSC 2017.

Anne Verroust-Blondet: IEEE Intelligent Vehicles Symposium - IV 2017, IEEE 20th International Conference on Intelligent Transportation Systems - ITSC 2017.

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

Guy Fayolle: associate editor of the journal *Markov Processes and Related Fields*

Fawzi Nashashibi: associate editor of the journal *IEEE Transactions on Intelligent Vehicles* and of *IEEE Transactions on Intelligent Transportation Systems*.

Fawzi Nashashibi: guest editor with Erwin Schoitsch (AIT) of *ERCIM News* N°109 on "Autonomous Vehicles".

#### 9.1.3.2. Reviewer - Reviewing Activities

Guy Fayolle: *AAP*, *MPRF*, *PTRF*, *QUESTA*, *European Journal of Combinatorics*, *JSP*, *Physica A*, *Springer Science*.

Jean-Marc Lasgouttes: *IEEE Transactions on Knowledge and Data Engineering*, *IEEE Transactions on Intelligent Transportation Systems*.

Anne Verroust-Blondet: *IEEE Transactions on Pattern Analysis and Machine Intelligence*, *The Visual Computer*.

### 9.1.4. Invited Talks

Raoul de Charette: Talk on "Computer Vision" at Adomik (artificial intelligence software company), Paris, November 29th.

Guy Fayolle was a keynote speaker at the conference at the ACMPT-2017 Conference <http://acmpt.moscow/>, (*Analytical and Computational Methods in Probability Theory and its Applications*), held in Moscow State University and in RUDN University, Moscow, 23-27th October 2017. His talk presented the substance of the article [21].

Fawzi Nashashibi was a keynote speaker at IEEE International Conference on Intelligent Vehicles Symposium - IV 2017, *Latest Advancements in Intelligent Vehicles Research in Europe*, held in June 2017.

Fawzi Nashashibi was a keynote speaker at IEEE International Conference on Vehicular Electronics and Safety (ICVES), (*Automated vehicles in urban environments: challenges and technical solutions*), June 2017.

Fawzi Nashashibi was a keynote speaker at Convergence Technology Symposium 2017 (ConTech 2017) (*Autonomous Driving, Future Mobility, Future Smart City with Autonomous Driving*), held in June 2017, at the AICT in Suwon, Korea.

Fawzi Nashashibi was a keynote speaker at IEEE International Conference on Intelligent Computer Communication and Processing (ICCP), (*A functional architecture for the navigation of an autonomous vehicle*), held in September 2017.

### 9.1.5. Scientific Expertise

Guy Fayolle is scientific advisor and associate researcher at the *Robotics Laboratory of Mines ParisTech*.

Jean-Marc Lasgouttes is member of the *Conseil Académique* of Université Paris-Saclay.

Anne Verroust-Blondet is member of the COST-GTRI committee at Inria and of the "emploi scientifique" committee of Inria Paris.

### 9.1.6. Research Administration

Jean-Marc Lasgouttes is a member of the *Comité Technique Inria*.

Guy Fayolle is a member of the working group IFIP WG 7.3.

Fawzi Nashashibi is a member of the international Automated Highway Board Committee of the TRB (AHB30). He is a member of the Board of Governors of the VEDECOM Institute representing Inria and of the Board of Governors of MOV'EO Competitiveness cluster representing Inria.

Anne Verroust-Blondet is the scientific correspondent of the European affairs and of the International relations of Inria Paris.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence: Fawzi Nashashibi, "Programmation avancée", 84h, L1, Université Paris-8 Saint-Denis, France.

Master: Raoul de Charette, "Computer Vision for Autonomous Driving", 32Hr, Master 2, University of Simon Bolivar, Venezuela, December 2017.

Master: Carlos Flores, "Control for Autonomous Driving", 10Hr, Master 2, University of Simon Bolivar, Venezuela, December 2017.

Master: Jean-Marc Lasgouttes, "Analyse de données", 54h, second year of Magistère de Finance (M1), University Paris 1 Panthéon Sorbonne, France.

Master: Luis Roldao Jimenez, "Point Cloud Processing for Autonomous Driving", 7Hr, Master 2, University of Simon Bolivar, Venezuela, December 2017.

Master: Carlos Flores and Anne Verroust-Blondet, "Le véhicule autonome. Présentation des recherches de l'équipe-projet RITS", 1.5 h, 2nd year, Ecole des Ponts ParisTech, France, September 2017.

Master: Fawzi Nashashibi, "Image synthesis and 3D Infographics", 12h, M2, INT Télécom Sud-Paris.

Master: Fawzi Nashashibi, "Obstacle detection and Multisensor Fusion", 4h, M2, INSA de Rouen.



Master: Fawzi Nashashibi, "Perception and Image processing for Mobile Autonomous Systems", 12h, M2, University of Evry.

Doctorat: Raoul de Charette, "Introduction, Data Visualization and Signal Processing in Python", 21Hr, class organized with Paris Science et Lettres, France, January 2017.

Doctorat: Jean-Marc Lasgouttes, "Analyse de données fonctionnelles", 31.5h, Mastère Spécialisé "Expert en sciences des données", INSA-Rouen, France

### 9.2.2. Supervision

PhD: David González Bautista, "Architecture fonctionnelle pour la planification des trajectoires des véhicules automatisés dans des environnements complexes", Mines ParisTech, April 2017, supervisor: Fawzi Nashashibi.

PhD in progress: Zayed Alsayed, "Système de localisation redondant en environnement extérieur ouvert pour véhicule urbain automatique", Télécom ParisTech, October 2014, supervisor: Anne Verroust-Blondet, co-supervisor: Guillaume Bresson.

PhD in progress: Pierre de Beaucorps, "Autonomous vehicle: behavior prediction and Interaction with road users", UPMC Paris, January 2016, supervisor: Anne Verroust-Blondet, co-supervisor: Fawzi Nashashibi.

PhD in progress: Carlos Flores, "Analysis and design of cooperative systems for trains of green cars", Mines ParisTech, December 2015, supervisor: Fawzi Nashashibi, co-supervisor: Vicente Milanés.

PhD in progress: Fernando Garrido, "Optimal trajectory generation for autonomous vehicles in urban environments", Mines ParisTech, November 2014, supervisor: Fawzi Nashashibi, co-supervisors: Vicente Milanés, Joshué Pérez.

PhD in progress: Farouk Ghallabi, "Environment modeling and simultaneous localization of a mobile vehicle on motorways: a multi-sensor approach", Mines ParisTech, October 2016, supervisor: Fawzi Nashashibi.

PhD in progress: Maximilian Jaritz, "Perception multi-capteur pour la conduite autonome grâce à l'apprentissage profond", Mines ParisTech, January 2017, supervisor: Fawzi Nashashibi, co-supervisor: Raoul de Charette.

PhD in progress: Francisco Navas, "Plug&Play control for highly non-linear systems: Stability analysis of autonomous vehicles", Mines ParisTech, October 2015, supervisor: Fawzi Nashashibi, co-supervisor: Vicente Milanés.

PhD in progress: Dinh-Van Nguyen, "Wireless sensor networks for indoor mapping and accurate localization for low speed navigation in smart cities", Mines ParisTech, December 2015, supervisor: Fawzi Nashashibi, co-supervisor: Eric Castelli.

PhD in progress: Danut-Ovidiu Pop, "Deep learning techniques for intelligent vehicles", INSA Rouen, May 2016, supervisor: Abdelaziz Bensrhair, co-supervisor: Fawzi Nashashibi.

Starting PhD: Imane Matout, "Estimation de l'intention des véhicules pour la prise de décision et le contrôle sans faille en navigation autonome", Mines ParisTech, October 2017, supervisor: Fawzi Nashashibi, co-supervisor: Vicente Milanés.

Starting PhD: Kaouther Messaoud, "Détermination des manoeuvres et des intentions des véhicules avoisinant un véhicule autonome", UPMC Paris, October 2017, supervisor: Anne Verroust-Blondet, co-supervisor: Fawzi Nashashibi, Itheri Yahiaoui.

Starting PhD: Luis Roldao Jimenez, "Modélisation 3D de l'environnement et de la manoeuvrabilité d'un véhicule", UPMC Paris, October 2017, supervisor: Anne Verroust-Blondet, co-supervisor: Raoul de Charette.

### 9.2.3. Juries

Guy Fayolle was a jury member of PhD thesis of Younes Bouchaala - *Handling Safety Messages in Vehicular Ad-Hoc Networks (VANETs)*, University of Versailles Saint-Quentin-en-Yvelines, 21 October 2017.

Fawzi Nashashibi was a reviewer of the PhD thesis of Ange Nizard - *Planification et commande pour véhicules à deux trains directeurs en milieu encombré* Université Blaise Pascal, Clermont-Ferrand, 31 March 2017.

Fawzi Nashashibi was an examiner of the PhD thesis of Bastien Béchadergue - *Mesure de distance et transmission de données intervéhicules par phares à LED*. University of Paris-Saclay, prepared at the University of Versailles Saint-Quentin, 10 November 2017.

Fawzi Nashashibi was the Jury President for the thesis of Viet-Cuong Ta - *Smartphone-based indoor positioning using WIFI, inertial sensor and Bluetooth*, under the co-supervision of Université Grenoble Alpes and Hanoi University of Science & Technology, 15 December 2017.

Anne Verroust-Blondet was a reviewer of the PhD thesis of Mathias Paget - *Optimisation discrète et indices de stabilité appliqués à la stéréoscopie en contexte routier*, Université Paris-Est, 13 December 2017.

### 9.3. Popularization

RITS team: press article on the research axes of Inria RITS team entitled "RITS Team at Inria", with participation of Fawzi Nashashibi, Anne Verroust-Blondet, Jean-Marc Lasgouttes and Raoul de Charette. IEEE Intelligent Transportation Systems Magazine, Vol 9, Issue 2. April 19th. (<http://ieeexplore.ieee.org/document/7904770/>).

Raoul de Charette: participation to the Hackathon round-table in collaboration with approximately 10 journalists and a handful of Inria researchers. Exchange on the implementation of future autonomous transportation in cities. It lead to several press article. June 7th, Paris.

Raoul de Charette: public conference "Voiture Autonomes: Où en est-on ?" at Futur en Seine, Paris, June 8th.

Raoul de Charette: exchange on upcoming challenges for autonomous driving for the web article "Véhicules Autonomes : Où En Est-On en France ?", journalist Mathilde Ragot. T.O.M. June 14th. (<http://www.tom.travel/2017/06/14/vehicules-autonomes-ou-en-est-on-en-france/>).

Raoul de Charette: exchange on upcoming challenges for autonomous driving for the web article "Véhicules autonomes : où en est-on réellement ?", journalist Benoit Fleuret. Microsoft RSLN. June 22th. (<https://rslnmag.fr/cite/vehicules-autonomes-ou-en-est-on-reellement/>).

Raoul de Charette: interview on current progress of autonomous driving and real upcoming challenges for the web article "Pourquoi la voiture 100 % autonome n'est pas près de rouler", journalist Reynald Fléchaux. Silicon. June 26th. ([https://www.silicon.fr/voiture-autonome-pas-prete-rouler-178787.html?inf\\_by=5a0c4d80681db858068b471e](https://www.silicon.fr/voiture-autonome-pas-prete-rouler-178787.html?inf_by=5a0c4d80681db858068b471e)).

Raoul de Charette: interview on the progress of computer vision and danger of artificial intelligence for the press article "Robots tueurs soudés pour déssouder", journalist Erwan Cario. Libération. August 24th. ([http://www.liberation.fr/futurs/2017/08/24/robots-tueurs-soudes-pour-dessouder\\_1591778](http://www.liberation.fr/futurs/2017/08/24/robots-tueurs-soudes-pour-dessouder_1591778)).

Gérard Le Lann: Interview published in *Journal of Internet Histories*, vol. 1, issue 1-2, pp. 188-196, (<http://tandfonline.com/doi/full/10.1080/24701475.2017.1301132>).

Gérard Le Lann: interview for Inria's 50 years "Networks, distributed algorithms and critical cyber-physical systems", (<https://50ans.inria.fr/en/gerard-le-lann-networks-distributed-algorithms-and-critical-cyber-physical-systems/>).

Fawzi Nashashibi: participation to the round-table on "L'Intelligence Artificielle pour le transport autonome" during the workshop "Journée de l'IA / Evenement Public #FranceIA" organized by SystemX at Nano-INNOV (Palaiseau), March 3rd.

Fawzi Nashashibi: participation to the round-table on "Transports et mobilité" during the workshop "Les Mystères du XXIème siècle" (<http://www.mysteres21.org/edition-2017/>), November 25th.

Fawzi Nashashibi: participation to the round-table on "les questions éthiques et juridiques en robotique" during the workshop on "Éthique de la recherche en numérique", organized by the CERNA, Paris (Institut Mines-Télécom), June 15th.

Fawzi Nashashibi: interview for "L'Esprit Sorcier" number 29 on "La voiture autonome", journalist: Melvin Martineau (<https://www.lespritsorcier.org/dossier-semaine/la-voiture-autonome/>).

Fawzi Nashashibi: interviewed by Tiffany Blandin for the book *Un Monde sans travail ?*, Paris: Seuil, 24 August 2017, (Chapter 7: la recherche sur les voitures autonomes).

Fawzi Nashashibi: interviewed by Coralie Baumard for the article "L'Intelligence Artificielle, Nouveau Moteur De l'Industrie Automobile", FORBES France, February 11th. (<https://www.forbes.fr/business/lintelligence-artificielle-nouveau-moteur-de-lindustrie-automobile/>).

Fawzi Nashashibi: interviewed by Jérôme Bonaldi (Science & Vie TV) for "Le Mag de la Science" on September 2017 (to be broadcasted in 2018).

## RMOD Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- Marcus Denker and Stéphane Ducasse are in the board of ESUG and organized ESUG 2017, the yearly Smalltalk conference that brings together research and industry <http://www.esug.org/>
- RMoD organized Pharo Days 2017, the yearly Pharo meeting of both industrial and research users
- Serge Demeyer served as organizing chair for the BENEVOL 2017 Workshop <http://ansymore.uantwerpen.be/events/benevol2017>

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- Anne Etien refused to be program chair of SCAM 2017 (International Working Conference on Source Code Analysis & Manipulation) because of financial matter, to keep the money for a PhD student to travel and presents his work
- Anne Etien was chair of the artifact evaluation track of VISSOFT 2017 <http://vissoft17.dcc.uchile.cl/>
- Anne Etien served as chair for IWST 2017
- Serge Demeyer served as chair for the industrial track of the POEM 2017 International Conference <https://kuleuvencongres.be/poem2017/>

#### 10.1.2.2. Member of the Conference Program Committees

- Marcus Denker: SANER 2017 (23rd IEEE International Conference on Software Analysis, Evolution, and Reengineering)
- Clément Béra: IWST 2017 (International Workshop on Smalltalk Technologies)
- Nicolas Anquetil SCAM 2017 (International Working Conference on Source Code Analysis & Manipulation)
- Nicolas Anquetil BENEVOL 2017 (BELgian-NEtherlands software eVOLution seminar)
- Anne Etien BENEVOL 2017 (BELgian-NEtherlands software eVOLution seminar)
- Anne Etien SATToSE 2017 (Seminar on Advanced Techniques & Tools for Software Evolution)
- Anne Etien ME 2017 (Workshop on Model Evolution)

#### 10.1.2.3. Reviewer

- Thibault Raffailac: IWST 2017 (International Workshop on Smalltalk Technologies)
- Thibault Raffailac: ManLang 2017 (formerly PPPJ, Managed Languages and Runtimes)
- Clément Béra: ManLang 2017 (formerly PPPJ, Managed Languages and Runtimes)

### 10.1.3. Journal

#### 10.1.3.1. Reviewer - Reviewing Activities

- Clément Béra: JUCS 2017 (Journal of Universal Computer Science)
- Nicolas Anquetil did Reviews for the following international journals:
  - TSE (IEEE Transactions on Software Engineering)

- TOSEM (ACM Transactions on Software Engineering and Methodology)
- IET Software
- SCICO (Science of Computer Programming)
- JISYS (Journal of Intelligent Systems)
- JUCS (Journal of Universal Computer Science)

#### **10.1.4. Invited Talks**

- Stéphane Ducasse and Guillermo Polito did a keynote presentation in Modularity 2017, hosted within Programming 2017
- Nicolas Anquetil: Friday November, 10 2017, invited talk at LIRMM (Montpellier)

#### **10.1.5. Scientific Expertise**

Nicolas Anquetil: Grant reviewer for NSERC (Natural Sciences and Engineering Research Council of Canada)

#### **10.1.6. Research Administration**

Nicolas Anquetil: GDR/GPL (Groupement de Recherche Génie de la Programmation et du Logiciel), animation of the Rimel group (Rétro-Ingénierie, Maintenance et Evolution des Logiciels)

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

- Licence: Nicolas Anquetil, Graphes et langages, 32h, L2, Univ. Lille 1, IUT-A, France
- Licence: Nicolas Anquetil, Conception et programmation objet avancées, 28h, L2, Univ. Lille 1, IUT-A, France
- Licence: Nicolas Anquetil, Principes des systèmes d'exploitation, 40h, L2, Univ. Lille 1, IUT-A, France
- Licence: Nicolas Anquetil, Conception et développement d'applications mobiles, 30h, L2, Univ. Lille 1, IUT-A, France
- Licence: Nicolas Anquetil, Méthodologie de la production d'applications, 33h, L2, Univ. Lille 1, IUT-A, France
- Licence: Nicolas Anquetil, Modélisations mathématiques, 14h, L2, Univ. Lille 1, IUT-A, France
- Licence: Nicolas Anquetil, Conception et programmation objet, 24h, L2, Univ. Lille 1, IUT-A, France
- Licence: Stéphane Ducasse, OOP, 21h Prague technical University
- Licence: Anne Etien, Bases de données, 22h, L3, Polytech-Lille, France
- Licence: Damien Pollet, Java, data structures and algorithms lecture, 50h, L3, Telecom Lille, France
- Licence: Damien Pollet, Java lecture, 20h, L3, Telecom Lille, France
- Licence: Damien Pollet, Java project, 20h, L3, Telecom Lille, France
- Licence: Damien Pollet, Computer architecture, 10h, L3, Telecom Lille, France
- License: Damien Pollet, Developer communities, 35h, L3, Université de Lille, France
- Master: Anne Etien, Metamodelisation for Reverse Engineering, 25h, M2, Montpellier, France
- Master: Anne Etien, Test et Maintenance, 10h, M2, Polytech-Lille, France
- Master: Anne Etien, Test et Maintenance, 14h, M2, Polytech-Lille, France
- Master: Anne Etien, Système d'information objet, 22h, M1, Polytech Lille, France
- Master: Anne Etien, Bases de données, 44h, M1, Polytech Lille, France
- Master: Anne Etien, Bases de données Avancées, 20h, M1, Polytech-Lille, France

Master: Anne Etien, Qualité logicielle, 8h, M2, University Lille 1, France  
 Master: Clément Béra, Software engineering, 30h, M2, Université de Lille 1, France  
 Master: Damien Pollet, Technologies for information systems, 30h, M1, Telecom Lille, France  
 Master: Damien Pollet, Network algorithms, 30h, M2, Telecom Lille, France  
 Master: Damien Pollet, Software engineering, 6h, M1, Telecom Lille, France  
 Master: Stéphane Ducasse, Meta Programming, 12h, IMT Douai  
 Master: Stéphane Ducasse, Advanced Design, 24h, Catholic University of Lviv.  
 Master: Nicolas Anquetil, Qualité logicielle, 8h, M2, University Lille 1, France  
 Master: Nicolas Anquetil, Visualisation for Reverse Engineering, 6h, M2, Montpellier, France  
 Master: Thibault Raffailac, ACT, 34h, M1, University Lille 1, France  
 Master: Christophe Demarey, Intégration Continue, 4h, M2, GIS2A5, Polytech-Lille, France  
 Master: Christophe Demarey, Intégration Continue, 12h, M2, IAGL, Univ. Lille 1, France  
 PhD: Stéphane Ducasse, Advanced Design, 24h, ENIS, Tunisia

### 10.2.2. Supervision

PhD: Gustavo Santos, *Assessing and Improving Code Transformations to Support Software Evolution*, February 28th, Université Lille 1 (France), Anne Etien, Nicolas Anquetil  
 PhD: Vincent Blondeau, *Test Selection Practices in a Large IT Company*, CIFRE WorldLine, November 8th, Université Lille 1 (France), Anne Etien, Nicolas Anquetil  
 PhD: Marco Naddeo, *A modular Approach of Object initialization for Pharo*, Université de Turin, November 2017, Prof. V. Bono, Stéphane Ducasse  
 PhD: Clément Béra, *Sista: a Metacircular Architecture for Runtime Optimisation Persistence*, 9/2017, Université Lille 1 (France), Marcus Denker, Stéphane Ducasse  
 PhD in progress: Pablo Tesone, *Hot Software Update In Robotics Applications*, IMT Lille-Douai, started in Apr 2016, Luc Fabresse, Stéphane Ducasse  
 PhD in progress: Brice Govin, *Support to Implement a Rejuvenated Software Architecture in Legacy Software* CIFRE Thales, started Jan 2015, Anne Etien, Nicolas Anquetil, Stéphane Ducasse  
 PhD in progress: Jason Lecerf, *Reuse of Code Artifacts for Embedded Systems Through Refactoring*, started Oct 2016, CEA Thierry Goubier, Stéphane Ducasse  
 PhD in progress: Thibault Raffailac, *Languages and System Infrastructure for Interaction*, started 2/11/2015, Shared PhD, S. Huot, Stéphane Ducasse  
 PhD in progress: Julien Delplanque, *Software Engineering Techniques Applied to Databases*, started Oct 2017, Anne Etien, Nicolas Anquetil

### 10.2.3. Juries

Stephane Ducasse: *Augmenting Type Inference with Lightweight Heuristics*, Nevena Lazarevic, University of Bern, Switzerland, 20/06/17.  
 Stephane Ducasse: *Étendre des interpréteurs par détournement, ou comment étendre des interpréteurs sans en modifier le code*, Florent Marchand de Kerchove, Université de Nantes, France. 18/11/16.  
 Serge Demeyer: Davy Landman, PhD thesis, *Reverse Engineering Source Code: Empirical Studies of Limitations and Opportunities*, October 5th 2017, Universiteit van Amsterdam (Netherlands)  
 Serge Demeyer: Robert Minelli, PhD thesis, *Interaction-Aware Development Environments — Recording, Mining, and Leveraging IDE Interactions to Analyze and Support the Development Flow*, November 13th 2017, Università della Svizzera italiana (Switzerland)

Serge Demeyer: Vincent Blondeau, PhD thesis, *Test Selection Habits of Developers in a Large IT Company*, October 8th 2017, Inria Lille - Nord Europe (France)

Anne Etien: Xuan Sang Le, PhD thesis, *Software/FPGA Co-design for Edge-computing: Promoting Object Oriented Design*, May 2017, l'École des Mines de Douai, ENSTA, Brest (France)

Anne Etien: Maroua Hachicha PhD thesis, *Un modèle de prise de décision dynamique basé sur la performance des processus métiers collaboratifs*, April 3rd 2017, Université de Lyon 2 (France)

Anne Etien: Gustavo Santos, PhD thesis, *Assessing and Improving Code Transformations to Support Software Evolution*, February 28th, Université Lille 1 (France)

Anne Etien: Vincent Blondeau, PhD thesis, *Test Selection Practices in a Large IT Company*, November 8th, Université Lille 1 (France)

Marcus Denker: PhD thesis, *Clément Béra, Sista: a Metacircular Architecture for Runtime Optimization Persistence*, 9/2017, Université Lille 1 (France)

Nicolas Anquetil: Luís Ferreira da Silva, PhD thesis, *A Pattern-Based Approach to Scaffold the IT Infrastructure Design Process*, Dec. 20th, 2017, University Nova de Lisboa, Lisboa (Portugal)

Nicolas Anquetil: Gustavo Santos, PhD thesis, *Assessing and Improving Code Transformations to Support Software Evolution*, February 28th, Université Lille 1 (France)

Nicolas Anquetil: Vincent Blondeau, PhD thesis, *Test Selection Practices in a Large IT Company*, November 8th, Université Lille 1 (France)

### 10.3. Popularization

- Article in Popular Magazine: Clément Béra and Olivier Auverlot. Au coeur de la VM Pharo. In GNU/Linux Magazine, numéro 210, décembre 2017.
- Book: Pharo by Example 5, Square Bracket Associates, 2017 [37].  
<http://books.pharo.org/updated-pharo-by-example/>
- RMOD co-organized and participated at ESUG 2017.  
<http://www.esug.org/wiki/pier/Conferences/2017>
- Multiple public Pharo Sprints in Lille.  
<https://association.pharo.org/events>
- A MOOC for Pharo is online (Stéphane Ducasse).  
<http://mooc.pharo.org>
- Thibault Raffailac: Co-organized the hub at the IUT for the CCC contest.  
<https://informatique.univ-lille1.fr/ccc/2017/contest/>
- Thibault Raffailac: Organizing weekly programming trainings ( 10 students per session).
- Julien Deplanque organized Advent Of Code 2017 for Pharo.  
<https://github.com/juliendelplanque/AdventOfCode2017WithPharo>
- Christophe Demarey gave a Talk at ncrafts about Pharo.  
<http://bordeaux.ncrafts.io>

## ROMA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

Marie Durand, Guillaume Joslin and Chiara Puglisi organized the fourth edition of the MUMPS User days in Montbonnot on June 1 and 2, 2017, see [http://mumps.enseiht.fr/index.php?page=ud\\_2017](http://mumps.enseiht.fr/index.php?page=ud_2017).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Steering committees

Yves Robert is a member of the steering committee of Euro-EduPar, HCW, Heteropar and IPDPS.

Bora Uçar serves in the steering committee of CSC.

#### 10.1.2.2. Chair of Conference Program Committees

- Anne Benoit is the technical program chair of ICPP 2017, the technical papers co-chair of SC 2017, and the technical program chair of IPDPS 2018.
- Bora Uçar was the IPDPS 2017 Workshops Chair, IC3 2017 Algorithms track vice-chair. He is the general chair of IPDPS 2018.
- Yves Robert is the Panels Chair of SC'17.
- Yves Roibert serves as the Liaison between the steering committee and the program committee of IPDPS.

#### 10.1.2.3. Member of the Conference Program Committees

- Matthieu Moy was a member of the program committee of the DUHDE and COMPASS workshops.
- Laure Gonnord was a member of the program committee of the VMCAI conference and NSAD workshop.
- Christophe Alias was a member of the program committee of the IMPACT and HIP3ES workshops.
- Loris Marchal was/is a member of the program committee of the SC 2017, IPDPS 2017 and IPDPS 2018 conferences.
- Bora Uçar was a member of the program committee of IA<sup>3</sup>, ICCS 2017, Euro-Par 2017, ScalCom 2017, P<sup>3</sup>MA, HiPC 2017, PPAM 2017, HPC4BD 2017.
- Yves Robert was a member of the program committee of FTS, FTXS, ICCS, and ISCIS
- Frédéric Vivien was a member of the program committee of EduPar 17, IPDPS 2017 and 2018, PDP 2017, SBAC-PAD 2017, and SC 2017.

#### 10.1.2.4. Reviewer

- Matthieu Moy was reviewer for ECRTS.
- Laure Gonnord was reviewer for STACS, VMCAI, NSAD.
- Bora Uçar reviewed papers for IEEE Cluster 2017, ICPP 2017, IPDPS 2017, and ALENEX 2017.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- Anne Benoit is Associate Editor for JPDC (Elsevier Journal of Parallel and Distributed Computing) and TPDS (IEEE Transactions on Parallel and Distributed Systems).



- Yves Robert is Associate Editor for ACM TOPC (ACM Transactions on Parallel Computing), JPDC (Elsevier Journal of Parallel and Distributed Computing), IJHPCA (Sage International Journal of High Performance Computing Applications), and JOCS (Elsevier Journal of Computational Science).
- Bora Uçar is a member of the editorial board of Parallel Computing.
- Frédéric Vivien is Associate Editor of Parallel Computing (Elsevier) and of JPDC (Elsevier Journal of Parallel and Distributed Computing).

#### 10.1.3.2. Reviewer - Reviewing Activities

- Matthieu Moy was reviewer for MICPRO 2017 (2 papers) and TCAD 2017.
- Christophe Alias was reviewer for ACM TACO and Proceedings of the IEEE.
- Loris Marchal was a reviewer for IEEE TPDS.
- Bora Uçar reviewed papers for SIAM SISC (5x), SIMAX (1x), IEEE TPDS (1x), Parallel Computing (2ex), Journal of Computational Science (1x).

#### 10.1.4. Invited Talks

- Matthieu Moy gave an invited talk at “Journées nationales du GDR GPL”, Montpellier, 13 - 16 June 2017.
- Laure Gonnord gave invited talks to University of Nice and University of Evry (spring 2017) and to University of Reunion (dec 2017).
- Christophe Alias gave invited talks to “Journées Compilation” (june 2017) and “Journée Calcul” (nov 2017).
- Yves Robert gave an invited talk at the FTS’17 workshop, Honolulu (September 2017).

#### 10.1.5. Tutorials

Yves Robert gave a tutorial on *Fault-tolerance techniques for HPC platforms* at SC’17 (with Aurélien Bouteiller, George Bosilca, and Thomas Héroult).

#### 10.1.6. Research Administration

Jean-Yves L’Excellent was a member of the direction board of the LIP laboratory until August 2017.

Yves Robert was a committee member of the IEEE Fellows selection. He is a member of the scientific council of the Maison de la Simulation.

Frédéric Vivien is the vice-head of the LIP laboratory since September 2017. He is a member of the scientific council of the École normale supérieure de Lyon and of the academic council of the University of Lyon.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence:

- Yves Robert, Algorithmique, L3, ENS Lyon
- Anne Benoit, Algorithmique avancée, L3, ENS Lyon
- Matthieu Moy, programmation concurrente, 24h EqTD, L3, UCBL, France
- Matthieu Moy, Unix, 9h EqTD, L1, UCBL, France
- Matthieu Moy, Projet informatique, 40h EqTD, L3, UCBL, France
- Matthieu Moy, Informatique, 30h EqTD, L1, Grenoble INP CPP, France
- Christophe Alias, Compilation (CM+TD 48h), Insa Centre Val de Loire

Master:

- Yves Robert is the head of the Master in Computer Science, ENS Lyon
- Anne Benoit, CSE Algorithms, undergraduate + graduate, Georgia Tech, USA
- Yves Robert, Scheduling at Scale, M2, ENS Lyon
- Matthieu Moy, programmation avancée, 15h EqTD, M1, UCBL, France
- Matthieu Moy, Projet de spécialité informatique, 18h EqTD, M1, Grenoble INP Ensimag, France
- Laure Gonnord, Compilation (CM+TD 76h), M1, Université Claude Bernard Lyon 1, and M1 Ecole Normale Supérieure de Lyon.
- Laure Gonnord, Complexité, M1 (TD 15h), Université Claude Bernard Lyon 1.
- Laure Gonnord, Compilation and Software Engineering (CM+TP 10h, with S. Mosser), M2 Ecole Normale Supérieure de Lyon.
- Christophe Alias, Optimisation d'applications embarquées (CM+TD 26h), Insa Centre Val de Loire
- Loris Marchal, Complexité, M1 (TD 15h), Université Claude Bernard Lyon 1.
- Frédéric Vivien, Algorithmique et Programmation Parallèles et Distribuées (CM 36 h), M1, École normale supérieure de Lyon, France.

Professional training:

- Jean-Yves L'Excellent taught during the training "Solvers for Computer Aided Engineering" (Jan. 30–Feb. 3 2017) co-organized by ENS Paris-Saclay, Hewlett-Packard Enterprises, Ansys, MUMPS, CMLA, Intel.
- Loris Marchal is responsible of the competitive selection of the students of ENS Lyon for Computer Science.

### **10.2.2. Supervision**

PhD in progress : Amaury Graillat, Génération de code pour un many-core avec des contraintes temps réel fortes, started in Sept. 2015, supervised by Matthieu Moy (LIP) and Pascal Raymond (Verimag).

PhD in progress : Tristan Delizy, Gestion mémoire pour architectures à base de NVRAM, started in Oct. 2016, co-supervised by Tanguy Risset (CITI), Guillaume Salagnac (CITI), Kevin Marquet (CITI) and Matthieu Moy (LIP).

PhD in progress: Gabriel Busnot, Accélération SystemC pour la co-simulation multi- physique et la simulation de modèles hétérogènes en complexité, started in Nov. 2017. Co-supervised by Matthieu Moy (LIP) and Tanguy Sassolas (CEA LIST).

PhD defended in December 2017: Hamza Rihani, Many-Core Timing Analysis of Real-Time Systems and its Application to an Industrial Processor, Univ. Grenoble Alpes, defended on Dec. 1st 2017. Supervised by Matthieu Moy (LIP) and Claire Maiza (Verimag).

PhD defended in December 2017: Denis Becker, Parallel SystemC/TLM Simulation of Hardware Components Described for High-Level Synthesis, Univ. Grenoble Alpes, defended on Dec. 11st 2017. Supervised by Matthieu Moy (LIP) and Jérôme Cornet (STMicroelectronics).

PhD in progress: Amaury Graillat, Génération de code pour un many-core avec des contraintes temps réel fortes, started in Sept. 2015, supervised by Matthieu Moy (LIP) and Pascal Raymond (Verimag).

Phd defended in September 2017: Maroua Maalej "Low cost static analyses for compilers", started in October 2014, advisors : Laure Gonnord and Frédéric Vivien.

HdR: Laure Gonnord, Contributions to program analysis: expressivity and scalability, defended in November 2018.

PhD in progress: Bertrand Simon, Memory aware task graph scheduling, started in Sept. 2015, supervised by Loris Marchal and Frédéric Vivien.

PhD in progress: Changjiang Gou, Communication- and memory-aware task graph scheduling, started in Oct. 2016, supervised by Anne Benoit and Loris Marchal.

PhD in progress: Gilles Moreau, High-performance multifrontal solution of sparse linear systems with multiple right-hand sides, application to the MUMPS solver, started in Dec. 2015, supervised by Jean-Yves L'Excellent and Patrick Amestoy.

PhD defended in July 2017: Aurélien Cavelan, "Resilient and energy-aware scheduling algorithms for large-scale distributed systems", started in September 2014, advisors: Anne Benoit and Yves Robert.

PhD in progress: Changjiang Gou, "Resilient and energy-aware scheduling algorithms for large-scale distributed systems", started in September 2016, funding: China Scholarship Council, advisors: Anne Benoit and Loris Marchal.

PhD in progress: Li Han, "Algorithms for detecting and correcting silent and non-functional errors in scientific workflows", started in September 2016, funding: China Scholarship Council, advisors: Yves Robert and Frédéric Vivien

PhD defended in September 2017: Oguz Kaya, "High performance parallel tensor computations", started in September 2014, funding: Inria, advisors: Bora Uçar and Yves Robert.

PhD in progress: Aurélie Kong Win Chang, "Techniques de résilience pour l'ordonnancement de workflows sur plates-formes décentralisées (cloud computing) avec contraintes de sécurité", started in October 2016, funding: ENS Lyon, advisors: Yves Robert, Yves Caniou and Eddy Caron.

PhD in progress: Loic Pottier, "Scheduling concurrent applications in the presence of failures", started in September 2015, advisors: Anne Benoit and Yves Robert.

PhD in progress: Issam Rais, "Multi-criteria scheduling for high-performance computing", started in November 2015, advisors: Anne Benoit, Laurent Lefèvre (LIP, ENS Lyon, Avalon team), and Anne-Cécile Orgerie (IRISA, Myriads team).

PhD in progress: Valentin Le Fèvre, "Scheduling and resilience at scale", started in October 2017, funding: ENS Lyon, advisors: Anne Benoit and Yves Robert.

PhD in progress: Ioannis Panagiotas, "High performance algorithms for big data graph and hyper-graph problems", started in October 2017, funding: Inria, advisors: Frédéric Vivien and Bora Uçar.

### **10.2.3. Juries**

- Anne Benoit was "rapporteur" in the Jury of Thomas Lambert (U. Bordeaux) in September 2017.
- Yves Robert was "président du jury" for the Habilitation à Diriger des Recherches of Abdou Guermouche and Pierre Ramet at Inria Bordeaux in November 2017.
- Matthieu Moy was examiner in the jury of Cédric BEN AOUN (LIP6, UPMC) in July 2017.
- Laure Gonnord was "rapporteur" in the Jury of Thomas Rubiano (LIPN) in December 2017.
- Laure Gonnord was examiner in the Jury of Jacob Lidman (Chalmers, Sweden) in December 2017.
- Laure Gonnord was examiner in the Jury of Maurica Fonenantsoa (Univ. Réunion) in december 2017.
- Laure Gonnord participated to the selection committee recruiting an assistant professor (MCF) at University of Grenoble, in Spring 2017.
- Laure Gonnord participated to the selection committee recruiting an assistant professor (MCF) at ENS Paris, in Spring 2017.
- Christophe Alias was "membre du jury" and "correcteur" for "concours E3A, épreuve d'Informatique MP" in May 2017.
- Jean-Yves L'Excellent was invited in the PhD jury of Théo Mary in November 2017.
- Yves Robert was "président du jury" for the Habilitation à Diriger des Recherches of Abdou Guermouche and Pierre Ramet at Inria Bordeaux in November 2017.

## SECRET Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- EuroS&P 2017: April 26-28, 2015, Paris (France): G. Leurent (poster chair);
- TQC 2017 (Theory of Quantum Computation, Communication and Cryptography): June 20-22, 2017, Paris (France): A. Chailloux, A. Leverrier.
- Dagstuhl Seminar 17401, "Quantum Cryptanalysis": October 1-6, 2017, Dagstuhl (Germany): N. Sendrier (co-organizer)
- Training School on Symmetric Cryptography and Blockchain: February 19-23, 2018, Torremolinos (Spain): A. Canteaut (co-organizer).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

As a co-editor-in-chief of the journal *IACR Transactions on Symmetric Cryptology*, María Naya-Plasencia serves as a program chair of the conference *Fast Software Encryption (FSE)*, hold in Tokyo March 2017, and to be held in Bruges March 2018.

#### 10.1.2.2. Member of the Conference Program Committees

- QIP 2017: January 16-20 2017, Seattle, USA (A. Chailloux, A. Leverrier);
- CT-RSA 2017: February 14-17, 2017, San Francisco, US (M. Naya-Plasencia);
- FSE 2017: March 5-8, 2017, Tokyo, Japan (A. Canteaut, G. Leurent, M. Naya-Plasencia);
- CryptoAction Symposium 2017: March 27-28, Amsterdam, the Netherlands (A. Canteaut);
- Financial Crypto 2017: April 3-7, 2017, Sliema, Malta (G. Leurent);
- Journées Codage et Cryptographie - C2 2017: April 23-28, La Bresse, France (G. Leurent);
- Eurocrypt 2017: 30 April- 4 May, 2017, Paris, France (M. Naya-Plasencia);
- Fq13: June 4-9, 2017, Gaeta, Italy (A. Canteaut);
- CEWQO 2017: June 26-30 2017, Lyngby, Denmark (A. Leverrier);
- PQCrypto 2017: 26-28 June, 2017, Utrecht, the Netherlands (M. Naya-Plasencia, N. Sendrier, J.P. Tillich)
- SAC 2017: August 16-18, 2017, Ottawa, Canada (G. Leurent, M. Naya-Plasencia);
- Crypto 2017: August 20-24, 2017, Santa Barbara, CA, USA (G. Leurent);
- AQIS 2017: September 4-8, 2017, Singapore (A. Chailloux);
- SCN 2018: September 5-7, 2018, Amalfi, Italy (G. Leurent);
- QCrypt 2017: 2017, September 18-22 2017, Cambridge, UK (A. Leverrier);
- WCC 2017: September 18-22, Saint-Petersburg, Russia (P. Charpin, J.-P. Tillich);
- FSE 2018: March 5-7, 2018, Bruges, Belgium (C. Boura, A. Canteaut, G. Leurent, M. Naya-Plasencia, L. Perrin);
- CryptoAction Symposium 2018: April 4-5, Sutomore, Montenegro (A. Canteaut);
- PQCrypto 2018: April 9-11, 2018, Fort Lauderdale, USA, (N. Sendrier, J.P. Tillich);

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- *Designs, Codes and Cryptography*, associate editor: P. Charpin.
- *Finite Fields and Applications*, associate editors: A. Canteaut, P. Charpin.
- *Applicable Algebra in Engineering, Communication and Computing*, associate editor: A. Canteaut.
- *IACR Transactions on Symmetric Cryptology*, associate editors: C. Boura, A. Canteaut, G. Leurent, L. Perrin, co-editor-in-chief: M. Naya-Plasencia.
- *Annals of telecommunications*, associate editor: J.P. Tillich.
- *Advances in Mathematics for Communications*, associated editor : J.P. Tillich

#### 10.1.3.2. Editor for books or special issues

- Special Issue on Coding and Cryptography, *Designs, Codes and Cryptography* : P. Charpin, T. Johansson, G. Kyureghyan, N. Sendrier and J.-P. Tillich, Eds., Volume 82, Issue 1-2, January 2017

#### 10.1.3.3. Reviewer - Reviewing Activities

- Reviewer for Mathematical Reviews: P. Charpin.
- Reviewer for ERC proposals: G. Leurent

### 10.1.4. Invited Talks

- A. Leverrier, *Security of continuous-variable quantum key distribution via a Gaussian de Finetti reduction*, Trustworthy Quantum Information TyQi 2017, Paris, France, 19-21 June 2017.
- A. Leverrier, *Challenges in continuous-variable quantum cryptography*, QCRYPT 2017, Cambridge, UK, 18-22 September 2017.
- N. Sendrier, *Quantum Safe Cryptography from Codes: Present and Future*, 16th IMA International Conference on Cryptography and Coding, Oxford, UK, December 13, 2017.

The members of the project-team have also been invited to give talks to some workshops or international seminars, including:

- A. Canteaut, *Proving Resistance against Invariant Attacks: Properties of the Linear Layer*, Early Symmetric Crypto - ESC 2017, Canach, Luxembourg, January 2017
- A. Canteaut, *Proving resistance of a block cipher against invariant attacks*, BFA 2017 - Boolean Functions and their Applications, Os, Norway, July 2017.
- A. Chailloux, *A tight security reduction in the quantum random oracle model for code-based signature schemes*, IRIF Algocomp seminar, Paris, France, November 2017
- G. Leurent, *On the Practical (In-)Security of 64-bit Block Ciphers*, Early Symmetric Crypto - ESC 2017, Canach, Luxembourg, January 2017
- G. Leurent, *Breaking Symmetric Cryptosystems Using Quantum Algorithms*, Frontiers of Quantum Safe Cryptography - FOQUS, April 2017, Paris, France.
- G. Leurent, *Bad Symmetric Crypto in the Real World*, Journées Nationales 2017 Pré-GDR Sécurité Informatique, Paris, France, May 2017.
- A. Leverrier, *A Gaussian de Finetti theorem and application to truncations of random Haar matrices*, Workshop on "Probabilistic techniques and Quantum Information Theory", IHP, Paris, France, 23-27 October 2017.
- A. Leverrier, *Efficient decoding of random errors for quantum expander codes*, Conference on "Quantum Information Theory", IHP, Paris, France, 11-15 December 2017.
- M. Naya-Plasencia, *New Results on Quantum Symmetric Cryptanalysis* Dagstuhl seminar "Quantum Cryptanalysis", Dagstuhl, Germany, October 2017.

- N. Sendrier, *Code-based Cryptography*, PQCRYPTO Summer School on Post-Quantum Cryptography 2017, TU Eindhoven, June 2017. 5 hours.
- N. Sendrier, *Code-based Cryptography*, Executive School on Post-Quantum Cryptography 2017, TU Eindhoven, June 2017. 1 1/2 hours.
- J.P. Tillich *Décodage de codes LDPC quantiques*, Journées C2 La Bresse, April 27, 2017.
- J.P. Tillich *Code based cryptography and quantum attacks*, Dagstuhl seminar "Quantum Cryptanalysis", Dagstuhl, Germany, October 2017.
- J.P. Tillich *Recent advances in decoding quantum LDPC codes*, Recent advances in Quantum Computing, CEA Saclay, December 13, 2017.

### 10.1.5. Leadership within the Scientific Community

- A. Canteaut serves as a chair of the steering committee of *Fast Software Encryption (FSE)*.
- A. Canteaut serves on the steering committee of the international competition CAESAR for authenticated encryption<sup>0</sup>.
- N. Sendrier serves on the steering committee of *Post-quantum cryptography (PQCrypto)*.
- N. Sendrier serves on the steering committee of the WCC conference series.
- N. Sendrier is a member of the "Comité de pilotage" of the ANR (défi 9).
- A. Leverrier serves on the steering committee of *DIM SIRTEQ* (réseau francilien pour les technologies quantiques).

### 10.1.6. Research Administration

- A. Canteaut serves as Head of Science of the Inria Paris research center since September 2017. She was deputy Head of Science from January to August 2017.
- A. Canteaut serves on the *Evaluation Committee* since September 2017.
- A. Canteaut was a member of the steering committee of the Fondation Sciences Mathématiques de Paris until June 2017.
- P. Charpin serves on the *Comité Parité* at Inria.
- M. Naya-Plasencia is a member of *Inria Paris CES Committee* (Comité de suivi doctoral).
- M. Naya-Plasencia is a member of *Inria Paris Scientific Hiring Committee* (Assignment of PhD, post-doctoral and delegation Inria fundings).
- M. Naya-Plasencia serves on the jury for PhD scholarships from EDITE.
- M. Naya-Plasencia serves on the *Comité des usagers du projet "rue Barrault"*.
- M. Naya-Plasencia serves on the *commission bureaux*.

### 10.1.7. Committees for the selection of professors, assistant professors and researchers

- Inria Paris Chargés de recherche: M. Naya-Plasencia
- Inria Directeurs de recherche: A. Canteaut
- Université Pierre-et-Marie-Curie, professor: A. Canteaut
- Université de Rouen, assistant professor: C. Boura, M. Naya-Plasencia
- Université de Limoges, assistant professor: C. Boura, M. Naya-Plasencia
- ENSEA, assistant Professor: M. Naya-Plasencia
- DTU Denmark, associate professor: A. Canteaut.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

<sup>0</sup><https://competitions.cr.yp.to/caesar.html>

Master: A. Canteaut, *Error-correcting codes and applications to cryptology*, 12 hours, M2, University Paris-Diderot (MPRI), France;

Master: A. Canteaut, *Symmetric cryptography*, 6 hours M2, Ecole des Mines de Saint-Etienne, campus de Gardanne (ingénieurs Spécialité Microélectronique et Informatique), France, 2017.

Master: A. Chailloux, *Quantum Computing*, 9 hours, M2, University Paris-Diderot (MPRI), France;

Master: G. Leurent *Algorithmique et programmation*, 25 hours, M1, UVSQ, France;

Corps des Mines: G. Leurent *Cryptographie symétrique*, 9 hours, Telecom ParisTech, France;

Master: J.-P. Tillich, *Introduction to Information Theory*, 32 hours, M2, Ecole Polytechnique, France;

### 10.2.2. Supervision

HdR : María Naya Plasencia, *Symmetric Cryptography for Long-Term Security*, University Pierre-et-Marie-Curie, May 5, 2017.

HdR : Anthony Leverrier, *Protecting information in a quantum world: from cryptography to error correction*, University Pierre-et-Marie-Curie, September 27, 2017.

PhD : Julia Chaulet, *Study of public-key cryptosystems based on MDPC quasi-cyclic codes*, University Pierre-et-Marie-Curie, March 20, 2017.

PhD : Kaushik Chakraborty, *Cryptography with spacetime constraints*, Université Pierre-et-Marie Curie, October 12, 2017.

PhD : Adrien Hauteville, *Nouveaux protocoles et nouvelles attaques pour la cryptologie basée sur les codes en métrique rang*, University of Limoges, December 4, 2017.

PhD in progress: Rodolfo Canto Torres, *Analysis of generic decoding algorithms for the Hamming metric and study of cryptosystems based on the rank metric*, since September 2015, supervisor: N. Sendrier

PhD in progress: Sébastien Duval, *Constructions for lightweight cryptography*, since October 2015, supervisor: A. Canteaut and G. Leurent

PhD in progress: Yann Rotella, *Finite fields and symmetric cryptography*, since October 2015, supervisor: A. Canteaut

PhD in progress: Xavier Bonnetain, *Cryptanalysis of symmetric primitives in the post-quantum world*, since September 2016, supervisor: M. Naya Plasencia

PhD in progress: Thomas Debris, *Quantum algorithms for decoding linear codes*, since September 2016, supervisor: J.-P. Tillich

PhD in progress: Antoine Gropellier, *LDPC codes: constructions and decoding*, since October 2016, supervisor: J.-P. Tillich

PhD in progress: Vivien Londe, *Study of quantum LDPC codes*, since September 2016, supervisors: G. Zémor and A. Leverrier

PhD in progress: Kevin Carrier, *Reconstruction of error-correcting codes*, since October 2016, supervisor: N. Sendrier

PhD in progress: Matthieu Lequesne, *Attaques par canaux cachés sur les cryptosystèmes à base de codes MDPC quasi-cycliques*, since September 2017, supervisor: N. Sendrier

PhD in progress: Ferdinand Sibleyras, *Security of modes of operation*, since October 2017, supervisor: G. Leurent and A. Canteaut

PhD in progress: Valentin Vasseur, *Etude du décodage des codes QC-MDPC*, since October 2017, supervisor: N. Sendrier

PhD in progress: Rémi Bricout, *Etude de scénarios non-locaux quantiques à l'aide d'outils de la théorie de l'information quantique*, since September 2017, supervisor: A. Chailloux and A. Leverrier

PhD in progress: Shouvik Ghorai, *Beyond-QKD continuous-variable quantum cryptographic protocols*, since October 2017, supervisors: E. Diamanti (UPMC), A. Leverrier

PhD in progress: Andrea Olivo, *Partir de contraintes relativistes pour faire de la cryptographie quantique*, since November 2017, supervisors: A. Chailloux and F. Grosshans (laboratoire Aimé Cotton).

### 10.2.3. Juries

- C. Mavromati, *Cryptanalyse des algorithmes de type Even-Mansour*, University Paris-Saclay, January 24, 2017, committee: A. Canteaut (reviewer).
- J. Chaulet, *Study of public-key cryptosystems based on MDPC quasi-cyclic codes*, University Pierre-et-Marie-Curie, March 20, 2017, committee: N. Sendrier (supervisor), JP Tillich.
- R. do Canto de Loura, *Quantum measures, noise and measurement errors in a quantum bit commitment protocol*, Universidade de Lisboa, Instituto Superior Tecnico, March 31, 2017, committee: A. Leverrier (reviewer).
- M. Naya-Plasencia, *Symmetric Cryptography for Long-Term Security*, Habilitation, University Pierre-et-Marie-Curie, May 5, 2017, committee: A. Canteaut.
- H. Kalachi, *Sécurité de Protocoles Cryptographiques Fondés sur la Théorie des Codes Correcteurs d'Erreurs*, July 5, 2017, University of Rouen, committee: J.P. Tillich;
- B. Dravie, *Synchronisation et systèmes dynamiques, application à la cryptographie*, University of Lorraine, July 6, 2017, committee: A. Canteaut (reviewer).
- V. Dragoi, *Approche algébrique pour l'étude et la résolution de problèmes algorithmiques issus de la cryptographie et de la théorie des codes*, July 6, 2017, University of Rouen, committee: N. Sendrier (reviewer), J.P. Tillich;
- V. Migliore, *Cybersécurité matérielle et conception de composants dédiés au calcul homomorphe*, Université de Bretagne Sud, September 26, 2017. committee: N. Sendrier (reviewer);
- A. Leverrier, *Protecting information in a quantum world: from cryptography to error correction*, Habilitation, University Pierre-et-Marie-Curie, September 27, 2017, committee: J.P. Tillich;
- A. Banner, *Combinatorial analysis of block ciphers with trapdoor*, Arts et Métiers ParisTech, September 29, 2017, committee: A. Canteaut;
- K. Chakraborty, *Cryptography with spacetime constraints*, Université Pierre-et-Marie Curie, October 12, 2017, committee: A. Leverrier (supervisor), J.P. Tillich (supervisor);
- A. Hauteville, *Nouveaux protocoles et nouvelles attaques pour la cryptologie basée sur les codes en métrique rang*, University of Limoges, December 4, 2017, committee: N. Sendrier, J.P. Tillich (supervisor);
- D. Mirandola, *On products of linear error correcting codes*, Leiden University, the Netherlands, and Univ. de Bordeaux, December 6, 2017, committee: A. Canteaut (reviewer, chair).
- G. Spini, *Unconditionally secure cryptographic protocols from coding-theoretic primitives*, Leiden University, the Netherlands, and Univ. de Bordeaux, December 6, 2017, committee: A. Canteaut (chair).
- P. Méaux, *Chiffrement complètement homomorphe hybride*, Research University PSL, December 8, 2017, committee: A. Canteaut (reviewer);
- M. Saad Taha. *Algebraic Approach for Code Equivalence*, Université de Rouen, December 18, 2017. committee: N. Sendrier (reviewer), J.P. Tillich;

## 10.3. Popularization



- **Alkindi cipher challenge:** Several members of the project-team are involved in the cipher challenge for high-school students "concours Alkindi" <http://www.concours-alkindi.fr/>. Matthieu Lequesne organized the challenge and created the scientific content of the competition. He also gave a talk during the final of the cipher challenge Alkindi on May 17 at the "Cité des Sciences" in Paris. The 2018 edition of the competition has been launched in December 2017 at Lycée de la Vallée de Chevreuse, Gif-sur-Yvette. Matthieu Lequesne, Sébastien Duval and Yann Rotella gave talks on cryptography during the opening ceremony. The best teams from Académies de Dijon and Orléans-Tours have been visiting the SECRET project-team in June 2017 <https://www.youtube.com/watch?v=EVLHEOWAORc>.
- N. Sendrier, *Code-Based Cryptography: State of the Art and Perspectives*, IEEE Security & Privacy, Special Issue on Post-quantum Cryptography. July/August 2017.
- A. Chailloux *Cryptographie Quantique en théorie* - Journée Maths en Mouvement sur l'ordinateur quantique organized by the FSMP, Paris, France, May 2017
- Matthieu Lequesne co-organized the final of the French Tournament of Young Mathematicians at École polytechnique on May 26-28 and was chaired the jury sessions. He also participated to the elaboration of the problems for the 8th French Tournament of Young Mathematicians (TFJM<sup>2</sup>) in December 2017.
- Matthieu Lequesne co-organized the International Tournament of Young Mathematicians (ITYM) in Iasi, Romania in July 2017 and was part of the international jury.
- Matthieu Lequesne taught for one week during a mathematical summer camp for high school students in Bethlehem, Palestine, organized by the Al Khwarizmi Noether Institute in August 2017.
- Matthieu Lequesne co-organized a weekend for female high-school students interested in mathematics (Rendez-vous des Jeunes Mathématiciennes) at ENS Ulm, November 25-26.
- Yann Rotella gave a talk on cryptography at Lycée Théophile Gautier, Tarbes, January 31, 2017.
- Yann Rotella gave a presentation for *Raconte-moi ta thèse !* during Fete de la Science, at IHP, Paris, October 2017.
- Several members of the team (C. Boura, A. Canteaut, M. Lequesne, A. Leverrier, Y. Rotella) have been involved in the *Cinquante ans d'Inria*, November 2017. They hold a stand to present a serious game on cryptography. A. Canteaut has participated on a panel on Cyber-security. A. Leverrier gave a short talk (pitch de science) on quantum computing.
- Matthieu Lequesne was auditioned by the committee in charge of proposing a reform of mathematical education (Mission Maths Villani-Torossian) on November 29.

## SELECT Project-Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

#### 9.1.1. Scientific Events Organisation

##### 9.1.1.1. General Chair, Scientific Chair

Sylvain Arlot organized (with Guillaume Charpiat) the Workshop Statistics/Learning at Paris-Saclay (2nd edition), at IHES (Bures-sur-Yvette).

##### 9.1.1.2. Member of the Organizing Committees

- Gilles Celeux is one of the co-organizers of the international working group on model-based clustering. This year the workshop took place in Perugia, Italy.
- Sylvain Arlot is one of the co-organizers of the Junior Conference on Data Science and Engineering at Paris-Saclay (2nd edition in 2017).
- Jean-Michel Poggi was president of the Scientific Program Committee, ENBIS 2017, Naples, 10-14 June 2017.
- Jean-Michel Poggi was member of the Conference Scientific Board of IES 2017, Naples, Italy, 6-8 September 2017.

#### 9.1.2. Journal

##### 9.1.2.1. Member of the Editorial Boards

Gilles Celeux is Editor-in-Chief of the *Journal de la SFdS*. He is Associate Editor of *Statistics and Computing*, *CSBIGS*.

Pascal Massart is Associate Editor of *Annals of Statistics*, *Confluentes Mathematici*, and *Foundations and Trends in Machine Learning*.

Jean-Michel Poggi is Associate Editor of *Journal of Statistical Software*, *Journal de la SFdS* and *CSBIGS*.

##### 9.1.2.2. Reviewer - Reviewing Activities

The members of the team have reviewed numerous papers for numerous international journals.

#### 9.1.3. Invited Talks

The members of the team have given many invited talks on their research in the course of 2016.

#### 9.1.4. Leadership within the Scientific Community

Jean-Michel Poggi is:

- Vice-President ENBIS (European Network for Business and Industrial Statistics), 2015-18
- Vice-President FENStatS (Federation of European National Statistical Societies) since 2012
- Council Member of the ISI (2015-19)
- Member of the Board of Directors of the ERS of IASC (since 2014)

#### 9.1.5. Scientific Expertise

Jean-Michel Poggi is member of the EMS Committee for Applied Mathematics (since 2014).

#### 9.1.6. Research Administration

Jean-Michel Poggi is the president of ECAS (European Courses in Advanced Statistics) since 2015.

Sylvain Arlot coordinates (jointly with Marc Schoenauer, Inria Saclay) the math-STIC program of the Labex Mathématique Hadamard.

Christine Keribin is treasurer of the Société Française de Statistique (SFdS).

## **9.2. Teaching - Supervision - Juries**

### **9.2.1. Teaching**

SELECT members teach various courses at several different universities, and in particular the Master 2 “Mathématique de l’aléatoire” of Université Paris-Saclay.

### **9.2.2. Supervision**

PhD: Valérie Robert, 2013, Gilles Celeux and Christine Keribin. Defended in June 2017

PhD : Yann Vasseur, 2013, Gilles Celeux and Marie-Laure Martin-Magniette (URGV). Defended in December 2017

PhD in progress: Neska El Haouij, 2014, Jean-Michel Poggi and Meriem Jaïdane, Raja Ghozi (ENIT Tunisie) and Sylvie Sevestre-Ghalila (CEA LinkLab), Thesis ENITUPS

PhD in progress: Florence Ducros, 2015, Gilles Celeux and Patrick Pamphile

PhD in progress: Claire Brécheteau, 2015, Pascal Massart

PhD in progress: Hedi Hadji, 2017, Pascal Massart

PhD in progress: Eddie Aamari, 2015, Pascal Massart and Frédéric Chazal

PhD: Damien Garreau, 2013, Sylvain Arlot and Gérard Biau (UPMPC). Defended in October 2017

PhD in progress: Guillaume Maillard, 2016, Sylvain Arlot and Matthieu Lerasle

PhD in progress: Jeanne Nguyen, 2015, Claire Lacour and Vincent Rivoirard (Univ Paris Dauphine)

PhD in progress: Benjamin Goehry, 2015, Pascal Massart and Jean-Michel Poggi

Masters internship: Thomas Prochwicz. Christine Keribin conducted a preliminary study on expert aggregation by supervising this three month internship.

### **9.2.3. Juries**

S. Arlot was a member of the Ph.D. jury of Jilai Mei (Université Paris-Sud).

## SEMAGRAMME Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. General Chair, Scientific Chair

- Maxime Amblard: General chair of **(In)Coherence of Discourse 4**, March 2017, Université de Lorraine.
- Bruno Guillaume: General chair of **“Acor4French: les corpus annotés du français”**, workshop of the TALN conference.

### 8.1.2. Scientific Events Selection

#### 8.1.2.1. Chair of Conference Program Committees

- Philippe de Groote: co-chair of **MoL 2017** *15th Meeting on the Mathematics of Language* [20].
- Sylvain Pogodalla: co-chair of **FG 2017** *22nd Conference on Formal Grammar* [19].

#### 8.1.2.2. Reviewer

- Maxime Amblard: **(In)Coherence of Discourse 4**, **ACL2017**, **TALN 17**, **traitement automatique des langues**, and **RECITAL17** Rencontre des Étudiants Chercheurs en Informatique pour le Traitement Automatique des Langues, journée EGC-IA.
- Philippe de Groote: **(In)Coherence of Discourse 4**, **MoL 2017**, **FG 2017**, **IWCS 2017**.
- Bruno Guillaume: **ACL2017**, **LREC2018**.
- Sylvain Pogodalla: **(In)Coherence of Discourse 4**, **TAG+13** *13th International Workshop on Tree Adjoining Grammars and Related Formalisms*.

### 8.1.3. Journal

#### 8.1.3.1. Member of Editorial Boards

- Maxime Amblard: Member of the editorial board of the journal *Traitement Automatique des Langues*, in charge of the final editing process.
- Philippe de Groote: area editor of the *FoLLI-LNCS series*; associate editor of *Higher-Order and Symbolic Computation*; member of the editorial board of *Cahiers du Centre de Logique*.
- Sylvain Pogodalla: Member of the editorial board of the journal *Traitement Automatique des Langues*, in charge of the *Résumés de thèses* section.

#### 8.1.3.2. Reviewer - Reviewing Activities

- Maxime Amblard: **Journal of Language, Logic and Information**, *Traitement Automatique des Langues*.
- Philippe de Groote: **Journal of Language, Logic and Information**, **Logical Methods in Computer Science**.
- Sylvain Pogodalla: **Journal of Language, Logic and Information**, **Mathematical Structures in Computer Science**, *Traitement Automatique des Langues*;

### 8.1.4. Invited Talks

- Maxime Amblard:
  - A Formal Account of Disorders in Dialogues, CLASP seminar, November 2017, University of Gothenburg, Sweden [8].

- Table ronde "TAL et médical", TALN 2017, June 2017, Orléans.
- Le discours des schizophrènes par la formalisation langagière, interpréter les troubles de la pensée par les troubles du langage, Séminaire C2S, June 2017, Université de Reims [9].
- Modélisation sémantique de la langue, une mise en pratique, séminaire SIESTE, computer science department, ENS Lyon, March 2017, Lyon [22].
- Timothée Bernard:
  - A Montagovian semantics for discourse connectives, NYU Semantics Group, October 2017, New York, USA.
  - Negative events, joint work with Lucas Champollion, NYU Semantics Group, December 2017, New York, USA.
- Sylvain Pogodalla: Tutorial at **FSMNLP 2017 & TAG+13** [26], Umeå, Sweden, September 2017.
- Guy Perrier: invited talk in the seminar of the TEXTE team (LIRMM, Montpellier), March 2017.

### 8.1.5. Leadership within the Scientific Community

- Philippe de Groote: president of SIGMOL, *Association for Mathematics of Language, a Special Interest Group of the Association for Computational Linguistics*; member of the LACL steering committee.
- Bruno Guillaume: Management Committee Substitute of the COST Action CA16105 "European Network for Combining Language Learning with Crowdsourcing Techniques" ([http://www.cost.eu/COST\\_Actions/ca/CA16105](http://www.cost.eu/COST_Actions/ca/CA16105)).
- Sylvain Pogodalla: member of the LACL steering committee; member of the Formal Grammar standing committee.

### 8.1.6. Scientific Expertise

- Philippe de Groote: member of the scientific council of the LIRMM, *Laboratoire d'Informatique, de Robotique et de Microélectronique de Montpellier*; member of the scientific council of the AREN e-FRAN project, *ARgumentation Et Numérique*.
- Sylvain Pogodalla: external reviewer for **CIMI LabEx**, expert for the Research Executive Agency (REA) of the EU.
- Guy Perrier: external rapporteur on the scientific activity of Prof François Lareau (Université de Montréal, Canada) for his promotion as "professeur agrégé".

### 8.1.7. Research Administration

- Maxime Amblard:
  - Member of *conseil scientifique de l'Université de Lorraine*.
  - Standing invitee at the "pôle scientifique" AM2I of Université de Lorraine.
  - Member of the standing committee of the *conseil de laboratoire du Loria*.
  - Member of the board of the *Maison des sciences de l'homme, MSH-Lorraine*.
  - Head of the master (M2) in Natural Language Processing.
  - In charge of the proposal of a new master in NLP.
  - Member of the McF selection committee 4373 (section 7 and 27), Université Paris Sorbonne.
- Philippe de Groote:
  - Member of the *bureau du comité des projets d'Inria Nancy – Grand Est*.
- Bruno Guillaume:
  - Head of the Loria department NLPKD (Natural Language Processing and Knowledge Discovery).

- Animator of the CPER 2015-2020 project *Langues, Connaissances et Humanités Numériques* (Languages, Knowledge and Digital Humanities) in which ten laboratories of the *Université de Lorraine* are implied.
- Member of the Comipers (Inria committee for PhD and Post-doctoral selection).

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Licence:

Maxime Amblard, Ingénierie de la langue, 25h, L3, Université de Lorraine, France.

Maxime Amblard, Panorama du TAL, 2h, L1, Université de Lorraine, France.

Timothée Bernard, Algorithmique (TD), 24h, L3, Université Paris Diderot – Paris 7, France.

Clement Beysson, C2I, 18h, L1, Université de Lorraine, France.

Clement Beysson, Linguistique, 14h, L2, Université de Lorraine, France.

Clement Beysson, Représentation Avancé de Donnée, 25h, L2, Université de Lorraine, France.

Clement Beysson, Ingénierie de la langue, 10h, L3, Université de Lorraine, France.

Pierre Ludmann, TD Tronc Commun d'Informatique I, 20h, 1st year Formation Ingénieur Civil, Mines Nancy, France.

Master:

Maxime Amblard, Formalisms: from Syntax to Discourse (english), 50h, M2, Université de Lorraine, France.

Maxime Amblard, Research methodology (english), 10h, M2, Université de Lorraine, France.

Maxime Amblard, Remise à niveau TAL (english), 4h, M2, Université de Lorraine, France.

Maxime Amblard, initiation au TAL, 30h, M1, Université de Lorraine, France.

Maxime Amblard, Programming for NLP (english), 44h, M1, Université de Lorraine, France.

Philippe de Groote, Formal logic, 35h, M2, Université de Lorraine, France.

Philippe de Groote, Computational structures and logics for natural language modeling, 18h, M2, Université Paris Diderot – Paris 7, France.

Bruno Guillaume, Remise à niveau TAL (english), 9h, M2, Université de Lorraine, France.

Bruno Guillaume, Linguistic Resources TAL (english), 15h, M2, Université de Lorraine, France.

Sylvain Pogodalla, Formal Languages, 24h, M2, Université de Lorraine, France.

### 8.2.2. Supervision

PhD in progress:

Clement Beysson, *Quantificateurs généralisés dynamiques pour l'analyse discursive*, since September 2015, Philippe de Groote and Bruno Guillaume.

Maria Boritchev, *Dialogue Dynamics Modeling in the Simple Theory of Types*, since September 2017, Maxime Amblard and Philippe de Groote.

Pierre Ludmann, *Construction dynamique des structures discursives*, since September 2017, Philippe de Groote and Sylvain Pogodalla.

### 8.2.3. Juries

Maxime Amblard was member of the jury of the master thesis of the master NLP (6 students).

Sylvain Pogodalla was member of the jury of the PhD thesis of Rapaël Salmon, *Natural Language Generation Using Abstract Categorical Grammars* July 10, 2017, Paris Diderot – Paris 7 University.

Sylvain Pogodalla was member of the jury of the *Prix de la thèse 2017* of the *Association pour le Traitement automatique des Langues (ATALA)*.

## 8.3. Popularization

- Maxime Amblard:
  - Vice head of the editorial board of *interstices* [ji](#)(, a French magazine popularizing computer sciences.
  - Several publication about algorithms, AI and NLP for *interstices* [ji](#)(.
  - Winner of a **Blaise Pascal Foundation** grant for a project to create a happy families game (*jeu des sept familles*) based on computer science sub-fields and scientists.
- Bruno Guillaume: interviewed by the large audience scientific newspaper *Sciences & Avenir* (January 2017) for the article *Pour aidez la recherche, jouez !*

## SEQUEL Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

- *Visually grounded interaction and language*, workshop at NIPS 2017, organized by Florian Strub, Harm de Vries, Abhishek Das, Satwik Kottur, Stefan Lee, Mateusz Malinowski, Olivier Pietquin, Devi Parikh, Dhruv Batra, Aaron C Courville, Jérémie Mary. URL: <https://nips.cc/Conferences/2017/Schedule?showEvent=8766>
- O. Maillard: Workshop of the working group *Sequential Structured Statistical Learning*, May 17 2017 at Institut des Hautes Etudes Scientifiques (Bures-sur-Yvette). URL: <https://sites.google.com/site/groupedetravailssl>

#### 10.1.1.1. Member of the Conference Program Committees

Members of SEQUEL have been involved in the following program committees in 2017:

- Senior PC for International Joint Conference on Artificial Intelligence (IJCAI 2017)
- Senior PC for ACM KDD 2017
- International Conference on Artificial Intelligence and Statistics (AI & STATS 2017)
- PC member for the international Conference On Learning Theory (COLT 2017)
- European Conference on Machine Learning (ECML 2017)
- 1st Workshop on Transfer in Reinforcement Learning (TiRL) 2017
- The Third International Conference on Machine Learning, Optimization and Big Data (MOD 2017)
- French conferences:
  - Extraction et Gestion de Connaissances (EGC),
  - Journées Francophones de Planification, Décision, Apprentissage (JFPDA)
  - Journées de la Société Francophone de Classification (SFC)
  - Conférence francophone sur l'Apprentissage Automatique (CAp)

#### 10.1.1.2. Reviewer

Édouard Oyallon receives a “best NIPS reviewer award”.

Members of SEQUEL have reviewed papers for the following conferences:

- AI&Stats, COLT, ECML, ICML, IJCAI, NIPS, ALT.

### 10.1.2. Journal

#### 10.1.2.1. Reviewer - Reviewing Activities

- Automatica
- IEEE Transactions on Pattern Analysis and Machine Intelligence - Journal Reviewer
- IEEE transaction on Software Engineering
- International Federation of Automatic Control
- Bernoulli Journal
- Journal of Machine Learning Research
- IEEE Transaction on Signal Processing

#### 10.1.3. Invited Talks



- R. Gaudel, *Recommendation as a Sequential Process*, Presented on February 1st, 2017, at Séminaire CMLA, Paris, France (*CMLA 2017*)
- R. Gaudel, *Recommendation as a Sequential Process*, Presented on January 10th, 2017, at Séminaire ENSAI, Rennes (Bruz), France (*ENSAI 2017*)
- A. Lazaric, *Spectral Methods for Reinforcement Learning*, Presented on April 10, 2017, at Amazon, Berlin, Germany
- M. Valko, *SequeL, graphs in ML, and online recommender systems*, Presented on November 9th, 2017 at Plateau Inria Euratechnologies in Lille, France (*Euratechnologies 2017*)
- M. Valko, *Sequential sampling for kernel matrix approximation and online learning* Presented on September 19th, DeepMind, London, UK (*DeepMind 2017*)
- M. Valko, *Active learning on networks and online influence maximization*, Presented on September 18th, 2017, Decision Theory and Network Science: Methods and Applications, Lancaster, UK (*STOR-i 2017*)
- M. Valko, *Side observation in graph bandits*, Presented on July 11th, 2017, ICML 2017 workshop on Picky Learners, Sydney, Australia (*ICML 2017*)
- M. Valko, *Distributed sequential sampling for kernel matrix approximation*, Presented on June 28th, 2017, L'Institut de Mathématiques de Toulouse, France (*IMT 2017*)
- M. Valko, *Online sequential solutions for recommender systems*, Presented on June 14th, 2017 at Journées Scientifiques Inria 2017 in Nice, France (*JS 2017*)
- M. Valko, *Where is Justin Bieber?*, Presented on March 30th, 2017 at Dating day in Lille, France (*Dating 2017*)
- M. Valko, *Distributed sequential sampling for kernel matrix approximation*, Presented on March 22nd, 2017, for Universität Potsdam at Amazon (*Berlin 2017*)

#### 10.1.4. Scientific Expertise

- É. Kaufmann was a member of the committee of Experts for Hiring junior faculty in the maths department of Université of Lille 1
- J.Mary was a member of the industrial transfer commission of Inria Lille
- Alessandro Lazaric was reviewer for NSFC-ISF Research Grant
- Philippe Preux is a member of the evaluation committee and participates in the hiring, promotion, and evaluation juries of Inria:
  - Inria CR1 hiring committee
  - Inria Lille CR2 hiring committee
  - Inria committee for researcher promotion
  - Inria committee for PEDR
- Philippe Preux was a member of the hiring committees for 1 professor and 2 associate professors at the Université de Lille 3
- Philippe Preux was a member of the committee for PhD grant of the “Pôle Métropolitain de la Côte d’Opale”
- Philippe Preux reviewed a proposal for ANRT (and declined invitation from ANR)
- M. Valko is an elected member of the evaluation committee and participates in the hiring, promotion, and evaluation juries of Inria, notably
  - Hiring committee for junior researchers at Inria Saclay (2017)
  - Inria work group for deontological ethics (2017)
  - Selection committee for Inria award for scientific excellence of junior and confirmed researchers (2017)

- M. Valko was a member national Inria acceptance committee for hiring junior researchers
- M. Valko was a member of the committee of Experts for Hiring junior faculty at CMLA, ENS Paris-Saclay

### 10.1.5. Research Administration

- *M. Gaudel* was member of the Board of CRISAL.
- Philippe Preux is:
  - “délégué scientifique adjoint” of the Inria center in Lille
  - member of the Inria evaluation committee (CE)
  - member of the Inria internal scientific committee (COSI)
  - member of the scientific committee of CRISAL
  - the head of the “Data Intelligence” thematic group at CRISAL

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: É. Kaufmann, 2017/2018 Fall: Machine Learning, 18h eq TD, M2 Maths/Finances, Université de Lille 1

Master: É. Kaufmann, 2016/2017 Spring: Data Mining, 36h eq TD, M1 Maths/Finances, Université de Lille 1

Master: A. Lazaric, 2017/2018 Fall: Reinforcement Learning, 36h eqTD, M2, ENS Cachan

Master: M. Valko, 2017/2018 Fall: Graphs in Machine Learning, 36h eqTD, M2, ENS Cachan

### 10.2.2. Supervision

PhD in progress: Marc Abeille, Exploration-exploitation in reinforcement learning, started Sept. 2014, advisor: Remi Munos, Alessandro Lazaric

PhD in progress: Merwan Barlier, Human-in-the loop reinforcement learning for dialogue systems, started Oct. 2014, advisor: Olivier Pietquin

PhD in progress: Alexandre Bérard, Deep learning for post-editing and automatic translation, started Oct. 2014, advisor: Olivier Pietquin

PhD in progress: Lilian Besson, Bandit approach to improve Internet Of Things Communications, started Oct. 2016, advisor: Émilie Kaufmann, Christophe Moy (CentraleSupélec Rennes)

PhD in progress: Daniele Calandriello, Efficient Sequential Learning in Structured and Constrained Environment, Inria, started Oct. 2014, advisor: Michal Valko, Alessandro Lazaric

PhD in progress: Ronan Fruit, Exploration-exploitation in hierarchical reinforcement learning, Inria, started Dec. 2015, advisor: Daniil Ryabko, Alessandro Lazaric

PhD in progress: Pratik Gajane, Multi-armed bandits with unconventional feedback, started Oct. 2014, defended Nov. 14th 2017, advisor: Philippe Preux

PhD in progress: Guillaume Gautier, DPPs in ML, started Oct. 2016, advisor: Michal Valko; Rémi Bardenet

PhD in progress: Jean-Bastien Grill, Création et analyse d’algorithmes efficaces pour la prise de décision dans un environnement inconnu et incertain, Inria/ENS Paris/Lille 1, started Oct. 2014, advisor: Rémi Munos, Michal Valko

PhD in progress: Édouard Leurent, Autonomous vehicle control: application of machine learning to contextualized path planning, started Oct. 2017, advisor: Odalric Maillard, Philippe Preux, Denis Effimov (NON-A), Wilfrid Perruquetti (NON-A)

PhD in progress: Sheikh Waqas Akhtar, Bandits for non-stationarity and structure, started Oct. 2017, advisor: Odalric Maillard, Daniil Ryabko.

PhD in progress: Julien Perolat, Reinforcement learning: the multi-player case, started Oct. 2014, advisor: Olivier Pietquin

PhD in progress: Pierre Perrault, Online Learning on Streaming Graphs, started Sep. 2017, advisor: Michal Valko; Vianney Perchet

PhD in progress: Mathieu Seurin, Multi-scale rewards in reinforcement learning, started Oct. 2017, advisor: Olivier Pietquin, Philippe Preux

PhD in progress: Julien Seznec, Sequential Learning for Educational Systems, started Mar. 2017, advisor: Michal Valko; Alessandro Lazaric, Jonathan Banon

PhD in progress: Xuedong Shang, Adaptive methods for optimization in stochastic environments, started Oct. 2017, advisor: Émilie Kaufmann, Michal Valko

PhD in progress: Florian Strub, Reinforcement Learning for visually grounded interaction, started Jan. 2016, advisors: Olivier Pietquin and Jeremie Mary

PhD in progress: Kiewan Villatel, Deep Learning for Conversion Rate Prediction in Online Advertising, started Oct. 2017, advisor: Philippe Preux

### 10.2.3. Juries

PhD and HDR juries:

- É. Kaufmann, *Navikumar Modi*, CentraleSupélec Rennes, May 2017
- A. Lazaric:
  - *Stefano Paladino*, Politecnico di Milano, Dec 2017
  - *Micheal Castronovo*, Université de Liege, March 2017
  - *Raffaello Camoriano*, Università di Genova, April 2017
  - *Claire Vernade*, TelecomParis Tech, October 2017
- Ph. Preux:
  - Cricia Zilda Felicio Paixao, Uniervity Uberlandia, Brasil
  - Thibault Gisselbrecht, LIP 6, UPMC, Paris
  - Pratik Gajane, CRISAL, Lille
- M. Valko: *Clément Bouttier*, Université Toulouse 3 Paul Sabatier, June 2017

PhD mid-term evaluation:

- M. Valko: *Thibault Liétard*, Université Lille, September 2017

## 10.3. Popularization

- CNRS publishes an article about zonotope sampling presented at ICML (see <http://www.cnrs.fr/ins2i/spip.php?article2633>).
- Julien Seznec publishes an article in *Les Echos* that discusses ML for education (November 2017).
- Émilie Kaufmann gave a popularization talk about bandit algorithms aimed at high school/prepa students at the MathPark seminar, organized at IHP in Paris (April 2017).
- *Avec GuessWhat?! quand l'humain joue, l'ordinateur s'initie au langage*, <https://www.inria.fr/centre/lille/actualites/avec-guesswhat-!-quand-l-humain-joue-l-ordinateur-s-initie-au-langage>
- Florian Strub and Mathieu Seurin demonstrated guesswhat?! during the celebrations of Inria 50th anniversary (November 2017).
- Philippe Preux:

- interviewed for an article on *L'intelligence artificielle, est-ce vraiment de l'intelligence ?* in *BioTech.info*, Jan. 2017.
  - participates to a debate about Artificial Intelligence, as part of the franceIA tour (Euratechnologies, Lille).
  - interview by AFP in relation to alphaGo.
  - interviewed for an article on AI and games, published in *Le figaro*.
  - an interview that led to a publication in ATOS Connexion, the ATOS internal journal.
  - a video has been made with him being interviewed on Artificial Intelligence by NordEka (to be available on youtube).
  - has been selected to be protrayed at the “Soirée partenaires de l’université de Lille”, Nov.
  - was a member of the organization committee of the celebrations of the 50th Inria anniversary in Lille.
  - co-organizes a meet-up on big data and machine learning at Inria.
- M. Valko, *Comment maximiser la détection des influenceurs sur les réseaux sociaux ?*, popularization talk, Presented on May 30th, 2017 at 13 France (*Inria 13:45 2017*)

## SERENA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

Alexandre Ern, Iain Smears, and Martin Vohralík have organized a 2-day workshop on **A posteriori error estimates, adaptivity, and advanced applications**, in the framework of the **ERC GATIPOR** project. 40 participants from the whole world.

Soleiman Yousef and Martin Vohralík have organized a 1-day workshop **Journée contrat cadre IFP Energies Nouvelles/Inria**.

#### 10.1.1.2. Member of the Organizing Committees

Géraldine Pichot and Michel Kern are members of the local organizing committee of the **Computational Methods in Water Resources 2018** conference.

Martin Vohralík was a member of the organizing committee of the *Finite Volumes for Complex Applications* conference.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

Alexandre Ern and Martin Vohralík were members of the scientific committee of the **ENUMATH 2017** conference.

Martin Vohralík was a member of the scientific committee of the *Finite Volumes for Complex Applications* conference.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

François Clément is a member of the editorial board of **Matapli** from September 2017.

Alexandre Ern is a member of the editorial boards of **SIAM Journal on Scientific Computing**, **ESAIM Mathematical Modelling and Numerical Analysis**, **IMA Journal of Numerical Analysis**, **Computational Methods in Applied Mathematics**, and **Journal de l'Ecole polytechnique, Mathématiques**.

M. Vohralík is a member of the editorial boards of **SIAM Journal on Numerical Analysis** and of **Acta Polytechnica**.

#### 10.1.3.2. Reviewer - Reviewing Activities

Thomas Boiveau was a reviewer for the **Journal of Scientific Computing** and the journal **Geometrically Unfitted Finite Element Method and Applications (Proceedings of the UCL Workshop 2016)**.

Matteo Cicuttin was a reviewer for the journal **Journal of Computational and Applied Mathematics**.

Alexandre Ern served as reviewer for tens of papers in different journals.

Frédéric Marazzato was a reviewer for the journal **Modelling and Simulation in Materials Science and Engineering**.

Laurent Monasse was a reviewer for the **Journal of Computational Physics**, the **European Journal of Mechanics B Fluids**, and the **International Journal for Numerical Methods in Engineering**.

Michel Kern was a reviewer for **Computers and Geosciences**, **Advances in Computational Mathematics**, **ESAIM: proceedings**, **ARIMA**, and **Applicable Analysis**.

Martin Vohralík served as reviewer for tens of papers in different journals.

#### 10.1.4. Invited Talks

Alexandre Ern, plenary speaker, **SIAM Conference on Mathematical and Computational Issues in the Geosciences 2017**, Erlangen, Germany.

Alexandre Ern, invited speaker, **POEMS 2017**, Milano, Italy.

Alexandre Ern, invited speaker, **Inauguration workshop** of the French-German-Italian LIA COPDESC on Applied Analysis.

Michel Kern, plenary speaker, **6th Workshop on Parallel-in-Time methods**, Locarno, Switzerland.

Martin Vohralík, plenary speaker, **TamTam 2017**, Hammamet, Tunisia, May 2017.

Martin Vohralík, plenary speaker, **International Conference on Approximation Methods and Numerical Modelling in Environment and Natural Resources**, Oujda, Morocco, May 2017.

Martin Vohralík, plenary speaker, **Czech workshop on complex systems**, Prague, Czech Republic, September 2017.

#### 10.1.5. Leadership within the Scientific Community

M. Kern is a reviewer for the German Supercomputing Center JARA program.

M. Kern is a member of the Scientific Committee of **Orap** (ORganisation Associative du Parallélisme), of the Scientific Board of **GDR Calcul**, and of the jury and executive board of **Label C3I**.

M. Vohralík is a member of the steering committees of **Géosciences franciliennes** and **Summer schools CEA-EDF-Inria**.

#### 10.1.6. Research Administration

F. Clément is a member of the *Comité local d'hygiène, de sécurité et des conditions de travail* of the Inria Research Center of Paris.

F. Clément is the **AMIES** *facilitator* of the Inria Research Center of Paris.

M. Kern is Deputy Director of **Maison de la Simulation**, a joint project between CEA, CNRS, Inria, Université de Paris 11, and Université de Versailles, focused on applications of high end computing.

M. Kern is a member of the *Comité de site* of the Inria center of Paris.

G. Pichot is a member of the *Comité local d'hygiène, de sécurité et des conditions de travail* of the Inria center of Paris.

G. Pichot is member of the Conseil de département MAM of Polytech Lyon.

G. Pichot is member of the Commission de développement technologique (CDT) of the Inria center of Paris.

G. Pichot is a member of the CES commission of the Inria center of Paris.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : Amina Benaceur, Eléments d'arithmétique, 19h15, L2, University Pierre et Marie Curie, France.

Licence : Thomas Boiveau, Equations aux dérivées partielles et éléments finis 15h, L3, Ecole des ponts ParisTech, France

Licence : Alexandre Ern, Optimal Control, 20h, L3, Ecole Polytechnique, France.

Licence : Alexandre Ern, Partial differential equations, 10h, L3, Ecole nationale des ponts et chaussées, France.

Licence : Frédéric Marazzato, Analyse et Calcul Scientifique, 15h, L3, Ecole Nationale des Ponts et Chaussées, France.

Master : Alexandre Ern, Discontinuous Galerkin methods, 20h, M2, University Pierre et Marie Curie, France.

Master : Alexandre Ern is the leader of the Master Mathématiques et applications of ENPC.

Master : Frédéric Marazzato, Remise à niveau en Mécanique des Milieux Continus, 9h, M2, Ecole Nationale des Ponts et Chaussées, France.

Master : Frédéric Marazzato, Reliability of Materials and Structures, 15h, M1, Ecole Nationale des Ponts et Chaussées, France.

Master : Frédéric Marazzato, Projet de Département Génie Mécanique et Matériaux, 20h, M1, Ecole Nationale des Ponts et Chaussées, France.

Master: Michel Kern, Inverse Problems, 26h, M1, Mines-ParisTech, France

Master: Michel Kern, Advanced Numerical Analysis, 30h, M2, Institut Galilée, Université Paris 13, France

Master: Michel Kern, Subsurface flows, 30 h (with E. Mouche), M2, Université Paris Saclay, France

Martin Vohralík, [CIMPA Summer School on Multiscale Computational Methods and Error Control](#), Kanpur, India, July 2017, 10h.

### 10.2.2. Supervision

PhD: Sarah Ali Hassan, A posteriori error estimates and stopping criteria for solvers using the domain decomposition method and with local time stepping, University Pierre and Marie Curie, 26 June 2017, Martin Vohralík, Caroline Japhet, and Michel Kern.

PhD: Yannick Masson, Tchebyshev nets and application to Grid Shells, University Paris-Est, 09 June 2017, Alexandre Ern and Olivier Baverel.

PhD: Rita Riedlbeck, Adaptive algorithms for poromechanics and poroplasticity, University of Montpellier, 27 November 2017, Daniele di Pietro and Alexandre Ern.

PhD in progress: Amina Benaceur, Model reduction in thermo-mechanics, 01 January 2016, Alexandre Ern.

PhD in progress: Karol Cascavita, Discontinuous skeletal methods for yield fluids, 01 October 2015, Alexandre Ern and Xavier Chateau.

PhD in progress: Jad Dabaghi, Adaptive modeling via complementarity of phase appearance and disappearance in fractured and porous media, 01 November 2015, Martin Vohralík Vincent Martin.

PhD in progress: Patrik Daniel, Adaptive multilevel solvers with a posteriori error control for porous media flows, 01 October 2015, Martin Vohralík and Alexandre Ern.

PhD in progress: Frédéric Marazzato, Fracture and fragmentation simulated by the discrete element method, 01 October 2016, Alexandre Ern.

PhD in progress: Riccardo Milani, Compatible Discrete Operator schemes for Navier–Stokes equations, 01 October 2017, Alexandre Ern.

PhD in progress: Ani Miraci, Robust a posteriori error control and adaptivity with inexact solvers, 01 October 2017, Martin Vohralík and Alexandre Ern.

PhD in progress: Nicolas Pignet, Hybrid High-Order methods for nonlinear mechanics, 01 November 2016, Alexandre Ern.

### 10.2.3. Juries

Alexandre Ern, Examiner, HDR C. Le Potier, University Paris Est, 15 November 2017.

Laurent Monasse, Examiner, PhD J. Ridoux, University Pierre and Marie Curie, 4 October 2017.

Martin Vohralík, President of the committee, PhD R. Riedelbeck, University of Montpellier, 27 November 2017.

Martin Vohralík, Examiner, HDR P. Gosselet, ENS Cachan, 10 February 2017.

### **10.3. Popularization**

F. Clément was the coordinator of the Maths-Enterprises booth for **AMIES** and **Labex mathématiques Hadamard** at the *18e Salon Culture & Jeux Mathématiques*, held in Paris, 27–30 May, 2017.

F. Clément coordinated an article for **AMIES** in *Interstices* ([42]).

Major publications by the team in recent years: [1], [2], [3], [4], [5], [6], [7], [8], [9], [10].



## SERPICO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- Charles Kervrann is head of the organizing committee of the “Quantitative BioImaging” (QBI’2019) conference (Rennes, January 2019).
- Patrick Bouthemey was co-organizer of the BioImage Computing (BIC) workshop in conjunction with ICCV’2017 (Venice, Italy).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

- Charles Kervrann: senior PC (Program Committee) of “BioImage Informatics 2017” conference, member of the scientific committee of the “Imaging the Cell 2017” conference (Rennes), member of the scientific committee of RFIAP’2018 (Marne-la-Vallée), Associated Editor for the ISBI’2018 conference, member of the scientific committee of the JIONC workshop (GdR Ondes, since 2014).
- Patrick Bouthemey: Associate Editor for the ISBI’2017 conference, member of the program committee of the IPTA’2017 conference.

#### 10.1.2.2. Reviewer

- Charles Kervrann: reviewer for ICIP’2017, ICASSP’2017, ISBI’2017, and SSVM’2017, PBIC’2017.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- Charles Kervrann is Associate Editor of the IEEE Signal Processing Letters journal.
- Patrick Bouthemey is co-editor in chief of the open access journal Frontiers in ICT, specialty Computer Image Analysis.

#### 10.1.3.2. Reviewer - Reviewing Activities

- Charles Kervrann: BMC Bioinformatics, Int. J. Computer Vision, SIAM J. on Imaging Sciences, Machine Vision and Applications.

### 10.1.4. Invited Talks

- Charles Kervrann: Invited talk at II SLAS “HCS – High Contents Screening” conference (Madrid, Spain), “Connecting The Dots – Intelligent Trackers” workshop (LAL-Orsay), and GdR ImaBio (with V. Briane, University of Montpellier; with E. Moebel, Inria Rennes); Invited seminars at IDIAP (Martigny, Switzerland).
- Patrick Bouthemey: Invited speaker at 5ème colloque de la Société Française des Microscopies (Bordeaux).
- Frédéric Lavancier: Invited talks at GdR ImaBio-FBI “BioImage Informatics” (Rennes).

### 10.1.5. Leadership within the Scientific Community

- Charles Kervrann is member of the IEEE BISP “Biomedical Image and Signal Processing” (<https://signalprocessingsociety.org/get-involved/bio-imaging-and-signal-processing>) committee (expert committee for ISBI, ICASSP and ICIP conferences). He is member of the executive board of the GdR MIV/ImaBio (2588 - Microscopie Fonctionnelle du Vivant) CNRS. He is member of the scientific committee of the Interdisciplinary MiFoBio School CNRS (<http://gdr-miv.fr/mifobio2018/>).
- Patrick Bouthemy is member of the board of AFRIF (Association Française pour la Reconnaissance et l’Interprétation des Formes).

### 10.1.6. Scientific Expertise

- Charles Kervrann was expert for the international project evaluation in the framework of Luxembourg NRF (National Research Fund – RESCOM program). He was expert for the national project evaluation in the framework of DIM ELICIT Institut Pasteur - Région Ile-de-France in 2017. He was member of the selection committee for a Professor position at the University of Bordeaux (Section CNU 26, Mathematics) in 2017.
- Patrick Bouthemy was member of the evaluation committee of the ANR-DGA MALIN Challenge, member of the HCERES visiting committee of the DI-ENS (Département d’Informatique - Ecole Nationale supérieure Paris) (November 2017). He is member of the Research Committee of IMT Atlantique. He was member of the committee for professor promotion at IMT Atlantique in 2017.

### 10.1.7. Research Administration

- Charles Kervrann is member of the executive board of the project committee of the Inria Rennes - Bretagne Atlantique centre since 2010. He is Co-head of the “BioImage Informatics” node (ANR France-BioImaging project, National Infrastructure en Biologie et Santé) since 2011.
- Patrick Bouthemy has been head of Excellence Lab (Labex) CominLabs (<http://www.cominlabs.ueb.eu>) since April 2014. He is deputy member of the board of directors and member of the selection and validation committee of the Images & Réseaux competitiveness cluster (<http://images-et-reseaux.com/>). He is deputy member of the board of directors of IRT (Technological Research Institute) b<>com (<https://b-com.com/>). He is the Inria representative in the steering committee of the DGA-Inria collaboration.
- Frédéric Lavancier is an elected member of CNU section 26.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Charles Kervrann:

- Engineer Degree: Genomics and Informatics, 4.5 hours, Ecole Nationale Supérieure des Mines de Paris.
- Master: From Bioimage Processing to BioImage Informatics, 5 hours, coordinator of the module (30 hours), Master 2 Research IRIV, Telecom-Physique Strasbourg and University of Strasbourg.
- Master: Geometric Modeling for Shapes and Images, 6 hours, Master 2 Research SISEA, University of Rennes 1.
- Engineer Degree and Master 2 Statistics and Mathematics: Statistical Models and Image Analysis, 37 hours + 15 hours (TP, Emmanuel Moebel), 3rd year, Ecole Nationale de la Statistique et de l’Analyse de l’Information (ENSAI), Rennes.

Patrick Bouthemy:

- Master: Analysis of Image Sequences, 18 hours, Master 2 Research SISEA, ISTIC & University of Rennes 1.
- Master: Video Indexing, 3 hours, Master 2 Research Computer Science, ISTIC & University of Rennes 1.
- Engineer Degree and Master 2 Research IRIV: Motion Analysis, 12 hours, Telecom-Physique Strasbourg & University of Strasbourg.

Frédéric Lavancier:

- Master: Linear Models, 36 hours, Master 2 Mathematics & Engineering, option Statistics, University of Nantes.
- Master: Time Series, 36 hours, Master 2 Mathematics & Engineering, option Statistics, University of Nantes.

### **10.2.2. Supervision**

- Arnaud Poinas, inference for inhomogeneous determinantal point processes, started in September 2016, supervised by Bernard Delyon and Frédéric Lavancier.
- Vincent Briane, statistical tests for particle trajectory analysis: application to intracellular imaging, started in October 2014, supervised by Charles Kervrann and Myriam Vimond (ENSAI-CREST).
- Bertha Mayela Toledo Acosta, methods and algorithms for 3D image registration and correlative microscopy, started in October 2014, supervised by Patrick Bouthemy and Charles Kervrann.
- Emmanuel Moebel, new strategies for the nonambiguous identification and enumeration of macromolecules in cryo-electron tomograms, started in November 2015, supervised by Charles Kervrann.
- Juan Manuel Perez Rua, hierarchical motion-based video analysis with applications to video post-production, started in January 2015, supervised by Patrick Bouthemy in collaboration with Tomas Crivelli and Patrick Pérez (Technicolor).
- Ancageorgiana Caranfil, data assimilation methods for cell division mechanisms and molecule trafficking analysis, started in December 2016, supervised by Charles Kervrann and Yann Le Cunff.
- Sandeep Manandhar, optical flow methods for 3D fluorescence imaging, started in October 2016, supervised by Patrick Bouthemy and Charles Kervrann.
- Yunjiao Lu, intracellular dynamics and super-resolution imaging: analysis of bacteria wall at the molecular scale, started in October 2017, supervised by Charles Kervrann and Rut Carballido-Lopez.
- Antoine Salomon, statistical aggregation for image analysis in fluorescence microscopy and super-resolution, started in November 2017, supervised by Charles Kervrann.
- Léo Maczyta, motion saliency in video sequences, started in October 2017, supervised by Patrick Bouthemy and Olivier Lemeur.

### **10.2.3. Juries**

*Referee of PhD thesis:* F. Zhou (University of Oxford, supervised by J. Rittscher) [P. Bouthemy], R. Giraud (University of Bordeaux, supervised by N. Papadakis) [P. Bouthemy], C. Jiang (University of Bourgogne, supervised by C. Demonceaux) [P. Bouthemy], A. Samacoïts (Institut Pasteur - UPMC, supervised by C. Zimmer) [C. Kervrann].

*President of PhD thesis jury:* F. Deslandes (INRA, supervised by B. Laroche), I. Ahmet (University of Rennes 1, supervised by T. Furon).

## SIERRA Project-Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

#### 9.1.1. Scientific Events Organisation

- P. Germain and F. Bach: co-organization of NIPS workshop: "(Almost) 50 Shades of Bayesian Learning: PAC-Bayesian trends and insights" <https://bguedj.github.io/nips2017/50shadesbayesian.html>
- A. d'Aspremont: co-organization of the workshop: "Optimization and Statistical Learning", Les Houches, France

##### 9.1.1.1. Member of the Organizing Committees

- F. Bach: Senior Area chair for NIPS 2017

#### 9.1.2. Journal

##### 9.1.2.1. Member of the Editorial Boards

- F. Bach: Action Editor, Journal of Machine Learning Research.
- F. Bach: Information and Inference, Associate Editor.
- F. Bach: Electronic Journal of Statistics, Associate Editor.
- F. Bach: Mathematical Programming, Associate Editor.
- F. Bach: Foundations of Computational Mathematics, Associate Editor.
- A. d'Aspremont: SIAM Journal on Optimization, Associate Editor.

#### 9.1.3. Invited Talks

- F. Bach: Workshop on Shape, Images and Optimization, Muenster, Germany invited talk, February 2017
- F. Bach: SIAM conference on Optimization, Vancouver, Canada, invited tutorial, May 2017
- F. Bach: LCCC workshop on Large-Scale and Distributed Optimization, Lund, Sweden, invited talk, June 2017
- F. Bach: Summer school on Structured Regularization for High-Dimensional Data Analysis, Paris, invited talk, June 2017
- F. Bach: FOCM Barcelona, two invited talks in special sessions, July 2017
- F. Bach: European Signal Processing conference (EUSIPCO), Kos, Greece, keynote speaker, August 2017
- F. Bach: StatMathAppli 2017, Frejus, mini-course on optimization, September 2017
- F. Bach: 2017 ERNSI Workshop on System Identification, Lyon, invited plenary talk, September 2017
- F. Bach: New-York University, Data science seminar, October 2017
- F. Bach: Workshop on Generative models, parameter learning and sparsity, Cambridge, UK, invited talk, November 2017
- F. Bach: NIPS workshops, two invited talks, Long Beach, CA, December 2017
- A. d'Aspremont: "Regularized Nonlinear Acceleration"
  - GdR MOA, Bordeaux.
  - GdR MEGA, Paris.

- SIAM OPTimization conference
- Oxford computational math seminar
- Alan Turing institute
- A. d’Aspremont: “Sharpness, Restart and Acceleration”. Foundations of Computational Mathematics, Barcelona.
- P. Germain: “Generalization of the PAC-Bayesian Theory, and Applications to Semi-Supervised Learning”, Modal Seminars, Lille, France, January 2017
- P. Germain: “Theory Driven Domain Adaptation Algorithm”, Google Brain TechTalk, Mountain View (CA), USA, April 2017
- P. Gaillard: “Sparse acceleration of exponential weights”
  - Seminar of the SEQUEL project team, Lilles, February 2017
  - 49e Journées Françaises de Statistique, Avignon, Juin 2017
- P. Gaillard: “Obtaining sparse and fast convergence rates online under Bernstein condition”, CWI-Inria Workshop, September 2017
- P. Gaillard: “Online nonparametric learning”
  - Cambridge Statistics Seminar, October 2017
  - Statistics Seminar of the University Aix-Marseille, December 2017

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master: A. d’Aspremont, “Optimization”, 21h, M1, Ecole Normale Supérieure, France

Master: A. d’Aspremont, “Optimization”, 21h, M2 (MVA), ENS Cachan, France

Master: F. Bach and P. Gaillard, “Apprentissage statistique”, 35h, M1, Ecole Normale Supérieure, France.

Master: F. Bach (together with G. Obozinski), “Graphical models”, 30h, M2 (MVA), ENS Cachan, France.

Master: F. Bach, “Optimisation et apprentissage statistique”, 20h, M2 (Mathématiques de l’aléatoire), Université Paris-Sud, France.

Master: F. Pedregosa (together with Fajwel Fogel), “Introduction to scikit-learn”, M2 (MASH), Université Paris-Dauphine, France.

### 9.2.2. Supervision

- PhD: Nicolas Flammarion, July 2017, co-directed by Alexandre d’Aspremont and Francis Bach.
- PhD: Aymeric Dieuleveut, September 2017, directed by Francis Bach.
- PhD: Christophe Dupuy, June 2017, directed by Francis Bach.
- PhD: Rafael Rezende, December 2017, Francis Bach, co-advised with Jean Ponce.
- PhD: Vincent Roulet, December 2017, directed by Alexandre d’Aspremont.
- PhD in progress: Damien Scieur, started September 2015, co-directed with Alexandre d’Aspremont and Francis Bach
- PhD in progress: Antoine Recanati, started September 2015, directed by Alexandre d’Aspremont
- PhD in progress: Anaël Bonneton, started December 2014, co-advised by Francis Bach, located in Agence nationale de la sécurité des systèmes d’information (ANSSI).
- PhD in progress: Dmitry Babichev, started September 2015, co-advised by Francis Bach and Anatoly Judistky (Univ. Grenoble).

- PhD in progress: Tatiana Shpakova, started September 2015, advised by Francis Bach.
- PhD in progress: Loucas Pillaud-Vivie, started September 2017, co-directed by Alessandro Rudi and Francis Bach
- PhD in progress: Margaux Brégère, started September 2017, co-advised by Pierre Gaillard, Gilles Stoltz and Yannig Goude (EDF R&D)

### **9.3. Popularization**

- A. d'Aspremont: Paris Science et Data, PSL & Inria.
- A. d'Aspremont: Journée innovation défense
- P. Gaillard: testimony for EDF fellows day

## SIROCCO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Conference Program Committees

- C. Guillemot has been a member of the VISAPP 2017 international program committee.
- C. Guillemot has been a member of the international program committee of the CVPR 2017 workshop on light fields for computer vision.
- O. Le Meur has been a member of technical program committees of international conferences: QoMEX 2017, Mutual Benefits of Cognitive and Computer Vision (MBCC) 2017 workshop in conjunction with ICCV 2017, IPTA 2017, ICMR 2017.
- A. Roumy has been a member of the technical program committee of the CVPR 2017 workshop on New Trends in Image Restoration and Enhancement.
- A. Roumy has been a member of the technical program committee of the (Groupement de Recherche en Traitement du Signal et des Images) GRETSI 2017 workshop.

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

- C. Guillemot is senior area editor of the IEEE Trans. on Image Processing.
- C. Guillemot is associate editor of the International Journal on Mathematical Imaging and Vision.
- O. Le Meur is member of the editorial board of the IET Image Processing Journal
- A. Roumy is associate editor of the Springer Annals of Telecommunications.

### 10.1.3. Invited Talks

- C. Guillemot gave a seminar at IST-Lisboa on Light field image processing (10th May 2017).
- C. Guillemot gave an invited talk in the context of the IEEE distinguished lecturer program, at UPM Madrid on Light field image processing (29th June 2017).
- C. Guillemot gave an invited talk in the context of the IEEE distinguished lecturer program University Autonoma de Barcelona on Light field image processing (30th June 2017).
- C. Guillemot gave an invited talk in the context of the IEEE distinguished lecturer program on "Light field image processing: analysis, representation, compression and editing", at the VISVA 2017 summer school, Singapore (8th July 2017).
- C. Guillemot gave a Keynote ("Towards dense multi-view imaging") at the Hot3D workshop jointly held with IEEE-ICME, Hong Kong, 10 July 2017.
- C. Guillemot gave a seminar at MidSweden University in light field image processing (15th Nov. 2017).
- O. Le Meur gave an invited talk at the AFIG (Association Française d'informatique Graphique). The title of the presentation was: "un nouveau regard sur l'attention visuelle".
- O. Le Meur gave an invited talk at the NEUROSTIC workshop (GDR-ISI). The title of the presentation was: "Modèles de saillance visuelle et mouvements oculaires. Un nouveau départ?".
- O. Le Meur was a captstone speaker at EuroRV3 workshop. The title of the presentation was: "The computational modelling of visual attention : saliency model vs saccadic model"

- O. Le Meur gave an invited talk at ENSTA. The title of the presentation was: "Saccadic model, a promising framework for modelling overt visual attention".
- T. Maugey gave an invited talk at EPFL (Lausanne, Switzerland) on "Massive Random Access », May 2017.
- T. Maugey gave an invited talk at the scientific day of the L2TI (University Paris XIII), December 2017.
- A. Roumy gave an introductory talk on Interactive video compression at the Comité des projets, Rennes, May 2017.
- A. Roumy gave a talk on Challenges in data compression for the IoT, at the IoTsustain Workshop, UCL, London, July 2017.

#### **10.1.4. Leadership within the Scientific Community**

- C. Guillemot is member of the IEEE IVMSPP technical committee
- C. Guillemot is senior member of the steering committee of IEEE Trans. on Multimedia (2016-2018).
- C. Guillemot has been appointed member of the IEEE Signal Processing Society Nominations and Appointments Committee for a two year term (2018-2019).
- A. Roumy is a member of the Executive board of the National Research group in Image and Signal Processing (GRETSI).

#### **10.1.5. Scientific Expertise**

- C. Guillemot served in the HCERES panel which evaluated the CEDRIC laboratory at CNAM (Oct. 2017).

#### **10.1.6. Research Administration**

- C. Guillemot is a member of Inria's evaluation committee.
- C. Guillemot is member of the "bureau du Comité des Projets".
- A. Roumy served as a member of Board of Examiners (Comité de sélection) for an Associate Professor position (Maitre de Conférences) at ENSSAT-IRISA, Lannion (61MCF1758).
- A. Roumy served as a member of Board of Examiners (Comité de sélection) for an Associate Professor position (Maitre de Conférences) in Digital Communication at CentraleSupélec, Rennes.
- A. Roumy served as a jury member for the selection of Inria CR (researcher) candidates, March and May 2017, Inria, Rennes, France
- A. Roumy is a member of the technological development and technology transfer committee at Inria Rennes
- A. Roumy was a member of Inria's PhD grant committee (CORDI-S).

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

- Master: C. Guillemot, Image and video compression, 10 hours, M2 SISEA, Univ. of Rennes 1, France.
- Undergraduate: L. Guillo, "Scientific programming ", 20 hours, University Rennes 1, "Physique, chimie et structure de la matière (PCSTM), 1st year", France.
- Master: O. Le Meur, Selective visual attention, 6 hours, M2, Univ. of Paris 8, France.
- Master: O. Le Meur, Acquisition/Image Processing/Compression, 22 hours, M2 MITIC, Univ. of Rennes 1, France.



- Engineer degree: O. Le Meur, Image Processing, video analysis and compression, 54 hours, ESIR2, Univ. of Rennes 1, France.
- Engineer degree: O. Le Meur, Visual communication, 65 hours, ESIR3, Univ. of Rennes 1, France.
- Professional training: O. Le Meur, Image Processing and OpenCV, 42 hours, Technicolor Rennes.
- Master: T. Maugey, course on 3D models in a module on "advanced video", 4 hours, M2 SISEA, Univ. of Rennes 1, France.
- Engineering degree: A. Roumy, Sparse methods in Image and Signal processing, 13 hours, INSA Rennes, 5th year, Mathematical engineering, France.
- Engineering degree: A. Roumy, Image processing, 28 hours, ECAM Rennes, 4th year, France.
- Master: A. Roumy, Foundations of Smart Sensing, 18 hours, ENSAI Bruz, Master of Science in Statistics for Smart Data, France.
- Master: A. Roumy, High dimensional statistical learning, 9 hours, University Rennes 1, Research in Computer Science (SIF) master, France.
- Master: A. Roumy, Information Theory, 15 hours, University Rennes 1, Research in Computer Science (SIF) master, France.

### 10.2.2. *Juries*

- C. Guillemot has been member (rapporteur) of the PhD committee of:
  - A. Purica, Telecom ParisTech, June 2017
  - G. Nieto, Univ. Grenoble-Alpes, Oct. 2017
- C. Guillemot has been member of the PhD jury of:
  - A. Aldahdooh, Univ. Nantes, Aug. 2017
  - C. Peyrard, Univ. Lyon, Sept. 2017
  - S. Puri, Univ. Nantes, Nov. 2017
  - B. Padeloup, IMT-Atlantique, Dec. 2017
- O. Le Meur has been member (rapporteur) of the jury of the PhD committee of:
  - Benoit Arbelot, Univ. Grenoble Alpes, Mar. 2017
  - Celine Craye, Univ. Paris-Saclay, Apr. 2017
  - Yashas Rai, Univ. of Nantes, Aug. 2017
- Thomas Maugey has been member of the jury of the PhD committee of:
  - A. Dricot TelecomParisTech, Mar. 2017
- A. Roumy has been member of the PhD jury of:
  - V. Gouldieff, CentraleSupélec, Rennes, October 2017.

## SISTM Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

Daniel Commenges co-organised a SFB (French Region of the International Biometric Society) and GdR "Statistique et Santé" conference in Bordeaux (<http://gdr-stat-sante.math.cnrs.fr/spip/spip.php?rubrique20>),

Daniel Commenges organised a session of the French Region at the "Journées de Statistiques" (Avignon),

Robin Genuer Co-organises a reading group called Smiling in Bordeaux

Boris Hejblum organizes the Biostatistics Seminar Series at the Bordeaux Public Health Inserm Research Center

Mélanie Prague organized the "Déjeuners scientifiques" at the "Journées de la statistique française" 2017 and 2018.

Rodolphe Thiébaud organised a summer school course « Statistical analysis of big data in immunology », 14 participants from The Netherlands, Germany, UK and France. All the team members helped in the ground organisation and were involved in teaching. (<http://bss-publichealth.u-bordeaux.fr/en/Teaching-team/Course-n-1-Statistical-analysis-of-big-data-linked-to-immunology-systems/r745.html>)

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

Daniel Commenges was a member of the scientific committee of the SFB (French Region of the International Biometric Society) and GdR "Statistique et Santé" conference in Bordeaux (<http://gdr-stat-sante.math.cnrs.fr/spip/spip.php?rubrique20>),

#### 10.1.2.2. Member of the Conference Program Committees

Daniel Commenges is a member of the scientific committee of the International Biometric Conference Barcelona, July 2018 (<http://2018.biometricconference.org>),

Mélanie Prague is a member of the scientific committee of CIMI conference "Statistics in Health - personalised medicine" (<http://www.cimi.univ-toulouse.fr/mib/en/conference-statistics-and-health>), Toulouse 2018, 10-12 January

Mélanie Prague is a member of the scientific committee of the "Déjeuners scientifiques" at the "Journées de la statistique française" 2017 and 2018.

Rodolphe Thiébaud was a member of the scientific committee of the national conference on clinical research (EPICLIN)

Rodolphe Thiébaud was a member of the scientific committee of the IWHOD International Workshop on HIV Observational Databases since 2013 (<http://newsite.iwhod.org/Committee>)

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

Lifetime Data Analysis (Daniel Commenges)

Statistics Surveys (Daniel Commenges)

2017 IMIA Yearb Med Inform, section editor (Rodolphe Thiébaud)

#### 10.1.3.2. Reviewer - Reviewing Activities

AIDS (Rodolphe Thiébaud)

Annals of Applied Statistics (Boris Hejblum)

Annals of Statistics (Robin Genuer)

Am J Epidemiol (Marta Avalos)

Am J Public Health (Mélanie Prague)

BioData Mining (Boris Hejblum)

Biostatistics (Laura Richert)

Biometrics (Mélanie Prague)

IMIA Yearb Med Inform (Marta Avalos)

International Journal of Epidemiology (Daniel Commenges)

Journal of the Royal Statistical Society: Interaction (Mélanie Prague)

Machine Learning (Robin Genuer)

Neural Information Processing Systems (Robin Genuer)

Pattern Recognition Letters (Robin Genuer)

JRSS-B (Mélanie Prague)

Scientific Reports (Laura Richert)

Society of clinical trial (Mélanie Prague)

Statistical Methods in Medical Research (Robin Genuer, Mélanie Prague)

Statistical science (Mélanie Prague)

Statistics in Medicine (Marta Avalos)

#### 10.1.4. Invited Talks

Rodolphe Thiébaud gave 3 invited talks. He gave an invited talk intitled “Objets connectés et Big Data” at the conference “10 ANS DE L’IRESP : Journées de la recherche en santé publique”

Daniel Commenges gave 2 invited talks: Evidence based Medicine (Canterbury) and Biopharmaceutic group of the French Statistical Society (Paris)

Mélanie Prague gave 3 invited talks (Philadelphia Upenn, Boston Harvard school of public health, Inria Bordeaux) and had an invited session in Society for clinical trials, Liverpool, UK (11-14 Mai 2017) on "Integrate approaches for analysis of cluster randomised trials. New development in analysis “.

Robin Genuer was invited to the "Recent advances in tree-based methods (EO380)" session of ERCIM2017, by Ruoqing Zhu (University of Illinois Urbana-Champaign).

Boris Hejblum gave 2 invited talks on Dirichlet process mixtures of multivariate skew t-distributions for unsupervised clustering of cell populations from flow-cytometry data at The Biostatistics Unit at the Cambridge University (UK)

Marta Avalos gave 2 invited talks at the National Centre for Epidemiology & Population Health at the Australian National University, Canberra (Australia), April 2017 and at CSIRO’s Data61, Canberra (Australia), February 2017

Chloé Pasin gave an invited talk at the Probability-Statistics seminair of the Institute Montpelliérain Alexander Grothendieck, Montpellier

#### 10.1.5. Leadership within the Scientific Community

Rodolphe Thiébaud and Chloé Pasin are elected members of the “collège des écoles doctorales”, University of Bordeaux

Daniel Commenges is President of the French Region of the International Biometric Society

Mélanie Prague is an elected member of the “Young statistician group” of SFdS (French Society of Statistics)

Mélanie Prague and Boris Hejblum are part of the group responsible for the communication of the SFdS - in charge of organising the sponsoring of the society by public and private companies.

Laura Richert is a member of F-CRIN Steering Committee

### **10.1.6. Scientific Expertise**

- Rodolphe Thiébaud is an expert for INCA (Institut National du Cancer) for the PHRC (Programme hospitalier de recherche Clinique en cancérologie) and for the PRME (Programme de recherche médico-économique en cancérologie).
- Rodolphe Thiébaud is a member of the Membre du CNU 46.04 (Biostatistiques, informatique médicale et technologies de communication).
- Rodolphe Thiébaud is a member of the Scientific Council of INSERM.
- Rodolphe Thiébaud is a member of the committee “Biologie des Systèmes et Cancer (Plan Cancer)”, a member of the Scientific Advisory Board of the “Institut Pierre Louis d’Epidémiologie et de Santé Publique” (UPMC, Dir : Dominique Costagliola), a member of the independent committee of international trials ODYSSEY and SMILE, a member of the scientific council of Muraz’s Center (Bobo-Dioulasso, Burkina Faso)
- Mélanie Prague is an expert for ANRS (France Recherche Nord&Sud Sida-HIV Hépatites) in the CSS 3 (Recherches cliniques et physiopathologiques dans l’infection à VIH).
- Laura Richert is an expert for the PHRC (Programme hospitalier de recherche Clinique).
- Marta Avalos is an expert for L’ASN (Agence nationale de sécurité du médicament et des produits de santé)

### **10.1.7. Research Administration**

Daniel Commenges is the director of the Biostat-Info axis in the Inserm BPH (Bordeaux Public Health) institute.

Rodolphe Thiébaud is an elected member of the research committee (health sector) in University of Bordeaux and a member of the INSERM Scientific Council

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

#### **In class teaching**

Master : Robin Genuer, teaches in the two years of the Master of Public Health (M1 Santé publique, M2 Biostatistique) and 2nd year of the "Modélisation Stochastique et Statistique" Master, University of Bordeaux.

Master : Boris Hejblum, teaches in the two years of the Master of Public Health (M1 Santé publique, M2 Biostatistique).

Master : Rodolphe Thiébaud, teaches in the two years of the Master of Public Health, and he is head of the Epidemiology specialty of the second year of the Master of Public Health.

Master : Laura Richert teaches in the Master of Public Health at ISPED, Univ. Bordeaux, France (M2 Biostatistiques, M2 Epidémiologie).

Master : Mélanie Prague teaches in the Master of Public Health at ISPED, Univ. Bordeaux, France (M2 Biostatistiques).

Master : Marta Avalos teaches in the two years of the Master of Public Health (M1 Santé publique, M2 Biostatistique) at ISPED, Univ. Bordeaux and the 2nd year of the Biostatistics Master, University of Valencia (Spain).

Master : Chloe Pasin, Laura Villain, Hadrien Lorenzo and Louis Capitaine are teaching assistants for the two years.

Edouard Lhomme teaches in the Master of Public Health at ISPED, Univ. Bordeaux (M2 Epidémiologie) and in the Master of Vaccinology from basic immunology to social sciences of health (University Paris-Est Créteil, UPEC)

Bachelor : Laura Richert teaches in PACES and DFASM1-3 for Medical degree at Univ. Bordeaux

Edouard Lhomme teaches in PACES and DFASM1-3 for Medical degree at Univ. Bordeaux

Bachelor : Mélanie Prague and Boris Hejblum teach in the third year ingenious school ENSAI, Rennes.

Summer School: All the SISTM team member teach in the ISPED Summer school.

### E-learning

Marta Avalos is head of the first year of the e-learning program of the Master of Public Health, and teaches in it.

Mélanie Prague teaches in the Diplôme universitaire "Méthodes statistiques de régression en épidémiologie".

Boris Hejblum teaches in the Diplôme universitaire "Méthodes statistiques en santé".

Laura Richert teaches in the Diplôme universitaire "Recherche Clinique".

Robin Genuer participated to the IdEx Bordeaux University "Défi numérique" project "BeginR" (<http://beginr.moutault.net/>).

### 10.2.2. Supervision

PhD in progress : Perrine Soret, *Modélisation de données longitudinales en grande dimension*, from Oct 2014, co-directed by Marta Avalos and Rodolphe Thiébaud.

PhD in progress : Chloé Pasin, *Modelling the immune response to HIV vaccine*, from Sep 2015, co-directed by Rodolphe Thiébaud and Francois Dufour

PhD in progress : Wenjia Wang "Modèle de Rasch", co-directed by Daniel Commenges with Mickael Guedj CIFRE Pharnext, from Oct 2015.

PhD in progress : Laura Villain "Modélisation de l'effet du traitement par injection IL7", co-directed by Daniel Commenges and Rodolphe Thiébaud, from Oct 2015.

PhD in progress : Mélanie Née *Recherche et caractérisation de profils attentionnels : mieux comprendre la place de l'attention dans la survenue des accidents de la vie courante*, from Oct 2015, co-directed by Emmanuel Lagarde, Cédric Galera and Marta Avalos.

PhD in progress : Edouard Lhomme, *Analyse des déterminants de la réponse immunitaire post-vaccination dans des stratégies vaccinales expérimentales*, from Oct 2016, co-directed by Rodolphe Thiébaud and Laura Richert.

PhD in progress : Hadrien Lorenzo, *Analyses de données longitudinales de grandes dimensions appliquées aux essais vaccinaux contre le VIH et Ebola*, from Oct 2016, co-directed by Rodolphe Thiébaud and Jérôme Saracco.

PhD in progress : Louis Capitaine, *Random forests for high dimensional longitudinal data*, from Oct 2017, co-directed by Robin Genuer and Rodolphe Thiébaud.

PhD in progress : Madelyn Rojas *Self-management of injury risk and decision support systems based on predictive computer modelling. Development, implementation and evaluation in the MAVIE cohort study*, from Oct 2017, co-directed by Emmanuel Lagarde, David Conesa and Marta Avalos.

Master internship : Nicolas Lafosse "Déterminants de la réponse cellulaire T mesurée par Elispot après vaccination avec différentes stratégies vaccinales "prime-boost" préventives contre le VIH", directed by Laura Richert (1/03/2017 - 1/08/2017)

Master internship : Louis Capitaine, *Random forests for high dimensional longitudinal data*, directed by Robin Genuer (27/02/2017 - 31/08/2017)

Master internship : Paul Tautzia, *Utilisation de la déconvolution cellulaire pour détecter des différences d'expression génique*, directed by Mélanie Prague and Boris Hejblum (01/03/2017 - 31/08/2017)

Master internship : Augusta Alphonse, *Proof of concept for an automated gating tool applied to flow cytometry data from a HIV therapeutic vaccine trial*, directed by Mélanie Prague and Boris Hejblum (01/02/2017 - 31/07/2017)

Master internship : Marie Alexandre, *Correlation between cellular and antibodies response in Ebola vaccine*, directed by Mélanie Prague (01/06/2017 - 31/08/2017)

### 10.2.3. Juries

Daniel Commenges was involved in the PhD defences jury of Mr Adjakossa (Paris).

Robin Genuer was a PhD thesis examiner of Wei FENG thesis, defended the 07/19, "Investigation of training data issues in ensemble classification based on margin concept. Application to land cover mapping".

Mélanie Prague is a member of the follow-up dissertation comity of Nicolo Chiara (working on "Mathematical modeling of systemic aspects of cancer and cancer therapy"), Sébastien Benzckry's PhD student (Inria Bordeaux Sud-ouest, MONC team) and Thiebaut Larivière (working on "Population Kalman estimation in Partial differential equations"), Annabelle Colin's PhD student (Inria Bordeaux Sud-ouest, MONC team).

Marta Avalos was a member of the follow-up dissertation comity of her PhD students Perrine Soret and Mélanie Née.

Rodolphe Thiébaud took part in the HDR committee of Patricia Thebault, Benoit Lepage, Simon Cauchemez, Sébastien Benzekry and Romulus Breban.

Rodolphe Thiébaud was involved in the PhD defences jury of Nicky De La Mata and Edouard Ollier.

Mélanie Prague took part in the recruitment commission MCF CNU 26 (CNAM).

Laura Richert, Rodolphe Thiébaud, Robin Genuer, Boris Hejblum and Marta Avalos participated to the juries of Master in Public Health (Biostatistics, Epidemiology)

Edouard Lhomme participated to the juries of two medical thesis defense, Medical School of Bordeaux University

## 10.3. Popularization

Participation to the Inria magazines "Plug-in" and "So news" (Mélanie Prague).

Participation in "The ou café" in Inria Bordeaux (Mélanie Prague).

Lightning talk to present the NIMROD software in Dev Days at Inria (Mélanie Prague).

Edouard Lhomme, as President of AQUITHealth, a non profit organisation for the development of e-Health in south west France organized the When Doctors Meet Hackers (WDMH) Congress 2017. The WDMH Congress is a 3 day event with one day of conference on the futur of health and 50 hours of hackathon. The Hackathon is a human adventure where healthcare professionals, patients, developers, designers and entrepreneurs collaborate over a weekend to develop prototypes of eHealth solutions. Six WDMH meetups were also organised each month from January to June 2017 in Bordeaux to discuss about several e-health topics (telemedecine, data protection, simulation, ...)

## **SOCRATE Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific Events Organisation**

#### *9.1.1.1. Member of the Organizing Committees*

- Claire Goursaud co-organized the GDR day on mathematical methods and tools for IoT network modeling.

### **9.1.2. Scientific Events Selection**

#### *9.1.2.1. Chair of Conference Program Committees*

Florent de Dinechin was program chair (with Javier Bruguera from ARM) of the 24th IEEE Symposium of Computer Arithmetic. He was co-chair of the track D11 “Reconfigurable Computing” of the Design Automation and Test in Europe (DATE) conference.

#### *9.1.2.2. Member of Conference Program Committees*

Tanguy Risset was a member of the following technical program committees:

- IEEE Computer Society Annual Symposium on VLSI (ISVLSI) 2017
- Design Automation and Test in Europe (DATE) 2017
- International Conference on Cognitive Radio Oriented Wireless Networks (CROWNCOM) 2017
- International Conference on Advances in Cognitive Radio (COCORA) 2018.

Guillaume Villemaud was a member of the following technical program committees:

- CROWNCOM2017
- PIMRC 2017
- EUCAP 2017.

Florent de Dinechin was a member of the following technical program committees:

- 28th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP 2017)
- 13th International Symposium on Applied Reconfigurable Computing (ARC 2017)
- Design Automation and Test in Europe (DATE 2017)
- 25th IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM 2017)
- International Conference on Field-Programmable Technology (FPT 2017).

Malcolm Egan was a member of the following technical program committees:

- IEEE Global Communications Conference (GLOBECOM) 2017
- International Conference on Advanced Technologies for Communications (ATC) 2017
- International Conference on Recent Advances on Signal Processing, Telecommunications & Computing (SigTelCom) 2017

Jean-Marie Gorce was a member of the following technical program committees:

- IEEE International Global Communications Conference (GLOBECOM 2017) - Cognitive Radio Networks
- IEEE International Symposium on Personal Indoor and Mobile Radio Communications (PIMRC 2017, track 1)
- IEEE International conference on Communications (ICC 2017, track 1)
- IEEE Wireless Communications and Networking Conference (WCNC 2017)

### **9.1.3. Journal**

#### *9.1.3.1. Member of the Editorial Boards*

Guillaume Villemaud is an associate editor of Annals of Telecommunications (Springer).

Claire Goursaud is associate editor for ETT and ITL, Wiley.

Jean-Marie Gorce is associate editor for Journal of Wireless Communications and Networking (JWCN), Springer.

### **9.1.4. Scientific Expertise**

Tanguy Risset is member of the Administration council (Conseil d'administration) of the GRAME institute (centre national de création musicale).

Guillaume Villemaud is a member of the Delphi Expert Panel on Software Defined Networks (SDN) and Network Functions Virtualisation (NFV).

Jean-Marie Gorce was appointed as scientific expert for Haute école spécialisée de Suisse occidentale and for FNRS (Belgium).

Jean-Marie Gorce is member of the Administration council (Conseil d'administration) of ESISAR, Valence.

Jean-Marie Gorce was member of the jury for prix de thèse en signal-image de EEA-ISIS-GRETSI 2017.

### **9.1.5. Invited Talks**

Jean-Marie Gorce gave the following invited talks:

- Toward haptic communications for IoT in 5G, in IEEE 5G Greece Summit, July 11<sup>th</sup>, 2017.
- (Keynote speaker) Toward reliable, reactive and energy efficient bursty multi-user communications at Dependable Wireless Communications and Localization for the IoT workshop organized under the umbrella of the COST Action CA15104 (IRACON), Graz, Austria, September, 12<sup>th</sup>, 2017.
- Fundamental limits of bursty multi-user communications, in the The Tenth Workshop on Information Theoretic Methods in Science and Engineering, 11-13 september 2017, Paris, France.

### **9.1.6. Research Administration**

Jean-Marie Gorce is Adjoint to Scientific Director of Inria Rhône-Alpes center.

## **9.2. Teaching - Supervision - Juries**

### **9.2.1. Teaching**

Tanguy Risset and Jean-Marie Gorce and are professors at the Telecommunications Department of Insa Lyon.

Florent de Dinechin is a professor at the Computer Science Department of Insa Lyon.

Claire Goursaud is an associate professor at the Telecommunications department of Insa Lyon.

Leonardo Sampaio-Cardoso is an associate professor at Insa Lyon (Premier Cycle).



Guillaume Salagnac and Kevin Marquet are associate professors at the Computer Science Department of Insa Lyon.

Guillaume Villemaud and Florin Hutu are associate professor at the Electrical Engineering Department of Insa Lyon.

Samir M. Perlaza and Jean-Marie Gorce teach the course on Network Information Theory at École Normale Supérieure de Lyon.

### 9.2.2. Supervision

PhD in progress **Tristan Delizy** *memory management for normally-of NV-RAM based systems*, Insa-Lyon, (Region ARC6) since 09/2016.

PhD in progress **Yohan Uguen** *Synthesis of arithmetic operators*, Insa-Lyon, (Ministry of research) since 09/2016.

PhD in progress **Yuqi Mo** *Scaling of Iot Communication issuers*, Insa-Lyon, since 09/2015.

PhD in progress **David Kibloff** *New strategy for Physical Layer Security in wireless networks: self-jamming using Full-Duplex Transceivers*, École Doctorale EEA de Lyon, funded by Inria-DGA grant since 10/2015.

PhD in progress **Nizar Khalfet** *Stochastic Energy Sources to Power Communication Systems*, École Doctorale EEA de Lyon, funded by EU Project COM-MED since 10/2016.

PhD in progress : **Andrea Bocco**: *Porposition d'une unité de caclul U-NUM pour le calcul scientifique*, ANR Metalibm grant, since 12/2016.

PhD in progress : **Hassan Kallam**: *Topology aided multi-user interference management in wireless network* , Fed4PMR Insavalor project grant, since 01/2017.

PhD in progress : **Anade Akpo Dadja**: *Non asymptotic fundamental limits of impulsive radio communication* , ANR Arbust grant, since 09/2017.

PhD in progress : **Diane Duchemin**: *Distributed coding in dense IoT Network*, ANR Metalibm grant, since 01/2017.

PhD : **Victor Quintero** *Noisy Channel-Output Feedback in the Interference Channel*, École Doctorale EEA, 12/12/2017.

PhD : **Matei Istoan**: *High-performance coarse operators for FPGA-based computing*, ANR Metalibm grant, 6/04/2017.

HdR: Claire Goursaud *Contribution to the uplink PHY/MAC analysis for the IoT and BAN applications*, Doctoral School EEA, 1/12/2017

### 9.2.3. Juries

Tanguy Risset was a member of the jury of the following theses:

- Clément le Bas Marcos (Université de Limoges) as jury president,
- Celestin Matte (U. Lyon, dec. 2017) as examiner.

Guillaume Villemaud was a reviewer of Xiwen Jiang's thesis (Eurecom, oct. 2017).

Florent de Dinechin was a member of the jury of the following theses:

- Julie Dumas (Grenoble, dec. 2017) as examiner,
- Gael Deest (Rennes, dec. 2017) as reviewer.

Jean-Marie Gorce was a member of the jury of the following theses:

- Ahmad M Alam (INSA Rennes, March 2017) as reviewer,
- Fayçal Aït Aoudia (Université de Rennes, Sept 2017) as reviewer,
- Quentin Bodinnier (Centrale-Supelec, Oct 2017) as reviewer,
- Louis-Adrien Dufrene (INSA Rennes, Dec 2017) as examiner,
- Victor Quintero Florez (INSA Lyon, Dec 2017) as co-advisor.

Jean-Marie Gorce was a member of the jury of the following HdR:

- Guillaume Ferré (ENSIB, Bordeaux) as reviewer,
- Matthieu Crussières (INSA Rennes, Nov 2017) as reviewer,
- Claire Goursaud (INSA Lyon, Dec 2017) as examiner.

## SPADES Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

- Alain Girault is member of the steering committee of the International Federated Conference on Distributed Computing Techniques (DISCOTEC) and of the ACM International Conference on Embedded Software (EMSOFT).
- Gregor Gössler is member of the steering committee of the International Workshop on Causal Reasoning for Embedded and Safety-critical Systems Technologies (CREST).

#### 9.1.1.2. Member of the Organizing Committees

- Sophie Quinton was part of the organization committee of the 25th International Conference on Real-Time Networks and Systems (RTNS'17).
- Sophie Quinton was co-chair of the 2nd Tutorial on Tools for Real-Time Systems (TuToR'17), held as a satellite event of RTSS'17. <http://tutor2017.inria.fr/>
- Sophie Quinton was co-organizer of a tutorial entitled "Multicore Architectures in the Automotive Industry: Existing Solutions, Current Problems and Future Challenges" at ESWeek'17. <http://2017.rtss.org/industrial-panel/>
- Sophie Quinton was the organizer of a industry panel entitled "Beyond the Deadline: New Interfaces Between Control and Scheduling for the Design and Analysis of Critical Embedded Systems" at ESWeek'17. <https://team.inria.fr/spades/beyond-the-deadline/>

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Chair of Conference Program Committees

- Alain Girault was co-chair of the track "Model-based Design and Verification for Embedded Systems" of the Design Automation and Test in Europe Conference (DATE'17, track E3).
- Sophie Quinton was co-chair of the 8th International Workshop on Analysis Tools and Methodologies for Embedded and Real-time Systems (WATERS'17), held as a satellite event of ECRTS'17. <http://waters2017.inria.fr>

#### 9.1.2.2. Member of the Conference Program Committees

- Alain Girault served in the program committees of the Symposium on Industrial Embedded Systems (SIES'17) and the Forum on specification and Design Languages (FDL'17).
- Gregor Gössler served in the program committees of the 15th ACM-IEEE International Conference on Formal Methods and Models for System Design (MEMOCODE'17) and the 2nd international Workshop on Causal Reasoning for Embedded and Safety-critical Systems Technologies (CREST'17).
- Sophie Quinton served in the program committees of the 29th Euromicro Conference on Real-Time Systems (ECRTS'17) and the ACM SIGBED International Conference on Embedded Software (EMSOFT'17).

### 9.1.3. Journal

#### 9.1.3.1. Member of the Editorial Boards

- Alain Girault is a member of the editorial board of the Journal on Embedded Systems.

### 9.1.3.2. Reviewer – Reviewing Activities

- Alain Girault reviewed articles for IEEE Embedded Systems Letters (ESL), Microprocessors and Microsystems, IEEE Trans. on Industrial Informatics (TII), and ACM Trans. on Embedded Computing Systems (TECS).
- Gregor Gössler reviewed articles for Formal Methods in System Design (FMDS) and Engineering Applications of Artificial Intelligence (EAAI).

### 9.1.4. Research Administration

- Pascal Fradet is head of the committee for doctoral studies (“Responsable du comité des études doctorales”) of the INRIA Grenoble – Rhône-Alpes research center and local correspondent for the young researchers INRIA mission (“Mission jeunes chercheurs”).
- Alain Girault is vice-chair of the Inria Evaluation Committee.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : Pascal Fradet, Théorie des Langages 1 & 2, 36 HeqTD, niveau L3, Grenoble INP (Ensimag), France

Licence : Pascal Fradet, Modèles de Calcul :  $\lambda$ -calcul, 12 HeqTD, niveau L3, Univ. Grenoble Alpes, France

Master : Pascal Fradet, Langages et Traducteurs, 16 HeqTD, niveau M1, Polytech Grenoble, Univ. Grenoble Alpes, France

Licence : Gregor Gössler, Théorie des Langages 2, 36 HeqTD, niveau L3, Grenoble INP (Ensimag), France

Master : Xavier Nicollin, Sémantique et Analyse des Programmes, 45 HeqTD, niveau M1, Grenoble INP (Ensimag), France

Licence : Xavier Nicollin, Théorie des Langages 2, 36 HeqTD, niveau L3, Grenoble INP (Ensimag), France

Licence : Xavier Nicollin, Bases de la Programmation Impérative, 81 HeqTD (2016-2017), niveau L3, Grenoble INP (Ensimag), France

Licence : Sophie Quinton, Théorie des Langages 2, 18 HeqTD, niveau L3, Grenoble INP (Ensimag), France

Master : Sophie Quinton, Performance and Quantitative Properties, 6h, MOSIG, Univ. Grenoble Alpes, France

### 9.2.2. Supervision

- PhD in progress: Sihem Cherrared, “Fault Management in Multi-Tenant Programmable Networks”, Univ. Rennes 1, since October 2016, co-advised by Eric Fabre and Gregor Gössler.
- PhD in progress: Christophe Prévot, “Early Performance assessment for evolving and variable Cyber-Physical Systems”, Univ. Grenoble Alpes, since November 2015, co-advised by Alain Girault and Sophie Quinton.
- PhD in progress: Stephan Plassart, “On-line optimization in dynamic real-time systems”, Univ. Grenoble Alpes, since September 2016, co-advised by Bruno Gaujal and Alain Girault.
- PhD in progress: Xiaojie Guo, “Formal Proofs for the Analysis of Real-Time Systems in COQ”, Univ. Grenoble Alpes, since December 2016, co-advised by Pascal Fradet, Jean-François Monin, and Sophie Quinton.
- PhD in progress: Maxime Lesourd, “Generic Proofs for the Analysis of Real-Time Systems in COQ”, Univ. Grenoble Alpes, since September 2017, co-advised by Pascal Fradet, Jean-François Monin, and Sophie Quinton.

- PhD in progress: Arash Shafiei, “Programming IoT and software defined radio with dynamic dataflow models of computation”, Univ. Grenoble Alpes, since September 2017, co-advised by Pascal Fradet, Alain Girault, and Xavier Nicollin.
- PhD in progress: Martin Vassor, “Analysis and types for safe dynamic software reconfigurations”, Univ. Grenoble Alpes, since November 2017, co-advised by Pascal Fradet and Jean-Bernard Stefani.
- M2 MOSIG: Leila Jamshidian Sales, “Towards a Dataflow Model of Computation (MoC) for Internet of Things (IoT)”, Univ. Grenoble Alpes and Grenoble INP, September 2017, co-supervised by Pascal Fradet, Alain Girault, and Xavier Nicollin.
- M2 MOSIG: Ebrahim Naeimimoshirian, “Hierarchical actor model with encapsulation”, Univ. Grenoble Alpes and Grenoble INP, September 2017, co-supervised by Xavier Nicollin and Jean-Bernard Stefani.

### **9.2.3. Juries**

- Alain Girault was examiner for the PhD jury of Maalej Maroua (ENS-Lyon) and president for the PhD jury of Aurélien Cavelan (ENS-Lyon).
- Sophie Quinton was member of the PhD jury of Antoine Blin (U. Pierre et Marie Curie à Paris).

## SPECFUN Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. General Chair, Scientific Chair

- Alin Bostan is part of the Scientific advisory board of the conference series *Effective Methods in Algebraic Geometry* (MEGA).
- Frédéric Chyzak is member of the steering committee of the *Journées Nationales de Calcul Formel* (JNCF), the annual meeting of the French computer algebra community.
- Frédéric Chyzak is elected member of the steering committee of the *International Symposium on Symbolic and Algebraic Computation* (ISSAC, 3-year term, 2016–2018).
- Assia Mahboubi has served on the scientific committee of the Journées Scientifiques Inria and of the EUTypes summer school.

#### 8.1.1.2. Member of the Organizing Committees

- Georges Gonthier was co-chair of the organising committee of the Big Proof thematic program held at the Newton Institute (Cambridge, UK) in June-August 2017.
- Assia Mahboubi has organized the TTT workshop, satellite of the POPL'17 conference.

#### 8.1.1.3. Other

The team organizes a regular seminar<sup>0</sup>, with roughly 15–20 talks a year. The topics reflect the team's interests: computer algebra, combinatorics, number theory, formal proofs, and related domains.

### 8.1.2. Scientific Events Selection

#### 8.1.2.1. Member of the Conference Program Committees

- Assia Mahboubi has served as member of the conference program committees of the international conferences CPP 17, CADE 17, ITP 17, and on the program committee of the international workshops TYPES 17, TyDe 17, HoTT/UF 17.

#### 8.1.2.2. Reviewer

- Alin Bostan has served as reviewer for the selection of the international conferences ISSAC 2017 and MEGA 2017.
- Frédéric Chyzak has served as reviewer for the selection of the international conference ISSAC 2017.
- Assia Mahboubi has served as external reviewer for the international conference LICS 17.

### 8.1.3. Journal

#### 8.1.3.1. Member of the Editorial Boards

- Georges Gonthier is on the editorial board of the Journal of Formalized Reasoning.

#### 8.1.3.2. Reviewer - Reviewing Activities

- Alin Bostan has served as a reviewer for the journals: *Journal of Symbolic Computation*; *Linear Algebra and its Applications*; *Journal of Algebra and its Applications*; *Journal of Complexity*; *Advances in Applied Mathematics*; *Journal of Combinatorial Theory, Series A*.

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<sup>0</sup><https://specfun.inria.fr/seminar/>

- Assia Mahboubi has served as reviewer for the journals: *Annals of Mathematics and Artificial Intelligence*; *Journal of Automated Reasoning*.

#### 8.1.4. Invited Talks

- Alin Bostan has been invited to give a series of three lectures at the *JNCF – Journées Nationales de Calcul Formel* (CIRM, Luminy, France), January 16–18, 2017, <http://jncf2017.lip6.fr>.
- Alin Bostan has been invited to give a talk at the workshop *EDATE – Equations différentielles : aspects théoriques et effectifs*, Grenoble, March 13–15, 2017, <http://edate2017.sciencesconf.org/>.
- Alin Bostan has been invited to give a talk at the workshop *ANT – Automata in Number Theory*, île de Porquerolles, May 30–June 2, 2017, <http://indico.math.cnrs.fr/event/2347/>.
- Alin Bostan has been invited to give a talk at the workshop *Lattice walks at the Interface of Algebra, Analysis and Combinatorics*, BIRS, Banff, Canada, September 17–22, 2017, <http://www.birs.ca/events/2017/5-day-workshops/17w5090>.
- Alin Bostan has been invited to give a series of introductory lectures at the *Workshop on Computer Algebra in Combinatorics*, Erwin Schrödinger Institut (ESI), Vienna, Austria, November 13–17, 2017, <http://www.mat.univie.ac.at/~kratt/esi4/workshop2.html>.
- Frédéric Chyzak has been invited to give a talk at the *Second International Conference “Computer Algebra in Moscow”*, Plekhanov Russian University of Economics, Moscow, Russia, October 30 to November 30, 2017, <http://www.ccas.ru/ca/conference>.
- Frédéric Chyzak has been invited to give a talk at the *Workshop on Computer Algebra in Combinatorics*, Erwin Schrödinger Institut (ESI), Vienna, Austria, November 13–17, 2017, <http://www.mat.univie.ac.at/~kratt/esi4/workshop2.html>.
- Georges Gonthier gave an invited talk at the Special Session on Computer-Aided Proofs of the *Association for Symbolic Logic 2017 North American Meeting*, Boise, Idaho, USA, March 20–23, 2017.
- Georges Gonthier gave an invited talk at the *Second Conference on Artificial Intelligence and Theorem Proving (AITP’17)*, Obergürl, Austria, March 26–30, 2017.
- Georges Gonthier gave a talk at the *ERCIM Workshop on Blockchains*, Paris, May 23, 2017.
- Georges Gonthier gave an invited talk at the Workshop *Computer-aided Mathematical Proof*, part of the Big Proof Program, Isaac Newton Institute, Cambridge, U.K.
- Pierre Lairez gave an invited talk at *Effective Methods in Algebraic Geometry (MEGGA 2017)*, Nice.
- Pierre Lairez gave an invited talk at the *Conference on Foundations of Computational Mathematics (FoCM 2017)*, Barcelona, Spain.
- Assia Mahboubi has been invited to give a talk at the General Mathematics Colloquium of the VU Amsterdam, The Netherlands.
- Assia Mahboubi has been invited to give a talk at the Workshop *Computer-aided Mathematical Proof*, part of the Big Proof Program, Isaac Newton Institute, Cambridge, U.K.

#### 8.1.5. Leadership within the Scientific Community

- Assia Mahboubi leads the working group *Type theory based tools* inside the EUTYPES COST project. She is also a member of the management committee for France for this project and a member of its core management group.

#### 8.1.6. Research Administration

- Georges Gonthier serves on the Conseil de l’École Doctorale de Mathématiques Hadamard.
- Assia Mahboubi has been a member of the *Commission Scientifique* of Inria Saclay — Île-de-France, until September 2017.

## 8.2. Teaching - Supervision - Juries

- Alin Bostan has served as a jury member of the French *Agrégation de Mathématiques – épreuve de modélisation, option C*.

### 8.2.1. Teaching

#### Licence:

Thomas Sibut-Pinote, *Les bases de la programmation et de l'algorithmique*, 32h, L3, École polytechnique, France.

Thomas Sibut-Pinote, *Les principes des langages de programmation*, 32h, L3, École polytechnique, France.

#### Master:

Frédéric Chyzak, *Algorithmes efficaces en calcul formel*, 18h, M2, MPRI, France.

Alin Bostan, *Algorithmes efficaces en calcul formel*, 40.5h, M2, MPRI, France.

Pierre Lairez, *Algorithmique avancée*, 18h, M1, École polytechnique, France.

Assia Mahboubi, *Algorithmes d'élimination des quantificateurs*, 3h, M2, Université Rennes 1, France.

### 8.2.2. Supervision

HdR : Alin Bostan, *Computer algebra for lattice path combinatorics* [1], Université Paris 13, December 15, 2017.

PhD : Thomas Sibut-Pinote, *Investigations en Mathématiques Assistées par Ordinateur: Expérimentation, Calcul et Certification*, Université Paris-Saclay, December 4, 2017.

### 8.2.3. Juries

- Frédéric Chyzak has served as an examiner in the PhD jury of Cyril Hugouenq *Volcans et calcul d'isogénies*, Université de Versailles – Saint-Quentin-en-Yvelines, September 25, 2017.
- Frédéric Chyzak has been a member of the hiring jury at Inria (Concours CR 2017).
- Georges Gonthier served on the Habilitation à diriger des Recherches of Paul-André Mellès *Une étude micrologique de la négation*, Université Paris Diderot, November 20, 2017.
- Assia Mahboubi has been a member of the hiring jury at Inria (Concours CR 2017).
- Assia Mahboubi has served as an examiner in the PhD jury of Evmorfia-Iro Bartzia *Une formalisation des courbes elliptiques pour la cryptographie*, Université Paris-Saclay, February 15, 2017.
- Assia Mahboubi has served as an examiner in the PhD jury of Étienne Miquey *Réalisabilité classique et effets de bord*, Université Paris Diderot, November 17, 2017.
- Assia Mahboubi has been a member of the hiring jury of a Maître de conférence position at Université Paris Diderot.

## 8.3. Popularization

- Assia Mahboubi has written an article for the MathExpress journal, at the occasion of the *salon Culture & Jeux Mathématiques*. See the Maths Language express volume at <http://www.cijm.org/accueil/productions-cijm/90-maths-express>.

## SPHINX Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

K. Ramdani was member of the Organizing Committee of the Conference “Accès ouvert : rêve ou réalité ?” (CIRM, October 2017) organized by the RNBM (Réseau National des Bibliothèques de Mathématiques). During this conference, two days were more especially scientists-oriented and devoted to new models of publication, and more especially open access journals (for more details, see: <http://www.rnbm.org/cirm-2017>).

#### 10.1.1.2. General chair, Scientific chair

T. Takahashi co-organized a conference, in the framework of the ANR’s project IFSMACS, at the Institut de Mathématiques de Bordeaux from the 2nd to the 5th of October 2017 (see <https://indico.math.cnrs.fr/event/1367/>).

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

J.-C. Vivalda is a member of the editorial board of the “Journal of Dynamical and Control Systems”. David Dos Santos Ferreira is member of the editorial board of “Mathematical Control and Related Fields”.

#### 10.1.2.2. Reviewer - Reviewing Activities

J.-F. Scheid is reviewer for the “Applied Mathematics and Optimization” journal.

J.-C. Vivalda is reviewer for the “Mathematical reviews”.

### 10.1.3. Invited Talks

- T. Chambrion has been invited to the “Recife Workshop on Control and Stabilization of PDEs” held from 13 to 17 February 2017 in Recife (Brasil). See <https://sites.google.com/site/recontrolpde/>.
- T. Chambrion has been invited to the seminar of Université de Nice (analysis) in November 2017 and Strasbourg (December 2017).
- T. Takahashi was an invited speaker at the conference CDPS 2017 in Bordeaux (see <https://indico.math.cnrs.fr/event/1363/>).

### 10.1.4. Leadership within the Scientific Community

T. Chambrion has been a co-animator (with F. Di Meglio) of the GT EDP in GDR MACS until the redesign of the working groups in November 2017.

D. Dos Santos Ferreira is one of the coordinators of the GDR “Analyse des EDP”.

### 10.1.5. Research Administration

- Karim Ramdani was deputy delegate for scientific affairs of the Inria Nancy research center until August 31, 2017.
- Karim Ramdani is member of the board of the RNBM (Réseau National des Bibliothèques de Mathématiques) and is in charge with Benoît Kloeckner of Open Access issues.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

With the exception of K. Ramdani, T. Takahashi and J.-C. Vivalda, SPHINX members have teaching obligations at “Université de Lorraine” and are teaching at least 192 hours each year. They teach mathematics at different level (Licence, Master, Engineering school). Many of them have pedagogical responsibilities.



### **10.2.2. Supervision**

PhD in progress: Mohamed ID SAID, Embedded automatic control with limited computational resources, from October 2017, supervisors: T. Chambrion and G. Millerioux;

PhD in progress: Meriem BOUGUEZZI, Reaction-diffusion system for the modeling of a corrosion phenomena, from november 2017, J.-F. Scheid (co-supervisor);

PhD in progress: Imem JBIL, Myocardial infarction as a fluid-structure system : modeling and simulations, from mars 2017, J.-F. Scheid (co-supervisor);

PhD in progress: Imene DJEBOUR, Control and inverse problems on fluid-structure interaction systems, from November 2017, supervisor : Takahashi

PhD in progress: Benjamin Obando, Mathematical study of the dynamics of heterogeneous granular flows, from August 2015, supervisors : Takahashi and San Martín (Universidad de Chile)

### **10.2.3. Juries**

David Dos Santos Ferreira reviewed the application of Joonas Ilmavirta for position of “docent” at Helsinki University. He was also a member of the HDR (Accreditation to Supervise Research) thesis jury of Yavar Kian (defended in November 2017).

## **SPIRALS Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific Events Selection***

#### *10.1.1.1. Chair of Conference Program Committees*

##### **Laurence Duchien**

Doctoral Symposium of European Conference on Software Architecture (ECSA)

#### *10.1.1.2. Member of the Conference Program Committees*

##### **Laurence Duchien**

International Conference on Web Engineering (ICWE)

European Conference on Software Architecture (ECSA)

International Systems and Software Product Line Conference (SPLC)

BElgian-NEtherlands software eVOLution symposium (BENEVOL)

International Conference on Software Engineering education and Training (CSEE&T)

Joint 5th ICSE International Workshop on Software Engineering for Systems-of-Systems and 11th Workshop on Distributed Software Development, Software Ecosystems and Systems-of-Systems (SESoS/WDES)

##### **Philippe Merle**

International Conference on Cooperative Information Systems (CoopIS)

International Symposium on Theoretical Aspects of Software Engineering (TASE)

International Conference on Web Engineering (ICWE)

International Conference on Cloud Computing, GRIDs, and Virtualization (CLOUD COMPUTING)

International Conference on Advanced Service Computing (SERVICE COMPUTATION)

Symposium on Machine Learning and Metaheuristics Techniques and Applications for Dependable Distributed Systems (MADS)

International Symposium on Security in Computing and Communications (SSCC)

International Workshop on Adaptive and Reflective Middleware (ARM)

Workshop on CrossCloud Infrastructures & Platforms (CrossCloud)

##### **Martin Monperrus**

International Conference on Software Engineering (ICSE)

Genetic Improvement Workshop (GI)

##### **Clément Quinton**

International Workshop on Dynamic Software Product Lines (DSPL)

**Romain Rouvoy**

International Conference on Pervasive Computing and Communications (PerCom)  
 IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESoft)  
 International Symposium on Applied Computing (SAC), track on Dependable, Adaptive, and Trustworthy Distributed Systems (DADS)  
 International Conference on Service Oriented Computing (ICSOC)  
 International Conference on Principles of Distributed Systems (OPODIS)  
 International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)  
 International Conference on Ambient Systems, Networks and Technologies (ANT)  
 International Conference on Information Systems Development (ISD)  
 International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP)  
 International Symposium on Computers and Communication (ISCC)  
 International Workshop on Scalable Computing For Real-Time Big Data Applications (SCRAMBL)

**Lionel Seinturier**

IEEE/ACM International Conference on Mobile Software Engineering and Systems (MOBILESoft)  
 International Conference on Service Oriented Computing (ICSOC)  
 ACM Symposium on Applied Computing (SAC), tracks Software Architecture Theory Technology and Applications (SA-TTA), Operating Systems (OS)  
 Euromicro Conference on Software Engineering and Advanced Applications (SEAA), track Model-based development Components and Services (MOCS)  
 International Workshop on Models@run.time @ MODELS  
 International Workshop on Models@run.time @ ICAC  
 Workshop on Context-Oriented Programming (COP) @ ECOOP

**10.1.2. Journal***10.1.2.1. Member of the Editorial Boards*

**Martin Monperrus** is member of the editorial board of the international journal Springer Empirical Software Engineering (IF-2016: 3.275).

**Romain Rouvoy** is member of the editorial board of the journal Lavoisier Technique et Science Informatiques (TSI).

**Lionel Seinturier** is editor for software engineering of the ISTE-Wiley Computer Science and Information Technology book collection.

*10.1.2.2. Reviewer - Reviewing Activities*

**Laurence Duchien**: IET Software, IEEE Software, Wiley Software: Practice and Experience (SPE).

**Philippe Merle**: ACM Transactions on Internet Technology (TOIT), Wiley Journal of Software Testing, Verification and Reliability (STVR), International Journal of Web Services Research (IJWSR), Springer Journal of Cloud Computing, IEEE Cloud Computing.

**Martin Monperrus**: IEEE Transactions on Software Engineering (TSE), ACM Transactions on Software Engineering and Methodology (TOSEM), Elsevier Journal of Systems and Software (JSS), IEEE Transactions on Reliability (TR).

**Clément Quinton**: Elsevier Journal of System and Software (JSS), IEEE Software, IET Software, IEEE Transactions on Services Computing (TSC).

**Romain Rouvoy:** Elsevier Sustainable Computing, Informatics and Systems (SUSCOM), IEEE Transactions on Software Engineering (TSE), Springer Journal of Internet Services and Applications (JISA), Wiley Journal of Software: Evolution and Process (JSEP).

**Lionel Seinturier:** Elsevier Journal of System and Software (JSS), ACM Transactions on Internet Technology (TOIT), Elsevier Computer Languages, Systems and Structures (COMLAN), Journal of Universal Computer Science (JUCS), Ingénierie des systèmes d'information (ISI), Elsevier Future Generation Computer Systems (FGCS).

### **10.1.3. Invited Talks**

**Philippe Merle**, Walid Gaaloul and **Faiez Zalila** were invited to give a tutorial on "Seamless Lifecycle Management of Cloud Resources Using OCCI" at Services Conference Federation (SCF) 2017.

**Martin Monperrus** was invited to give a talk on "When and how to automatically repair bugs?" at the 4th Workshop on Design Automation for Understanding Hardware Designs (DUHDe 2017).

### **10.1.4. Leadership within the Scientific Community**

**Martin Monperrus** is the co-head of the "Groupe de Travail Génie Logiciel Empirique" of the GDR GPL.

**Romain Rouvoy** is the co-head of the "Groupe de Travail Génie Logiciel pour les Systèmes Cyber-physiques" of the GDR GPL.

### **10.1.5. Scientific Expertise**

**Laurence Duchien** did some scientific expertise for Direction des Relations Internationales of the French Ministry of Research.

**Philippe Merle** was member of the recruitment committee for assistant professors at INSA Toulouse. He is member of the Inria Scientific Board.

**Lionel Seinturier** was member of the recruitment committee for junior researchers at Inria Rennes. He was scientific expert for ANRT, ECOS Nord, COFECUB, Belgium FWO. He was member of the Agence Nationale de la Recherche (ANR) Scientific Evaluation Committee for Software and Network (CES25).

### **10.1.6. Research Administration**

**Laurence Duchien** is member of the CNRS CoCNRS section 6 committee, and of the "bureau" of this committee. She was member of Hcéres committees for DIENS Laboratory (Paris) and LIS Laboratory (Marseille).

**Philippe Merle** is president of the CUMI (Comité des Utilisateurs des Moyens Informatiques), project manager for Irill at Lille, secretary of the CLHSCT (Comité Local d'Hygiène, de Sécurité et de Conditions de Travail), and member of the centre committee for the Inria Lille - Nord Europe research center. He is member of the steering committee of the Inria's continuous integration service. He is leading the CIRRUS research joint team between Scalair company and Spirals Inria project-team. He was the scientific and technical leader of the OCCIware PIA funded project. He is member of the steering committee of CIEL (Conférence en Ingénierie du Logiciel).

**Lionel Seinturier** is president of the CDT (Commission Développement Technologique), and member of the BCEP (Bureau du Comité des Équipes-Projets), for the Inria Lille - Nord Europe research center. He heads the committee (so-called "vivier 27 rang A") that selects members of recruitment committees in Computer Science at the University of Lille 1. He is Scientific Advisor for the evaluation of ICT research laboratories at the Hcéres.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

**Pierre Bourhis** is, in addition to his tenure junior research position at CNRS, chargé d'enseignement spécialité Sciences des données at École Polytechnique, Palaiseau, France, in the Department of Computer Sciences (DIX).

Bases de données, 18h, Cycle Polytechnique Info553

**Laurence Duchien** teaches at the University of Lille 1 in the FST faculty. She heads the Carrières et Emplois service and is referent for the professional insertion in the PhD program in Computer Science at ComUE University Lille Nord de France. She is Director of Doctoral Studies for Computer Science in the Doctoral School Engineering Science (SPI) - ComUE Lille Nord de France.

Software Project Management, 50h, Level M2, Master MIAGE

Design of distributed applications, 42h, Level M1, Master of Computer Science

Software Product Lines, 8h, Level M2, Master of Computer Science

Research and Innovation Initiation, 22h, Level M2 IAGL, Master of Computer Science

Tutoring Internship, 16h, Level M2, Master of Computer Science

**Martin Monperrus** teaches at the University of Lille 1 in the FST faculty. Until August 2017, he has headed the **IAGL** speciality of the Master of Computer Science at the University of Lille 1.

Introduction to programming, 48h, Level L1, Licence of Computer Science

Object-oriented design, 39h, Level L3, Licence of Computer Science

Automated software engineering, 40h, Level M2 IAGL, Master of Computer Science

**Clément Quinton** teaches at the University of Lille 1 in the FST faculty.

Design of distributed applications, 42h, Level M1, Master of Computer Science

Software engineering, 42h, Level M1, Master of Computer Science

Advanced design of distributed applications, 37.5h, Level M2, Master MIAGE

Infrastructure and frameworks for the Internet, 33.75h, Level M2, Master of Computer Science

Software product lines, 7.5h, Level M2, Master of Computer Science

Suivi de stages et de projets, 30h, Licence and Master of Computer Science Science

**Romain Rouvoy** teaches at the University of Lille 1 in the FST faculty. He heads the **Master of Computer Science** program at the University of Lille 1.

Design of distributed applications, 12h, Level M1, Master of Computer Science

Object-oriented design, 4h, Level L3, Licence of Computer Science

Suivi de projets, 20h, Level M2, Master of Computer Science

**Walter Rudametkin Ivey** teaches at the University of Lille 1 in the Polytech engineering school.

GIS4 Programmation par Objets, 32h

GIS4 Architectures Logicielles, 26h

GIS2A3 (apprentissage) Projet programmation par Objet, 24h

IMA2A4 (apprentissage) Conception Modélisation Objet, 24h

IMA3 Programmation Avancée, 62h

GBIAAL4 Bases de données, 22h

GIS5 Suivi de projets, 42h

GIS2A (apprentissage) Suivi d'apprentis, 28h

**Lionel Seinturier** teaches at the University of Lille 1 in the FST faculty. He heads the Computer Science Department at the Faculty of Science and Technology of the University of Lille 1.

Conception d'Applications Réparties, 50h, Level M1, Master MIAGE

Infrastructures et Frameworks Internet, 70h, Level M2 E-Services IAGL TIIR, Master of Computer Science

### **10.2.2. Supervision**

PhD in progress: Zeinab Abou Khalil, November 2017, Laurence Duchien, co-supervision with Tom Mens (University of Mons, Belgium).

PhD in progress: Guillaume Fieni, GreenData : Vers un traitement efficient et éco-responsable des grandes masses de données numériques, October 2017, Romain Rouvoy & Lionel Seinturier.

PhD in progress: Benjamin Danglot, Software Testing Amplification, December 2016, Martin Monperrus & Lionel Seinturier.

PhD in progress: Lakhdar Meftah, Cartography of the Quality of Experience for Mobile Internet Access, November 2016, Romain Rouvoy, co-supervision with Isabelle Chrisment (Inria Madynes).

In progress PhD: Sarra Habchi, Une supervision de contexte sensible à la confidentialité pour les développements logiciels en crowdsourcing, October 2016, Romain Rouvoy.

PhD in progress: Antoine Vastel, Cartographie de la qualité d'expérience pour l'accès à l'internet mobile, October 2016, Romain Rouvoy & Walter Rudametkin.

PhD in progress: Yahya Al Dhuraibi, Un cadre flexible pour l'élasticité dans les nuages, October 2015, Philippe Merle.

PhD in progress: Stéphanie Challita, Un cadre formel et outillé pour la gestion de toute ressource en nuage, October 2015, Philippe Merle.

PhD in progress: Thomas Durieux, Search-based Monitoring and Root Cause Diagnosis in Production, September 2015, Lionel Seinturier & Martin Monperrus.

PhD in progress: Gustavo Sousa, Towards Dynamic Software Product Lines to Optimize Management and Reconfiguration of Cloud Applications, October 2012, Laurence Duchien & Walter Rudametkin Ivey.

PhD in progress: Amal Tahri, Evolution logicielle multi-vues, des réseaux domestiques au Cloud, March 2013, Laurence Duchien.

### **10.2.3. Juries**

#### **Laurence Duchien**

Hanae Rateau, Université Lille, chair

Sylvain Defourny, Université Lille, chair

Thi-Kim-Dung Pham, Conservatoire National des Arts et Métiers, examiner

Xhevahire Ternava, Université Côte d'Azur, chair

Julien Perolat, Université Lille, chair

#### **Philippe Merle**

Mohamed Boussaa, Université Rennes 1, reviewer

Jean-François Weber, Université de Franche-Comté, reviewer

#### **Martin Monperrus**

Bogdan Marculescu (Blekinge Institute of Technology, Sweden), member

**Romain Rouvoy**

Stéphane Delbruel (University of Rennes 1), reviewer  
Yaroslav Hayduk (University of Neuchâtel, Switzerland), reviewer  
Gustavo Sousa (University of Lille 1), president  
Sabbir Hassan (University of Rennes 1), examiner  
Yunbo Li (IMT Atlantique), examiner  
Cyril Cecchinel (University Côte d'Azur), reviewer  
Elyas Ben Hadj Yahia (University of Bordeaux), reviewer  
Marcelino Rodriguez Cancio (University of Rennes 1), reviewer

**Lionel Seinturier**

HDR Abderrahmane Seriai (University of Montpellier), president  
HDR Bilel Derbel (University of Lille 1), president  
HDR Marc Frincu (University of Timisoara, Romania), examiner  
Akram Kamoun (University of Sfax, Tunisia), reviewer  
André Sales Fonteles (University of Grenoble), reviewer  
Adja Ndeye Sylla (University of Grenoble), reviewer

### 10.3. Popularization

**Lionel Seinturier** participated in October to the Chercheur itinérant event organized by the Inria Lille Nord Europe research center in the context of La fête de la science. Two classrooms (2nde and terminale) have been visited. The theme of the visit was crowdsensing and data gathering from mobile devices.

**Antoine Vastel** participated in October to the Chercheur itinérant event organized by the Inria Lille Nord Europe research center in the context of La fête de la science. Two classrooms (2nde and terminale) have been visited. The theme of the visit was browser fingerprinting and user privacy tracking.

## STARS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

François Brémond was a member of the Management Committee and COST Action IC1307 in 2017.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

François Brémond was an Area and Session Chair of AVSS - 14th IEEE International Conference on Advanced Video and Signal-Based Surveillance, Lecce, Italy, August 29th - September 1st, 2017.

François Brémond was an Area Chair of ICIAP - 19th International Conference on Image Analysis and Processing; Area Chair; in Catania, Italy, September 11-15, 2017.

Antitza Dantcheva was program and session chair at the 17th International Conference of the Biometrics Special Interest Group, BIOSIG 2017

#### 10.1.2.2. Member of the Conference Program Committees

François Brémond was program committee member of the conferences and workshops: IWT4S 2017, COMSI17, SP-CROWD 2017, ICPRS-17, ICDP2017, AVSS17 and WACV17-18.

Antitza Dantcheva was program committee member of the conference International Conference on Biometrics (IJCB 2017).

Jean-Paul Rigault is a member of the *Association Internationale pour les Technologies à Objets* (AITO) which organizes international conferences such as ECOOP.

#### 10.1.2.3. Reviewer

François Brémond was reviewer for the conferences : CVPR2017-18, ICCV2017, VISION4HCI17, WACV 2017, SAV17, ICVS 17, ISG 18, BER17, BMVC17, IROS17.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- François Brémond was handling editor of the international journal "Machine Vision and Application".

#### 10.1.3.2. Reviewer - Reviewing Activities

François Brémond was reviewer for IEEE Transactions on Circuits and Systems for Video Technology Editorial Office.

Monique Thonnat is a reviewer for the journals Artificial Intelligence in Medicine AIIM (Elsevier) and The Computer Journal (Oxford University Press).

Antitza Dantcheva reviewed for journals including IEEE Transactions on Information Forensics and Security (TIFS), The Visual Computer, Entropy, Pattern Recognition Letters.

### 10.1.4. Invited Talks

François Brémond was invited by Huawei Research, within Video Intelligence Event, on People Re-ID, Dublin, 21st November 2017.



Antitza Dantcheva: "Personalized facial expression and activity recognition during mnemotherapy-sessions for patients with major neurocognitive disorders", IBME, University of Oxford, UK, November 2017

Antitza Dantcheva: "New Advances in Soft Biometrics", Biometrics Congress, London, UK, November 2017

Antitza Dantcheva: "Can a smile reveal your gender?", Day of Biometrics, Caen, France, July 2017

Alexandra Koenig was invited by Dr. Dimitrios Kokkinakis to give a talk on ICT for monitoring dementia patients and in particular Automatic Speech analysis for the assessment of cognitive impairment, University of Gothenburg, Sweden, 18 September 2017.

Alexandra Koenig was invited by Dr Jessica Peter to give a talk on Automatic Analysis of the Semantic Verbal Fluency performance in elderly people, University of Bern, Swiss, 18 October 2017.

### **10.1.5. Leadership within the Scientific Community**

Monique Thonnat is President of the University Hospital Institute IHU Liryc in Bordeaux on cardiac electrical disorders since 2015.

Antitza Dantcheva serves in the Technical Activities Committee of the IEEE Biometrics Council 2017.

### **10.1.6. Scientific Expertise**

François Brémont was expert for a research program at the Campus for Research Excellence and Technological Enterprise (CREATE) from the National University of Singapore (NUS).

François Brémont was expert for the European CHIST-ERA ERA-NET Call 2016, for the project "SUPER CARE".

François Brémont was expert for the project call "Recherche - Enseignement Supérieur - Plateformes Mutualisées" de la Région Nouvelle-Aquitaine, March 2017.

François Brémont was expert for the "Revue Retraite et société", April 2017.

Monique Thonnat was an expert to review COFECUB research project (Scientific cooperation between Brasil and France) for the French government.

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

Master: Annie Ressouche, Safety in Middleware for Internet of Things, 6h, niveau (M2), Polytech Nice School of Nice University.

Master : Inès Sarray, Safety in Middleware for Internet of Things, 6h, niveau (M2), Polytech Nice School of Nice University.

### **10.2.2. Supervision**

PhD: Minh Khue Phan Tran, Maintaining the engagement of older adults with dementia while interacting with serious game, Cote d'Azur University, 20th of April, François Brémont.

PhD: Michal Koperski, Detecting critical human activities using RGB/RGBD cameras in home environment, François Brémont.

PhD: Auriane Gros, Evaluation and Specific Management of Emotional Disturbances with Activity Recognition Systems for Alzheimer patient, 4th of December, François Brémont.

PhD in progress : Thi Lan Anh Nguyen, Complex Activity Recognition from 3D sensors, Dec 2014, François Brémont.

PhD in progress: Ines Sarray, Activity Recognition System Design, Oct 2015, Sabine Moisan.

PhD in progress: Farhood Negin, People Detection for Activity Recognition using RGB-Depth Sensors, Jan 2015, François Brémont.

PhD in progress: Ujjwal Ujjwal, Pedestrian Detection to Dynamically Populate the Map of a Crossroad, Sep 2016, François Brémont.

PhD in progress: Srijan Das, Activity Recognition in videos by combining an ontology based language with CNN networks, Dec 2017, François Brémont.

### **10.2.3. Juries**

François Brémont was jury member of Tenure Track Selection: committee member for permanent position, Mines School - ParisTech, September 2017

François Brémont was jury member of the mid-term review for 4 PhDs - UNED Doctoral Consortium, Mr. Artaso, Mr. Timón, Mr. Pérez, and Mr. Navares, Facultad de Informática, UNED, Madrid, 12 June 2017

François Brémont was jury member of the following PhD theses:

PhD, Andrews Sobral, Université La Rochelle, 11 mai 2017.

PhD, Athira Muraleedharan Nambiar, Electrical and Computer Engineering, Instituto Superior Técnico, Institute for Systems and Robotics, Lisboa, Portugal, 1st September 2017.

PhD, Enjie Ghorbel, Université de Rouen Normandie, 12 octobre 2017.

PhD, Bassem HadjKacem, École Nationale d'Ingénieurs de Sfax, Tunisie, 5 novembre 2017.

PhD, Nabila Mansouri, Université de Sfax et l'Université de Valenciennes, 20 novembre 2017.

Monique Thonnat was member of the final selection board (jury d'admission) of junior (CR) and senior (DR) research scientists of (Cérema, ENPC, ENTPE, IFSTTAR, IGN, Météo-France).

Monique Thonnat is the research representative of Ecole Polytechnique jury for delivering the Prize of best student scientific projects since June 2011.

Monique Thonnat is member of the scientific board of ENPC, Ecole Nationale des Ponts et Chaussées since June 2008.

Sabine Moisan was reviewer in the PhD jury of Hassan Loulou, ESTACA, Paris nov. 2017

## STEPP Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. General Chair, Scientific Chair

- Denis Dupré, Pierre-Yves Longaretti and Emmanuel Prados are the Scientific Chair of the series of conferences entitled “Understanding and Acting”; see section 9.3.1 .

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Member of the Conference Program Committees

- P. Sturm was member of the program committee of the 2017 Inria Science Days

### 9.1.3. Journal

#### 9.1.3.1. Reviewer - Reviewing Activities

- P. Sturm: Journal of Sensors

### 9.1.4. Scientific Expertise

- P. Sturm: Expert for the European Eureka/Eurostars program and for the regional ARC6 program.
- Since 2015 Emmanuel Prados is member of the GICN (“*Groupe Interdisciplinaire sur les Contributions Nationales*”), the group of scientific experts mandated by french ministry of Sustainable Development to prepare the **climate change conference COP21** in December. This group is still active and always advises French political actors in climate negotiations.

### 9.1.5. Research Administration

- P. Sturm is, since 2015, Deputy Scientific Director of Inria, in charge of the domain Perception–Cognition–Interaction
- E. Prados and P. Sturm organized the Inria – FING partnership. The FING (Fondation Internet Nouvelle Génération) is a think tank working on socio-economic changes inspired by technology and its uses. In 2017, they organized three workshops in the framework of the project “Transition<sup>2</sup>” [<http://www.transitions2.net/>].
- E. Prados was in charge of the working group “Digital tools for the progress of society” for the Strategic Plan of Inria, 2017. His work resulted in the writing of the Scientific Challenges entitled “Digital world, society, and complexity”.
- Denis Dupré, Pierre-Yves Longaretti and Emmanuel Prados are the coordinator of the working group “Democracy and digital technology”. Created in 2017, this working group is a permanent one that gathers various reseachers and actors located at the Grenoble pole. This group leads a global reflection on the digital world and the democratic issues. It aims to bring out lines of action of research in the medium term.

<https://project.inria.fr/democratieetnumerique/>

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Supervision

PhD : Thomas Capelle, *Development of optimization methods for land-use and transportation models*, University Grenoble Alpes, February 15rd, 2017, Peter Sturm (supervisor) and Athur Vidard (co-supervisor).

PhD in progress : Michela Bevione, *Socio-ecological transition, wealth creation and territorial metabolism: the case of Maurienne Valley*, October 2016, Pierre-Yves Longaretti (co-supervisor) and Nicolas Buclet (supervisor). Phd thesis in collaboration with the PACTE Laboratory. This interdisciplinary research on territorial ecology aims at bridging the gap between quantitative modeling and socio-economic and qualitative approaches to better understand the interactions between human society and the environment.

PhD in progress : Luciano Gervasoni, *Modeling the dynamics of urban sprawl*, October 2015, Peter Sturm (supervisor) and Serge Fenet (co-supervisor).

### 9.2.2. Juries

- P. Sturm was member of the PhD committees of René Emmanuel Datondji (Université Rouen, president), Andrey V. Kudryavtsev (Université Franche-Comté reviewer), Abdelkader Bellarbi (Université Evry Val d'Essonne, reviewer), and Yohan Salaün (Université de Paris-Est, reviewer).
- E. Prados was member of the PhD thesis jury (as examiner) of Rémy Lasseur ; University of Grenoble Alpes - UGA (July 10th, 2017). Title : “Multi-scale mapping of ecosystem services: characterizing spatial associations and insights from remote sensing”

## 9.3. Popularization

### 9.3.1. Conferences “Understanding and Acting” :

*Saving Civilization is not a spectator sport*  
Lester Brown

Following a dynamics of exponential growth in a finite world, humanity today faces a number of unprecedented and tightly interlinked challenges. With a growing number of environmental limits being largely and irreversibly exceeded (GHG concentrations in the atmosphere, biodiversity loss, soil erosion, freshwater shortages...), social, economic, geopolitical, humanitarian (etc.) consequences are becoming more urgent than ever to address, while the threat of an uncontrolled global collapse is now more than a prospect. It is urgent to initiate deep, structural, socioeconomic changes on virtually all aspects of our increasingly global societies (economics, industrial and agricultural production, consumption, education, all requiring major new local and global policies).

In view of these facts, the STEEP research team has initiated in 2016 a series of conferences-debates entitled “Understanding & Acting” (“Comprendre et agir”) that examines these issues in order to help researchers and citizens to increase their awareness of the various issues at stake in order to initiate relevant individual and collective actions. From now on, the scientific community at large must realize that its duty also lies in helping citizens to better understand these issues. If the fraction of people in society whose privilege is to be paid to think about society’s problems do not seize this opportunity in the critical times we face, who will? Researchers must become more involved in the search of socioeconomic alternatives and help citizens to implement them. The interactions between researchers and citizens must also to be reinvented.

The presentations of this series of conferences typically last between 30 to 45 minutes; they are followed by a 45 minute public debate with the audience. The presentations are captured on video and then made directly accessible on the YouTube Channel “Comprendre et Agir”. At the end of 2017 the YouTube channel reached almost 45,000 views with a rate of integral viewings remaining at above 25%.

Examples of conferences given in 2016-2017:

- “Why and how to recognize money as a common good?” by Jean-Michel Servet, Graduate institute of international and development studies (IHEID) at Genève.
- “What alternative to the crisis of representation?” by Loic Blondiaux, University of Paris I Panthéon-Sorbonne.
- “Reinventing agriculture and food in the 21st century?” by Gilles Billen, CNRS.
- “Can the commons movement re-activate democracy?” by Christian Laval, University of Paris Ouest Nanterre La Défense.
- “Limiting climate change: Why do we not do it?” by Denis Dupré, University of Grenoble Alpes.
- “Understanding society collapses. What future for ours?” by Emmanuel Prados, Inria.
- “Environment, economy, collapse: squaring the circle?” by Pierre-Yves Longaretti, CNRS.

Link to the web page of the series [program, abstracts, dates, complements etc.]:

<https://team.inria.fr/steep/les-conferences-debats-comprendre-et-agir/>

Link to the YouTube channel :

[https://www.youtube.com/channel/UCJbcXCcOA63M8VMysAbmt\\_A](https://www.youtube.com/channel/UCJbcXCcOA63M8VMysAbmt_A)

### 9.3.2. Other popularization activities :

- Emmanuel Prados gave a conference entitled “Understanding society collapses. What future for ours?” at the series of conferences “Understanding and Acting” (Grenoble, France, 9th of February, 2017). The video of the conference has been posted on the video-sharing website, YouTube. The conferences received around 30 000 YouTube views in 10 months.  
<https://www.youtube.com/watch?v=1dgjleR5DBY>
- Pierre-Yves Longaretti gave a conference entitled “Environment, economy, collapse: squaring the circle?” at the series of conferences “Understanding and Acting” (Grenoble, France, 3rd of March, 2017). The video of the conference available on YouTube. The conferences received around 1700 views in 9 months.  
<https://www.youtube.com/watch?v=0T8SP5jb3aI>
- Emmanuel Prados participated in the round table “How to manage territories with the help of numerical models” held for the celebrated days for the 50th birthday of Inria (Paris, France, November 7th, 2017).
- Denis Dupré gave a conference entitled “Can ethical finance prevent from our civilization collapse ?” at the department of banking and finance of the University of Zurich (Zurich, Switzerland, the 29th of September 2017). The video of the conference available on YouTube. <https://www.youtube.com/watch?v=JhFiks0RbMU>
- Denis Dupré gave a conference entitled “How finance can help to manage vital goods in the coming collapse?” at the “Change Finance Forum” organized by Financ-watch (Brussels, Belgium, 5th december 2017). The video of the conference available on YouTube. <https://www.youtube.com/watch?v=3RyJTn0a-ZA>
- Denis Dupré gave an interview at France Info, December 11, 2017. France Info is the radio network operated by the French public service radio broadcaster Radio France which provides continuous live news and information. Interview available online :  
<https://team.inria.fr/steep/denis-dupre-dec-11-2017/>

## **STORM Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific Events Organisation**

#### *9.1.1.1. Member of the Organizing Committees*

- Samuel Thibault has organized a workshop panel at HCW'17

### **9.1.2. Scientific Events Selection**

#### *9.1.2.1. Chair of Conference Program Committees*

- Denis Barthou has been Chair of EuroPar 2017

#### *9.1.2.2. Member of the Conference Program Committees*

- Denis Barthou has been Program Committee member of EuroPar 2017, UCHPC'17, HPCS'17, PACT'17
- Olivier Aumage has been Program Committee member of the Cluster 2017 conference.
- Samuel Thibault has been Program Committee member of P3MA'17, HCW'17, EuroPar 2017, ComPAS'2017.
- Raymond Namyst has been Program Committee member of PPAM'17, SC'17 and EuroMPI/USA'17.

#### *9.1.2.3. Reviewer*

STORM members have conducted wide reviewing activities for the following conferences and workshops: CCGRID, Cluster, EuroMPI, P3MA, PDSEC, HCW, Compas.

### **9.1.3. Journal**

#### *9.1.3.1. Reviewer - Reviewing Activities*

STORM members have conducted reviewing activities for the following journals: IEEE TPDS, GPAA IJPEDS, PARCO, Scientific Programming, JPDC

### **9.1.4. Invited Talks**

- Denis Barthou has been invited at the PASC conference mini-symposium titled "From linear algebra to High performance code", 26/06/2017 Lugano
- Denis Barthou has been invited at a Bird of Feather session at SC conference, 2017-11.
- Olivier Aumage has been invited at the special day event 'Runtimes' organized by Group 'Calcul' from CNRS (2017/01/20, PARIS).
- Samuel Thibault has been invited at the "Journées Scientifiques Inria 2017".
- Samuel Thibault has been invited at the HPC Workshop at Total (2017-06-29, Pau).
- Samuel Thibault has been invited at the JLESC workshop (2017-07-20, Urbana-Champaign, US).
- Samuel Thibault has been invited at the "École thématique GPU" (2017-11-09, Grenoble).
- Raymond Namyst has been invited to the Dagstuhl Seminar on Performance Portability in Extreme Scale Computing: Metrics, Challenges, Solutions (2017-10, Schloss Dagstuhl, Germany).

### **9.1.5. Scientific Expertise**

- Olivier Aumage represents Inria at the OpenMP ARB consortium of standardization for the OpenMP language.

- Samuel Thibault participates to the HiHAT working group.
- Raymond Namyst is member of the Khronos OpenCL advisory panel.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence: Samuel Thibault is responsible for the computer science topic of the first university semester.

Licence: Samuel Thibault is responsible for the creation of the new Licence Pro ADSILLH (Administrateur et Développeur de Systèmes Informatiques sous Licences Libres et Hybrides).

Licence: Samuel Thibault, Introduction to Computer Science, 32HeTD, L1, University of Bordeaux.

Licence: Samuel Thibault, Networking, 80HeTD, L3, University of Bordeaux.

Licence: Samuel Thibault, Tutored project, 5HeTD, L3, University of Bordeaux.

Licence: Marie-Christine Counilh, Introduction to Computer Science, 64HeTD, L1, University of Bordeaux.

Licence: Marie-Christine Counilh, Introduction to C programming, 52HeTD, L1, University of Bordeaux.

Master MIAGE: Marie-Christine Counilh, Object oriented programming in Java, 30HeTD, M1, University of Bordeaux.

Master: Marie-Christine Counilh, Internship supervision, 4HeTD, M2, University of Bordeaux.

Engineering School: Emmanuelle Saillard, Structures arborescentes, 16HeTD, L3, ENSEIRB-MATMECA.

Engineering School: Pierre Huchant, Projet d'algorithmique et de programmation, 30HeTD, L3, ENSEIRB-MATMECA.

Engineering School: Pierre Huchant, Programmation Systeme, 18HeTD, M1, ENSEIRB-MATMECA.

Engineering School: Pierre Huchant, Compilation, 14HeTD, M1, ENSEIRB-MATMECA.

Engineering School: Pierre Huchant, Projet de Compilation, 4HeTD, M1, ENSEIRB-MATMECA.

Engineering School: Olivier Aumage, High Performance Communication Libraries, 20HeTD, M2, ENSEIRB-MATMECA.

Engineering School: Olivier Aumage, Languages and Supports for Parallelism, 14HeTD, M2, ENSEIRB-MATMECA.

Engineering School: Denis Barthou, Parallel architectures, 24HeTD, M2, ENSEIRB-MATMECA,

Engineering School: Denis Barthou, 3D synthesis in real time, 35HeTD, M2, ENSEIRB-MATMECA,

Engineering School: Denis Barthou, Architecture, 50HeTD, L3, ENSEIRB-MATMECA,

Engineering School: Denis Barthou, Tutored project, 25HeTD, M1, ENSEIRB-MATMECA,

Engineering School: Denis Barthou, Compilation, 28HeTD, M1, ENSEIRB-MATMECA,

Engineering School: Denis Barthou, Compilation, 28HeTD, M1, ENSEIRB-MATMECA,

Engineering School: Denis Barthou, C project, 30HeTD, L3, ENSEIRB-MATMECA,

Engineering School: Denis Barthou was responsible till Sept 2017 of a 3rd year specialization in cybersecurity, system and network (M2) at ENSEIRB-MATMECA, certified by the ANSSSI. From Sept 2017, he is responsible of the computer science teaching departement of ENSEIRB-MATMECA.

Licence: Pierre-André Wacrenier, Introduction to Computer Science, 64HeTD, L1, University of Bordeaux.

Licence: Pierre-André Wacrenier, System programming, 32HeTD, L3, University of Bordeaux

Master: Pierre-André Wacrenier, Parallel programming, 48HeTD, M1, University of Bordeaux

Master: Pierre-André Wacrenier is responsible for the Master's Degree with specialization in HPC, M2, University of Bordeaux

University of Bordeaux: Raymond Namyst is vice-chair of the computer science training department

Licence: Raymond Namyst, UNIX programming, 54HeTD, L3, University of Bordeaux

Master: Raymond Namyst, Operating Systems, 60HeTD, M1, University of Bordeaux

Master: Raymond Namyst, Parallel programming, 33HeTD, M1, University of Bordeaux

Engineering School: Raymond Namyst, Microprocessors, 24HeTD, L3, ENSEIRB-MATMECA

Engineering School: Raymond Namyst, Parallel programming, 33HeTD, M1, ENSEIRB-MATMECA

### 9.2.2. Supervision

PhD in progress : Pierre Huchant, October 2015, M.-C. Counilh, D.Barthou and R. Namyst

PhD in progress : Adrien Cassagne, October 2017, O. Aumage, D. Barthou, C. Jegou and C. Leroux

PhD in progress : Léo Villeveygoux, October 2017, R. Namyst

PhD in progress : Terry Cojean, October 2014, P.-A. Wacrenier and R. Namyst

PhD in progress : Hugo Brunie, October 2015, J. Jaeger, P. Carribault and D. Barthou

PhD in progress : Raphael Prat, October 2017, R. Namyst

PhD in progress : Arthur Loussert, October 2015, J. Jaeger, P. Carribault and R. Namyst

PhD: Christopher Haine, January 2014-June 2017, O. Aumage and D. Barthou

PhD: Marc Sergent, Passage à l'échelle d'un support d'exécution à base de tâches pour l'algèbre linéaire dense, October 2014-January 2017, O. Aumage, S. Thibault and R. Namyst

PhD: Suraj Kumar, Scheduling of Dense Linear Algebra Kernels on Heterogeneous Resources, Université de Bordeaux, April 2017, E. Agullo, O. Beaumont, L. Eyraud, S. Thibault

### 9.2.3. Juries

Denis Barthou has participated to the following PhD/HDR juries

Nabil Hallou, PhD, U.Rennes, dec. 2017 (reviewer)

Abdou Guermouche, HDR, U. Bordeaux, dec. 2017 (member)

Raymond Namyst has participated to the following PhD/HDR committees:

- Sébastien Gougeaud, PhD, U. Versailles Saint-Quentin, may 2017 (reviewer)
- Yunsong Wang, PhD, Ecole Polytechnique, dec. 2017 (reviewer)
- Pierre Ramet, HDR, U. Bordeaux, dec. 2017 (member)

## 9.3. Popularization

- Séminaire Inria Bordeaux Sud-Ouest, Unithé ou Café, septembre 2017 sur la programmation parallèle (D. Barthou)
- Fête de la Science à l'Inria Bordeaux Sud-Ouest, ateliers Datagramme et Digit'elles, octobre 2017 (E. Saillard)
- Fête de la Science, ateliers Datagramme et Sciences Manuelles du Numérique, octobre 2017 (Y. Khorsi et C. Salingue)
- Printemps de la Mixité, atelier Datagramme, avril 2017 (C. Salingue)
- J'ai un bug, qu'est-ce que je peux faire ?, Mars 2017 (S. Thibault)
- Mon code en 180 secondes: StarPU+KStar, Journées SED Bordeaux, October 2017 (O. Aumage)



## SUMO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- Éric Badouel was the scientific chair of **CRI 2017**.
- Hervé Marchand is member of the IFAC Technical Committees (TC 1.3 on Discrete Event and Hybrid Systems) since 2005. Hervé Marchand is member of the steering committee of MSR (modélisation de systèmes réactifs) since 2012 and became president of this steering in November 2017;
- Nathalie Bertrand and Nicolas Markey are members of the steering committee of the Summer School MOVEP (“*Modelisation et Vérification des Processus Parallèles*”).

#### 10.1.1.2. Member of the Organizing Committees

- Thierry Jérón is member of the steering committee of FMF 2017 (**Formal Methods Forum**), a forum gathering people from academia and industry and dedicated to the use of formal methods. It is held in Toulouse and, since this year, retransmitted in Grenoble, Saclay and Rennes. Two sessions took place in 2017, in January on the theme “Formal methods and cybersecurity” and in October about “Autonomous vehicles and formal methods”.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- Nathalie Bertrand was PC co-chair with Luca Bortolussi of **QEST’2017**, the 14th International Conference on Quantitative Evaluation of Systems, held in Berlin in September 2017 [45].

#### 10.1.2.2. Member of the Conference Program Committees

- Éric Badouel was member of the program committees of **VECOS 2017**, **ATAED 2017** and **CRI 2017**.
- Nathalie Bertrand was member of the PC of the following conferences: **LICS 2017**, **FCT 2017**, **MSR 2017**.
- Blaise Genest was a PC member of **ATVA 2017**;
- Thierry Jérón served on the Program Committees of the following international conferences: **SAC-SVT 2017** and **SAC-SVT 2018**.
- Hervé Marchand served on the Program Committees of **MSR 2017**, **Wodes 2018**, **CDC 2017**, **CCTA 2017**.
- Nicolas Markey was a PC member of **ATVA 2017**, **FORMATS 2017**, **SR 2017**.
- Ocan Sankur was a PC member of **SR 2017** and **SYNT 2017**.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- Éric Badouel is co-editor-in-Chief of **ARIMA Journal**.

### 10.1.4. Invited Talks

- Nathalie Bertrand was invited to give a talk at the workshop organized for the 20 years of LSV (ENS Cachan) in May 2017. She was also invited to talk at the workshop OPCT (Open Problems in Concurrency) in June 2017 at IST Vienna (Austria).
- Hervé Marchand gave an invited talk during the conference of MSR (November 2017) titled *Contribution to the Analysis of Discrete Event Systems* as well as during the workshop “30 years of the Ramadge-Wonham Theory of Supervisory Control: A Retrospective and Future Perspectives” at the CDC conference in December 2017 titled *Opacity and Supervisory Control*.
- Nicolas Markey gave an invited talk about *Temporal logics for multi-agent systems* at MFCS 2017, Aalborg (Denmark), in August 2017 [27].

### 10.1.5. Leadership within the Scientific Community

- Since September 2017, Nathalie Bertrand is, together with Pierre-Alain Reynier, co-head of the *Groupe de Travail Verif* belonging to the *GDR Informatique Mathématique* (GDR-IM).

### 10.1.6. Research Administration

- Éric Badouel is the co-director (with Moussa Lo, UGB, Saint-Louis du Sénégal) of LIRIMA, the Inria International Lab for Africa. He is scientific officer for the African and Middle-East region at Inria European and International Partnership Department and member of the executive board of GIS SARIMA.
- Nathalie Bertrand is elected member of the *Conseil National des Universités*, section 27 (computer science).
- Nathalie Bertrand, Loïc Hérouët and Ocan Sankur organize the weekly seminar 68NQRT at IRISA (40 talks each year).
- Éric Fabre is the co-director (with Olivier Audouin, Nokia) of the joint lab of Nokia Bell Labs France and Inria. The lab has been running for 9 years and started in Nov. 2017 its 3rd phase of joint research teams. A series of 6 new teams just started, for a duration of 4 years. They cover topics like network virtualization, network management, information theory, (distributed) machine learning, network security. SUMO is involved in the joint team "Softwarization of Everything".
- Loïc Hérouët is a representative of rank-B researchers in the *Comité de Centre* of Inria Rennes. He is also part of the bureau of the *Comité de Centre*. He leads the P22 projects with Alstom transports and is responsible for Workpackage 2 of the Headwork ANR project.
- Thierry Jérôme is Member Committee Substitute for COST IC1402 ARVI (Runtime Verification beyond Monitoring). He is member of the IFIP Working Group 10.2 on Embedded Systems. He is member of the COS Prospective of Inria Rennes and member of the *Comité de Centre* of Inria Rennes. Since 2016 he is *réfèrent chercheur* for the Inria-Rennes research center.
- Hervé Marchand is chairman of the CUMI in Rennes and member of the ADT commission in Rennes.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Licence: Nathalie Bertrand, Advanced Algorithms (ALGO2), 20h, L3, Univ Rennes 1, France;
- Licence: Loïc Hérouët, JAVA and algorithmics, L2, 40h, INSA de Rennes, France.
- Licence: Loïc Hérouët, practical studies (development of a small project), 8h, INSA de Rennes, France.
- Master : Nathalie Bertrand, Language Theory; Algorithms, 15h, Agrégation, ENS Rennes, France;
- Master: Éric Fabre, Models and Algorithms for Distributed Systems (MADS), 10h, M2, Univ Rennes 1, France;

- Master: Éric Fabre, Information Theory, 15h, M1, ENS Rennes, France.
- Master: Blaise Genest, Verification of Complex Systems (CSV), 10h, M2, Univ. Rennes 1, France;
- Master: Loïc Hélouët, Algorithms; complexity, 8h, Agrégation, ENS Rennes, France;
- Master: Loïc Hélouët, Nathalie Bertrand, Ocan Sankur, supervision of 3 students in M1 SIF (2017-2018).
- Master: Nicolas Markey, Verification of Complex Systems (CSV), 10h, M2, Univ Rennes 1, France;
- Master: Nicolas Markey, Algorithms for graphs, 3h, Agrégation, ENS Rennes, France;
- Master: Ocan Sankur, Lab sessions for the course on Formal Analysis and Design (ACF), 22h, M1, Univ. Rennes 1, France.

### 10.2.2. Supervision

#### 10.2.2.1. Defences

- HdR: Hervé Marchand, *Contribution to the Analysis of Discrete Event Systems* [15], Univ. Rennes 1. The defence took place on 6 June 2017.
- PhD: Bruno Karelavic, *Analyse quantitative des systèmes stochastiques – Jeux de priorité et population de chaînes de Markov*, Univ. Paris 7. The defence took place on 7 July 2017. Co-directed by Blaise Genest.

#### 10.2.2.2. PhD in progress

- Robert Nsaibirni, *A Guarded Attribute Grammar Model for User centered Distributed Collaborative Case Management: Case of the Disease Surveillance Process*, co-advised by Éric Badouel and Maurice Tchuenté (University of Yaoundé).
- Engel Lefauchaux, *Controlling information in probabilistic systems*, started September 2015, Nathalie Bertrand and Serge Haddad
- The Anh Pham, *Dynamic Formal Verification of High Performance Runtimes and Applications*, started Nov. 2016, Thierry Jérôme and Martin Quinson (Myriads, Inria Rennes).
- Karim Kecir, *Régulation et robustesse des systèmes ferroviaires urbains*, planned May 2018, Loïc Hélouët and Pierre Dersin (Alstom).
- Hugo Bazille, *Information flows in quantitative dynamic systems*, started oct. 2016, Blaise Genest and Éric Fabre.
- Erij Elmajed, *Diagnosis of reconfigurable systems*, started March 2017, Éric Fabre and Armen Aghasaryan (Nokia).
- Sihem Cherrared, *Diagnosis of multi-tenant programmable networks*, started Dec. 2016, Éric Fabre, Gregor Goessler (Inria, Spades) and Sofiane Imadali (Orange).
- Victor Roussanaly, *Efficient verification of timed systems*, started Sep. 2017, Nicolas Markey and Ocan Sankur.

#### 10.2.2.3. Master2 internship supervision

- Internship Aina Toky Rasoamanana, Feb-July 2017, Nathalie Bertrand and Nicolas Markey
- Internship Victor Roussanaly, Feb-June 2017, Nicolas Markey and Ocan Sankur

#### 10.2.2.4. Other internship supervision

- L3 Internship of Balasubramanian A.R., May-July 2017, Nathalie Bertrand and Nicolas Markey
- L3 Internship of Thomas Mari, *Observation-based unfolding of Petri nets*, (May-July 2017)
- L3 Internship of Romain Boitard, *Design of interfaces for railway systems*, (April-June 2017)

### 10.2.3. Juries

#### 10.2.3.1. Juries of PhD defences:

- Nicolas David, École Centrale Nantes, october 2017 : Nathalie Bertrand examiner;

- Thomas Geffroy, Univ. Bordeaux, december 2017: Nathalie Bertrand examiner;
- Ludovic Hofer, Univ. Bordeaux, november 2017: Blaise Genest examiner;
- Daniel Stan, École Normale Supérieure Paris-Saclay, march 2017: Nathalie Bertrand reviewer;
- Serge Tembo, Telecom Bretagne, January 2017: Éric Fabre examiner.

#### *10.2.3.2. Other juries*

- Ocan Sankur was in the computer science entrance exam jury of École Normale Supérieures and École Polytechnique.

### **10.3. Popularization**

- Éric Badouel gave a talk at TEDx Lorient on digital democracy (coordination of citizen debates).

## TACOMA Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Organizing Committees

- Co-organizer of a local IoT conference, Technoconference 22, IoT et si on connectait le monde: enjeux d'aujourd'hui et de demain, October 5th 2017 - Rennes, P. Couderc.

### 9.1.2. Scientific Events Selection

#### 9.1.2.1. Reviewer

- Mobile Networks and Applications, JM. Bonnin
- IEEE transactions on Mobile Computing, JM. Bonnin
- Simulation Modeling Practice and Theory, JM. Bonnin
- Computer Standards & Interfaces, an international journal on Engineering Science and Technology, JM. Bonnin

#### 9.1.2.2. Member of the Conference Program Committees

- PC member for VTC, NGNS, CARI, ICON, ICIN, JM Bonnin

### 9.1.3. Invited Talks

- Invited talk at DATE 2017: "Which interaction models between objects for smarter spaces?", JM Bonnin
- Invited talk at ENOVA (16/03/2017) Strasbourg: "BMS et charge intelligente de véhicule électrique: une introduction au protocole ISO/IEC 15118", JM Bonnin
- Invited tutorial at Digicosme (Saclay) summer school: "Foster digital innovation in Smart Cities", JM Bonnin
- Invited talk at UTS (22/08/2017): "Fostering digital innovation in Smart Cities and Cooperative autonomous vehicle", JM Bonnin
- Invited talk at Technoconference, IoT et si on connectait le monde: enjeux d'aujourd'hui et de demain: "Développement d'applications pervasives dans un environnement IoT", F. Weis

### 9.1.4. Leadership within the Scientific Community

- Jean-Marie Bonnin is member of the scientific council of the GIS ITS
- Jean-Marie Bonnin is member of the scientific council the Id4Car cluster
- Jean-Marie Bonnin is an elected member of the Scientific Council of IMT
- Jean-Marie Bonnin is a scientific advisor of the YoGoKo startup

### 9.1.5. Scientific Expertise

- Evaluation committee for the Belgium government, JM. Bonnin
- Expert for ANR, F. Weis and JM Bonnin
- Evaluation committee for the CADO (PME Business) challenge (Id4Car, I&R), JM Bonnin
- Expert for CSV board of "Pôle Images et Réseaux", P. Couderc

### 9.1.6. Research Administration

- Head of the Networks, Telecommunication and service department at IRISA, JM. Bonnin

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

L2/L3: network computing (lectures, tutorials, labs), 250 hours, F. Weis, Univ. Rennes 1

Master: Wireless LANs, F. Weis, 20 hours, M2, IMT Atlantique

Master: Supervision of a Master 1 project related to the smart building (in collaboration with Myriads), 22 hours, P. Couderc, Univ. Rennes 1

Master 1: Network programming (lectures, tutorial, labs), 78 hours, Y. Maurel

L3/M2: network communications protocol for building automation (lectures, labs), 80 hours, Y. Maurel

Master 2: Software engineering (lectures, tutorial, labs), 82 hours, Y. Maurel

### 9.2.2. Supervision

PhD in progress: Adrien Capaine, Vers une plate-forme de LED connectées comme vecteur de services contextuels dans le cadre des bâtiments intelligents, 01/05/15, Frédéric Weis and Yoann Maurel

PhD in progress: Zaineb Lioune, Une Architecture pour des Services e-Santé évolutifs dans le cadre des Maisons Intelligentes, 01/09/14, Frédéric Weis, Tayeb Lemlouna and Philippe Roose

PhD in progress: Indra Ngurah, Car-based Data Collection for Low Energy Devices (Car-based DC4LED), 01/05/16, Jean-Marie Bonnin

PhD in progress: Christophe Couturier, Frugal networking for cooperative autonomy, 01/11/16, Jean-Marie Bonnin

PhD in progress: Alexandre Rio, Modélisation des activités de site consommateur d'énergie, 01/10/16, Olivier Barais and Yoann Maurel

PhD in progress: Rodrigo Silva, Mécanisme de décision multi-critères pour le placement de flux en environnement hétérogène et changeant, 1/11/15, Jean-Marie Bonnin

### 9.2.3. Juries

Adrien Carteron, "Une approche événementielle pour le développement de services multi-métiers dédiés à l'assistance domiciliaire", Univ. Bordeaux, F. Weis, PhD referee

Amina BOUDENDIR, "Virtual Network Functions modeling for Dynamic Network-as-a-Service: Architecture principles and deployment", JM Bonnin, PhD referee

Ikbel Daly, JM Bonnin, PhD referee

## 9.3. Popularization

Under the leitmotif "testing and learning about digital mobility solutions in Rennes", Rennes Metropole will open the doors of its city from March 14 – 18, 2018 for a new type of inclusive and collaborative event experience, dedicated to transforming mobility services: inOut! Composed of two distinct but complementary parts, inOut will combine debates among professionals from established and incumbent companies, start-ups, academics, students and live experiences on the city territory including the citizens of Rennes and its surroundings. More than just a recurrent annual event, inOut is set to continue throughout the year as a unique incubator on a human scale, where new mobilities are invented [IN]door and are tested [OUT]doors with users in real time. It's a one-of-a-kind co-creation platform providing industrial partners, start-ups, incumbent and new mobility players the opportunity to invent new mobility services, to experiment and test new use cases and business models, in close proximity to and with the citizens. Through a series of controversial debates, the event invites professionals, academics and local authorities from all over the world to separate hype from reality and discuss enablers and potential blocking points of these new mobilities.

We have been strongly involved in the creation of InOut and Jean-Marie Bonnin is responsible of the "Expert Committee" of the event.

This autumn the work done to design the InOut concept provided the basis to build the answer of Rennes Metropole to the AMI "Territoire Innovant de Grande Ambition".

## TADaaM Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

Guillaume AUPY was the technical program vice-chair of SC'17.

#### 10.1.1.2. Member of the steering committee

Emmanuel JEANNOT is member of the steering committee of Euro-Par and the Cluster international conference.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- Guillaume AUPY was the Parallel and Distributed algorithm area co-chair of ICA3PP'17.
- Guillaume AUPY is the chair of the Workshop committee of SC'18.

#### 10.1.2.2. Member of the Conference Program Committees

- Brice GOGLIN was a member of the program committee of EuroMPI/USA 2017, HotInterconnect 25, CARLA 2017, and of the Exacomm ISC workshop and COLOC Euro-Par workshop.
- Guillaume AUPY was a member of the program committee of ICPP'17, SC'17, FTS'17.
- Alexandre DENIS was a member of the program committee of CCGrid 2017, HiPC 2017, Com-Pas'2017, CCGrid 2018.
- Guillaume AUPY was the Parallel and Distributed algorithm area co-chair of ICA3PP'17.
- Emmanuel JEANNOT was the Open workshop on data locality workshop co-chair in conjunction with Euro-Par 2017.
- Emmanuel JEANNOT was the Heterogeneity in Computing Workshop (HCW) chair in conjunction with IPDPS 2017.

#### 10.1.2.3. Member of the Conference Program Committees

- Brice GOGLIN was a member of the program committee of EuroMPI/USA 2017, HotInterconnect 25, CARLA 2017, and of the Exacomm ISC workshop and COLOC Euro-Par workshop.
- Guillaume AUPY was a member of the program committee of ICPP'17, SC'17, FTS'17.
- Alexandre DENIS was a member of the program committee of CCGrid 2017, HiPC 2017, Com-Pas'2017, CCGrid 2018.
- Emmanuel JEANNOT was member of the program committee of SBAC-PAD 2017, HiPC 2017, ICPP 2017, Heteropar 2017, IPDPS 2018,
- Guillaume AUPY was the Parallel and Distributed algorithm area co-chair of ICA3PP'17.

#### 10.1.2.4. Member of the Conference Program Committees

- Brice GOGLIN was a member of the program committee of EuroMPI/USA 2017, HotInterconnect 25, CARLA 2017, and of the Exacomm ISC workshop and COLOC Euro-Par workshop.
- Guillaume AUPY was a member of the program committee of ICPP'17, SC'17, FTS'17.
- Alexandre DENIS was a member of the program committee of CCGrid 2017, HiPC 2017, Com-Pas'2017, CCGrid 2018.

- Guillaume MERCIER was a member of the program committee of EuroMPI/USA 2017, HPCS 2017 and CCGrid 2018.

#### 10.1.2.5. Reviewer

- Alexandre DENIS was a reviewer for Cluster 2017.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- Guillaume AUPY was an invited editor for the Special Issue of *Concurrency and Computation: Practice and Experience* on data structures and algorithms.
- Emmanuel JEANNOT is associate editor of the International Journal of Parallel, Emergent & Distributed Systems (IJPEDS).

#### 10.1.3.2. Reviewer - Reviewing Activities

- Alexandre DENIS was a reviewer for TPDS and JPDC.
- Guillaume AUPY was a reviewer for TPDS and Optimization Methods and Software.
- Emmanuel JEANNOT was reviewer for TPDS, IJHPCA.

### 10.1.4. Invited Talks

- Brice GOGLIN gave a talk about the structural modeling of next-generation memory architectures at the Fourth Workshop on Programming Abstractions for Data Locality (PADAL'17).
- Guillaume AUPY was invited to talk about I/O scheduling in Argonne National Laboratory.

### 10.1.5. Leadership within the Scientific Community

- Emmanuel JEANNOT, Brice GOGLIN and Pete BECKMAN organized a Birds-of-a-Feather session about *Cross-Layer Allocation and Management of Hardware Resources in Shared Memory Node*. It gathered about 30 people working on various runtime systems, operating systems and applications in the HPC to discuss how to have all these software components collaborate when spawning jobs on hardware resources.
- Guillaume MERCIER is the chairman of the Hardware Topologies Management Working Group of the MPI Forum. This working group was created officially in December by Inria's impulse and has been rallied since by many institutions taking part in the MPI Forum. The goal of this working group is to standardize hardware topologies management mechanisms and abstractions in the MPI standard.
- Cédric LACHAT organized the first "PaMPA day" meeting <sup>0</sup>, at Inria Bordeaux, gathering authors of prominent remeshing software.

### 10.1.6. Scientific Expertise

- Emmanuel JEANNOT is member of the hiring committee for the junior chair of the I-Site E2S of the university of Pau.
- François PELLEGRINI is member of the foresight committee on scientific and technological information (IST) of Institut national de recherche agronomique (INRA).
- François PELLEGRINI is member of the pedagogical committee of the Alienor lawyer's school in Bordeaux.
- François PELLEGRINI was invited by *Organisation Internationale de la Francophonie*, as an international expert on software law and economics, to participate in training sessions for the members of the parliaments of Bénin and Cameroon, regarding the impact of digital technologies on digital sovereignty and national legal systems.

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<sup>0</sup><https://project.inria.fr/pampa/pampa-day/>



- François PELLEGRINI was heard by the Conseil national du numérique (CNNum), on the European directive on free flow of data.
- François PELLEGRINI was heard by the Conseil régional de Nouvelle-Aquitaine, in the context of the definition of their digital roadmap.
- François PELLEGRINI was invited to the thematic seminar on the *social responsibility of algorithms*, organized by the scientific council of *Institut des sciences de l'information et de leurs interactions* (INS2I) of CNRS.

### 10.1.7. Standardization Activities

TADAAM attended the MPI Forum meetings on behalf of Inria (where the MPI standard for communication in parallel applications is developed and maintained). TADAAM also proposed the creation of a new working group in the MPI Forum, dedicated to hardware topologies management and currently leads this working group. The HSPLIT proposal is currently under early discussions for submission to the forum and eventual inclusion in the MPI standard.

### 10.1.8. Research Administration

Emmanuel JEANNOT is member of the scientific committee of the Labex IRMIA (Université de Strasbourg).

Emmanuel JEANNOT is the head of the young researcher commission of Inria Bordeaux Sud-Ouest in charge of supervising the hiring of the PhDs and post-doc of the center.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Members of the TADAAM project gave hundreds of hours of teaching at Université de Bordeaux and the Bordeaux INP engineering school, covering a wide range of topics from basic use of computers, introduction to algorithmics and C programming to advanced topics such as probabilities and statistics, computer architecture, operating systems, parallel programming and high-performance runtime systems, as well as software law and personal data.

Brice GOGLIN participated in the building of the section about fundamentals of computer science in the MOOC *Informatique et Création Numérique* which focuses at bringing basics about computer science to high-school teachers.

### 10.2.2. Supervision

PhD : Jonathan Keller, *La notion d'auteur dans le monde des logiciels*, defended on 21 Jun 2017, Université Paris Nanterre. Co-advisors: Sylvia Preuss-Laussinotte and François Pellegrini.

PhD : Remi Barat, *Équilibrage de charge pour des simulations multi-physiques par partitionnement multi-critères de graphes* (*Load balancing of multi-physics simulations by multi-criteria graph partitioning*), defended on 18 Dec 2017. Advisor: François Pellegrini.

PhD in progress: Nicolas Denoyelle, advanced memory hierarchies and new topologies, started in 2015. Advisor: Brice Goglin and Emmanuel Jeannot.

PhD in progress: Benjamin Lorendeau, new programming models and optimization of Code Saturn, started in 2015. Advisor: Yvan Fournier and Emmanuel Jeannot.

PhD in progress: Hugo Taboada, communication progression in runtime systems, started in 2015. Advisor: Alexandre Denis and Emmanuel Jeannot.

PhD in progress: Adèle Villiermet, topology-aware resource management, started in 2014. Advisor: Emmanuel Jeannot and Guillaume Mercier.

PhD started: Valentin Honoré, Partitioning Strategies for high throughput Applications, started in November 2017. Advisor: Guillaume Aupy and Brice Goglin.

### 10.2.3. Juries

Guillaume MERCIER was a member of the Ph.D defense jury of Fernando Mendonca (supervisor: Denis Trystram, Professor at Grenoble Institute of Technology).

Emmanuel JEANNOT was member of the Ph.D defense jury of:

- Christopher Haine (University of Bordeaux, President)
- Pedro De Souza Bento Da Silva (University of Lyon, ENS Lyon, Reviewer)

Emmanuel JEANNOT was reviewer of the habilitation thesis of Luiz-Angelo Steffemel (University of Reims)

François PELLEGRINI was reviewer and member of the Ph.D defense jury of Thomas Gonçalves (University of Grenoble-Alpes / CEA. Supervisors: Frédéric Desprez, Jean-François Méhaut and Marc Perache).

## 10.3. Popularization

### 10.3.1. Duties

Guillaume AUPY was in charge of hosting the undergraduate students (L3) from ENS Lyon and later ENS Cachan at Inria Bordeaux-Sud Ouest.

Brice GOGLIN is in charge of the diffusion of the scientific culture for the Inria Research Centre of Bordeaux. He organized several popularization activities involving colleagues.

Brice GOGLIN was a member of the *CGenial* contest for science projects in high schools.

François PELLEGRINI is vice-president of université de Bordeaux, in charge of digital issues.

### 10.3.2. Online Content

François PELLEGRINI wrote a tribune in the Binaire blog run by Inria staff and hosted by Le Monde, on the “loyalty of data processing”. See: <http://binaire.blog.lemonde.fr/2017/03/27/les-algos-ni-loyaux-ni-ethiques/>.

### 10.3.3. Teaching and Education

- Brice GOGLIN was involved in the MOOC *Informatique et Création Numérique* which focuses at bringing basics about computer science to high-school teachers. After recording videos, he answered numerous questions on the forum, and during a live hangout about computer architectures and networks. More than 12 000 people registered to the course, and more than 1 200 successfully finished it.
- Brice GOGLIN presented tools for teaching basics of computer science in classes at the teachers’ forum at Cap Sciences.
- François PELLEGRINI participated in the creation of video contents for the MOOC *Innov+*, on the economics of innovation, published on the FUN platform. His contribution concerns the software economy and law. See: <https://www.fun-mooc.fr/courses/course-v1:ubordeaux+28002+session01/about>.
- François PELLEGRINI was offered the chair on digital issues at *Université populaire de Bordeaux*, and gave four lectures on: “The digital revolution”, “Liberties in the digital age”, “Personal data and big data”, “Software law and libre software”. See: <http://www.upbordeaux.fr/Le-numerique>.

### 10.3.4. Talks and Hands-on

- Guillaume AUPY presented problems revolving around High-Performance Computing to High-School students during *Fête de la Science*.
- Guillaume AUPY gave a talk at the seminar *Convergence des Droits et du Numérique* about differences and common grounds between mathematical logics and juridic logics.

- Brice GOGLIN gave several talks about computer architecture, high performance computing, and research careers to general public audience, school students. He also gave several hands-on sessions about basics of algorithmics and computer science.
- François PELLEGRINI gave many talks on liberties in the digital world, digital sovereignty, software law and economy, artificial intelligence for legal practice, etc., in front of various audiences: Cap Sciences, ESI Brussels, Lycée Borda in Pau, FACTS festival on arts & sciences in Bordeaux, Cinéma Utopia, CURIE congress in Marseille, Observatoire de Nice, the Defense Security Cyber summer school in Bordeaux, the Réseau Cepage of CNRS Aquitaine, etc.

#### ***10.3.5. Popularizing inside Inria***

Guillaume AUPY presented problems revolving around High-Performance Computing during the seminar *Unithé ou Café*.

## TAMIS Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- Axel Legay was General Chair for KimFest, an event organized for the 60th Birthday of Kim. G. Larsen
- Axel Legay was General Chair for the 1st ACM SAC Conference Track on Software-intensive Systems-of-Systems
- Jean-Louis Lanet was General Chair of Crisis 2017,
- Olivier Zendra was General co-Chair for ARCHI'17, the 9th Summer school on « Architecture des systèmes matériels et logiciels embarqués, et méthodes de conception associées »

#### 10.1.1.2. Member of the Organizing Committees

- Axel Legay coordinated KimFest, an event organized for the 60th Birthday of Kim. G. Larsen

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of Conference Steering Committees

- Axel Legay is a member of the Steering Committee of the Security summer school organized jointly by pre-GDR security and PEC (Pole d'Excellence Cyber).
- Jean-Louis Lanet has been member of the Steering Committee of Cardis 2017
- Olivier Zendra is a founder and a member of the Steering Committee of ICOOOLPS (International Workshop on Implementation, Compilation, Optimization of OO Languages, Programs and Systems)

#### 10.1.2.2. Chair of Conference Program Committees

- Axel Legay was Scientific chair of the 23rd International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS)
- Axel Legay was the Scientific chair for the 11th International Conference on Risks and Security of Internet and Systems
- Axel Legay was the Scientific chair for the 17th International Conference on Application of Concurrency to System Design (ACSD 2017)
- Olivier Zendra was co-chair with Mario Wolzco of the Program Committee and the Organizing Committee of the 12th Workshop on Implementation, Compilation, Optimization of Object-Oriented Languages, Programs and Systems (ICOOOLPS 2017)

#### 10.1.2.3. Member of the Conference Program Committees

- Axel Legay was a PC member of RV'17, ACSD'17, TACAS'17, CRISIS'17, CMSB'17, SETTA'17, FORMALIZE'17
- Fabrizio Biondi was a PC member of CRISIS'17, MCETECH'17, SAC'17
- Jean-Louis Lanet was PC member of Gramsec'17, Secite'17, C2SI'17, Mcetech'17 and Afadl'17
- Olivier Zendra was PC member of ICOOOLPS'2017, ARCHI'17 and PEC 2017.

#### 10.1.2.4. Reviewer

- Olivier Zendra was reviewer for MFCS.

- Fabrizio Biondi was a reviewer for CRISIS'17, ESORICS'17, KimFest, LATA'17, MFCS'17, RV'17, MCETECH'17

### **10.1.3. Journal**

#### *10.1.3.1. Member of the Editorial Boards*

- Axel Legay is a funder and member of the editorial board of "Foundations for Mastering Changes" journal.
- Annelie Heuser was PC Member/Editorial Board for IACR Transactions On Cryptographic Hardware And Embedded Systems

#### *10.1.3.2. Reviewer - Reviewing Activities*

- Axel Legay was reviewer for TCS, TSE, Information and Computation.
- Annelie Heuser was a reviewer for Transactions on Information Forensics & Security, Journal of Cryptographic Engineering, Transactions on Embedded Computing Systems, IEEE Transactions on Very Large Scale Integration Systems
- Jean-Louis was reviewer of Computer and Security journal

### **10.1.4. Invited Talks**

- Axel Legay was an invited speaker for the 11th International Workshop on Reachability Problems.
- Axel Legay was invited speaker for the 43rd International Conference on Current Trends in Theory and Practice of Computer Science
- Fabrizio Biondi was invited speaker for The 12th International Conference on Risks and Security of Internet and Systems
- Florian Dold was invited to the "Re-Imagining Finance" workshop at Columbia Law School in New York City in September 2017.
- Annelie Heuser was invited to a panel discussion for Malicious Software and Hardware in Internet of Things (ACM International Conference on Computing Frontiers)
- Jean-Louis Lanet was invited speaker for the INS3PECT workshop, the ROOTS conference, the Conference on Operational Planning, Technological Innovations and Mathematical Applications, the Journée AFSEC. 2017)

### **10.1.5. Scientific Expertise**

- Axel Legay was an expert for the Wallonie Government.
- Axel Legay participated to the CR2 jury for Inria Nice Center as a member of Inria's evaluation committee.
- Olivier Zendra is a CIR expert for the MENESR.
- Olivier Zendra participated to the CR2 jury for Inria Paris Center as a member of Inria's evaluation committee.
- Olivier Zendra is a member of the editorial board and co-author of the "HiPEAC 2017 Vision" [47], as well as the HiPEAC 2019 Vision.

### **10.1.6. Research Administration**

- Axel Legay is a member of Inria's evaluation committee.
- Axel Legay is the Representative for non-permanent staff committees (in charge of postdocs).
- Axel Legay is a member of "club équipe Française de la cyber sécurité"
- Axel Legay is the Brittany Region representative in the ECSO organization
- Olivier Zendra is a member of Inria's evaluation committee.
- Olivier Zendra is a member of Inria's workgroup on Inria's social barometer.

- Olivier Zendra was a member of Inria's CNHSCT.
- Olivier Zendra was Head of Inria Nancy's IES Committee (formerly IST).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Master : Axel Legay, Introduction au Model Checking, 36, M2, Université de Bretagne Sud, France
- Master : Axel Legay, Introduction à l'analyse de risques, M2, Université de Bretagne Sud, France
- Licence : Nisrine Jafri , Programmation Java, L3, l'ISTIC, Université Rennes 1, France

### 10.2.2. Supervision

- PhD in progress : Kevin Bukasa, Démarrage sécurisé, 2015, Jean-Louis Lanet and Axel Legay
- PhD in progress : Mounir Chadli (Rennes 1), On Scheduling and SMC, December 2014, Axel Legay and Saddek Bensalem.
- PhD in progress : Olivier Descourbe, On Code Obfuscation, October 2016, Axel Legay and Fabrizio Biondi.
- PhD in progress : Mike Enescu, On Symbolic Execution for Malware Detection, October 2016, Axel Legay, Flavio Oquendo and Fabrizio Biondi. Terminated on October 2017.
- PhD in progress : Alexandre Gonsalvez, On Obfuscation via crypto primitives, April 2016, Axel Legay and Caroline Fontaine.
- PhD in progress : Nisrine Jafri (Rennes1), On fault Injection detection with MC of Binary code, December 2015, Axel Legay and Jean-Louis Lanet.
- PhD in progress : Razika Lounas, Validation des spécifications formelles de la mise à jour dynamique des applications Java Card, 2010, Mohamed Mezghiche and Jean-Louis Lanet
- PhD in progress: Martin Moreau (Rennes1); On the study of post-quantum cryptography mechanisms (provisory), Axel Legay, Annelie Heuser and Sylvain Guilley
- PhD in progress : Routa Moussaileb, From Data Signature to Behavior Analysis, 2017, Nora Cuppens and Jean-Louis Lanet
- PhD in progress : Tristan Ninet (Rennes 1), Vérification formelle d'une implémentation de la pile protocolaire IKEv2, December 2016, Axel Legay, Romaric Maillard and Olivier Zendra
- PhD in progress: Lamine Nouredine (Rennes1); Developing new packing detection techniques to stop malware propagation, November 2017, Axel Legay and Annelie Heuser.
- PhD in progress : Aurélien Palisse, Observabilité de codes hostiles, 2015, Jean-Louis Lanet
- PhD in progress: Emmanuel Tacheau (Rennes1); Analyse et détection de malwares au moyen de méthodes d'analyse symbolique, September 2017, Axel Legay, Fabrizio Biondi, Alain Fiocco.
- PhD in progress : Aurélien Trulla, Caractérisation de malware Android par suivi de flux d'information et nouvelles techniques d'évasion, 2016, Valerie Viet Triem Tong and Jean-Louis Lanet
- PhD in progress: Alexander Zhdanov (Rennes 1): Modular Automated Syntactic Signature Extraction (MASSE), December 2017, Axel Legay, Fabrizio Biondi, François Déchelle and Olivier Zendra.

### 10.2.3. Juries

- Axel Legay was a referee for the PhD defense of Xavier Devroye (University of Namur Belgium)
- Axel Legay was a referee for the PhD defense of Quentin Cappart (University of Louvain Belgium)
- Axel Legay was a referee for the PhD defense of Stefan Naujokat (University of Dortmund, Germany)

### **10.3. Popularization**

- Axel Legay participated to the "Forum Cyberstrategia" organized by the ministry of defense, September 2017
- Axel Legay participated to the "Inria Industry days" organized by Inria, October 2017
- Axel Legay participated to the "table ronde sur l'intelligence économique", Rennes November 2017
- Fabrizio Biondi participated to the "Forum International de la Cybersécurité", January 2017
- Fabrizio Biondi participated to the "Forum Cyberstrategia" organized by the ministry of defense, September 2017
- Fabrizio Biondi participated to the "Inria Industry days" organized by Inria, October 2017
- Fabrizio Biondi participated to the "European Cyber Week" organized by IRISA and Bretagne Development Innovation, November 2017

## TAPDANCE Team

# 7. Dissemination

## 7.1. Promoting Scientific Activities

### 7.1.1. Scientific Events Selection

#### 7.1.1.1. Reviewer

Both Damien Woods and Pierre-Étienne Meunier blind-reviewed papers for a number of computer science theory conferences (and do not wish to disclose further information related to blind peer review).

### 7.1.2. Journal

#### 7.1.2.1. Guest Editor for Journal Special Issue

Damien Woods was guest editor (along with Yannick Rondelez, CNRS & ESPCI) of a special issue of the journal *Natural Computing* dedicated to the conference DNA22 (2016). The special issue will appear in 2018.

#### 7.1.2.2. Reviewer - Reviewing Activities

Both Damien Woods and Pierre-Étienne Meunier reviewed papers for a variety of scientific journals (and do not wish to disclose further information related to blind peer review).

### 7.1.3. Invited Talks

- Woods. Centre for Research and Interdisciplinarity (CRI), Masterclass, Paris, France, 2017.
- Woods. Paris Sciences et Lettres (PSL institute), group on Origins and Conditions of Appearance of Life, Observatoire de Paris, France. 2017.
- Meunier, RustFest 2017 in Kiev, Ukraine, April 2017.

### 7.1.4. Contributed Talks (with no associated publication)

- Woods (speaker). FNANO 2017: 14th Annual Conference on Foundations on Nanoscience: Self-Assembled Architectures and Devices. Snowbird, UT. [Woods, Doty, Myhrvold, Hui, Zhou, Yin and Winfree. *Iterated circuit computation by DNA self-assembly in a field-programmable gate array architecture*]
- Woods. DNA23: The 23rd International Conference on DNA Computing and Molecular Programming, 2017. UT Ausin, Texas [Woods, Doty, Myhrvold, Hui, Zhou, Yin and Winfree. *Iterated circuit computation by DNA self-assembly in a field-programmable gate array architecture*]
- Meunier (speaker). DNA 23: The 23rd International Conference on DNA Computing and Molecular Programming. UT Austin Texas, USA. [Meunier, Woods. *The non-cooperative tile assembly model is not intrinsically universal or capable of bounded Turing machine simulation*]

### 7.1.5. Conference Programme Committees

- Woods. CiE 2017. Computability in Europe. Turku, Finland.
- Woods. DNA23: The 23rd International Conference on DNA Computing and Molecular Programming, 2017. UT Ausin, Texas
- Woods. UCNC 2017. Unconventional Computation and Natural Computation. Fayetteville, AR.

## 7.2. Teaching - Supervision - Juries

### 7.2.1. Teaching

Woods taught a 1-week course on molecular computing to Masters students at ENS Lyon (with N. Schabanel, Y. Rondelez, C. Moskalenko, L. Bellon). Course title: ER02: Molecular programming: Theory & Wet Lab Nano-Scale Computation. <https://www.irif.fr/~nschaban/2017-ER02/>



## TAU Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- Guillaume Charpiat, Workshop Statistics/Learning at Paris-Saclay 2017 and 2018
- Isabelle Guyon, General Chair, NIPS 2017
- Flora Jay, Junior Conference on Data Science and Engineering Paris-Saclay (JDSE 2017)
- Paola Tubaro, Recent Ethical Challenges in Social Network Analysis (RECSNA 2017)

#### 10.1.1.2. Member of the Organizing Committees

- Cecile Germain, co-organizer of DataScience@HEP 2017; Hammers and Nails Weizmann Workshop.
- Isabelle Guyon, co-organizer BayLearn, NIPS workshops Challenges in Machine Learning, AutoML workshop at ICML, LAP challenge workshops (ICCV, ICPR).
- Marc Schoenauer, Steering Committee, Parallel Problem Solving from Nature (PPSN); Steering Committee, Learning and Intelligent OptimizatiON (LION).
- Michele Sebag, President of Steering Committee, Eur. Conf. on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD).

#### 10.1.1.3. Member of Conference Program Committees

All TAO members are members of the Program Committees of the main conferences in the fields of Machine Learning, Evolutionary Computation, and Information Processing.

#### 10.1.1.4. Reviewer

All TAO member review papers for the most prestigious conferences in the fields of Machine Learning and Evolutionary Computation.

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

- Isabelle Guyon, action editor, *Journal of Machine Learning Research* (JMLR); series editor, *Springer series Challenges in Machine Learning* (CiML).
- Marc Schoenauer, member of Advisory Board, *Evolutionary Computation Journal*, MIT Press, and *Genetic Programming and Evolutionary Machines*, Springer Verlag; action editor, *Journal of Machine Learning Research*(JMLR).
- Michèle Sebag, Editorial Board, *Machine Learning*, Springer Verlag.
- Paola Tubaro, Associate Editorial Board, *Sociology*, Sage; member of Editorial Board, *Revue Française de Sociologie*, Presses de Sciences Po.

#### 10.1.2.2. Reviewer - Reviewing Activities

All members of the team reviewed numerous articles for the most prestigious journals in the fields of Machine Learning and Evolutionary Computation.

### 10.1.3. Invited Talks

- Philippe Caillou, 7 march 2017, *Simulation analysis with charts in GAMA*, Gama Training session, TU Delft, Delft.
- Guillaume Charpiat, 9 May 2017, *Introduction to Neural Networks*, Mathematical coffees, Huawei.
- Guillaume Charpiat, 30 November 2017, *Apprentissage profond pour la segmentation d'images satellite haute résolution*, Workshop Deep Learning - Télédétection - Temps, Issy-les-Moulineaux.
- Aurélien Decelle, 24 March 2017, *Ising inverse problem : recovering the topology of the network*, International workshop on numerical methods and simulations for materials design and strongly correlated quantum matters
- Isabelle Guyon, 19 Jan 2017, *Causal graph reconstruction*, ENS Ulm, Paris.
- Flora Jay, 7 April 2017, *Reconstructing past history from whole-genomes: an ABC approach handling recombining data*, European Mathematical Genetics Meeting, Estonia.
- Cecile Germain, 9 May 2017, *Review on Anomaly/Outlier detection*, DataScience@HEP, Fermilab.
- Marc Schoenauer, 23 Feb. 2017, *Adaptation and self-adaptation in Evolutionary Computation and in scientific careers*, School of Computer Science, University of Adelaide; 7 Sep. 2017, *l'Intelligence Artificielle dans le domaine scientifique*, Open Laboratories, IMRA, Sophia Antipolis; 21 Sep. 2017, *Getting hints from random walks in Optimization and Deep Learning*, CSAIL Seminar, MIT, Boston; 31 Oct. 2017, *Adaptation in Artificial Systems: lessons from Evolution Strategies applied to Deep Learning*, XIII Brazilian Congress on Computational Intelligence, Rio de Janeiro.
- Michèle Sebag, July 2017, *AI without hot air / Le vent de l'IA*, Académie des Technologies; July 2017, *IA et Intelligence Service*, DGA Ecole Militaire; Sept. 2017, *Causal Generative Neural Networks*, Lorentz center, Leiden; Sept. 2017, *Stochastic Gradient Descent: Going as fast as possible but not faster*; Sept. 2017, *AutoML@ECMLPKDD*, Skopje; Sept. 2017, *Algorithm Recommender System*, keynote speech JST CREST Program on Big Data Applications, Tokyo.
- Paola Tubaro, 11 May 2017, *Mapping the collaborative economy: social networks, status and norms*, RITM Seminar, Université Paris Sud, Sceaux.

### 10.1.4. Leadership within the Scientific Community

- Isabelle Guyon, President and co-founder of **ChaLearn**, a non-for-profit organization dedicated to the organization of challenge.
- Marc Schoenauer, Chair of ACM-SIGEVO (Special Interest Group on Evolutionary Computation), re-elected July 2017 (2-years term).
- Marc Schoenauer, founding President of SPECIES (Society for the Promotion of Evolutionary Computation In Europe and Surroundings), that organizes the yearly series of conferences *EvoStar*.
- Michèle Sebag, elected Chair of Steering Committee, ECML-PKDD; head of the Research Programme, Institut de Convergence DataIA
- Paola Tubaro, convenor of the Social Network Analysis Group of British Sociological Association; co-founder of European Network on Digital Labor

### 10.1.5. Scientific Expertise

- Cécile Germain, evaluator for the H2020-ICT-2017-1 Big Data PPP call.
- Marc Schoenauer, mission Villani pour l'Intelligence Artificielle

### 10.1.6. Research Administration

- Cécile Germain, University officer for scientific computing; deputy head of the computer science departement, in charge of research; member of the scientific council of faculty of Science (UPsud) and of its board; member of the Board of the Lidex *Center for Data Science*; member of the scientific council of faculty of Medicine (UPsud).

- Isabelle Guyon, representative of UPSud in the DataIA *Institut de Convergence* Program Committee, University of Paris-Saclay.
- Marc Schoenauer, co-chair (with Sylvain Arlot) of the *Maths-STIC* program of the Labex of Mathematics Hadamard (LMH).
- Michele Sebag, deputy director of LRI, CNRS UMR 8623; elected member of the Research Council of Univ. Paris-Saclay; member of the STIC department council of Univ. Paris-Saclay; member of the Scientific Council of Labex AMIES, Applications des Mathématiques ds l'Industrie, l'Entreprise et la Société; member of the Scientific Council of IRT System'X; member of the CSFRS (Conseil supérieur de la formation et de la recherche stratégique).
- Paola Tubaro, representative of CNRS in the DataIA *Institut de Convergence* Program Committee, University of Paris-Saclay.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Licence : Philippe Caillou, Computer Science for students in Accounting and Management, 192h, L1, IUT Sceaux, Univ. Paris Sud.

Licence : Aurélien Decelle, Computer Architecture, 28h, L2, Univ. Paris-Sud.

Licence : Aurélien Decelle, Machine Learning and Artificial Life, 55h, L2, Univ. Paris-Sud.

Licence : Aurélien Decelle, Object-oriented programming , 26h, L2, Univ. Paris-Sud.

Licence : Aurélien Decelle, Computer Architecture, 26h, L3, Univ. Paris-Sud.

Licence and Polytech : Cécile Germain, Computer Architecture

Licence : Isabelle Guyon, Project: Creation of mini-challenges, M2, Univ. Paris-Sud.

Master : Guillaume Charpiat and Corentin Tallec, Advanced Machine Learning, 34h, M2 Recherche, Centrale-Supélec.

Master : Aurélien Decelle, Machine Learning, 26h, M1, Univ. Paris-Sud.

Master : Aurélien Decelle, Probability and statistics, 26h, M1, Univ. Paris-Sud.

Master : Cécile Germain, Parallel Programming

Master : Isabelle Guyon, Project: Resolution of mini-challenges (created by M2 students), L2, Univ. Paris-Sud.

Master : Yann Ollivier, Deep learning, 4h, M2 Recherche, Telecom/Polytech.

Master : Michèle Sebag, Machine Learning, 12h; Deep Learning, 6h; Reinforcement Learning, 6h; M2 Recherche, U. Paris-sud.

Master : Paola Tubaro, Sociology of social networks, 24h, M2, EHESS/ENS.

Master : Flora Jay, Population Genetics, 10h, M2, Univ. Paris-Sud.

Doctorate: Paola Tubaro, Research Methods, 12h, University of Insubria, Italy.

### 10.2.2. Supervision

PhD: Vincent Berthier, *Studies on stochastic optimisation and applications to the real world*, Univ. Paris-Saclay, 29/9/2017, Olivier Teytaud.

PhD: Nacim BELKHIR, *On-line parameter tuning*, Univ. Paris-Saclay, 30/11/2017, Marc Schoenauer and Johann Dréo (Thalès), CIFRE Thalès.

PhD: Pierre-Yves MASSÉ, *Gradient Methods for Statistical Learning*, Univ. Paris-Saclay, 15/12/2017, Yann Ollivier

PhD: Emmanuel MAGGIORI, *Large-Scale Remote Sensing Image Classification*, 22/06/2017, Univ. Nice-Sophia-Antipolis, Yuliya Tarabalka, Pierre Alliez and Guillaume Charpiat

PhD: Yasaman SARABI, *Network Analysis of Private Water Companies, Challenges Collaboration and Competition*, 15/12/2017, Paola Tubaro (at the University of Greenwich, London, UK).

PhD in progress: Mehdi CHERTI *Learning to discover: supervised discrimination and unsupervised representation learning with applications in particle physics*. 01/10/2014, Balazs Kegl.

PhD in progress: Benjamin DONNOT, *Optimisation et méthodes d'apprentissage pour une conduite robuste et efficace du réseau électrique par anticipation sur base de parades topologiques.*, 1/09/2015, Isabelle Guyon and Marc Schoenauer

PhD in progress: Guillaume DOQUET, *ML Algorithm Selection and Domain Adaptation*, 1/09/2015, Michele Sebag

PhD in progress: Victor ESTRADE *Robust domain-adversarial learning, with applications to High Energy Physics*, 01/10/2016, Cécile Germain and Isabelle Guyon.

PhD in progress: François GONARD, *Automatic optimization algorithm selection and configuration*, 1/10/2014, Marc Schoenauer and Michèle Sebag, thèse IRT SystemX.

PhD in progress : Hoang M. LUONG, *Squaring the Circle in Modelling Corporate Governance, Market Structure and Innovation: A Tobin's Q Approach to R&D Investment when Network Effects Are Present*, 01/09/2014, (with M. Ugur and S. Gorgoni, at the University of Greenwich, London, UK).

PhD in progress: Anna PIAZZA, *Inter-Organisational Relationships and Organisational Performance: Network Analysis Applications to a Health Care System*, 01/09/2014, Paola Tubaro (with F. Pallotti and A. Lomi, at the University of Greenwich, London, UK).

PhD in progress: Adrian POL *Machine Learning Anomaly Detection, with application to CMS Data Quality Monitoring*, 01/10/2016, Cécile Germain.

PhD in progress: Thomas SCHMITT, *A Collaborative Filtering Approach to Matching Job Openings and Job Seekers*, 1/11/2014, Philippe Caillou and Michèle Sebag and Jean-Pierre Nadal (EHESS)

PhD in progress: Lisheng SUN, *Apprentissage Automatique: Vers une analyse de données automatisé*, 1/10/2016, Isabelle Guyon and Michèle Sebag

PhD in progress: Corentin TALLEC, *Reinforcement Learning and Recurrent Neural Networks: Dynamical approaches*, 1/10/2016, Yann Ollivier

PhD in progress: Pierre WOLINSKI, *Learning the Architecture of Neural Networks*, 1/9/2016, Guillaume Charpiat and Yann Ollivier

PhD in progress: Victor BERGER, *Variational Anytime Simulator*, 1/10/2017, Michèle Sebag and Marc Schoenauer

PhD in progress: Giancarlo FISSORE, *Statistical physics analysis of generative models*, 1/10/2017, Aurélien Decelle and Cyril Furtlehner

PhD in progress: Diviyani KALAINATHAN, *Causal models and quality of life at work*, 1/10/2017, Michèle Sebag and Isabelle Guyon

PhD in progress: Zhengying LIU, *Automation du design des reseaux de neurones profonds*, 1/10/2017, Isabelle Guyon

PhD in progress: Herilalaina RAKOTOARISON, *Automatic Algorithm Configuration for Power Grid Optimization*, 1/10/2017, Marc Schoenauer and Michèle Sebag

PhD in progress: Théophile SANCHEZ, *Reconstructing the past: deep learning for population genetics*, 1/10/2017, Guillaume Charpiat and Flora Jay

PhD in progress: Aris TRITAS, *Modélisation causale des relations entre alimentation et santé*, 1/10/2017, Michèle Sebag and Philippe Caillou

### 10.2.3. Juries

Guillaume Charpiat, jury of the 2017 Gilles Kahn PhD prize (SIF); jury of a MdC hiring committee at Univ. Paris-Sud.

Cecile Germain, jury of the Telecom PhD prize; half-way jury of Jacob Montiel (Telecom)

Isabelle Guyon, PhD jury Mathieu Bouyrie (Univ. Paris-Saclay, 11/1/2017) HDR jury Alexandre Gramfort (Univ. Paris-Saclay, 6/11/2017)

Flora Jay, half-way juries of Bérénice Alard (MNHN), Arnaud Becheler (EGCE), Cyriel Paris (INRA Toulouse)

Marc Schoenauer, PhD jury of Mathieu Carriere (Univ. Paris-Saclay, 21/11/2017), Elvis Dohmatob (Univ. Paris-Saclay, 29/9/2017) ; PhD committee and half-way jury of Arthur Mensch (Univ. Paris-Saclay, 3/7/2017), Julio Navarro Lara (Univ. Strasbourg, 25/7/2017), Jean Marçais (Univ. Rennes, 10/2017).

Michèle Sebag, Research Quality Assessment Panel for the Department of Computer Science, U. Copenhagen; Hiring Jury, Professor U. Nice Cote d'Azur; Hiring Jury, Professor U. Dortmund, Germany; Hiring Jury, MdC UPSud; Reviewer PhD Audrey Durand, U. Laval Québec; Reviewer PhD Antonio Vergari, U. Bari, Italie; Jury Member: Gisselbrecht, UPMC; Renyu Xury, UPSud.

### 10.3. Popularization

Philippe Caillou, talk on quality of life at work, AFRAME association for ethic management, Paris, 28/11/2017

Isabelle Guyon: press release at NIPS conference (5/12/2015); interview l'Usine Nouvelle (12/12/2017).

Michèle Sebag: interview France 2; interview l'Usine Nouvelle; 2 articles The Conversation France.

Paola Tubaro: interview Pourquoi Docteur (online health magazine, 01/01/2017); article in Journal du CNRS (02/02/2017); op-ed Libération (02/02/2017); interview Le Devoir (daily newspaper, Canada, 29/04/2017); interview Les Echos (19/09/2017); interview Le Monde (09/11/2017); 1 article OuiShare magazine (13/07/2017); 1 article The Conversation France (French version 02/11/2017, English version 11/12/2017); round table on Open data at "Science and You" conference, Montréal (05/05/2017); round table "Cuisine and Performance" at Centre Pompidou, Paris (18/11/2017).

## TEA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Jean-Pierre Talpin served as General Chair and Finance Chair of the 15th. ACM-IEEE Conference on Methods and Models for System Design in Vienna.

#### 10.1.1.2. Member of the organizing committees

Jean-Pierre Talpin is a member of the steering committee of the ACM-IEEE Conference on Methods and Models for System Design (MEMOCODE).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

Jean-Pierre Talpin served the program committee of:

- ACSD'17, 17th. International Conference on Application of Concurrency to System Design
- LCTES'17, 20th. ACM SIGPLAN-SIGBED Conference on Languages, Compilers, and Tools for Embedded Systems
- SAC'18, 33rd. ACM SIGAPP Symposium on Applied Computing
- SCOPES'17, 20th. International Workshop on Software and Compilers for Embedded Systems

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

Jean-Pierre Talpin is Associate Editor with the ACM Transactions for Embedded Computing Systems (TECS).

#### 10.1.3.2. Reviews

Thierry Gautier reviewed articles for *Information Processing Letters*.

### 10.1.4. Invited Talks

Jean-Pierre Talpin gave a keynote speech, entitled "Compositional methods for CPS design" at the Symposium on Dependable Software Engineering (SETTA'17) in Changsha, October 25.

### 10.1.5. Invited Talks

Albert Benveniste and Thierry Gautier previewed a seminar at SYNCHRON'17 to be given at the Collège de France in Gérard Berry's 2017-2018 lecture course.

### 10.1.6. Scientific Expertise

Jean-Pierre Talpin was nominated vice-president of ANR evaluation committee CES-25

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Jean-Pierre Talpin gave a one week class "Introduction to model-checking" at Nankai University in July and at Beihang University in November.

### **10.2.2. Supervision**

Jean-Pierre Talpin co-supervises the PhD Thesis of Simon Lunel, Liangcong Zhang and Jean-Joseph Marty

### **10.2.3. Juries**

Jean-Pierre Talpin served as rapporteur at the HDR Thesis defense of Jérôme Hugues, entitled “Architecture in the Service of Real-Time Middleware, Contributions to Architecture Description Languages”, which took place at INP Toulouse on February 22.

Jean-Pierre Talpin served as rapporteur at the HDR Thesis defense of Maxime Pelcat, entitled “Models, methods and tools for bridging the design productivity gap of embedded signal processing systems”, which took place at Institut Poincaré in Clermond-Ferrand on July 10.

## THOTH Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- C. Schmid. General Chair European Conference on Computer Vision (ECCV) 2020.
- C. Schmid. Co-organizer for Workshop on Frontiers of Video Technology, San Jose, 2017.
- J. Mairal. Member of the organizing committee of the Journées SMAI-MODE, which will take place in March 2018.
- G. Rogez. Co-organizer of the CVPR workshop on Observing and Understanding Hands in Action (HANDS 2017).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

- C. Schmid. Area chair for ICCV 2017, NIPS 2017, ICML 2018, and ECCV 2018.
- K. Alahari. Area chair for CVPR 2018.
- J. Mairal. Area chair for ICML 2017, NIPS 2017, and ICML 2018.
- J. Verbeek. Area chair for ECCV 2018.

#### 10.1.2.2. Reviewer

The permanent members of the team reviewed numerous papers for numerous international conferences in computer vision and machine learning: CVPR, ECCV, NIPS, ICML.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- C. Schmid: Editor in Chief of the International Journal of Computer Vision, since 2013.
- C. Schmid: Associate editor for Foundations and Trends in Computer Graphics and Vision, since 2005.
- J. Mairal: Associate editor of the International Journal of Computer Vision (IJCV), since 2015.
- J. Mairal: Senior associate editor for IEEE Signal Processing Letters, since Feb 2015 (editor since Aug. 2014).
- J. Mairal: Associate editor of Journal of Mathematical Imaging and Vision (JMIV), since 2015.
- J. Mairal: Associate editor of the SIAM Journal of imaging science, since 2018.
- J. Verbeek: Associate editor for Image and Vision Computing Journal, since 2011.
- J. Verbeek: Associate editor for the International Journal on Computer Vision, since 2014.

#### 10.1.3.2. Reviewer - Reviewing Activities

The permanent members of the team reviewed numerous papers for numerous international journals in computer vision (IJCV, PAMI, CVIU), machine learning (JMLR, Machine Learning). Some of them are also reviewing for journals in optimization (SIAM Journal on Optimization, Mathematical Programming), image processing (SIAM Imaging Science).



#### 10.1.4. Invited Talks

- K. Alahari. Invited speaker at ETH Zurich Photogrammetry group retreat, Morzine, France, January 2017.
- G. Durif. Invited speaker at the “StatOmique” meeting, Paris. March 2017.
- J. Mairal. Seminar LIG. Grenoble, December 2017.
- J. Mairal. Invited speaker at Journées franco-chiliennes d’optimisation. Toulouse, July 2017.
- J. Mairal. Invited speaker at the large-scale and distributed optimization workshop, Lund, June 2017.
- J. Mairal. Invited speaker at Pattern recognition and computer vision colloquium, Prague, May 2017.
- J. Mairal. Invited speaker at the optimization and statistical learning workshop, Les Houches, April 2017.
- J. Mairal. Two seminars at Amazon Berlin. February 2017.
- G. Rogez. Invited speaker at Journées CNRS-GDR Isis, Telecom PariTech, December 2017.
- J. Verbeek. Invited talk at Aalto University, Helsinki, Finland, June 2017.
- J. Verbeek. Invited talk at ATOS, Grenoble, January 2017.
- J. Verbeek. Invited talk at Technicolor, Rennes, January 2017.
- H. Lin. Invited talk in mini-symposium. SIAM Optimization conference. May 2017.
- H. Lin. Seminar at University of Washington, June 2017.
- R. Klovov. Invited talk at ICCV workshop Learning to See from 3D Data.
- C. Schmid: Keynote speaker at ECML-PKDD 2017, Skopje, September 2017.
- C. Schmid: Keynote speaker at Gresti 2017, Juan-les-Pins, September 2017.
- C. Schmid: Invited speaker at Workshop on YouTube-8M Large-Scale Video Understanding, in conjunction with CVPR’17, July 2017.
- C. Schmid: Invited speaker at Women in Computer Vision Workshop, in conjunction with CVPR’17, July 2017.
- C. Schmid: Invited speaker at 1st Workshop on Target Re-Identification and Multi-Target Multi-Camera Tracking, in conjunction with CVPR’17, July 2017.
- C. Schmid: Invited speaker at Chalearn Looking at People Workshop, in conjunction with CVPR’17, July 2017.
- C. Schmid: Invited speaker at Frontiers of Video Technology, July 2017.
- C. Schmid: Invited speaker at Korean Conference on Computer Vision, Seoul, June 2017.
- C. Schmid: Keynote speaker at Swedish Symposium on Deep Learning, Stockholm, June 2017.  
Invited speaker at Russian Summit “Machines Can See”, Moscow, June 2017.
- C. Schmid: Seminar at Intel Network on Intelligent Systems, Munich, August 2017.
- C. Schmid: Seminar at Berkeley University, July 2017.
- C. Schmid: Seminar at Toyota Research Institute, July 2017.
- C. Schmid: Seminar at Google, Mountain View, July 2017.
- C. Schmid: Seminar at DeepMind, London, June 2017.
- C. Schmid: Speaker at Distinguished Seminar Series in Computing, Imperial College, London, June 2017.
- C. Schmid: Seminar at MPI, Tübingen, May 2017.
- C. Schmid: Seminar at “10 ans de l’ERC à Inria”, Paris, Mars 2017.

### 10.1.5. Scientific Expertise

- C. Schmid: Award committee member for Oréal-UNESCO award France for Women in Sciences 2017.
- K. Alahari: reviewer for ANR.
- J. Mairal: judge for the IBM Watson AI Xprize.
- J. Mairal: reviewer for ANR.
- J. Mairal: panel member of a funding agency for the 2018 call (confidential information at the moment).
- J. Mairal: member of the PGM0 best PhD prize committee in 2017.
- G. Rogez: reviewer for ANR.
- J. Verbeek: reviewer for ERC.
- J. Verbeek: reviewer for ASF.

### 10.1.6. Research Administration

- C. Schmid: Member of the “Comité scientifique”, Inria Grenoble, since 2015.
- C. Schmid: Member of board of directors of the Computer Vision Foundation (CVF), since 2016.
- C. Schmid is member of the PAMI-TC awards committee, and the PAMI-TC executive committee.
- J. Verbeek: Scientific correspondent national project calls, Inria Grenoble.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Doctorat: Karteek Alahari, Lecturer at the summer school on computer vision, IIIT Hyderabad, India.

Doctorat: J. Mairal, Lecturer at the SPARSA summer school, Lisbon.

Doctorat: J. Mairal, Lecturer at the CoSIP winter school, berlin.

Doctorat: J. Mairal, “Introduction to machine learning”, PSL-ITI program, 6H eq-TD, Paris.

Doctorat: J. Verbeek. Tutorial given at IPTA, Montreal.

Doctorat: J. Verbeek. Invited lecture Deep learning summer school, Univ. Côte D’Azur.

Doctorat: C. Schmid. Tutorial on action recognition at the Winter School in Computer Vision, Jerusalem, January 2017.

Master : C. Schmid, “Object recognition and computer vision”, 15H eqTD, M2, ENS Cachan, France.

Master : J. Verbeek and C. Schmid. “Machine Learning & Category Representation”, 27H eqTD, M2, Univ. Grenoble.

Master: K. Alahari, “Introduction to Discrete Optimization”, Ecole Centrale Paris, 27H eq-TD, M1, Paris, France.

Master: K. Alahari, “Discrete Inference and Learning”, Ecole Centrale Paris, M2, Paris, France.

Master: K. Alahari, “Understanding Big Visual Data”, Grenoble INP, 13.5H eq-TD, M2, Grenoble, France.

Master: K. Alahari, “Introduction to computer vision”, ENS Paris, M1, Grenoble, France.

Master: J. Mairal, “Kernel methods for statistical learning”, 27H eqTD, M2, Ecole Normale Supérieure, Cachan.

Master : J. Verbeek and J. Mairal, “Advanced Learning Models”, 27H eqTD, M2, ENSIMAG, Grenoble.

Master: A. Sablayrolles and P. Luc: Lecture at Ecole 42 on Convolutional Neural Networks as part of the Facebook AI Masterclass.

License: H. Lin, UE MAT206: Introduction à la biologie mathématique et à la dynamique des populations, 58H eqTD, L3, UGA, Grenoble.

### 10.2.2. Supervision

HdR: Julien Mairal, large-scale machine learning and applications, Univ. Grenoble Alpes, October 2017.

PhD: Hongzhou Lin, Generic acceleration schemes for gradient-based optimization in machine learning. November 2017. Supervision Julien Mairal and Zaid Harchaoui.

PhD: Thomas Dias-Alves, Modélisation du déséquilibre de liaison en génomique des populations par méthodes d'optimisation, Univ. Grenoble Alpes. December 2017. Supervision Julien Mairal and Michael Blum.

PhD: Mattis Paulin, Of Learning Visual Representations Robust to Invariances for Image Classification and Retrieval. March 2017. Univ. Grenoble-Alpes. Supervision Z. Harchaoui. C. Schmid, F. Perronnin, J. Mairal, and M. Douze.

PhD: Vicky Kalogeiton, Localising spatially and temporally objects and actions in videos, September 2017. Univ. Edinburgh, supervision V. Ferrari and C. Schmid.

### 10.2.3. Juries

K. Alahari: Raghudeep Gadde, 2017, jury member, these, Ecole des Ponts ParisTech, Paris.

K. Alahari: Lukas Neumann, 2017, rapporteur, these, Czech Technical University, Prague.

J. Mairal: Matthieu Carrière, novembre 2017, rapporteur, these, Université Paris-Saclay.

J. Mairal: Thomas Moreau, décembre 2017, rapporteur, these, Université Paris-Saclay.

J. Mairal: Olga Permiakova. novembre 2017, member of "comité de suivi de thèse", Univ. Grenoble Alpes.

J. Verbeek: Fabien Baradel. member of "comité de suivi de thèse", INSA Lyon.

J. Verbeek: Praveen Kulkarni, rapporteur, these, Univ. Caen.

J. Verbeek: Damien Fourure, Univ. Jean Monnet, Saint Etienne, France.

C. Schmid: Thibaut Durand, September 2017, examinateur, Université Pierre et Marie Curie.

C. Schmid: Christos Georgakis, June 2017, rapport these, Imperial College, London

C. Schmid: Pedro Oliveira Pinheiro, January 2017, rapport these, EPFL.

## 10.3. Popularization

- J. Mairal est intervenu lors du cycle de conférences ISN, à destination des professeurs de lycée.
- J. Mairal a co-publié un article dans ERCIM news, avec Gaël Varoquaux, Bertrand Thirion et Arthur Mensch.
- C. Schmid a co-publié un article "Extraction d'informations à partir des images". Les Big Data à Découvert. Editions du CNRS, 2017

## TITANE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Selection

#### 10.1.1.1. Member of the Conference Program Committees

Pierre Alliez: ACM SIGGRAPH, EUROGRAPHICS, EUROGRAPHICS Star reports, EUROGRAPHICS Symposium on Geometry Processing, EG Workshop on Graphics and Cultural Heritage. He was an advisory board member for EUROGRAPHICS 2018 and chaired the EUROGRAPHICS 2017 Günter Enderle Award Committee.

Yuliya Tarabalka: IDAACS international conference.

#### 10.1.1.2. Reviewer

- Yuliya Tarabalka was a reviewer for the journals IEEE PAMI, IEEE TIP, IEEE JSTARS, Remote Sensing.

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

Pierre Alliez is an associate editor of Computer-Aided Geometric Design and Graphical Models. He stepped down from ACM Transactions on Graphics in 2017. He is also a member of the editorial board of the CGAL open source project.

Florent Lafarge is an associate editor of The Visual Computer since 2015.

Yuliya Tarabalka is an associate editor for the Springer journal Sensing and Imaging and the International Journal of Computing since 2017.

#### 10.1.2.2. Reviewer - Reviewing Activities

- Yuliya Tarabalka was a reviewer for the IEEE IGARSS conference (student competition selection committee).

### 10.1.3. Invited Talks

Florent Lafarge gave an invited talk at the Brazilian Symposium on Remote Sensing (SBSR 2017) at Santos, Brazil.

Yuliya Tarabalka gave an invited talk at the Brazilian Congress of Cartography at Rio de Janeiro, Brazil, and a tutorial on machine learning at IGARSS conference in Fort Worth, USA.

Pierre Alliez gave an invited seminar at collège de France (Géométrie algorithmique: Données, Modèles, Programmes).

### 10.1.4. Leadership within the Scientific Community

Pierre Alliez is a member of the Steering Committees of the EUROGRAPHICS Symposium on Geometry Processing and of the EUROGRAPHICS Workshop on Graphics and Cultural Heritage. He was also elected Executive Board Member for the Solid Modeling Association, for 4 years.

### 10.1.5. Scientific Expertise

Pierre Alliez reviewed two H2020 projects for the European commission. He was also a reviewer for the Belgium Fund for Scientific Research (FNRS).

Yuliya Tarabalka was an expert evaluator for Kazakhstan national research funding foundation, and she is a member of the expert panel SBWT (signal processing) of the FWO (Belgian research funding foundation) since November 2016.

### **10.1.6. Research Administration**

Pierre Alliez: member of the BCP (bureau du CP) since 2015, comité MASTIC (popularization), and comité espace immersif.

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

Master: Pierre Alliez and Florent Lafarge, Ingénierie 3D, 21h, M2, university Nice Sophia Antipolis, France.

Master: Pierre Alliez and Florent Lafarge, 3D Meshes and Applications, 32h, M2, Ecole des Ponts ParisTech, France.

Master: Florent Lafarge, Traitement d'images numériques, 6h, M2, university Nice Sophia Antipolis, France.

Master: Pierre Alliez and Florent Lafarge, Mathématiques pour la géométrie, 30h, M1, EFREI, France.

Master: Pierre Alliez and Florent Lafarge, Curves and surfaces, 60h, M1, university Nice Sophia Antipolis, France.

Master: Pierre Alliez, Geometric modeling and processing, 15h, M2, Telecom SudParis, France.

Master: Yuliya Tarabalka, Discrete inference and learning, 12h, M2 MVA, ENS Paris-Saclay & CentraleSupélec, France.

Master: Yuliya Tarabalka, Mathematical methods, 25h, MSc in data sciences and business analytics ESSEC-CS, CentraleSupélec, France.

Licence: Yuliya Tarabalka, Discrete optimization, 18h, L2, CentraleSupélec, France.

Licence: Yuliya Tarabalka, Advanced algorithms, 28.5h, L2 Networks and Telecoms, IUT Nice Côte d'Azur, France.

### **10.2.2. Supervision**

PhD defended April 21st: Dorothy Duan, Semantized Elevation Maps, since October 2013, Florent Lafarge.

PhD defended June 22nd: Emmanuel Maggiori, Learning Approaches for Large-Scale Remote Sensing Image Classification, since January 2015, Yuliya Tarabalka and Pierre Alliez.

PhD in progress: Jean-Dominique Favreau, Sketch-based modeling in multi-view context, since October 2014, Florent Lafarge and Adrien Bousseau.

PhD in progress: Hao Fang, Scale-space understanding in urban scenes, since March 2016, Florent Lafarge.

PhD in progress: Jean-Philippe Bauchet, City modelling from high resolution satellite images, since October 2016, Florent Lafarge.

PhD in progress: Lionel Matteo: From Pleiades images to very high resolution topography in complex zones, since September 2017, Yuliya Tarabalka and Isabelle Manighetti.

PhD in progress: Onur Tasar, Using deep learning approaches to devise an efficient representation for large-scale satellite images, since October 2017, Yuliya Tarabalka and Pierre Alliez.

PhD in progress: Nicolas Girard, How to structure satellite data, since November 2017, Yuliya Tarabalka.

### **10.2.3. Juries**

Pierre Alliez:

- Thesis reviewer: Giorgio Marcias (CNR Pisa, Italy).
- Thesis reviewer: Claudio Calabrese (University Roma, Italy).
- Thesis reviewer: Florian Caillaud (LIRIS Lyon).
- Thesis reviewer: Dmitry Anisimov (University Lugano).
- Thesis reviewer: Yannick Masson (University Paris Est).
- Thesis reviewer: Ana Vintescu (Telecom ParisTech).
- HDR committee president: Maks Ovsjanikov (Ecole Polytechnique).

Florent Lafarge:

- Thesis reviewer: Andras Bodis-Szomoru (ETH Zurich).
- Thesis examiner: Renato Martins (University Mines ParisTech).
- Thesis examiner: Rodrigo Ortiz Cayon (University Nice Sophia Antipolis).

Yuliya Tarabalka:

- Thesis examiner: Amine Bohi (University of Toulon).

## **10.3. Popularization**

Pierre Alliez gave two seminars at CIV (olympic internship in mathematics) and for the national olympiads in geosciences (IESO).

## TOCCATA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

S. Boldo, vice-president of the 28th “Journées Francophones des Langages Applicatifs” (JFLA 2017)

S. Boldo, president of the 29th “Journées Francophones des Langages Applicatifs” (JFLA 2018)

J.-C. Filliâtre, scientific chair and co-organizer of EJCP (École Jeunes Chercheurs en Programmation du GDR GPL) at Toulouse on June 26–30, 2017. <http://ejcp2017.enseeiht.fr/>

#### 10.1.1.2. Member of the Organizing Committees

S. Conchon, local chair for the 44th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL 2017), held in Paris, France in January 2017. <http://conf.researchr.org/home/POPL-2017>.

C. Marché, co-organizer of the first joint Frama-C/SPARK day (May, Paris, <http://frama-c.com/FCSD17.html>), in the context of the Open Source Innovation Spring (<http://www.open-source-innovation-spring.org/>).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

A. Paskevich, program chair of the 9th Working Conference on Verified Software: Theories, Tools, and Experiments (VSTTE 2017), in collaboration with Thomas Wies (NYU) [35].

S. Boldo, program chair of the 10th International Workshop on Numerical Software Verification (NSV 2017) in collaboration with Alessandro Abate (Oxford) [33].

S. Boldo, program vice-chair of the 28th “Journées Francophones des Langages Applicatifs” (JFLA 2017) [34].

S. Boldo, program chair of the 29th “Journées Francophones des Langages Applicatifs” (JFLA 2018).

#### 10.1.2.2. Member of the Conference Program Committees

S. Boldo, PC of the 24th IEEE Symposium on Computer Arithmetic (ARITH 2017)

S. Boldo, PC of the 25th IEEE Symposium on Computer Arithmetic (ARITH 2018)

S. Boldo, PC of the 6th ACM SIGPLAN Conference on Certified Programs and Proofs (CPP 2017)

S. Boldo, PC of the 7th ACM SIGPLAN Conference on Certified Programs and Proofs (CPP 2018)

S. Boldo, PC of the 8th International Conference on Interactive Theorem Proving (ITP 2017)

S. Boldo, PC of the Tenth NASA Formal Methods Symposium (NFM 2018)

G. Melquiond, PC of the 3rd International Workshop on Coq for Programming Languages (CoqPL 2017).

G. Melquiond, PC of the 1st ACM SIGPLAN Workshop on Machine Learning and Programming Languages (MAPL 2017).

G. Melquiond, PC of the 10th International Workshop on Numerical Software Verification (NSV 2017).

#### 10.1.2.3. Reviewer

The members of the Toccata team have reviewed papers for numerous international conferences.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

G. Melquiond, member of the editorial board of *Reliable Computing*.

S. Boldo, member of the editorial board of Binaire <http://binaire.blog.lemonde.fr>, the blog of the French Computer Science Society.

#### 10.1.3.2. Reviewer - Reviewing Activities

The members of the Toccata team have reviewed numerous papers for numerous international journals.

### 10.1.4. Invited Talks

S. Boldo gave a talk at EDF in Palaiseau on April 20th

S. Boldo gave a talk at the ModeliScale IPL in Paris on July 4th

S. Boldo gave a talk to teachers in Luminy on May 4th

S. Boldo gave a talk at the universit  of Saint-Denis de la R union on December 8th

### 10.1.5. Leadership within the Scientific Community

S. Boldo, elected chair of the ARITH working group of the GDR-IM (a CNRS subgroup of computer science) with J. Detrey (Inria Nancy).

### 10.1.6. Scientific Expertise

C. March , member of the scientific commission of Inria-Saclay, in charge of selecting candidates for PhD grants, Post-doc grants, temporary leaves from universities (“d l gations”).

C. March , member of the “Bureau du Comit  des Projets” of Inria-Saclay, in charge of examining proposals for creation of new Inria project-teams.

S. Boldo, member of the program committee for selecting postdocs of the maths/computer science program of the Labex math matique Hadamard.

S. Boldo, member of a hiring committee for an associate professor position in computer science at Universit  Joseph Fourier, Grenoble, France.

S. Boldo, member of the 2017 committee for the Gilles Kahn PhD award of the French Computer Science Society.

### 10.1.7. Research Administration

G. Melquiond, member of the committee for the monitoring of PhD students (“*commission de suivi doctoral*”).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master Parisien de Recherche en Informatique (MPRI) <https://wikimpri.dptinfo.ens-cachan.fr/doku.php>: “Proofs of Programs” <http://www.lri.fr/~marche/MPRI-2-36-1/> (M2), C. March  (12h), A. Chargu raud (12h), Universit  Paris-Diderot, France.

Master: Fondements de l’informatique et ing nierie du logiciel (FIIL) [https://www.lri.fr/~conchon/parcours\\_fiil/](https://www.lri.fr/~conchon/parcours_fiil/): “Software Model Checking” (M2), S. Conchon (9h), “Programmation C++11 avanc e” (M2), G. Melquiond (16h), “V rification d ductive de programmes” (M2), A. Paskevich (10.5h), Universit  Paris-Sud, France.

DUT (Dipl me Universitaire de Technologie): M1101 “Introduction aux syst mes informatiques”, A. Paskevich (36h), M3101 “Principes des syst mes d’exploitation”, A. Paskevich (58.5h), IUT d’Orsay, Universit  Paris-Sud, France.



Licence: “Langages de programmation et compilation” (L3), J.-C. Filliâtre (26h), École Normale Supérieure, France.

Licence: “INF411: Les bases de l’algorithmique et de la programmation” (L3), J.-C. Filliâtre (16h), École Polytechnique, France.

Master: “INF564: Compilation” (M1), J.-C. Filliâtre (18h), École Polytechnique, France.

Licence: “Programmation fonctionnelle avancée” (L3), S. Conchon (45h), Université Paris-Sud, France.

Licence: “Introduction à la programmation fonctionnelle” (L2), S. Conchon (25h), Université Paris-Sud, France.

### 10.2.2. Internships

R. Rieu-Helft (ENS, Paris) was a pre-PhD student doing an internship under supervision of C. Marché and G. Melquiond. He worked on the design and the formal verification of a library for unbounded integer arithmetic [23]. He implemented in Why3 a mechanism for extracting code to the C language, in order to obtain a certified code that runs very efficiently [30].

D. Gallois-Wong was a Master-2 intern for 4 months under the supervision of S. Boldo. She began the formalization in Coq of numerical filters.

V. Tourneur was a Master-1 intern for 4 months under the supervision of S. Boldo. He developed and proved a new algorithm for computing the average of two floating-point numbers when the radix is 10.

### 10.2.3. Supervision

PhD in progress: M. Clochard, “Méthodes et outils pour la spécification et la preuve de propriétés difficiles de programmes séquentiels”, since Oct. 2013, supervised by C. Marché and A. Paskevich.

PhD in progress: D. Declerck, “Vérification par des techniques de test et model checking de programmes C11”, since Sep. 2014, supervised by F. Zaïdi (LRI) and S. Conchon.

PhD in progress: M. Roux, “Model Checking de systèmes paramétrés et temporisés”, since Sep. 2015, supervised by Sylvain Conchon.

PhD in progress: M. Pereira, “A Verified Graph Library. Tools and techniques for the verification of modular higher-order programs, with extraction”, since May 2015, supervised by J.-C. Filliâtre.

PhD in progress: A. Coquereau, “[ErgoFast] Amélioration de performances pour le solveur SMT Alt-Ergo : conception d’outils d’analyse, optimisations et structures de données efficaces pour OCaml”, since Sep. 2015, supervised by S. Conchon, F. Le Fessant et M. Mauny.

PhD in progress: F. Faissolle, “Stabilité(s): liens entre l’arithmétique flottante et l’analyse numérique”, since Oct. 2016, supervised by S. Boldo and A. Chapoutot.

PhD in progress: R. Rieu-Helft, “Développement et vérification de bibliothèques d’arithmétique entière en précision arbitraire”, since Oct. 2017, supervised by G. Melquiond and P. Cuoq (TrustIn-Soft).

PhD in progress: D. Gallois-Wong, “Vérification formelle et filtres numériques”, since Oct. 2017, supervised by S. Boldo and T. Hilaire.

### 10.2.4. Juries

C. Marché: reviewer of the habilitation thesis of R. Bubel, “Deductive Verification: From Theory to Practice”, Technische Universität Darmstadt, Germany, November 2017.

S. Boldo: reviewer and member of the PhD defense of A. Plet, École Normale Supérieure de Lyon, Lyon, France, July 2017.

S. Boldo: reviewer and member of the PhD defense of F. Maurica, Université de la Réunion, Saint-Denis, France, December 2017.

S. Boldo: president of the PhD defense of T. Sibut-Pinote, Université Paris-Saclay, Palaiseau, France, December 2017.

### 10.3. Popularization

S. Boldo, scientific head for Saclay for the MECSI group for networking about computer science popularization inside Inria.

S. Boldo gave a talk at the Inria Saclay about how to popularize programming.

During the “Fête de la science” on October 13th, S. Boldo demonstrated unplugged computer science to teenagers and F. Faissole run a stand about an introduction to programming with robots. S. Boldo also did this activity to kids from 7 to 17 at the Massy opera on November, 17th.

S. Boldo gave a talk during at a *Girls can code* weekend on August 23rd in Paris.

S. Boldo went to the Arpajon high-school for presenting Women in Science on December 19th.

S. Boldo gave a popularization talk to the administrative staff of Inria at Rocquencourt for the Inria birthday on November 16th.

## TONUS Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

Philippe Helluy is member of the French candidature committee for the organization of the International Congress of Mathematics in 2022 in Paris and Strasbourg <https://www.icm2022-paris.com/>.

### 10.1.2. Journal

#### 10.1.2.1. Member of the Editorial Boards

Philippe Helluy is in the editorial board of  
International Journal of Finite Volume  
Computational and Applied Mathematics

#### 10.1.2.2. Reviewer - Reviewing Activities

Emmanuel Franck was a reviewer for  
Communication in computation physics  
Computer Methods in Applied Mechanics and Engineering  
Journal of Computational Physics

Philippe Helluy has done reviews for  
Numerical Methods for Partial Differential Equations  
Journal of Computational Physics  
Computers and Fluids  
M2AN  
Esaim Proceedings and reviews

Sever Hirstoaga was a reviewer for  
Journal of Computational and Applied Mathematics (2 papers)  
Journal of Approximation Theory  
SIAM Journal on Optimization  
Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal  
MathSciNet/Mathematical Reviews

Michel Mehrenberger participates in reviewing for  
SIAM Journal on Scientific Computing  
Mathematical Methods in the Applied Sciences  
Evolution Equations and Control Theory  
Journal of Computational Physics  
International Conference on Physics, Mathematics and Statistics 2018  
Applied Mathematics and Computation  
Computer Physics Communications

Laurent Navoret was a reviewer for  
Kinetic and Related Models

### **10.1.3. Invited Talks**

Emmanuel Franck was invited at  
Enumath conference, Bergen, September 2017.  
the Workshop JOREK, Prague, March 2017.  
the IPL Fratres Meeting, Rennes, November 2017.

Philippe Helluy was invited at  
NUMKIN 2017, Garching November 2017  
Fast high order DG methods for future architectures Heidelberg July 2017  
Workshop - "Modeling and Numerical Methods for Hot Plasmas III": 12-13 octobre 2017 Bordeaux

Sever Hirstoaga was invited at  
the "Séminaire d'analyse numérique", at IRMAR, Rennes, February 2nd, 2017.

Michel Mehrenberger  
gave a talk entitled «About recurrence time for a semi-Lagrangian discontinuous Galerkin Vlasov solver» at Collisionless Boltzmann (Vlasov) Equation and Modeling of Self-Gravitating Systems and Plasmas, CIRM (Marseille), 30 october-3 november 2017.  
was invited at the seminar «Analyse Numérique et Calcul Scientifique» of Besançon "Méthodes numériques pour la physique des plasmas", February 16, 2017.

Larent Navoret was invited at  
the Seminar of the Interdisciplinary Center for Scientific Computing, Heidelberg, Germany

### **10.1.4. Scientific Expertise**

Philippe Helluy is in the evaluation committee of the "réseau calcul" of CNRS.

### **10.1.5. Research Administration**

Philippe Helluy  
has been elected as the Director of the IRMA mathematics institute (official start in september 2018).

Sever Hirstoaga  
was member of the hiring committee for an associate professor position at the ENS Mécanique et des Microtechniques, Besançon.

Michel Mehrenberger  
is in the IREM ("Institut de recherche sur l'enseignement des mathématiques") team "Modélisation" for the year 2017-2018, Université de Strasbourg.  
is in the committee of the Ecole Doctorale ED269, EDMSII, Université de Strasbourg.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

M1: Philippe Helluy, algorithmes pour les graphes 30 HETD

M2: Philippe Helluy, Contrôle optimal 30 HETD

M2: Philippe Helluy, EDP hyperboliques 30 HETD

L2: Philippe Helluy, Calcul scientifique 64 HETD

Ecole d'ingénieurs: Philippe Helluy, recherche opérationnelle 40 HETD, analyse numérique 40 HETD

Licence: Michel Mehrenberger, Calcul scientifique, 65 h eq. TD, L3, Université de Strasbourg, France.

Licence: Michel Mehrenberger, Optimisation Non-Linéaire, 54h eq. TD, Cours et TD, L3 Maths-Eco, Université de Strasbourg, France

Master: Michel Mehrenberger, Calcul scientifique, 32.5h eq. TD, Cours et TP, M1 CSMI, Université de Strasbourg, France.

Master: Michel Mehrenberger, PIP: certification python, 13h eq. TD, TP, M1 Mathématiques, Université de Strasbourg, France.

Master: Michel Mehrenberger, Calcul scientifique, 22 h eq. TD, TP, M2 Agrégation, Université de Strasbourg, France.

Licence : Laurent Navoret, Nonlinear optimization (18h eq. TD), L3 Maths-Eco, Université de Strasbourg, France.

Master 1: Laurent Navoret, Python (32,5h eq. TD), Université de Strasbourg, France.

Master 2 (Agrégation) : Laurent Navoret, scientific computing (60h eq. TD), Université de Strasbourg, France.

Master 2 (Cell physics) : Laurent Navoret, Basics in maths (24h eq. TD), Université de Strasbourg, France.

Master 2 (Agrégation) : Laurent Navoret, Head of the master, Université de Strasbourg, France.

### 10.2.2. Supervision

Philippe Helluy has been Habilitation "garant" of Olivier Hurisse (EDF) and Marcela Szopos (IRMA), at université de Strasbourg.

PhD in progress: Lucie Quibel (CIFRE support): in collaboration with EDF Chatou, from October 2017, Advisor: Philippe Helluy.

PhD in progress: Marie Houillon: "Modeling of thin wires in electromagnetic software", Advisors: Philippe Helluy and Laurent Navoret, from October 2017, Labex Irmia support.

PhD in progress: Bruno Weber(CIFRE support): "Optimization of DG software on GPU in the AxesSim company". Advisor: Philippe Helluy.

PhD in progress: Maxime Schmitt: "Optimization of scientific software with arbitrary mesh refinement", Advisors: Philippe Helluy and Cédric Bastoul (CAMUS team). Labex Irmia support.

PhD in progress: Ksander Ejjaaouani, "Conception of a programmation model, application to gyrokinetic simulations", from October 2016, Advisors: Michel Mehrenberger, Julien Bigot, Olivier Aumage.

PhD in progress: Nicolas Bouzat, "Conception of a programmation model, application to gyrokinetic simulations", from October 2015, Advisors: Michel Mehrenberger, Jean Roman, Guillaume Latu.

PhD in progress: Pierre Gerhard, "Résolution des modèles cinétiques. Application à l'acoustique du bâtiment", from October 2015, Advisors: Philippe Helluy, Laurent Navoret.

Conrad Hillairet: interrupted thesis at the request of the student.

**10.2.3. Juries**

Philippe Helluy was member of the following juries

jury of the PhD committee of Tohir Akramov, in astrophysics, universit  de Strasbourg, 28 September 2017.

jury of the PhD committee of Thomas Altazin, in scientific computing, universit  de Toulon, 7 September 2017.

jury of the PhD committee of Laura Mendoza, in plasma physics, Max Planck Institut for Plasma Physics, Garching.

jury of the PhD committee of Florence Drui, in multiphase models, Ecole Centrale Paris, 7 July 2017.

Michel Mehrenberger was member of the jury of the PhD committee of Mohammad Akil (Universit  de Limoges), 6 October 2017.

## TOSCA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Promotion of Mathematics in the industry

- M. Deaconu is involved in the Fédération Charles Hermite Forum which will be held in Nancy in January 2018.
- A. Lejay has been appointed as representative of the Agence Mathématiques et Entreprise (AMIES) for the Grand-Est Region.
- D. Talay continued to serve as a member of the Scientific Committee of the AMIES National Agency aimed to promote interactions between Mathematics and Industry.
- D. Talay continued to serve as the Vice-President of the Fondation d'Entreprise Natixis which aims to contribute to develop research in quantitative finance. He also serves as a member of the Scientific Committee of the Foundation.

### 10.1.2. Scientific Events Organisation

- M. Bossy co-organized the Closing workshop of the project MECASIF On reduced order methods for wind and marine current power held at Inria Sophia Antipolis, February 20-22, 2017.
- M. Bossy co-organized the Workshop EDF-UCA : HPC and fluid flow held at Inria Sophia Antipolis, November 23 - 24, 2017.
- N. Champagnat co-organizes with Marianne Clausel (Univ. de Lorraine) the weekly Seminar of Probability and Statistics of IECL, Nancy.
- D. Talay and N. Touzi (Ecole Polytechnique) organized and chaired the conference 'PDE and Probability Methods for Interactions', Inria Sophia Antipolis, March 30-31, 2017 (<https://project.inria.fr/pde2017/>).
- D. Talay organized the workshop 'Singular McKean-Vlasov Dynamics', Inria Sophia Antipolis, September 14-15, 2017.
- D. Villemonais and M. Kolb organized (Univ. of Paderborn) a workshop entitled "Quasistationary Distributions: Analysis and Simulation" at Paderborn in September 2017 (<http://math.uni-paderborn.de/ag/arbeitsgruppe-wahrscheinlichkeitstheorie/forschung/konferenzen/>).

### 10.1.3. Scientific Events Selection

#### 10.1.3.1. Member of the Conference Program Committees

- A. Lejay is member of the conference program committees of *Journées de Probabilités 2017* (Aussois, France) and of CEMRACS 2017.
- D. Talay is serving as a member of the ICMNS 2018 Conference Program Committee.

### 10.1.4. Journal

#### 10.1.4.1. Member of the Editorial Boards

- N. Champagnat serves as an Associate Editor of *Stochastic Models* and of *ESAIM: Probability & Statistics* until June.
- N. Champagnat was co-editor-in-chief with Béatrice Laurent-Bonneau (IMT Toulouse) of *ESAIM: Probability & Statistics* since June.
- A. Lejay is one of the three editors of the *Séminaire de Probabilités* and *Mathematics and Computers in Simulation* (MATCOM).

- D. Talay serves as an Associate Editor of *Stochastic Processes and their Applications*, *Probability, Uncertainty and Quantitative Risk*, *ESAIM Probability and Statistics*, *Stochastics and Dynamics*, *Journal of Scientific Computing*, *Monte Carlo Methods and Applications*, *Oxford IMA Journal of Numerical Analysis*, *SIAM Journal on Scientific Computing*, *Communications in Applied Mathematics and Computational Science*, *Éditions de l'École Polytechnique*. He also serves as Co-editor in chief of *MathematicS in Action*.

#### 10.1.4.2. Reviewer - Reviewing Activities

- M. Deaconu wrote reviews for manuscripts submitted to *Proceedings of the London Mathematical Society*, *Journal of Computational and Applied Mathematics* and *Mathematics and Computers in Simulation*.
- C. Fritsch wrote reviews for manuscripts submitted to *Journal of Biological Systems* and *Chaos, Solitons & Fractals*.
- A. Lejay wrote reviews for *Stochastic Processes and Their Applications*, *Séminaire de probabilités*, *Annals of Applied Probability*, *Physical Review E*, *Mathematical Methods of Operations Research*, *Bulletin des Sciences Mathématiques*, *Boundary Value Problems*, *Journal of Hydrology*, *Electronic Journal of Probability*, *Quantitative Finance and Economics* and *Journal of Theoretical Probability*.
- D. Talay reported on applications to the Swiss National Science Foundation (SNSF).
- D. Talay reported on an application to the FONDECYT Program, Chile.
- D. Talay reported on applications to the Research Grants Council (RGC) of Hong Kong.
- D. Talay reported on manuscripts submitted to *Electronic. J. of Probability*, *SINUM*, *Annals Applied Probab.*, *J. Mathématiques Pures et Appliquées*.
- E. Tanré wrote reviews for manuscripts submitted to *European Journal of Applied Mathematics*.
- E. Tanré serves as a permanent reviewer of *Mathematical Reviews of the American Mathematical Society (MathSciNet)*.
- D. Villemonais wrote reviews for *Mathematical Reviews of the American Mathematical Society (MathSciNet)* and for manuscripts submitted to *Complexity*, *Journal of Mathematical Biology* and *Annals of Applied Probability*.

#### 10.1.5. Invited Talks

- M. Bossy has been invited to give a talk at the Forecasting and Risk Management for Renewable Energy conference in Paris June 7-9, 2017.
- M. Bossy has been invited to give a lecture talk at the CEMRACS in Marseille July 2017.
- M. Bossy has been invited to give a seminar talk at CMA MinesParisTech, in Sophia Antipolis November 2017.
- M. Bossy gave a talk at the International Workshop on BSDEs, SPDEs, Edinburgh 2017, at the MECASIF workshop, at the workshop on PDE and Probability Methods for Interactions, at the Workshop on singular McKean Vlasov in Sophia Antipolis.
- N. Champagnat has been invited to give talks at the conference on *Ecology and evolutionary biology, deterministic and stochastic models* in Toulouse in October, at the Conference on *Quasistationary Distributions: Analysis and Simulation* in Paderborn, Germany in September, at the Workshop on *Singular McKean-Vlasov equations and their applications* in Sophia Antipolis in September, at the *Journées Scientifiques Inria 2017* at Sophia Antipolis in June, at the *Workshop on Multi-Scale Features of Selection in Population Genetics*, Eurandom in Eindhoven, The Netherlands in March and at the *Journées EDP pour la biologie évolutives* in Avignon in March.
- N. Champagnat has been invited to give seminar talks at the *Séminaire Modélisation Mathématiques et Calcul Scientifique de l'Institut Camille Jordan* in Lyon in November, at the *Séminaire du LPMA* in Paris 6 (UPMC) in February, at the *Séminaire de statistique* in Avignon in January, at the *Séminaire de probabilités et statistique du LMV* in Versailles in January and at the *Séminaire Calcul Stochastique de l'IRMA* in Strasbourg in January.



- N. Champagnat gave a colloquium talk at the *Colloquium of the Mathematical Institute* in Mainz, Germany in February.
- N. Champagnat has been invited to give lectures at the *Workshop/School on Stochastic PDEs, Mean Field Games and Biology* (4h) at the Gran Sasso Science Institute (GSSI) in L'Aquila, Italy in September and at the *Doctoral School "New Trends in Markov Processes"* (6h) in Les Diablerets, Switzerland in March.
- M. Deaconu has been invited to give a talk at the *SIAM Conference on Control and its Applications*, 10-12 July 2017, Pittsburgh, USA.
- M. Deaconu has been invited to give a plenary talk at the *Forum des Jeunes Mathématicien-ne-s*, 22-24 November 2017, Nancy.
- M. Deaconu has been invited to give a seminar talk at the *Probability and Statistic Seminar* at the Institut de Mathématiques in Marseille, in November.
- C. Fritsch has been invited to give seminar talks in February at the probability seminars of Paul Painlevé laboratory in Lille and of Fourier Institute in Grenoble, at the meeting of the Chair *Modélisation Mathématique et Biodiversité* in the VEOLIA head office in Aubervilliers and in *MaLAGE seminar* of INRA in Jouy-en-Josas. She has also been invited to give talk at the annual *ModStatsAP* day in Paris in March and at the *HELENA seminar* of the Institute of Groundwater Ecology in Munich and at the *IRMAR probability seminar* in Rennes in June.
- C. Fritsch gave a talk at the conference *Mathematical Models in Ecology and Evolution* in London in July.
- P. Helson gave a talk at the workshop *Computational Neuroscience and Optical Dynamics* in Sophia-Antipolis in May.
- P. Helson presented a poster at the conference *International Conference on Mathematical Neuroscience* in Boulder (US) in June.
- A. Lejay gave a seminar talk at the *Séminaire EDP de l'Institut Élie Cartan de Lorraine* (Metz, France) in April 2017.
- A. Lejay gave talks at the national conference *Brownian motion in cones: algebraic and analytic approaches* at Toulouse in November and at the national conference *Journées de Probabilités 2017* at Aussois in June.
- A. Lejay gave a talk at the international conference *PDE & Probability Methods for Interactions* at Sophia-Antipolis, February 2013; *Monte Carlo Methods and Applications (MCM 2017)* at Montréal in July 2017; *Scicade 2017* at Bath in September 2017; *Rough Paths in Toulouse* at Toulouse in October 2017.
- P. Pigato has been invited to give seminar talks in January, at the Probability and Statistics Seminar of Laboratoire Jean Kuntzmann (Grenoble) and at the Seminar Modern Methods in Applied Stochastics and Nonparametric Statistics of WIAS Berlin.
- In January, Paolo Pigato has given a seminar talk at the Probability and Statistic Seminar of Institut Elie Cartan (Nancy).
- P. Pigato was invited to participate, from February 26th to March 4th, to the meeting "Mathematics of Quantitative Finance" in Oberwolfach, Germany.
- D. Talay gave a lecture at the workshop *Stochastic Differential Equations: Regularity and Numerical Analysis in Finite and Infinite Dimensions*, Mathematisches Forschungsinstitut Oberwolfach, February 5-11.
- D. Talay gave an invited conference at the Moscow National Research University Higher School of Economics, Laboratory of Stochastic Analysis winter meeting, December 4-7.
- D. Talay gave a seminar at Ecole Polytechnique on October 17th.
- E. Tanré gave talks at Université du Maine and Université de Savoie.

- E. Tanré was invited in Edinburg to give a talk at the International Workshop on BSDEs, SPDEs and their Applications in the McKean-Vlasov special session (July).
- E. Tanré was invited to give a talk at the workshop PDE/Probability Interactions: Kinetic Equations, Long time and Propagation of Chaos (Luminy, September).
- D. Villemonais has been invited to give seminar talks at the Stochastic Analysis Seminar of Imperial College (London, UK), at the Séminaire de probabilités of Université de Lille, at the Séminaire de probabilités of Université de Rennes and at the Probability laboratory of the Univeristy of Bath (UK).

#### **10.1.6. Leadership within the Scientific Community**

- M. Bossy is serving as a vice president of the Inria Evaluation Committee.
- A. Lejay is the head of the Probability and Statistics team of the Institut Élie Cartan since September 2016.
- A. Lejay is member of the Conseil de Perfectionnement of the Master of Mathematics of the Université de Lorraine.
- D. Talay continued to chair the Scientific Council of the French Applied Math. Society SMAI.
- D. Talay served as a member of the scientific council of the Complex System academy of the UCA Idex.
- D. Talay is serving as a member of the committee in charge of preparing the application of Paris to the International Congress of Mathematicians 2022.
- D. Talay is serving as a member of the CMUP Advisory Commission (University of Porto).
- D. Talay is a member of the Comité National Français de Mathématiciens.

#### **10.1.7. Scientific Expertise**

- M. Bossy reported for the Paul Caseau Prize.
- M. Bossy participated in a Associated Professor position recruitment committee at CMA Mines-ParisTech.
- N. Champagnat reported on an research project submitted to the Natural Sciences and Engineering Research Council (NSERC) of Canada.
- M. Deaconu has been a member of the *Committee for junior permanent research positions* of Inria Nancy - Grand Est.
- A. Lejay participated in a Professor position recruitment committee at Université de Lorraine.
- E. Tanré was member of the hiring committee 26 MCF at the 'Ecole Centrale de Paris'.
- E. Tanré reported on an application submitted to CONICYT (Chilean Funding Agency).
- D. Talay served as a member of the committee for positions in Applied Mathematics at the Ecole Polytechnique.
- D. Talay served as a member of the committee for a professor position at UCA University (Nice, France).
- D. Talay served as a member of the committee for an assistant professor position at Lille University.
- D. Talay is chairing the 2019 Pioneer ICIAM prize committee.

#### **10.1.8. Research Administration**

- M. Bossy has been a member of the DTK-Committee.
- N. Champagnat is a member of the *Comité de Centre*, the *COMIPERS* and the *Commission Information Scientifique et Technique* of Inria Nancy - Grand Est, *Responsable Scientifique* for the library of Mathematics of the IECL, member of the *Conseil du laboratoire* of IECL (as *responsable scientifique* of the library). He is local correspondent of the COERLE (*Comité Opérationel d'Évaluation des Risques Légaux et Éthiques*) for the Inria Research Center of Nancy - Grand Est. He is also local responsible of GdR MAMOVI for Univ. Lorraine.

- M. Deaconu is a member of the *Bureau du Comité de Projets* of Inria Nancy - Grand Est, and of the *Comité de Projet* of Inria Nancy - Grand Est.
- A. Lejay is member of the Pôle AM2I of the Université de Lorraine since 2017.
- A. Lejay is member of the theses committee of the Institut Élie Cartan de Lorraine.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : M. Bossy, *Risk on energetic financial markets*, 27h, Master Spécialisé, Ingénierie et Gestion de l'Énergie, Mine ParisTech, France.

Master : M. Bossy *Stochastic Particle Methods for PDEs*, 18h, M2 Probabilité et Applications, Université Pierre et Marie Curie, France.

Master: N. Champagnat, *Introduction to Quantitative Finance*, 18h, M1, École des Mines de Nancy, France.

Master: N. Champagnat, *Introduction to Quantitative Finance*, 13.5h, M2, École des Mines de Nancy, France.

PhD-level lecture: N. Champagnat, *Large population scalings of stochastic population dynamics in ecology and evolution*, Workshop/School on Stochastic PDEs, Mean Field Games and Biology, 6h, at the Gran Sasso Science Institute (GSSI) in L'Aquila (Italy).

PhD-level lecture: N. Champagnat, *Quasi-Stationary Distributions for absorbed Markov processes*, Doctoral School on *New trends in Markov Processes*, 9h, Les Diablerets (Switzerland).

Master: M. Deaconu, *Équations différentielles stochastiques : résolution numérique et applications*, 21h, M2, École des Mines de Nancy, France.

Master: M. Deaconu, *Modélisation stochastique*, 30h, M2, Université de Lorraine, France.

Master: M. Deaconu, *Simulation Monte Carlo*, 24h, M1, Faculté de Droit, Sciences Economiques et Gestion, Université de Lorraine, France.

Master : C. Fritsch, supervision of a research project on the *approximation of birth-death processes by stochastic differential equations*, 6h, M2, École des Mines de Nancy, France.

Master: A. Lejay, *Simulation des marchés financiers*, 28.5h, M2, Université de Lorraine (Metz), France.

Master: K. Salhi, *Statistiques et analyse de données*, 48h, M1, Télécom Nancy, France.

Master: K. Salhi, *Probabilité et Statistiques*, 48h, M1, ENSEM Nancy, France.

Licence: K. Salhi, *Probabilité et mathématiques financières*, 40h, L1, IUT Charlemagne, France.

Master: D. Talay *Invariant measures of diffusion processes*, 18h, M2 Probabilité et Applications, Université Paris 6, France.

Master: E. Tanré (courses) and M. Tomasevic (exercices), *Advanced Numerics for Computational Finance*, 30h (20h + 10h), M2, UCA (Mathmods Erasmus Mundus), France.

Master: E. Tanré, *Mathematical Methods for Neurosciences*, 37h, M2, ENS - Master MVA / Paris 6 - Master Maths-Bio, France.

Master: E. Tanré (courses) and M. Tomasevic (practical classes) *Numerical probability for mathematical finance*, 20h (8h + 12h), M2, EPU (Master IMAFA), France.

### 10.2.2. Supervision

PhD in progress: Antoine Brault, *Non-Linear Sewing Lemma*, Université Toulouse 3, October 2015, L. Coutin (U. Toulouse 3), A. Lejay.

PhD in progress: Lorenzo Campana, *Stochastic modeling of non-spherical particle transport and deposition by turbulent flows*, December 2017, M. Bossy.

PhD in progress: Quentin Cormier, *Biological Networks of Spiking Neurons*, September 2017, E. Tanré and R. Veltz (MATHNEURO Inria team).

PhD in progress: Pascal Helson, *Plasticity in networks of spiking neurons in interaction*, October 2016, E. Tanré and R. Veltz (MATHNEURO Inria team).

PhD: Radu Maftעי, *Stochastic Analysis of Lagrangian Particle Simulation Application to colloidal particle collision*, Univ. Nice Sophia Antipolis, December 2017, M. Bossy.

PhD: Hernan Mardones, *Numerical solutions of stochastic differential equations with multiplicative noise*, Université de Concepción (Chile), June 2017, C. Mora (U. Concepción), A. Lejay.

PhD in progress: Milica Tomašević, *On a stochastic interpretation of parabolic-parabolic Keller-Segel systems*, October 2016, D. Talay.

### 10.2.3. Juries

- M. Bossy served as a referee for the Ph.D. theses of Gerome Faure *Stochastic Lagrangian models to better estimate energy production variability*.
- M. Bossy served as an examiner for the HDR of Ahmed Kebaier *Methodes Multilevel Monte Carlo et Statistiques des Processus en Finance*, Université Paris 13, December 2017.
- N. Champagnat served as a referee for the Ph.D. theses of Brice Samegni-Kepgnou, *Grandes Déviations de systèmes stochastiques modélisant des épidémies*, Aix-Marseille Univ., July 13, 2017, and of Nils Caillerie, *Équations cinétiques stochastiques et déterministes dans le contexte des mathématiques appliquées à la biologie*, Univ. Lyon 1, July 5, 2017.
- N. Champagnat served as an examiner for the Ph.D. thesis of Manon Baudel, *Théorie spectrale pour des applications de Poincaré aléatoires*, Univ. Orléans, December 1, 2017.
- M. Deaconu served as a referee for the Ph.D. thesis of Alizée Geeraert, *Contrôle optimal stochastique des processus de Markov déterministes par morceaux et application à l'optimisation de maintenance*, Université de Bordeaux, June 6, 2017.
- A. Lejay served as referee for the Ph.D. thesis of Yi Lu, *Calcul fonctionnel non-anticipatif et applications aux processus stochastiques*, Université Paris 6, December 2017.
- A. Lejay served as an examiner for the jury of Hernan Mardones, *Numerical solutions of stochastic differential equations with multiplicative noise*, Université de Concepción (Chile) in June 2017.
- A. Lejay served as a referee for the Habilitation thesis of Ahmed Kebaier, *Méthodes Multilevel Monte Carlo et Statistiques des Processus en Finance*, Université Paris 13, December 2017.
- D. Talay served as a referee for the Ph.D. thesis of Liping Xu, *Contribution à l'étude de l'équation de Boltzmann homogène*, Université Pierre et Marie Curie, June 2017.
- D. Talay served as a referee for the Habilitation thesis of Jérôme Lelong, *Quelques contributions aux méthodes numériques probabilistes et à la modélisation stochastique*, Université Grenoble Alpes, September 2017.
- D. Talay served as a referee for the Habilitation thesis of Noufel Frikha, *Stochastic approximation, Markovian perturbation of stochastic processes and their applications*, University Paris-Diderot, November 2017.
- D. Talay served as an examiner for the Habilitation thesis of Xialou Tan, *Martingale optimal transport, non Markovian stochastic control and branching diffusion processes*, December 2017.
- D. Talay served as a referee for the Ph.D. thesis of Guillaume Sall, *Quelques algorithmes rapides pour la finance quantitative*, Sorbonne Universités, December 2017.

## TROPICAL Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- Stéphane Gaubert is the coordinator of the Gaspard Monge Program for Optimization and Operations Research, a corporate sponsorship program, operated by Fondation Mathématique Jacques Hadamard, supported by EDF, Orange and Thales, see <https://www.fondation-hadamard.fr/fr/pgmo/>

#### 10.1.1.2. Member of the Organizing Committees

- S. Gaubert co-organizes the “Séminaire Parisien d’Optimisation”.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- S. Gaubert, Chair of the PGMO days, EDF Labs Paris Saclay, Nov 13-14, 2017. <https://www.fondation-hadamard.fr/fr/pgmo/pgmodays>

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- S. Gaubert is member of the editorial committee of the collection Mathématiques et Applications, SMAI and Springer.
- S. Gaubert is associate editor of Linear and Multilinear Algebra.
- S. Gaubert is associate editor of RAIRO Operations research.

### 10.1.4. Invited Talks

- S. Gaubert
  - Noncommutative geometry: number theory, celebration of Alain Connes’ 70th birthday, Shanghai, March 23 - April 7, 2017. Tropical modules, zero-sum games and non-archimedean optimization.
  - Mathematical morphology and its applications to image and signal processing Fontainebleau, Fontainebleau, May 15 – May 17, 2017. Tropical and non-linear Perron-Frobenius methods for optimal control and zero-sum games

### 10.1.5. Research Administration

- M. Akian :
  - Member of the “comité de liaison SMAI-MODE” since June 2015.
  - Member of the laboratory council of CMAP.
- S. Gaubert :
  - Member of the scientific council of CMAP.
- X. Allamigeon:
  - Member of the scientific committee of Inria Saclay – Ile-de-France.
  - Member of the Applied Mathematics Department committee at Ecole Polytechnique.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- M. Akian
  - Course “Markov decision processes: dynamic programming and applications” joint between (3rd year of) ENSTA and M2 “Mathématiques et Applications”, U. Paris Saclay, “Optimization”, and shared with Jean-Philippe Chancelier (ENPC), 15 hours each.
- X. Allamigeon
  - Petites classes et encadrement d’enseignements d’approfondissement de Recherche Opérationnelle en troisième année à l’École Polytechnique (programme d’approfondissement de Mathématiques Appliquées) (niveau M1).
  - Cours du M2 “Optimisation” de l’Université Paris Saclay, cours partagé avec Manuel Ruiz (RTE) et Dominique Quadri (LRI, Université Paris Sud).
  - Co-responsabilité du programme d’approfondissement en mathématiques appliquées (troisième année) à l’École Polytechnique.
- V. Boeuf
  - Petite classe du cours de tronc commun de 1ere année "Introduction à l’optimisation" de l’École des ponts (ENPC), niveau L3.
- J.B. Eytard
  - Cours de niveau L1-L2 à l’IUT d’Informatique d’Orsay (Univ. Paris-Sud), dans le cadre d’un monitorat (64h) (théorie des graphes, recherche opérationnelle, modélisation mathématique).
- S. Gaubert
  - Course “Systèmes à Événements Discrets”, option MAREVA, ENSMP.
  - Course “Algèbre max-plus pour le contrôle optimal et les jeux” of “Parcours Optimisation, Jeux et Dynamique” (ODJ) of M2 “Mathématiques et Applications” of Paris 6 University and École Polytechnique.
  - Lecture of Operations Research, third year of École Polytechnique. The lectures notes were published as a book [63].
- M. Skomra
  - TD de mathématiques à l’UPMC.
- N. Stott
  - Cours et TD “Introduction à la programmation graphique en C++”, option MAREVA et semaine Athens à l’ENSMP (École des Mines de Paris), niveau M1.

### 10.2.2. Supervision

- PhD in progress : Eric Fodjo, registered at École Polytechnique, since October 2013, thesis supervisor: Marianne Akian.
- PhD : Nikolas Stott, registered at École Polytechnique, since October 2014, thesis supervisor: Stéphane Gaubert, cosupervision: Xavier Allamigeon, Éric Goubault, Sylvie Putot, defended on 23 Nov 2017.
- PhD : Vianney Boeuf, registered at École Polytechnique, since October 2014, thesis supervisor: Stéphane Gaubert, cosupervision: Stéphane Raclot (BSPP), Marianne Akian, Xavier Allamigeon, defended on 18 Dec 2017.
- PhD in progress : Mateusz Skomra, registered at Univ. Paris Saclay since October 2015, thesis supervisor: Stéphane Gaubert, cosupervision: Xavier Allamigeon.

- PhD in progress : Jean-Bernard Eytard, registered at Univ. Paris Saclay since October 2015, thesis supervisor: Stéphane Gaubert, cosupervision: Marianne Akian, Mustapha Bouhtou.
- PhD in progress: Paulin Jacquot, registered at Univ. Paris Saclay since November 2016, thesis supervisor: Stéphane Gaubert, cosupervision: Nadia Oujdane, Olivier Beaude (EDF).
- PhD in progress: Benoît Tran, registered at Univ Paris-Est Marne La Vallée, since September 2017, thesis supervisor: Jean-Philippe Chancelier (ENPC), cosupervision: Marianne Akian.

### 10.2.3. Juries

- X. Allamigeon
  - Jury of the PhD thesis of N. Stott (Ecole Polytechnique, examiner, November 2017).
  - Jury of the PhD thesis of V. Bœuf (Ecole Polytechnique, examiner, December 2017).
- S. Gaubert
  - Member of hiring committee (Professor position) at Paris 6 University.
  - Jury of the PhD thesis of A. Sagnier (Paris 7, examiner, 2017).
  - Jury of the PhD thesis of G. Loho (TU-Berlin, reviewer, 2017).
  - Jury of the PhD thesis of R. Hess (LAAS, 2017).
  - Jury of the PhD thesis of N. Stott (Ecole Polytechnique, examiner, November 2017).
  - Jury of the PhD thesis of V. Bœuf (Ecole Polytechnique, examiner, December 2017).

### 10.3. Conferences, Seminars

- M. Akian
  - Workshop "Numerical methods for optimal control problems: algorithms, analysis and applications" at INdaM, Roma, Italy, June, 19-23, 2017. Title of the talk: "Probabilistic max-plus schemes for solving Hamilton–Jacobi–Bellman equations".
  - Atelier "Jeux dynamiques à somme nulle: temps discret, temps continu", Fréjus, from 17 to 19 oct 2017. Title of the talk: "Érgodicité des jeux à somme nulle".
- X. Allamigeon
  - "Tropical Mathematics and its Applications" seminar, Warwick University, February 15, 2017. Title of the talk: "Tropicalization of spectrahedra".
  - "Optimisation and Numerical Analysis" seminar, Birmingham University, February 16, 2017. Title of the talk: "Log-barrier interior-point methods are not strongly polynomial".
  - "Computing in Tropical Geometry" workshop, Zuse Institut Berlin, May 11-12, 2017. Title of the talk: "Tropical linear optimization".
  - 8th International Conference on Interactive Theorem Proving, Brasília, September 26-29, 2017. Title of the talk: "A Formalization of Convex Polyhedra based on the Simplex Method".
  - "Computations and Proofs" SpecFun seminar, Saclay, October 16, 2017. Title of the talk: "Log-barrier interior-point methods are not strongly polynomial".
- V. Boeuf
  - INFORMS APS 2017, Applied Probability Society Conference. Chicago, IL, USA, July 10-12, 2017. "An Asymptotic Analysis of Blocking in a Finite Capacity Network with Two Levels."
- J.B. Eytard
  - Congrès annuel de la société française de Recherche Opérationnelle (ROADEF), Feb. 22-24, 2017, Metz. Title of the talk: "Une approche tropicale de la programmation bi-niveau".

- 15th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WIOPT) , May. 15-17, 2017, Paris. Title of the talk: "A bilevel optimization model for load balancing in mobile networks through price incentives".
- Séminaire des doctorants du CMAP, Jun. 23, Palaiseau. Title of the talk: "A tropical approach to bilevel programming applied to a price incentives model in mobile data networks".
- SIAM Applied Algebraic Geometry (SIAMAG), Jul. 31 - Aug. 4, Atlanta. Title of the talk: "A tropical approach to bilevel programming: application to a price incentives model in mobile data networks".
- PGMO Days, Nov. 13-14, 2016, Palaiseau. Title of the talk: "Price incentives in mobile data networks: bilevel programming, competitive equilibria and discrete convexity".
- S. Gaubert
  - STACS, Hannover, March 2017, The operator approach to entropy games.
  - Noncommutative geometry: number theory, celebration of Alain Connes' 70th birthday, Shanghai, March 23 - April 7, 2017. Tropical modules, zero-sum games and non-archimedean optimization.
  - Mathematical morphology and its applications to image and signal processing Fontainebleau, Fontainebleau, May 15 – May 17, 2017. Tropical and non-linear Perron-Frobenius methods for optimal control and zero-sum games
  - INDAM Workshop, Roma, June 19–23, 2017. Noncommutative aspects of dynamic programming.
  - Stony Brook Game Theory Conference, July 17-21, 2017. Nonarchimedean convexity and stochastic mean payoff games.
  - OR Berlin, Sep. 5-8, 2017. Tropical spectrahedra and stochastic mean payoff games.
  - Control and Optimization Conference On the occasion of Frédéric Bonnans 60th birthday, EDF Labs Saclay, 15-17 Nov, 2017. Dynamic programming over noncommutative spaces
- D. Jones
  - Tropical Mathematics & its Applications, Birmingham, Nov 15 2017. "A discrete geometry model of fire propagation in urban areas".
- M. Skomra
  - Séminaire de Géométrie Tropicale, UPMC, Paris, April 26, 2017. Title of the talk: "Tropical spectrahedra".
  - Computing in Tropical Geometry, Zuse Institute Berlin, May 11–12, 2017. Title of the talk: "Tropical spectrahedra".
  - SIAM Conference on Optimization, Vancouver, May 22–25, 2017. Title of the talk: "Solving Generic Nonarchimedean Semidefinite Programs using Stochastic Game Algorithms".
  - International Conference on Effective Methods in Algebraic Geometry (MEGA), Nice, June 12–16, 2017. Title of the talk: "The tropical analogue of the Helton–Nie conjecture is true".
  - SIAM Conference on Applied Algebraic Geometry, Atlanta, GA, Jul. 31 – Aug. 04, 2017. Title of the talk: "Tropical spectrahedra".
- C. Walsh
  - Workshop "Compactifications of buildings and symmetric spaces", Heidelberg, May 16–17, 2017. Title of the talk: "The horofunction compactification of symmetric cones".
  - Workshop "Order Structures, Jordan Algebras, and Geometry", Leiden, May 29–June 2, 2017. Title of the talk: "Antitone maps and Euclidean Jordan algebras".
  - Seminar, Ecole Polytechnique, Palaiseau, June 7, 2017. Title of the talk: "Approximability of convex bodies and volume growth in Hilbert geometries".
  - Conference "Géométrie métrique, géométrie de Finsler", Marseille, June 26–29, 2017. Title of the talk: "Approximability of convex bodies and volume growth in Hilbert geometries".



## TYREX Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific Events Organisation

#### 9.1.1.1. Member of the Conference Program Committees

- P. Genevès was a member of the program committee of **BDA 2017**, the 33rd National Conference on Databases and Applications.
- N. Layaïda was a member of the program committee of **The Web Conference 2018** - The Web Programming, Design, Analysis, and Implementation track.

#### 9.1.1.2. Reviewer

- P. Genevès has been referee for the following 2017 conferences: IJCAI 2017, ICALP 2017, DocEng 2017, and BDA 2017.
- N. Gesbert has been referee for CAV 2017.
- C. Roisin has been referee for the following 2017 conferences: DocEng 2017 and SMAP 2017.

### 9.1.2. Journal

#### 9.1.2.1. Member of the Editorial Boards

- P. Genevès has been referee for the **Information and Computation (I&C)** journal

### 9.1.3. Scientific Expertise

- P. Genevès was expert for the ANRT (CIFRE).
- C. Roisin was expert for the ANR ‘Appel à Projets Génériques’ 2017.

### 9.1.4. Research Administration

- P. Genevès is responsible for the Computer Science Specialty at the **Doctoral School MSTII (ED 217)**.
- N. Layaïda is ‘réfèrent budget’ member of the budget commission of the Inria Grenoble – Rhône-Alpes research center. The role of this commission is to allocate yearly budget (‘dotation’) to Inria project teams and services. On a yearly basis, we meet with team and service leaders individually, collect their financial needs and set their budget.
- N. Layaïda is member of the Scientific Board of Advanced Data-mining of the Persyval Labex.
- N. Layaïda is member of the Scientific Board of Digital League, the digital cluster of Auvergne-Rhône-Alpes.
- N. Layaïda is member of the experts pool (selection committee) of the minalogic competitive cluster.
- C. Roisin is member of the CNU ‘Conseil national des Universités’ section 27.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master: P. Genevès, Semantic Web: from XML to OWL, 54hEqTD, M2 (MOSIG), University Grenoble Alpes, France

Licence : N. Gesbert, ‘Logique pour l’informatique’, 45 h eq TD, L3, Grenoble INP

Licence : N. Gesbert, ‘Bases de la programmation impérative’, 33 h eq TD, L3, Grenoble INP

Licence : N. Gesbert, academic tutorship of an apprentice, 10 h eq TD, L3, Grenoble INP

Master : N. Gesbert, ‘Fondements logiques pour l’informatique’, 12 h eq TD, M1, Grenoble INP

Master : N. Gesbert, ‘Construction d’applications Web’, 22 h 30 eq TD, M1, Grenoble INP

Master : N. Gesbert, ‘Analyse, conception et validation de logiciels’, 41 h 15 eq TD, M1, Grenoble INP

Licence : C. Roisin, ‘Programmation C’, 12h eq TD, L2, IUT2, Univ. Grenoble-Alpes

Licence : C. Roisin, ‘Architecture des réseaux’, 112h eq TD, L1, IUT2, Univ. Grenoble-Alpes

Licence : C. Roisin, ‘Services réseaux’, 22h eq TD, L2, IUT2, Univ. Grenoble-Alpes

Licence : C. Roisin, ‘Introduction système Linux’, 21h eq TD, L1, IUT2, Univ. Grenoble-Alpes

Licence : C. Roisin, ‘Système et réseaux’, 14h eq TD, L3, IUT2, Univ. Grenoble-Alpes

Licence : C. Roisin, academic tutorship of four apprentices, 20h eq TD, L3, IUT2, Univ. Grenoble-Alpes

Licence : C. Roisin, academic tutorship of 18 students, 13h eq TD, L1, IUT2, Univ. Grenoble-Alpes

N. Gesbert is responsible of the L3-level course ‘logique pour l’informatique’ (25 apprentices) and of the M1-level course ‘construction d’applications Web’ (72 students).

P. Genevès is co-responsible of the Master-level course ‘Semantic Web: from XML to OWL’ in the Mosig, Univ. Grenoble Alpes.

C. Roisin is responsible of the Licence Professionnelle en Alternance ‘Administration et Sécurité des Systèmes et des Réseaux’, L3, IUT2, Univ. Grenoble-Alpes (20 apprentices).

C. Roisin is responsible of the L1-level course ‘Architecture des réseaux’ (150 students).

### 9.2.2. Supervision

PhD: Abdullah Abbas, Static Analysis of SPARQL Queries with ShEx Schema Constraints, University Grenoble Alpes, defended on November 6th 2017, supervised by Pierre Genevès and Cécile Roisin.

PhD: Thibaud Michel, On Mobile Augmented Reality Applications based on Geolocation, University Grenoble Alpes, defended on November 10th 2017, supervised by Pierre Genevès and Nabil Layaïda and Hassen Fourati.

PhD in progress: Louis Jachiet, Foundations for the Analysis and Distributed Evaluation of SPARQL Queries, started in Sept. 2014, supervised by Pierre Genevès and Nabil Layaïda.

PhD in progress: Raouf Kerkouche, Optimized Predictive Analytics with Big Medical Data, started in Oct. 2017, supervised by Pierre Genevès and Claude Castelluccia.

PhD in progress: Fateh Boulmaiz, Extensions of the SPARQLGX System, started in Nov. 2017, supervised by Pierre Genevès and Nabil Layaïda.

### 9.2.3. Juries

- P. Genevès was member of the jury for the PhD defense of Carlyna Bondiombouy entitled “Traitement de requêtes dans les systèmes multistores” and defended on July 12th, 2017 in Montpellier.
- N. Layaïda was member and president of the Jury for the Habilitation thesis from University Grenoble-Alpes of Jérôme Malick entitled “the Variational-analysis look at combinatorial optimization and other selected topics in optimization” defended on January 26th, 2017 in Grenoble.
- N. Layaïda was member and president of the Jury for the PhD thesis from University Grenoble-Alpes of Thomas Capelle entitled “Development of optimization methods for land-use and transportation models” defended on April 3rd, 2017 in Grenoble.

## Valda Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. Member of the Organizing Committees

- Serge Abiteboul, organization of Personal Analytics & Privacy workshop, joint with ECML-PKDD 2017, Skopje, Macedonia
- Serge Abiteboul, scientific organization of colloquium on *La communauté scientifique face au renseignement*, École militaire, Paris, France
- Serge Abiteboul, organization of colloquium on *Les enjeux scientifiques de l'éthique du numérique*, Académie des sciences
- Pierre Senellart, organization of ParisBD 2017, Télécom ParisTech, Paris, France
- Pierre Senellart, co-organizer of ACM-ICPC Southwestern Europe 2017 competition

### 8.1.2. Scientific Events Selection

#### 8.1.2.1. Chair of Conference Program Committees

- Pierre Senellart, BDA 2017 (French conference on data management)
- Pierre Senellart, WebDB workshop, joint with SIGMOD 2017

#### 8.1.2.2. Member of the Conference Program Committees

- Pierre Senellart, *Gems of PODS 2017* committee
- Pierre Senellart, SIGMOD 2017 (*distinguished PC member*), ICDT 2017, EDBT 2018

### 8.1.3. Journal

#### 8.1.3.1. Reviewer - Reviewing Activities

- Pierre Senellart, *Journal of the ACM*, *VLDB Journal*, *Artificial Intelligence*

### 8.1.4. Invited Talks

- Serge Abiteboul, keynote at PPDP-LOPSTR, Namur, Belgium
- Serge Abiteboul, keynote at ETAPS, Uppsala, Sweden
- Serge Abiteboul, keynote at Law & Big Data Conference, Paris, France

### 8.1.5. Leadership within the Scientific Community

Serge Abiteboul is a member of the French Academy of Sciences, of the Academia Europa, and of the scientific council of the Société Informatique de France.

### 8.1.6. Scientific Expertise

- Pierre Senellart, ANR, NSF

### 8.1.7. Research Administration

- Serge Abiteboul was the president of the Dune jury (*Développement d'universités numériques expérimentales*)
- Serge Abiteboul participated in the NCU jury (*nouveaux cursus à l'université*)
- Serge Abiteboul contributed to the report on *Éthique de la recherche en apprentissage machine* of Cerna-Allistene
- Serge Abiteboul is co-chair of the “Committee on Gender Equality and Equal Opportunities” of Inria.
- Luc Segoufin is a member of the CNHSCT of Inria.
- Pierre Senellart is a member of the board of section 6 of the National Committee for Scientific Research.
- Pierre Senellart is vice-director of the DI ENS laboratory, joint between ENS, CNRS, and Inria.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Licence: Pierre Senellart, *Databases*, 54 heqTD, L3, École normale supérieure

Licence: Pierre Senellart, *Algorithms*, 18 heqTD, L3, École normale supérieure

Master: Serge Abiteboul & Pierre Senellart, *Web data management*, 36 heqTD, M2, MPRI

Master: Luc Segoufin, *Logic, descriptive complexity and database theory*, 36 heqTD, M2, MPRI

Pierre Senellart has various teaching responsibilities (L3 internships, M2 internships, M2 administration) at ENS.

Serge Abiteboul proposed with Benjamin Nguyen and Philippe Rigaux a second session of the Mooc “Bases de données relationnelles: comprendre pour maîtriser” (FUN). He proposed with Julia Stoyanovich a course on “Ethical data management” at the EDBT Summer School, Genova, 2017.

### 8.2.2. Supervision

PhD : David Montoya, *Une base de connaissance personnelle intégrant les données d'un utilisateur et une chronologie de ses activités*, Université Paris-Saclay, 6 March 2017, Serge Abiteboul & Pierre Senellart

PhD in progress: Debabrota Basu, *Reinforcement learning applications to data management problems*, started in 2015, Stéphane Bressan & Pierre Senellart

PhD in progress: Julien Grange, *Graph properties: order and arithmetic in predicate logics*, started in 2017, Luc Segoufin

PhD in progress: Miyoung Han, *Learning approaches to dynamic data management*, started in 2015, Pierre Senellart

PhD in progress: Quentin Lobbé, *Diachronic analysis of diaspora communities through web archives enrichment*, started in 2015, Pierre Senellart & Dana Diminescu

PhD in progress: Mikaël Monet, *Efficient querying of large uncertain graphs by exploiting their structure*, started in 2015, Pierre Senellart & Antoine Amarilli

PhD in progress: Karima Rafes, *Security and management of personal data in the Web of things*, started in 2015, Serge Abiteboul & Sarah Cohen-Boulakia

PhD in progress: Alexandre Vigny, *Query enumeration on nowhere-dense graphs*, started in 2015, Luc Segoufin & Arnaud Durand

### 8.2.3. *Juries*

- PhD Paul Lagrée, October 2017, Université Paris-Saclay, Pierre Senellart

## 8.3. Popularization

Serge Abiteboul is involved in several popular science activities. He founded and animates the blog <http://binaire.blog.lemonde.fr/> on computer science. He was the scientific curator (*commissaire scientifique*) of the exhibition “Terra Data” at the Cité des Sciences. He published two scientific popularization books in 2017, “Le temps des algorithmes” [26], with Gilles Dowek, and “Terra data” [27], with Valérie Peugeot.

Serge Abiteboul is the president of the strategic committee of the Blaise Pascal foundation for scientific mediation.

## VERIDIS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Organization of Scientific Events

#### 10.1.1.1. Member of the Organizing Committees

Jasmin Blanchette co-organized the *(Co)programming in Isabelle/HOL* tutorials at ICFP 2017 in Oxford, UK, and at CADE-26 in Gothenburg, Sweden.

Jasmin Blanchette co-organized the Dagstuhl Seminar on *Deduction beyond First-Order Logic* held at Schloss Dagstuhl in Germany.

Jasmin Blanchette co-organized the *(Co)programming in Isabelle/HOL* tutorials at ICFP 2017 in Oxford, UK, and at CADE-26 in Gothenburg, Sweden.

Dominique Méry was a member of the organizing committees of the workshops F-IDE [43] and IMPEX'2017.

The International Summer School on Verification Techniques, Systems, and Applications (VTSA) has been organized since 2008 in the Greater Region (Nancy, Saarbrücken, Luxembourg, Liège, and Koblenz), and Stephan Merz and Christoph Weidenbach are co-organizers of VTSA. In 2017, VTSA took place in July in Saarbrücken, Germany.

The SC<sup>2</sup> Summer School 2017 took place in Saarbrücken, Germany. It has been co-organized by Thomas Sturm. The school introduced graduate students and researchers from academia and industry into research and methodology in both Satisfiability Checking (SAT/SMT) and Symbolic Computation with one focus on their interconnections. It combined a thorough introduction into the theory of both fields with lectures on state-of-the-art software systems and their implementation. This was supplemented with presentations by lecturers from industry discussing the practical relevance of the topics of the school.

Together with the CADE trustees, Christoph Weidenbach started the first CADE workshop on *Automated Reasoning: Challenges, Applications, Directions, Exemplary Achievements* (ARCADE 2017)

### 10.1.2. Program Committees

#### 10.1.2.1. Chair of Conference Program Committees

Stephan Merz co-chaired the program committee of the Fourth International Workshop on Formal Reasoning in Distributed Algorithms (FRiDA), organized in October 2017 as a satellite of DISC in Vienna, Austria.

#### 10.1.2.2. Member of the Conference Program Committees

Jasmin Blanchette served on the program committees of the Conference on *Computer-Aided Verification* (CAV 2017), the *Conference on Automated Deduction* (CADE-26), the *International Conference on Tests and Proofs* (TAP 2017), and the *Conference on Artificial Intelligence and Theorem Proving* (AITP 2017). He also served on the following workshop committees: *Automated Reasoning: Challenges, Applications, Directions, Exemplary Achievements* (ARCADE 2017), *International Workshop on the Implementation of Logics* (IWIL 2017), *Proof Exchange for Theorem Proving* (PxTP 2017), and *Satisfiability Modulo Theories* (SMT 2017).

Pascal Fontaine served on the program committees of the *International Symposium on Frontiers of Combining Systems* (FroCoS 2017), the *Conference on Automated Deduction* (CADE-26) and the *International Conference on Automated Reasoning with Analytic Tableaux and Related Methods* (TABLEAUX 2017). He also served on the following workshop committees: *Automated Reasoning: Challenges, Applications, Directions, Exemplary Achievements* (ARCADE 2017), *Satisfiability Modulo Theories* (SMT 2017), *Satisfiability Checking and Symbolic Computation* (SC<sup>2</sup> 2017), *Proof Exchange for Theorem Proving* (PxTP 2017)

Stephan Merz served on the program committees of the international conferences *Formal Techniques for Distributed Objects, Components, and Systems* (FORTE 2017), *Foundations of Software Technology and Theoretical Computer Science* (FSTTCS 2017), and *Formal Engineering Methods* (ICFEM 2017), the national conference *Modélisation des Systèmes Réactifs* (MSR 2017), and of the workshops FMICS-AVoCS and GRSRD.

Thomas Sturm served on the program committees of the *Second International Workshop on Satisfiability Checking and Symbolic Computation* (SC<sup>2</sup> 2017) and the *19th International Workshop on Computer Algebra in Scientific Computing* (CASC 2017).

Uwe Waldmann served on the program committee of the workshop *International Workshop on the Implementation of Logics* (IWIL 2017) colocated with LPAR.

Christoph Weidenbach served on the program committees of the *Conference on Automated Deduction* (CADE-26) and the *International Symposium on Frontiers of Combining Systems* (FroCoS 2017). He also served on the workshop committee *Automated Reasoning: Challenges, Applications, Directions, Exemplary Achievements* (ARCADE 2017).

### 10.1.3. Journals

Jasmin Blanchette and Stephan Merz are the editors of a special issue of *Journal of Automated Reasoning* following the international conference *Interactive Theorem Proving* 2016.

Dominique Méry is the review book editor of the journal *Formal Aspects for Computing*.

Thomas Sturm is a member of the editorial boards of the *Journal of Symbolic Computation* (Elsevier) and *Mathematics in Computer Science* (Springer).

Christoph Weidenbach is a member of the editorial board of the *Journal of Automated Reasoning* (Springer).

### 10.1.4. Invited Talks

Jasmin Blanchette was invited to give a joint keynote talk at the FroCoS 2017, ITP 2017, and TABLEAUX 2017 conferences held in Brasília, Brazil. He presented Isabelle/HOL's support for (co)datatypes and (co)recursion [18]. He also gave invited seminar talks at the Big Proof Workshop organized by the Isaac Newton Institute in Cambridge, UK, at the TeReSe (Term Rewriting Systems) meeting in Eindhoven, the Netherlands, and at the Shonan Meeting on Automated Deduction at the Shonan Village Center in Japan.

Stephan Merz gave an invited presentation on “Formal Methods for the Cloud” at the Cloud Resiliency Workshop 2017 in Shenzhen, China.

Thomas Sturm was invited to give a keynote talk at the *3ème BIOSS Journées annuelles du groupe de travail* in Montpellier, France.

Uwe Waldmann gave an invited talk on “Saturation Theorem Proving – Basic Ideas, History, and Recent Developments” at the Seminar on Proof Assistants and Related Tools at DTU Lyngby, Denmark in October 2017.

Christoph Weidenbach gave invited talks on “Design Principles of Automated Reasoning Systems” at VSTTE 2017 and “The Role of Horn Clauses in Automatic Reasoning” at HCVS 2017.

### 10.1.5. Leadership within the Scientific Community

Jasmin Blanchette was elected as a regular member of the steering committee for the ITP (*Interactive Theorem Proving*) conference series, after serving for two years as an ex officio member. He is also a regular member of the CADE (*Conference on Automated Deduction*) Inc. Board of Trustees.

Pascal Fontaine is an SMT-LIB manager, together with Clark Barrett (Stanford University) and Cesare Tinelli (University of Iowa). He is a member of the FroCoS steering committee. He was an elected CADE trustee since October 2014 until October 2017 and served as a member of the Association for Automated Reasoning (AAR) board until October 2017.

Stephan Merz is a member of the IFIP Working Group 2.2 on *Formal Description of Programming Concepts*. He is a member of the steering committee of the workshop on Automated Verification of Critical Systems (AVoCS).

Thomas Sturm has been a member of the steering committee of the conference series *International Conference on Mathematical Aspects of Computer and Information Sciences (MACIS)*. His term ended in November 2017. In July 2017 he was elected as a member at large of the steering committee of the conference series *International Symposium on Symbolic and Algebraic Computation (ISSAC)*.

Christoph Weidenbach is the president of CADE and a member of the steering committee of IJCAR.

### 10.1.6. Scientific Expertise

Pascal Fontaine was a panel member for the CASC-26 competition of first-order theorem prover. He served as an expert for the French Agence Nationale de la Recherche (ANR).

Stephan Merz served as an expert for the French Agence Nationale de la Recherche (ANR) and for the European Research Council (ERC).

Christoph Weidenbach served as an expert for the Austrian Science Fund and the University of Stellenbosch.

### 10.1.7. Research Administration

Dominique Méry was the head of the Doctoral School IAEM Lorraine of University of Lorraine until September 2017.

Stephan Merz is the delegate for scientific affairs at the Inria Nancy – Grand Est research center and a member of Inria’s Evaluation Committee. In 2017, he was a member of the hiring committees of junior researchers at Inria Saclay – Île de France as well as of senior researchers at Inria. He is a member of the committee for the SIF thesis award (*Prix Gilles Kahn*). He is a member of the *bureau* of the computer science committee of the doctoral school IAEM Lorraine. Until October 2017, he was a member of the Scientific Directorate of the International Computer Science Meeting Center in Schloss Dagstuhl.

Christoph Weidenbach is a member of the selection committee of the Saarbrücken Graduate School in Computer Science.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Jasmin Blanchette, Logical Verification, 36 HETD, M1/M2, Vrije Universiteit Amsterdam, the Netherlands.

Licence: Marie Dufлот-Kremer, Algorithmique et Programmation 1, 70 HETD L1 Mathématiques, Informatiques Sciences pour l’Ingénieur, Université de Lorraine, France.

Licence: Marie Dufлот-Kremer, Bases de données 2, 20 HETD, L2 Informatique, Université de Lorraine, France.

Licence: Marie Dufлот-Kremer, Projet personnel et communication, 60 HETD, L2 Informatique, Université de Lorraine, France.



Master : Marie Duflot-Kremer, Vérification de systèmes, 30 HETD, M1 Informatique, Université de Lorraine, France.

Master: Marie Duflot-Kremer and Stephan Merz, Vérification algorithmique, 40 HETD, M2 Informatique, Université de Lorraine, France.

Master : Marie Duflot-Kremer and Stephan Merz, Conception et architectures distribuées 24 HETD M1 informatique, Université de Lorraine, France.

Licence : Pascal Fontaine, Structure des ordinateurs, 47 HETD, L2 MIASHS, parcours MIAGE, Université de Lorraine, France.

Master : Pascal Fontaine, Réseaux, 50 HETD, M1 MIAGE, Université de Lorraine, France.

Master : Pascal Fontaine, Génie Logiciel, 30 HETD, M1 MIAGE, IGA Rabbat et Université de Lorraine, Maroc.

Master: Dominique Méry, Models and algorithms, 60 HETD, M1, Telecom Nancy, Université de Lorraine, France.

Master: Dominique Méry, Formal model engineering, 24 HETD, M2, Telecom Nancy, Université de Lorraine, France.

Master: Dominique Méry, Modeling Systems, 30 HETD, M2, Telecom Nancy, Université de Lorraine, France.

Master: Dominique Méry, Modeling Systems, 36 HETD, M2 Informatique and Master Erasmus Mundus DESEM, Université de Lorraine, France.

Master: Dominique Méry, Event-B modeling, 8 HETD, NUI Maynooth, Ireland.

Master: Stephan Merz, Modeling and Verifying Distributed Algorithms in TLA<sup>+</sup>, 8 HETD, NUI Maynooth, Ireland.

Master: Christoph Weidenbach, Automated Reasoning I & II, 150 HETD, Universität des Saarlandes, Germany.

### 10.2.2. Supervision

PhD: Haniel Barbosa, New techniques for instantiation and proof production in SMT solving, Université de Lorraine and UFRN (Natal, Brazil) [11]. Supervised by David Déharbe, Pascal Fontaine, and Stephan Merz, since 12/2013. Defended on September 5, 2017.

PhD: Andreas Teucke, *An Approximation and Refinement Approach to First-Order Automated Reasoning*, Saarland University. Supervised by Christoph Weidenbach, thesis submitted in October 2017.

PhD: Daniel Wand, First-Order Extensions to Support Higher-Order Reasoning, Saarland University [12]. Supervised by Christoph Weidenbach and Jasmin Blanchette, since 02/2011. Defended on August 4, 2017.

PhD in progress: Martin Bromberger, Arithmetic Reasoning, Saarland University. Supervised by Christoph Weidenbach, since July 2014.

PhD in progress: Margaux Duroeulx, SAT Techniques for Reliability Assessment, Université de Lorraine. Supervised by Nicolae Brânzei, Marie Duflot-Kremer, and Stephan Merz, since October 2016.

PhD in progress: Daniel El Ouraoui, Higher-Order SMT, Université de Lorraine. Supervised by Jasmin Blanchette, Pascal Fontaine, and Stephan Merz, since November 2017.

PhD in progress: Mathias Fleury, Formalization of Logical Calculi, Saarland University. Supervised by Christoph Weidenbach and Jasmin Blanchette, since September 2015.

PhD in progress: Souad Kherroubi, A framework to formally handle domain knowledge in system design, Université de Lorraine. Supervised by Dominique Méry, since November 2014.

PhD in progress: Nicolas Schnepf, Orchestration and Verification of Security Functions for Smart Environments, Université de Lorraine. Supervised by Rémi Badonnel, Abdelkader Lahmadi, and Stephan Merz, since October 2016.

PhD in progress: Hans-Jörg Schurr, Higher-Order SMT, Université de Lorraine. Supervised by Jasmin Blanchette, Pascal Fontaine, and Stephan Merz, since November 2017.

PhD in progress: Marco Voigt, Decidable Hierarchic Combinations, Saarland University. Supervised by Christoph Weidenbach, since November 2013.

### 10.2.3. Thesis committees

Stephan Merz served as a reviewer for the PhD theses of Florent Chevrou (Univ. de Toulouse), Sebastian Krings (Univ. Düsseldorf), Ognjen Marič (ETH Zurich), and Yannick Zakowski (ENS Rennes). He was an examiner for the PhD thesis of Zeinab Bakhtiarinoodeh (Univ. de Lorraine) and the habilitation of Alain Giorgetti (Univ. de Bourgogne et Franche Comté).

## 10.3. Science outreach

Marie Duflot-Kremer took part in various science outreach activities, with a public ranging from primary school kids to teachers and potential university students. A selection of these activities is given below.

General activities.

She is responsible for the scientific part of the fifth and last module in the Class'Code project (supervising a programming project from scratch), aiming at training teachers and educators for carrying out computer science activities with childrens aged 8 to 14 years.

Three days at “Fête de la Science” in Nancy (Faculté des Sciences et Technologies) and at Cité des Sciences, Paris, including a visit of the Minister of Higher Education and Research, Frédérique Vidal.

She is a member of the steering committee of an itinerant exhibition, intended for explaining computer science to the public, and that had its opening in early 2017.

She co-organized the SCRATCH17BDX international conference on Scratch and creative programming for kids in Bordeaux.

Activities for teachers/trainers.

She is a member of three working groups (unplugged activities, programming in secondary school and in high school) including university and secondary school teachers, dedicated to the training of math teachers. Two days of training on unplugged computer science activities were given to secondary and high school teachers.

A training session for kindergarden teachers to include in their “school project” unplugged activities related to programming for kids from 3 to 6 years old.

Several activities for the “ISN day”, aimed at high school teachers teaching computer science courses.

A publication (post proceedings to appear in 2018) was accepted at the COPIRELEM colloquium, aimed at math trainers for primary school teachers.

Activities for students/pupils.

Several activities for school kids from 6 to 10 years old at Ecole Marcel Leroy, Nancy.

She was involved in the *Math en Jeans* project where secondary school kids discover what doing research means.

Various outreach activities (related to data bases, model checking, algorithms etc.) during two days aimed at presenting the university to high school students.

## VIRTUAL PLANTS Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Journal

#### 8.1.1.1. Member of the Editorial Boards

- C. Godin is a member of the Editorial Board of *Frontiers in Plant Sciences*.
- Since February 2017, Yann Guédon is an Associate Editor of *Frontiers in Plant Science*, section Technical Advances in Plant Science.
- Since March 2017, Christophe Pradal is Associate Editor of *BMC Plant Methods*.

#### 8.1.1.2. Reviewer - Reviewing Activities

- C. Godin has been reviewing for several journals in plant sciences and modelling: *PNAS*, *PLoS Computational Biology*, *Annals of Botany*, *Frontiers in Plant Science*.
- Y. Guédon has been reviewing for several journals: *Agricultural and Forest Meteorology*, *Annals of Botany*, *Frontiers in Plant Science* and *Statistics and Computing*.
- F. Boudon has also been reviewing for several journals: *International Journal of Computer Games Technology*, *Computer and Graphics*, *Frontiers in Plant Science*, *Plant Methods*, *PLoS One*, *Presence*, *Annals of Botany*, *Biology Open*, *Developmental Dynamics*.
- O. Ali has been reviewing papers submitted in *Scientific Report and Development*.
- C. Pradal has been reviewing papers submitted in *SoftwareX* and *Frontiers in Plant Science*.

### 8.1.2. Invited Talks

- C. Godin has been invited to give a talk at the Mathematics for Developmental Biology meeting, held at the BIRS Center for Mathematics in Banff, Canada.
- C. Pradal has been invited to give talks about Multiscale Plant Hydraulics in the kickoff meeting of the ANR-DFG Project FSPM Apple, about Modularity in FSPM in the national meeting of the INRA MFPC network, and about Reproducibility of computational experiments in high-throughput phenotyping in the GDR MADICS at Paris-Saclay.

### 8.1.3. Leadership within the Scientific Community

#### 8.1.3.1. Christophe Godin:

- is member of the Board of the Functional Structural Plant Models series of conferences.
- is co-coordinator with Patrick Lemaire of the 4th Research Axis on Imaging in Biology and Modeling of the Institute for Computational Biology (IBC) of Montpellier.

#### 8.1.3.2. Yann Guédon:

- is a member of the committee board of the CIRAD/INRA/Montpellier SupAgro AGAP research unit and the scientific lead of the Models and Methods for Plant Phenotyping (M2P2) team.
- is member of the ERCIM working group on Computational and Methodological Statistics.

#### 8.1.3.3. Christophe Pradal:

- is a member of the INRA expert scientific commissions (CSS Ecophysiologie, géométrie et biologie intégrative des plantes) that assesses INRA individual researcher activities.
- is a member of the HCERES expert scientific commissions that assesses national research organisations.

#### 8.1.3.4. ChristianFournier:

- is a member of the INRA engineer evaluation commission (CEIME ´thodes Pour la Recherche : Biologie ve ´ge ´tale / Domaine Informatique, bio-informatique, statis- tiques et calcul scientifique) that assesses INRA individual engineer activities.

#### 8.1.4. Scientific Expertise

- C. Godin is a member of the International Scientific Advisory Committee of the new Plant Phenotyping and Imaging Research Centre (P2IRC), Saskatchewan, Canada.
- C. Godin is a member of the Review and Mentoring committee of James Lock's group in Sainsbury Lab, Cambridge, UK.

#### 8.1.5. Research Administration

- C. Godin is a member of the project committee board at Sophia-antipolis Mediterranee ´e Reacher Center.
- C. Godin is a member of the Scientific board of the modeling axis of Labex NUMEV and a member of the direction board of the institut de biologie computationnelle (IBC) in Montpellier.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master : C. Godin, Computer & Discrete Geometry & Graphics, 9h, (M1), universit´e de Montpellier, Fr

Master : C. Godin, Introduction to Plant Modeling, 25h, (M2), universit´e de Montpellier, Fr

Master : C. Godin, Mathematical Modelling of Phyllotaxis, 4h, (M2), universit´e de Montpellier, Fr

Master : Y. Gu´edon , Stochastic processes, 16h, (M2) universit´e de Montpellier, Fr

Master : F. Boudon, Computer Graphics, 18h, (M2) universit´e de Montpellier, Fr

Master : C. Pradal, Curves & Surfaces, 4.5h, (M2) universit´e de Montpellier, Fr

Master : P. Fernique, Stochastic processes, 16h, (M2) universit´e de Montpellier, Fr

Doctorat : C. Godin, Animal & Vegetal Morphogenesis, 35h, ENS Paris, Fr

Doctorat : C. Godin, Modelling Plant Development, 6h, E ´cole de Physique des Houches, Fr

### 8.2.2. Supervision

PhD in progress : Anne Schneider, "*Modeling branching in Roses*", Angers University, Jessica Bertheloo, C. Godin, F. Boudon.

PhD in progress : Hadrien Oliveri, "*Mechanical modeling of organ growth*", Montpellier University, C. Godin, J traas and O. Ali.

PhD in progress : Jean-Louis Dinh, "*Coupling flux and growth models in plant development*", Nottingham University, C. Hodgman, C. Godin.

PhD in progress : Jean-Philippe Bernard, "*Meshless methods for organ development*", Montpellier University, C. Godin, B. Gilles.

PhD in progress : Severine Persello, "*Structural-Functional modeling of yield and fruit quality build-up of the mango, and integration of the effects of cultural practices*", Montpellier University, F. Normand, I. Grechi, F. Boudon.

PhD in progress : Marc Labadie, Study of the alternation between vegetative and floral development in strawberry: spatio-temporal architecture and analysis of key flowering genes, Bordeaux University, B´eatrice Denoyes, Yann Gu´edon.

### 8.2.3. Juries

- C. Godin was president of the CR-concours at Inria for the Sophia-Antipolis Me ´diterrane ´e center.
- C. Godin was president of a Professor concours at ENS de Lyon.
- C. Godin was the President of the Jury of Elise Laruelle's defence (AgroParitech).

### **8.3. Popularization**

- C. Godin gave an invited 2 hours seminar to 4 classes of high-school students for the Math week (March) at the Lyce ´e International de Valbonne, France.
- C. Godin gave a couple of 2h classes at Lyce ´e Pompidou (Montpellier).
- C. Godin participated to the writing of a collective book reviewing the recent discoveries in Biology and dedicated to a wide audience including politicians and medias.
- O. Ali is a member of the Sam & You newsletter (the newsletter of the SAM Inria research center) writing committee.
- H. Oliveri took part in the Class'Code Initiative, a Mooc produced by Inria and OpenClassRoom providing supports and guidelines for people wanting to teach computer science to young childrens.

## VISAGES Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- Christian Barillot is member of the Board of Directors of IPMI conference series (Information Processing in Medical Imaging)
- Gilles Edan did organized the 25th anniversary workshop of the "Société Française de Neurologie" in Rennes on Nov. 30th

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

- Christian Barillot was area chair of SPIE-MI and ISBI 2017
- Emmanuel Caruyer was Program Committee member of the CDMRI MICCAI workshop.

#### 10.1.2.2. Reviewer

- ISBI (Emmanuel Caruyer, Olivier Commowick), ISMRM (Élise Bannier), MICCAI (Emmanuel Caruyer, Olivier Commowick, Christian Barillot), IPMI (Olivier Commowick, Christian Barillot).

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Christian Barillot is member of Editorial Boards of Medical Image Analysis, Current Medical Imaging Reviews, ISRN Signal Processing
- Christian Barillot is Editor-in-Chief of Frontiers in ICT: Computer Image Analysis.

#### 10.1.3.2. Reviewing Activities

- Am J Neuroradiol (Élise Bannier), Comput Biol Med (Christian Barillot), Comput Meth Prog Bio (Christian Barillot), Front Neurosc (Pierre Maurel), Hum Brain Mapp (Emmanuel Caruyer), JMRI (Isabelle Corouge), IEEE TMI (Pierre Maurel, Olivier Commowick), Med Image Anal (Olivier Commowick), Med Phys (Christian Barillot) Neuroimage (Christian Barillot, Isabelle Corouge, Emmanuel Caruyer, Olivier Commowick), Pattern Recog Lett (Christian Barillot).

### 10.1.4. Leadership within the Scientific Community

- Gilles Edan was elected Fellow of the European Academy of Neurologie. Member of the EAN teaching committee in 2015
- Christian Barillot is member of the Scientific Council of the INS2I<sup>0</sup> Institute of CNRS since 2011 and is Chairman of the Board since 2015
- Christian Barillot is member of the C3N committee (CNRS)
- Christian Barillot is member of the scientific board of "GIS France Grilles"
- Christian Barillot is member of the scientific board of the Neuroscience and psychiatry institute of AVIESAN

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<sup>0</sup><http://csins2i.irisa.fr>

### **10.1.5. Scientific Expertise**

- Christian Barillot provided an expertise for the Royal Netherlands Academy of Arts and Sciences (KNAW)
- Christian Barillot provided expertise for the Austrian Science Fund (FWF), the NSERC / CRSNG Canada, the Wellcome Trust (UK)
- Christian Barillot provided an expertise for the KU Leuven, the University of British Columbia, Vancouver, Canada
- Christian Barillot provided expertise for the IDEX Université Grenoble Alpes
- Emmanuel Caruyer provided expertise for the Inria Associate Team program.

### **10.1.6. Invited Talks**

- Emmanuel Caruyer gave an invited lecture, "Validating tractography pipelines: the help of simulated phantoms" during the 2017 School on Brain Connectomics, Oct. 9th-13th at the University of Verona, Italy.
- Emmanuel Caruyer gave an invited lecture, "Validating tractography pipelines with the help of simulated phantoms" during the Computational Brain Connectivity Mapping winter school workshop, Nov. 20th-24th in Juan-les-Pins, France.
- Yao Chi and Isabelle Corouge - "Infrastructures pour le traitement et la gestion de données d'imagerie biologique et médicale", Gen2bio National congress, Nantes, March 2017

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

- Emmanuel Caruyer, Introduction to algorithms (33h), L3 SIF, ENS Rennes, France
- Antoine Legouhy, Introduction to statistical modeling and R language (18h), L2 Biology, Univ. Rennes, France
- Antoine Legouhy, Introduction to numerical analysis and Python language (40h), L1 Biology, Univ. Rennes, France
- Corentin Vallée, Introduction to Machine learning (12h), M1 Fundamental and Applied Microbiology, Univ. Rennes, France
- Corentin Vallée, Machine learning (24h), M1 Molecular and Cellular biology, Univ. Rennes, France
- Corentin Vallée, Machine learning (24h), M1 Bioinformatics, Univ. Rennes, France
- Christian Barillot, Élise Bannier, Emmanuel Caruyer, Olivier Commowick, Isabelle Corouge, Jean-Yves Gauvrit, Master SIBM, University of Angers-Brest-Rennes (26h)
- Christian Barillot is responsible for one semester
- Jean-Yves Gauvrit is the coordinator for the Master
- École Supérieure d'Ingénieur de Rennes (ESIR): Pierre Maurel, General image processing (60h), Algorithmics and complexity (60h), Medical imaging (60h)
- ENS Rennes: Pierre Maurel, Introduction to image processing (24h)
- ISTIC – Université of Rennes 1: Emmanuel Caruyer, Software Engineering (12h)

### **10.2.2. Supervision**

- PhD in progress: Sudhanya Chatterjee, "Image-based Tissue Compartment Characterization of Neural Circuits with in-vivo MRI", Inria, from Nov 2015, Christian Barillot, Olivier Commowick, Jean-Christophe Ferré, Simon Warfield.

- PhD in progress: Cédric Meurée, “Quantitative Analysis Of Arterial Spin Labeling MRI For Robust Parametric Information Of Perfusion Maps”, Inria / Siemens, from Mar 2014, Christian Barillot, Pierre Maurel.
- PhD in progress : Antoine Legouhy, "Longitudinal brain atlas creation, application to development studies", CNRS, from Nov 2016, Christian Barillot, François Rousseau, Olivier Commowick.
- PhD in progress : Corentin Vallée, "Joint estimation of neuronal activation, resting-state and basal metabolism from Arterial Spin Labeling", Univ. Rennes, from Nov 2016, Christian Barillot, Isabelle Corouge, Pierre Maurel.
- PhD in progress: Haykel Snoussi, “Diffusion MRI detection of early occurring spine lesions in relapsing-remitting multiple sclerosis with late physical impairment”, from Nov 2015, Christian Barillot, Gilles Edan, Emmanuel Caruyer
- PhD in progress: Pierre-Yves Jonin, “Relationships between context-free and context-rich memory: cognitive and neural substrates”, Inria/Inserm/CNRS from Oct 2014, Christian Barillot (co-supervisor)
- PhD in progress: Maia Proisy, “Perfusion in neonates and in pediatric diseases”, Univ. Rennes 1/CHRU Rennes, from Oct 2014, Jean-Christophe Ferré (supervisor)
- PhD in progress: Anne Kerbrat, “Quantitative MR imaging in MS for Brain and Spine”, Univ. Rennes 1/CHRU Rennes, from Oct 2014, Gilles Edan (supervisor)
- PhD in progress: Stephanie Leplaideur, “As part of an fMRI substudy of a national research study on balance disorder rehabilitation”, Univ. Rennes 1/CHRU Rennes, from Oct 2017, Isabelle Bonan (supervisor)

### 10.2.3. *Juries*

- Olivier Commowick, PhD committee : Renaud Hedouin, Inria, Rennes; June 12th, 2017.
- Christian Barillot, PhD committee: Renaud Hedouin, Inria, Rennes; June 12th, 2017.
- Christian Barillot, PhD committee: Lorraine Perronnet, Inria, Rennes; September 7th, 2017;
- Christian Barillot, PhD committee: Chunfeng LIAN, Rouen, January 27, 2017
- Christian Barillot, PhD review: Mehdi Hadj-Hamou, Nice Sophia Antipolis, January 17, 2017
- Christian Barillot, PhD review: Marco Pizzolato, Nice Sophia Antipolis, March 31, 2017
- Christian Barillot, HDR review: Julien Lefevre, Marseille, March 30, 2017
- Christian Barillot, PhD review: Riccardo Pascuzzo, Mathematics Dept., Politecnico di Milano, Italy, Dec. 2017

## 10.3. Popularization

### 10.3.1. *My thesis in 180 seconds*

- Lorraine Perronnet and Cédric Meurée participated in the 2017 edition of the French edition of the Three Minutes Thesis competition" :
  - Lorraine Perronnet : "Combinaison de l'ElectroEncéphaloGraphie et de l'Imagerie par Résonance Magnétique fonctionnelle pour la rééducation du cerveau par Neurofeedback"
  - Cédric Meurée : "Amélioration de la résolution d'images d'IRM de perfusion"

### 10.3.2. *La semaine du cerveau (The Brain Week), from 13/03/2017 to 19/03/2017, Rennes*

- Antoine Legouhy et Corentin Vallée : "PhD students processing MRI acquisition"
- Christophe Paya : "Discover brain anatomy with 3D models"
- Isabelle Corouge : "Neurinfo: An MRI dedicated to research"
- Pierre Maurel : "Let's play to the brain quizz in 3D immersion (using oculus rift)"



- Emmanuel Caruyer : "Medinria: Computer science serving cerebral imaging"

### ***10.3.3. Journées Française de Radiologie 2017, 13-16 Octobre, Paris***

- Stand FLI-IAM (Michael Kain, Yao Chi, Aneta Morawin, Mathieu Simon, Ines Fahkfahk, Arnaud Touboulic, Christian Barillot)
- Journée du Réseau d'Entraide en IRM Multicentrique (REMI) co-organisée par Elise Banner

### ***10.3.4. 50 ans Inria, Paris***

- Stand "MedInria" (Olivier Commowick, Pierre Maurel), Nov 7-8, 2017

### ***10.3.5. Journée du Président de la Société Française de Neurologie, Rennes, 7 Décembre 2017***

- Organised by Gilles Edan

## WHISPER Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

- Gilles Muller: PLOS 2017

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

- Julia Lawall: PLOS 2017

#### 10.1.2.2. Member of the Conference Program Committees

- Gilles Muller: Usenix ATC 2017, DSN 2017, Systor 2017,
- Julia Lawall: ICSE NIER, ML workshop, OCaml workshop, SPLASH workshops.
- Pierre-Évariste Dagand: HOPE workshop

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

- Julia Lawall: Editorial board of Science of Computer Programming (2008 - present).

#### 10.1.3.2. Reviewer - Reviewing Activities

- Gilles Muller: IEEE Transactions on Computer Systems
- Julia Lawall: Computer Languages, Empirical Software Engineering, IEEE Transactions on Reliability
- Pierre-Évariste Dagand: Journal of Functional Programming, Journal of Logical and Algebraic Methods in Programming, Journée Francophones des Langages Applicatifs

### 10.1.4. Invited Talks

- Gilles Muller: University of North Carolina, Inria Grenoble, University of Bordeaux.
- Julia Lawall: Colloquium Jacques Morgenstern Sophia Antipolis, Vrije Universiteit Brussel, University of Copenhagen, 2017 FSD Meeting.
- Pierre-Évariste Dagand: École Normale Supérieure de Cachan

### 10.1.5. Research Administration

- Pierre-Évariste Dagand: Member of the steering committee for the Colloquium d'Informatique de L'UPMC Sorbonne Universités, organizer of the Colloquium of Philippa Gardner (March 2017) and Timothy Roscoe (November 2017).
- Julia Lawall: IFIP TC secretary (2012 - present). Elected member of IFIP WG 2.11.  
Hiring committees: UPMC (PR)  
Board member of Software Heritage (<https://www.softwareheritage.org/>).  
Organized the Colloquium d'Informatique de L'UPMC Sorbonne Universités of Simon Peyton Jones (May 2017)

- Gilles Muller: EuroSys steering committee (2013-2017), elected member of IFIP WG 10.4 (Dependability), representative of Inria in Sorbonne University's advisory committee for research, member of the project committee board of the Inria Paris Center, member of the Paris committee for allocating post-docs, PhD stipends and sabbaticals.  
Hiring committees: University of Grenoble (MdC).
- Bertil Folliot: Elected member of the IFIP WG10.3 working group (Concurrent systems)

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Professional Licence: Bertil Folliot, Programmation C, L2, UPMC, France
- Professional Licence: Bertil Folliot, Lab projects, L2, UPMC, France
- Licence: Pierre-Évariste Dagand, Distributed cooperating objects, L3, UPMC, France
- Master: Pierre-Évariste Dagand, Specification and Validation of Programs, M2, UPMC, France
- Licence: Pierre-Évariste Dagand, INF311: Introduction to Programming, L1, École Polytechnique, France

### 10.2.2. Supervision

- PhD in progress : Mariem Saeid, soutenance en 2018, Jens Gustedt (Camus), Gilles Muller.
- PhD in progress : Cédric Courtaud, CIFRE Thalès, 2016-2019, Gilles Muller, Julien Sopéna (Regal).
- PhD in progress : Redha Gouicem, 2016-2019, Gilles Muller, Julien Sopéna (Regal).
- PhD in progress : Darius Mercadier, 2017-2020, Pierre-Évariste Dagand, Gilles Muller.
- PhD in progress : Lucas Serrano, 2017-2020, Julia Lawall.

### 10.2.3. Juries

- Gilles Muller: Reporter of the HDR of A. Tchana (U. Toulouse), member of the HDR of S. Ben Mokhtar (U. of Lyon).
- Julia Lawall: Vinh Tao (PhD, UPMC, president), Marcelino Cancio Rodriguez (PhD, University of Rennes, reporter), Victor Allombert (PhD, Paris Est-Creteil, reporter), Reinout Stevens (PhD, VUB, reporter).

## 10.3. Popularization

- Julia Lawall: Coordinator of the Outreachy internship program for the Linux kernel. Outreachy provides remote 3-month internships twice a year for women and other underrepresented minorities on open source projects. Julia Lawall also mentored Bhumika Goyal as part of this program.
- Julia Lawall, "Fast and Precise Retrieval of Forward and Back Porting Information for Linux Device Drivers", Open Source Summit Europe, October 2017.
- Julia Lawall, "JMake: Dependable Compilation for Kernel Janitors", Open Source Summit Europe, October 2017.
- Julia Lawall, "Panel Discussion: Outreachy Kernel Internship Report" (moderator), Open Source Summit Europe, October 2017.
- Julia Lawall, "Overview of Coccinelle", Linux Lund Conference, May 2018.
- Julia Lawall, "Constification of Linux kernel structures", OSADL Networking Day, May 2017.

## WILLOW Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

- I. Laptev will be program co-chair of IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018.

#### 10.1.1.2. Member of the Organizing Committees

- M. Trager is an organizer of “Minisymposium” on “Algebraic Vision” at the SIAM conference on Applied Algebraic Geometry (Atlanta, July 31 – August 4, 2017).
- G. Varol is an organizer of “Women in Computer Vision Workshop” at IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2017.
- G. Varol is an organizer of “Multiview Relationships in 3D Data Workshop” at International Conference on Computer Vision (ICCV), 2017.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Area chairs

- IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018 (J. Sivic).
- International Conference on Computer Vision (ICCV), 2017 (J. Sivic).
- European Conference on Computer Vision (ECCV), 2018 (I. Laptev, J. Sivic).

#### 10.1.2.2. Member of the Conference Program Committees

- IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2017 (G. Cheron, I. Laptev, A. Osokin, J. Sivic).
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018 (J.-B. Alayrac, M. Oquab, R. Rezende, I. Rocco, G. Varol).
- International Conference on Computer Vision (ICCV), 2017 (I. Laptev, A. Osokin).
- Neural Information Processing Systems (NIPS), 2017 (A. Osokin, J. Sivic).
- International Conference on Learning Representations (ICLR), 2017 (J. Sivic).
- International Conference on Machine Learning (ICML), 2017 (A. Osokin).
- IEEE International Conference on Robotics and Automation (ICRA), 2018 (A. Miech).

### 10.1.3. Journals

#### 10.1.3.1. Member of the editorial board

- International Journal of Computer Vision (I. Laptev, J. Ponce, J. Sivic).
- IEEE Transactions on Pattern Analysis and Machine Intelligence (I. Laptev, J. Sivic).
- Foundations and Trends in Computer Graphics and Vision (J. Ponce).
- I. Laptev co-edit a special issue on “Deep Learning for Computer Vision” in Computer Vision and Image Understanding.

#### 10.1.3.2. Reviewer

- International Journal of Computer Vision (G. Cheron, M. Trager, G. Varol).

- IEEE Transactions on Pattern Analysis and Machine Intelligence (J.-B. Alayrac, G. Cheron, A. Osokin, M. Trager, G. Varol).
- IEEE Transactions on Circuits and Systems for Video Technology (G. Varol).

#### **10.1.4. Others**

- J. Sivic is senior fellow of the Neural Computation and Adaptive Perception program of the Canadian Institute of Advanced Research.
- A. Bursuc obtained the outstanding reviewer award at International Conference on Computer Vision (ICCV), 2017.

#### **10.1.5. Invited Talks**

- I. Laptev, Seminar, Inria Rennes, December, 2017.
- I. Laptev, Invited talk, Chalearn Workshop on Action, Gesture, and Emotion Recognition, Venice, October, 2017.
- I. Laptev, Invited talk, The Joint Video and Language Understanding Workshop, Venice, October, 2017.
- I. Laptev, Invited talk, Rentrée ENS, Paris, September, 2017
- I. Laptev, Invited talk, ML Day, Pré-GDR IA, Paris, September 2017.
- I. Laptev, Invited talk, Frontiers of Video Technology workshop, Adobe, July, 2017.
- I. Laptev, Invited talk, Workshop on YouTube-8M Large-Scale Video Understanding, Honolulu, July, 2017.
- I. Laptev, Invited talk, Workshop on Visual Understanding Across Modalities, Honolulu, July, 2017.
- I. Laptev, Plenary talk, Iberian Conference on Pattern Recognition and Image Analysis, Faro, June, 2017.
- I. Laptev, Invited talk, Paris ML Meetup Spatio-temporal Series Hackathon, Paris, February, 2017.
- A. Miech, Invited Talk, Facebook AI Research, Paris, September 2017.
- A. Miech, Invited Talk, DGA TIM2017 Seminar, Paris, July 2017.
- A. Miech, Invited Talk, Paris ML Meetup, Paris, June 2017.
- J. Ponce, Keynote speaker, Korean Conference on Computer Vision, Seoul, June 2017.
- J. Ponce, Invited talk, BioVision, Lyon, April 2017.
- J. Ponce, Invited talk, Dept. of computer science of the University of Central Florida, Orlando, February 2017.
- J. Ponce, Invited talk, New York University, Center for Data Science, September 2017.
- J. Ponce, Invited talk, Facebook AI Research, New York, October 2017.
- J. Ponce, Invited talk, Amazon, Seattle, November 2017.
- J. Ponce, Invited talk, AEF conference, Paris, 2017.
- J. Ponce, Invited talk, BIOVISION, The World Life Sciences Forum, Lyon, April 2017.
- J. Ponce, Invited talk, DGSI, 2017.
- J. Ponce, Invited talk, DRM 20th Anniversary, 2017.
- J. Sivic, Seminar, KTH Stockholm, January, 2017.
- J. Sivic, Invited talk, ParisTech Telecom, January, 2017.
- J. Sivic, Invited talk, University of Amsterdam, March, 2017.
- J. Sivic, Invited talk, ORASIS, journées francophones des jeunes chercheurs en vision par ordinateur, June, 2017.
- J. Sivic, Invited talk, Visual Understanding for Interaction workshop, CVPR 2017, July, 2017.

- J. Sivic, Invited talk, Frontiers of Video Technology workshop, Adobe, July, 2017.
- J. Sivic, Invited talk, Inria Rennes, September, 2017.
- J. Sivic, Seminar, UC Berkeley, December, 2017.
- J. Sivic, Invited talk, the CIFAR workshop, Long Beach, December 2017.

### **10.1.6. Leadership within the Scientific Community**

- Member of the advisory board for the IBM Watson AI Xprize (J. Ponce).
- Member of the steering committee of France AI (J. Ponce).
- Member, advisory board, Computer Vision Foundation (J. Sivic).

### **10.1.7. Scientific Expertise**

- J. Sivic gave an overview of state-of-the-art in computer vision at the seminar on deep learning at Academie des Technologies, Paris, November 2017.

### **10.1.8. Research Administration**

- Member, Bureau du comité des projets, Inria, Paris (J. Ponce)
- Director, Department of Computer Science, Ecole normale supérieure (J. Ponce)
- Member, Scientific academic council, PSL Research University (J. Ponce)
- Member, Research representative committee, PSL Research University (J. Ponce).
- Member of Inria Commission de developpement technologique (CDT), 2012- (J. Sivic).
- Member of the Hiring Committe for the tenure track position at CentraleSupélec (I. Laptev).
- Member of the Hiring Committee for Professor of Computer Vision at CentraleSupélec (I. Laptev).

## **10.2. Teaching - Supervision - Juries**

### **10.2.1. Teaching**

- Master : M. Aubry, K. Alahari, I. Laptev and J. Sivic "Introduction to computer vision", M1, Ecole normale superieure, 36h.
- Master : I. Laptev, J. Ponce and J. Sivic (together with C. Schmid, Inria Grenoble), "Object recognition and computer vision", M2, Ecole normale superieure, and MVA, Ecole normale superieure de Cachan, 36h.
- Master : I. Laptev and J. Sivic, Cours PSL-ITI - Informatique, mathematiques appliques pour le traitement du signal et l'imagerie, 20h.

### **10.2.2. Supervision**

PhD in progress : Thomas Eboli, started in Oct 2017, J. Ponce.

PhD in progress : Zongmian Li, "Learning to manipulate objects from instructional videos", started in Oct 2017, I. Laptev, J. Sivic and N. Mansard (LAAS/CNRS, Toulouse).

PhD in progress : Yana Hasson, started in Nov 2017, I. Laptev and C. Schmid.

PhD in progress : Dmitry Zhukov, "Learning from instruction videos for personal assistants", started in Oct 2017, I. Laptev and J. Sivic.

PhD in progress : Ignacio Rocco, "Estimating correspondence between images via convolutional neural networks", started in Jan 2017, J. Sivic, R. Arandjelovic (Google DeepMind).

PhD in progress : Antoine Miech, "Understanding long-term temporal structure of videos", started in Oct 2016, I. Laptev, J. Sivic, P. Bojanowski (Facebook AI Research).

PhD in progress : Gul Varol, "Deep learning methods for video interpretation", started in Oct 2015, I. Laptev, C. Schmid.

PhD in progress : Julia Peyre, “Learning to reason about scenes from images and language”, started in Oct 2015, C. Schmid, I. Laptev, J. Sivic.

PhD in progress : Jean-Baptiste Alayrac, “Structured learning from video and natural language”, started in 2014, I. Laptev, J. Sivic and S. Lacoste-Julien (Inria SIERRA / U. Montreal).

PhD : Rafael Sampaio de Rezende, “New methods for image classification, image retrieval and semantic correspondence”, graduated in 2017, J. Ponce.

PhD in progress : Guilhem Cheron, “Structured modeling and recognition of human actions in video”, started in 2014, I. Laptev and C. Schmid.

PhD in progress : Theophile Dalens, “Learning to analyze and reconstruct architectural scenes”, starting in Jan 2015, M. Aubry and J. Sivic.

PhD in progress : Vadim Kantorov, “Large-scale video mining and recognition”, started in 2012, I. Laptev.

PhD in progress : Maxime Oquab, “Learning to annotate dynamic scenes with convolutional neural networks”, started in Jan 2014, L. Bottou (Facebook AI Research), I. Laptev and J. Sivic.

PhD in progress : Matthew Trager, “Projective geometric models in vision”, started in 2014, J. Ponce and M. Hebert (CMU).

PhD in progress : Tuang Hung VU, “Learning functional description of dynamic scenes”, started in 2013, I. Laptev.

### **10.2.3. Juries**

PhD thesis committee:

- Ahmet Iscen, University of Rennes, France, 2017, (J. Sivic, rapporteur).
- Edouard Oyallon, ENS, France, 2017, (I. Laptev, examinateur).
- Juan Manuel PÉREZ RÚA, Inria Rennes, France, 2017, (I. Laptev, examinateur).
- Ali Razavian, KTH Stockholm, Sweden, 2017 (J. Sivic, reviewer).
- Francisco Suzano Massa, ENPC, France, 2017, (J. Sivic, examinateur).
- Mattis Paulin, Université de Grenoble, France, 2017 (J. Sivic, rapporteur).

### **10.3. Popularization**

- Interview with Science et Vie, June 2017 (J. Ponce).
- Interview with Forbes Russia, June 2017 (J. Ponce).
- Interview "Science et Vie Junior", July 2017 (J. Ponce).
- Interview for "Le jaune et le rouge", Oct. 2017 (J. Ponce).
- Interview for the "les 100 français de l'IA" dossier of Usine Nouvelle, Dec. 2017 (J. Ponce).
- Two articles in "Binaires" for the newspaper Le Monde (J. Ponce).

## WIMMICS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. General Chair, Scientific Chair

Michel Buffa was co-responsible of the W3CX WebDev contest at Perth's Festival of the Web Standardization, W3C track at WWW 2017.

Catherine Faron Zucker:

- co-chair of the ESWC2017 workshop on Semantic Web for Scientific Heritage (SW4SH 2017),
- co-chair of the 2nd scientific day of the Inria Learning Lab, Rennes, 10/02/2017, Rennes
- co-chair of the AFIA Industry Forum for Artificial Intelligence (FIIA2017) on Knowledge management, 27/04/2017, Paris
- co-chair of the AFIA day Opportunities and Challenges of Artificial Intelligence (PDIA2017) on AI algorithms and tools, 06/10/2017, Paris

Fabien Gandon:

- General Chair EGC 2017
- Co-chair Workshop LDDL linked data and distributed ledgers (blockchain)
- PhD Symposium co-chair at ISWC 2017

Serena Villata was general chair, together with Leendert van der Torre, of the 20th International Conference on Principle and Practice of Multi-Agent Systems PRIMA, Nice, France, November.

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Chair of Conference Program Committees

Catherine Faron Zucker: Research and Innovation co-chair of the 13th Int. Conference on Semantic Systems (Semantics 2017).

#### 10.1.2.2. Member of the Conference Program Committees

Michel Buffa: WebAudio conference 2017

Elena Cabrio: Association for Computational Linguistics conference (ACL), Empirical Methods in Natural Language Processing (EMNLP), Extended Semantic Web Conference (ESWC), International Semantic Web Conference, Thirty-First AAI Conference on Artificial Intelligence (AAAI-17) .

Olivier Corby: International Semantic Web Conference (ISWC), Extended Semantic Web Conference (ESWC), Querying the Web of Data workshop at ESWC (QuWeDa), Conférence de Recherche en Informatique (CRI), GraphQ: 6th International Workshop on Querying Graph Structured Data, Journées Francophones d'Ingénierie des Connaissances (IC), GKR workshop at IJCAI, Symposium sur l'Ingénierie de l'Information Médicale (SIIM).

Catherine Faron Zucker: WWW 2018 (The Web Conference), ICCS 2018 (Int. Conference on Conceptual Structures), IJCAI (Int. Joint Conference on Artificial Intelligence), PRIMA (Int. Conference on Principles and Practice of Multi-Agent Systems), WebSci (ACM Web Science conference), ESWC (European Semantic Web Conference), ISWC (Int. Semantic Web Conference), GKR@IJCAI (Int. Workshop on Graph Structures for Knowledge Representation and Reasoning), IC (Ingénierie des Connaissances), EGC 2018 (Extraction et Gestion des Connaissances), EIAH (Environnements Informatiques pour l'Apprentissage Humain), CNRIA (Colloque National (sénégalais) sur la Recherche en Informatique et ses Applications).



Fabien Gandon: SemWebPro, Senior PC ISWC, Senior PC IJCAI, ESWC, IC, WebScience, WI.

Alain Giboin: ISWC, VOILA Workshop (at ISWC), IC .

Roque López: Applied Natural Language Processing (ANLP, track of SIMBig).

Isabelle Mirbel: International Conference on Advanced Information Systems Engineering (CAISE), IEEE International Conference on Research Challenges in Information Science (RCIS), INformatique des ORganisations et Systèmes d'Information et de Décision (INFORSID), Toulouse, France, Second International Workshop on Semantic Web for Cultural Heritage (SW4CH).

Oscar Rodríguez Rocha: KEOD, KSE , Semantics.

Andrea Tettamanzi: ECG 2018, EvoApplications 2017, GECCO 2017, IC 2017, ISWC 2017, LREC 2018, SAC 2018, Web Intelligence 2017, and WWW 2018 SW4SH workshop at ESWC 2017.

Serena Villata: IJCAI, AAI, AAMAS, JURIX, ICAIL.

### 10.1.3. Journal

#### 10.1.3.1. Member of the Editorial Boards

Catherine Faron Zucker: Revue d'Intelligence Artificielle.

Fabien Gandon Editor of a special issue SWJ journal for best papers of ESWC 2015 and co-author of its introduction [65]

Isabelle Mirbel: Ingénierie des Systèmes d'Information (Hermès).

Serena Villata: Artificial Intelligence & Law.

#### 10.1.3.2. Reviewer - Reviewing Activities

Elena Cabrio: Journal of Web Semantics, the Computational Linguistics journal, Argument and Computation.

Catherine Faron Zucker: IEEE's Transactions on Learning Technologies (TLT), International Journal of Medical Informatics (IJMI), internationale Traitement Automatique des Langues (TAL), revue Sciences et Technologies de l'Information et de la Communication pour l'Éducation et la Formation (STICEF), Revue d'Intelligence Artificielle (RIA).

Alain Giboin: International Journal of Human-Computer Studies, Journal of Web Semantics.

Andrea Tettamanzi : International Journal of Approximate Reasoning, Semantic Web Journal, IEEE Transactions on Fuzzy Systems, Computers, Environment and Urban Systems.

Serena Villata: Journal of Logic and Computation, Argument & Computation, Artificial Intelligence Journal.

### 10.1.4. Invited Talks

Michel Buffa, "Visites de musées à distance par un robot autonome intelligent" SemWeb Pro conference, Paris, France.

Elena Cabrio was invited speaker of the 12th International Conference on Computational Semantics (IWCS), 19-22 September, Montpellier, France.

Olivier Corby:

- "Best Practice & Design Pattern for the Semantic Web", JDEV, Marseille, July 5th.
- "A Transformation Language for the Web of Data", Data Sciences workshop, ENIT, Tunis, September 13th.
- "Semantic Web Languages and Tools", Journée *Perspectives et défis de l'Intelligence Artificielle*, AFIA, Paris, October 6th.

Fabien Gandon

- Keynote Cognitum workshop IJCAI 2017, talk on Bridging social semantics and formal semantics on the Web August 20th,

<http://cognitum.ws/2017/07/01/cognitum-2017-programproceedings/>

- Keynote at summer academy of the German National Scholarship foundation Semantic Web & Linked data and Wimmics research, September 25th,
- Invited talk at Boston Consulting group Data Analytics evening on Semantic Web ad Linked data and Wimmics research, February 21st,
- Keynote for Data Science day EDF, on Semantic Web & Linked data and Wimmics research, November 17th,
- Talk at Mediametrie, Semantic Web & Linked data and Wimmics research, December 1st,
- Invited keynote Luxembourg Institute of Science and Technology (LIST) Semantic Web & Linked data and Wimmics research, December 12th.
- Talk at EDHEC Nice MBA Data Analytics Club about Semantic Web, Semantic Web & Linked data and Wimmics research.

Alain Giboin:

”How to use and teach heuristics for evaluating HCI applications” in the workshop ”Enseignement de l’IHM : enjeux et solutions pour les enseignants en IUT, écoles et universités” at IHM’17.

Emilie Palagi:

”Design of a User-Centered Evaluation Method for Exploratory Search Engines”, Labex UCN@Sophia Scientific Day, November 28th.

Andrea Tattamanzi:

- Invited talk on ”Possibilistic Test of OWL Axioms under the Open-World Assumption” at the WASPIQ Workshop in Arras, June 27th.
- Conference on ”Unsupervised Learning” at Amadeus, Sophia Antipolis, November 8th.

### **10.1.5. Scientific Expertise**

Michel Buffa is member of the WebAudio W3C Working Group and UNS academic representative at W3C.

Catherine Faron Zucker is the scientific referent of the Inria Learning Lab.

Catherine Faron Zucker was leading the working group in charge of drafting the scientific challenge on Digital Science for Education for the upcoming Inria strategic plan (2018-2022).

Catherine Faron Zucker participated to one of the working groups in charge of drafting the national strategic plan on Artificial intelligence, France IA.

Catherine Faron Zucker reviewed project proposals for the Academic Research Community (ARC) 6 of Auvergne Rhône Alpes region.

### **10.1.6. Research Administration**

Olivier Corby is member of the scientific board of Université Côte d’Azur RISE academy (Network, Information, Digital Society).

Catherine Faron Zucker is General Treasurer of the French Society for Artificial Intelligence (AFIA).

Catherine Faron Zucker is leading the steering committee of the AFIA college on Knowledge Engineering.

Catherine Faron Zucker was member of the 2017 recruitment committees of Ecole des Mines de Saint Etienne, Université de Lorraine (Nancy), Université Paul Valéry (Montpellier).

Fabien Gandon:

- director of the joint research laboratory QWANT-Inria
- supervising the convention between the Ministry of Culture and Inria
- representative of Inria at W3C consortium
- representative of Inria in the Web Science Trust Network
- member of the Steering Committee of the Scientific Board of Inria Sophia Antipolis (Bureau CP)
- member of ESWC Steering committee
- member of IW3C2 Steering committee for WWW conference series

Alain Giboin: is member of the scientific committee of the IDEX Jedi Academy 5 "Homme, Idées et Milieux". is co-facilitator of the IDEX Jedi Academy 5 initiative "Humanités numériques" (with Arnaud Zucker, CEPAM, and Damon Mayaffre, BCL), is member of the scientific committee of MSHS Axis 2 "TIC, Usages et Communautés". Is co-facilitator of the initiative "Artefacts et Coordination" of MSHS Axis 2 and served as scientific correspondent for Inria Sophia of COERLE (Inria Comité Opérationnel d'Evaluation des Risques Légaux et Ethiques), in tandem with the legal correspondent Nadège Camelio-Laurent.

### 10.1.7. Seminar Organization

"Les lundis de l'ergonomie" is a cycle of seminars on Human Computer Interaction (HCI) and UX Design organized by Emilie Palagi and Louise Chaussade. This multidisciplinary series of talks attract academic and professional profiles but also anyone interested in social science's approach to digital matters. This year, presentations took place with Laureline Améaume, Manuel Boutet and Naji Bouchiba. The slides and some video records are available on line <sup>0</sup>.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

#### Teaching Responsibilities

Michel Buffa is Director of MIAGE department (Informatics for Business) at UNS.

Catherine Faron Zucker coordinates the Web option of the 5th year of Polytech Nice Sophia engineering school and is in charge of continuous training for the computer science department of Polytech Nice Sophia Antipolis.

Isabelle Mirbel is Vice-dean of Science Department at University of Nice-Sophia Antipolis (UNS).

Andrea Tettamanzi manages the 3rd year of the *Licence* (Bachelor of Science) in Business Informatics (MIAGE) at the UFR Science of the University of Nice-Sophia Antipolis (UNS).

#### Teaching

Licence: Andrea Tettamanzi, Algorithmics – Object Oriented Programming – Python, 50h, L2, UNS, France.

Licence: Andrea Tettamanzi, Advanced Web Programming (client side), 39h, L2, UNS, France.

Licence: Andrea Tettamanzi, Web, 18 h ETD, L3, UNS, France.

License: Elena Cabrio, Web Server Programming, 45h, L1 INFO, UNS, France.

License: Elena Cabrio, Introduction to the Web, 48h, L1 INFO, UNS, France.

License: Elena Cabrio, Introduction to the Web, 40h, L2 MASS, UNS, France.

License: Elena Cabrio, Internship supervision, 6h, L3 MIAGE, UNS, France.

Licence: Geraud Fokou Pelap, Object Oriented Programming (Java), 45h, L3, MIAGE, UNS, France.

Licence : Isabelle Mirbel, Web programming (Persistency). 54h, L3, UNS, France.

Licence: Michel Buffa, JavaScript, 40h, L3 Miage, UNS, France.

Master: Michel Buffa, Technologies Web, 30h, M1 Miage, UNS, France.

Master: Michel Buffa, Server Side JavaScript & Front-end Frameworks, 30h, M2 Miage NTDP & MBDS, UNS, France.

Master: Michel Buffa, Programmable Web Front-end, 30h, M2 Polytech, UNS, France.

Master: Elena Cabrio, Web Science, 10h, M2 IFI, UNS, France.

Master: Elena Cabrio, Knowledge Engineering, 5h, M1 IFI, UNS, France.

<sup>0</sup><https://lundisergo.hypotheses.org/>

Master: Olivier Corby, Oscar Rodríguez Rocha, Catherine Faron Zucker, Fabien Gandon, Semantic Web of Data, 45h, M2, UNS, France.

Master: Olivier Corby, XML, 20h, M2 IMAFA, UNS, France.

Master: Olivier Corby, Semantic Web, 3H, M2, University of Montpellier, France.

Master: Olivier Corby, Semantic Web, 18H, M2, ENSI, Tunis, Tunisia.

Master: Catherine Faron Zucker, Web languages, 42h, M1, Polytech UNS.

Master: Catherine Faron Zucker, Knowledge Engineering, 9h, M2 IFI, Polytech, UNS.

Master: Fabien Gandon, Semantic Web, 28h, M2, Data Science Technical Institute

Master: Fabien Gandon, Web Science, 3h, M1, UNS, France.

Master: Alain Giboin, Human-Computer-Interaction Design and Evaluation, 54h, M2, UNS.

Master: Alain Giboin, Interaction Techniques and Multimodality, 8h, M2, UNS.

Master: Alain Giboin, Task and Activity Analysis for HCI design and evaluation, 6h, M2 Sociology and Ergonomics of Digital Technologies, UNS.

Master: Alain Giboin, HCI Design and Evaluation, 10h, M2 Sociology and Ergonomics of Digital Technologies, UNS.

Master : Alain Giboin, Economics and ICT: Ergonomics, 6h, M2 Economics and ICT, ISEM, UNS.

Master : Isabelle Mirbel, Project Management, 24h, M2, UNS, France.

Master : Isabelle Mirbel, Requirement Engineering, 42h, M1, UNS, France.

Master : Isabelle Mirbel, Advanced Databases. 48h, M1, UNS, France.

Master: Andrea Tettamanzi, Distributed Systems, 18h, M1, UNS, France.

Master: Andrea Tettamanzi, Parallelism, 18h, M1, UNS, France.

Master: Andrea Tettamanzi, Web Science, 5h, M1, UNS, France.

Master: Andrea Tettamanzi, Fuzzy Description Logics, 5h, M2, UNS, France.

Master: Andrea Tettamanzi, Ontology Learning, 5h, M2, UNS, France.

Master: Andrea Tettamanzi, Data Analysis in Distributed Environment, 18h, M2, UNS, France.

Master: Molka Dhoub, Knowledge Engineering, 2h, M2, UNS, France

Master: Oscar Rodríguez Rocha, Knowledge Engineering, 18h, M2, UNS, France.

### **E-learning MOOC**

Michel Buffa, "JavaScript Intro", June on EDx (MIT/Harvard).

Michel Buffa, "HTML5 Coding Essentials and Best Practices" on EDx.

Michel Buffa, "HTML5 Apps and Games" on Edx.

More than 400.000 subscriptions since 2015 on these three MOOCs.

Fabien Gandon, Olivier Corby & Catherine Faron Zucker, Introduction au Web Sémantique, 2 x 7 weeks, <https://www.fun-mooc.fr/>, Inria, France Université Numérique, Education for Adults, 4870 registered.

Fabien Gandon, Olivier Corby & Catherine Faron Zucker, Introduction to a Web of Linked Data, 2 x 4 weeks, <https://www.fun-mooc.fr/>, Inria, France Université Numérique, Education for Adults, 1703 registered.

### **Tutorial, Summer School**

Elena Cabrio & Serena Villata: Argument Mining course at the 29th European Summer School in Logic, Language, and Information (ESSLLI 2017). University of Toulouse, France, July 17-28.

Olivier Corby: RDF & SPARQL at EGC, Grenoble, France, January 24th.

Olivier Corby: STTL: A Transformation Language for the Web of Data, JDEV, Marseille, July 5th.

Fabien Gandon: Introduction to Linked data and semantic Web, Grenoble, France, January 24th.

Fabien Gandon: Linked data and semantic Web, Winter school Complex Network, Inria UNS, France

### 10.2.2. Supervision

HdR : **Catherine Faron Zucker**, *Knowledge Modelling and Processing for the Social Semantic Web*, UNS, June 12th.

PhD: **Amel Ben Othmane**, *CARS - Un système multi-agent pour l'aide à la décision dans des applications spatio-temporelles incertaines*, UNS, Nhan Le Thanh, Serena Villata and Andrea Tettamanzi, October 12th.

PhD: **Amosse Edouard**, *Détection et Analyse d'Événement dans les Messages Courts sur Twitter*, UNS, Nhan Le Thanh and Elena Cabrio, September 25th.

PhD: **Franck Michel**, *Heterogeneous Databases Federation in Distributed Environment*, UNS, Johan Montagnat, Catherine Faron Zucker, March 3rd.

PhD: **Tuan Anh Pham**, *Study and integration of the mechanism of workflow control in MVC (Model View Controller) architecture: design and implementation of an APM (Activity Process Management) platform for dynamic information systems on the networks*, UNS, Nhan Le Thanh, September 22nd.

PhD in progress: **Molka Dhouib**, *Modeling of a social network of service providers and companies – recommendation of service providers by reasoning on the social network*, UNS, Catherine Faron Zucker with Andrea Tettamanzi.

PhD in progress: **Tran Duc Minh**, *Learning Ontologies from Linked Open Data*, Andrea Tettamanzi, UNS and Nguyen Thanh Binh, University of Danang.

PhD in progress: **Ahmed El Amine Djebri**, *Distributed Artificial Intelligence for Linked Reviewable Data Management on the Semantic Web*, UNS, Andrea Tettamanzi.

PhD in progress: **Michael Fell**, *Natural Language Processing of Song Lyrics*, UNS, Elena Cabrio, Fabien Gandon.

PhD in progress: **Raphaël Gazzotti**, *Conversational Agent Assistant Endowed with Natural Language and Intuition*, UNS & SynchroNext, Fabien Gandon, Catherine Faron Zucker.

PhD in progress: **Tobias Mayer**, *Argument Mining for Clinical Trials*, UNS, Johan Montagnat (CNRS, I3S), Serena Villata and Céline Poudat (UNS).

PhD in progress: **Thu Huong Nguyen**, *Mining the Semantic Web for OWL Axioms*, Andrea Tettamanzi, UNS.

PhD in progress: **Emilie Palagi**, *Design of a Model-based Method for Evaluating Exploratory Search Systems*, UNS, Labex UCN@Sophia, Alain Giboin, Fabien Gandon with Raphaël Troncy (Eurecom).

PhD in progress: **Mahamadou Toure**, *Mobile Access for the Web of Data*, Fabien Gandon, Pascal Molli and Moussa Lo, UGB, UNS.

### 10.2.3. Juries

Catherine Faron Zucker:

- reviewer of Pauline Folz's PhD thesis, entitled *Collaboration dans une fédération de consommateurs de données liées*, defended on October 12 at Université de Nantes;
- reviewer of Hamadache's PhD thesis, entitled *Analyse et recherche dans les réseaux sociaux : vers la caractérisation et l'identification significative d'une identité de structure noyau possible au sein d'un processus évolutionnaire décrivant la dynamique d'un réseau social*, defended on July 16th at Université d'Annaba, Algérie;
- jury member of Olivier Wang's PhD thesis, entitled *Analytics Learning for Rule-Based Systems*, defended on June 28 at Ecole Polytechnique, Paris-Saclay.

Fabien Gandon:

- President of the Ph.D. jury of Franck Michel on “Integrating Heterogeneous Data Sources In The Web Of Data”, University Côte d’Azur 03/03/2017
- Reviewer HDR Hala Skaf Mollî on “Decentralized Data Management for the Semantic Web”, l’Université de Nantes, 6/9/2017
- President of the HDR Catherine Faron-Zucker on “”, University Côte d’Azur, 12/06/2017
- Reviewer HDR of Pierre-Antoine Champin on “Empowering Ambivalence Supporting multiple interpretations in knowledge-based systems”, Université Claude Bernard Lyon 1, 13/06/2017
- Reviewer for PhD of Iacopo Vagliano on “Content Recommendation Through Linked Data”, Politecnico di Torino, 5/4/2017

Nhan Le Thanh:

- Reviewer and President of the Jury for Jérémy Bénard, “Import, export et traduction sémantiques génériques basés sur une ontologie de langages de représentation de connaissances”, Université de La Réunion, June 12th.
- Reviewer for HDR thesis of Jean-Baptiste LAMY, “Représentation, iconisation et visualisation des connaissances : Principes et applications à l’aide à la décision médicale”, University of Rouen, December 12th.

Isabelle Mirbel was jury member of PhD Thesis :

- Samedi Heng, “Impact of Unified User-Story-Based Modeling on Agile Methods: Aspects on Requirements, Design and Life Cycle Management”, under the supervision of Yves Wautelet and Manuel Kolp, Université Catholique de Louvain, February.
- Guillaume Surroca, “ViewointS: vers une émergence de con- naissances collectives par élicitation de point de vue”, under the supervision of Stefano A. Cerri, Philippe Lemoisson and Clément Jonquet, Université de Montpellier, June.

Andrea Tettamanzi was reviewer of the PhD thesis of:

- Iacopo Vagliano, *Content Recommendation Through Linked Data*, Politecnico di Torino, May 5th;

and Chairman of the Jury for the thesis of

- Tuan Anh Pham, *Study and integration of the mechanism of workflow control in MVC (Model View Controller) architecture: design and implementation of an APM (Activity Process Management) platform for dynamic information systems on the networks*, September 22nd.

#### 10.2.4. Internships

- Arthur Lemaire de Mil

Date: May–August

Institution: École Nationale Supérieure de Cognitique, École Polytechnique de Bordeaux.

Title: User-centered redesign of the user Interface allowing to remotely control the AZKAR robot

Supervisors: Thierry Bergeron, Alain Giboin.

### 10.3. Popularization

Michel Buffa:

- New-York-Times, March 14th: "Let a Robot Be Your Museum Tour Guide"<sup>0</sup>.
- Nice-Matin December 8th: "Et si vous visitiez une exposition à l’autre bout de la planète, sans bouger de votre salon"<sup>0</sup>.

<sup>0</sup><https://www.nytimes.com/2017/03/14/arts/design/museums-experiment-with-robots-as-guides.html>

<sup>0</sup><http://www.nicematin.com/sciences/dossier-et-si-vous-visitez-une-exposition-a-lautre-bout-de-la-planete-sans-bouger-de-votre-salon-190462>

Catherine Faron Zucker:

- Interview on Artificial Intelligence for Higher Education in *L'Etudiant* online journal <sup>0</sup>.

Fabien Gandon:

- Interview for Science et Vie Junior about Semantic Web
- Interview for Survey Magazine about Semantic Web
- SIF article on the history of the Web [62]

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<sup>0</sup> <http://www.letudiant.fr/educpros/entretiens/intelligence-artificielle-entre-dans-enseignement-superieur.html>

## XPOP Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific Events Organisation

#### 10.1.1.1. Member of the Organizing Committees

Julie Josse and Eric Moulines were members of the Organizing Committee of the *First Data Science Summer School* at École Polytechnique (August 28th - September 1st).

Marc Lavielle was member of the Organizing Committee of the meeting *Tres dias al azar* en Cartagena, Colombia (December 14 - 16).

### 10.1.2. Scientific Events Selection

#### 10.1.2.1. Member of the Conference Program Committees

Julie Josse was member of the Program Committee of the *useR!2017 meeting* in Bruxelles (June, 3-7).

### 10.1.3. Scientific Expertise

Marc Lavielle is member of the Scientific Committee of the High Council for Biotechnologies.

### 10.1.4. Research administration

Marc Lavielle is member of the Scientific Programming Committee (CPS) of the Institute Henri Poincaré (IHP).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : Julie Josse, Statistics with R, 48, M2, X-HEC

Master : Eric Moulines, Regression models, 36, M2, X-HEC

Engineering School : Eric Moulines, Statistics, 36, 2A, X

Engineering School : Eric Moulines, Markov Chains, 36, 3A, X

Engineering School : Erwan Le Pennec, Statistics, 36, 2A, X

Engineering School : Erwan Le Pennec, Statistical Learning, 36, 3A, X

Engineering School : Marc Lavielle, Statistics in Action, 48, 3A, X

### 10.2.2. Supervision

PhD in progress : Nicolas Brosse, September 2016, Eric Moulines

PhD in progress : Geneviève Robin, September 2016, Julie Josse and Eric Moulines

PhD in progress : Belhal Karimi, October 2016, Marc Lavielle and Eric Moulines

PhD in progress : Marine Zulian, October 2016, Marc Lavielle

PhD in progress : Wei Jiang , October 2017, Julie Josse and Marc Lavielle

## 10.3. Popularization

Marc Lavielle developed the learning platform [Statistics in Action](#). The purpose of this online learning platform is to show how statistics (and biostatistics) may be efficiently used in practice using R. It is specifically geared towards teaching statistical modelling concepts and applications for self-study. Indeed, most of the available teaching material tends to be quite "static" while statistical modelling is very much subject to "learning by doing".



Julie Josse participated in the jury of the "Speed data scientist" competition organized by Animath and the Société Générale. The students worked on anomaly detection: they have to identify the days of malfunctioning of the web application. They had to figure out how to anticipate breakdowns.

Julie Josse presented "How to manage missing data in R" at the meetup Rladies Paris. This meeting was associated with the Rforwards initiative, which aims to develop women's participation in the R community.

Marc Lavielle participated to the *Jeudis de la recherche de l'X* on June 29th dedicated to "Health challenge: tools for tomorrow's medicine".

## ZENITH Project-Team

# 10. Dissemination

## 10.1. Scientific Animation

Editorial board of scientific journals:

- VLDB Journal: P. Valduriez.
- Journal of Transactions on Large Scale Data and Knowledge Centered Systems: R. Akbarinia and E. Pacitti are guest editors of a special issue on data management in internet of things (IoT).
- Distributed and Parallel Databases, Kluwer Academic Publishers: E. Pacitti, P. Valduriez.
- Internet and Databases: Web Information Systems, Kluwer Academic Publishers: P. Valduriez.
- Journal of Information and Data Management, Brazilian Computer Society Special Interest Group on Databases: P. Valduriez.
- Book series “Data Centric Systems and Applications” (Springer): P. Valduriez.
- Multimedia Tools and Applications: A. Joly.

Organization of conferences and workshops:

- Alexis Joly was the chair of the LifeCLEF 2017 international workshop<sup>0</sup> dedicated to content-based biodiversity identification techniques, Dunlin, sept. 2017
- Alexis Joly was in the organizing committee of the Floris’tic national workshop held in Toulouse, nov. 2017 (<http://floristic.org/journeefloristic/>)

Conference program committees :

- International Conference on Very Large Data Bases (VLDB), 2017: R. Akbarinia, F. Masegla
- International Workshop on Big Data Management in Cloud Systems, 2017: R. Akbarinia
- International Conference on XLDB, 2017: P. Valduriez
- Int. Conf. on Extending DataBase Technologies (EDBT), 2017: E. Pacitti
- 2nd Workshop on Big Data and Data Mining Challenges on IoT and Pervasive Systems (BigD2M), 2016: E. Pacitti
- ACM Multimedia conference (ACMMM), 2017: A. Joly
- IEEE International Conference on Image Processing (ICIP), 2017: A. Joly
- ACM International Conference on Multimedia Retrieval (ICMR), 2017: A. Joly
- International Conference and Labs of the Evaluation Forum (CLEF), 2017: A. Joly
- IEEE Int. Conf. on Data Mining, 2017: F. Masegla
- ACM Symposium on Applied Computing 2017: F. Masegla
- IEEE Int. Conf. on Data Science and Advanced Analytics (DSAA), 2017: F. Masegla
- Int. Symposium on Information Management and Big Data (SimBig), 2017: F. Masegla
- Int. Symposium on Methodologies for Intelligent Systems (ISMIS), 2017: F. Masegla

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<sup>0</sup><http://www.imageclef.org/lifeclef/2017>

Reviewing in international journals :

- Distributed and Parallel Databases: R. Akbarinia
- ACM Transactions on Database Systems (TODS): A. Joly
- IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI): A. Joly
- Information Sciences: A. Joly
- Ecological Informatics: A. Joly
- Multimedia Tools and Applications Journal (MTAP): A. Joly
- Multimedia Systems: A. Joly
- Transactions on Information Forensics & Security: A. Joly
- International Journal of Computer Vision: A. Joly
- Transactions on Image Processing: A. Joly
- ACM Trans. on Database Systems: E. Pacitti
- Knowledge and Information Systems (KAIS): F. Masegla
- IEEE Transactions on Knowledge and Data Engineering (TKDE): F. Masegla
- Transactions on Parallel and Distributed Systems (TPDS): F. Masegla
- Data Mining and Knowledge Discovery (DMKD): F. Masegla
- International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems (IJUFKS): F. Masegla
- Transactions on Large-Scale Data and Knowledge-Centered Systems (TLKDS): F. Masegla

Other activities (national):

- P. Valduriez is the scientific manager for the Latin America zone at Inria's Direction of Foreign Relationships (DPEI). In 2017, he has been elected President of the Scientific Committee of the BDA conference for 4 years.
- P. Valduriez gave an invited talk "Data science and science data" on Dec. 1, at the first seminar of Axis 4 "Information systems, data storage and transfer" of the #Digitag Institut de Convergence on numerical agriculture, in Montpellier.
- Alexis Joly gave invited talks in Conference of the biology society of Montpellier 2017 (60 participants), Transfer-LR seminar 2017 on machine learning (100 participants), CIRAD BIOS department seminar 2017 (100 participants).
- Alexis Joly served as a reviewer for the French International Cooperation program (STIC AmSud)
- F. Masegla participated to a Panel for Inria's 50th anniversary in Grenoble on "digital literacy", November 2017.
- F. Masegla gave invited talks: on "Big Data Analytics" at Univ. of Marseille, January 27 ; on "Massively Distributed Time Series Analytics" for LIRMM's 25th anniversary ; on "Computer Science for Everyone" at "Université du Tiers Temps" (UTT), March 2017.
- F. Masegla served as a reviewer for international programs (STIC AmSud, ECOS SUD).
- F. Masegla is scientific referent for Inria on the frame agreement with SAFRAN about "System Monitoring and Data Analytics".
- F. Masegla is "Chargé de mission pour la médiation scientifique Inria" and heads Inria's national network of colleagues involved in science popularization.
- E. Pacitti is responsible for new comers at Polytech' Montpellier's Direction of Foreign Relationships.

Other activities (international):

- E. Pacitti gave an invited talk at CEFET, Rio de Janeiro on nov 27 on “uncertainty analysis of big simulation data”.
- P. Valduriez gave several invited talks: “The CloudMdsQL Multistore System” on may 2 at the Data Systems Group Seminar Series, University of Waterloo, Canada, and on may 4 at McGill University, Montréal, Canada; “Data Science: opportunities and risks” on july 26 at the Colloquium of PESC/COPPE, UFRJ, Rio de Janeiro; “An Overview of Polystores” on oct 11 at the XLDB conference in Clermont-Ferrand; “Data science and science data” on nov 27 at CEFET, Rio de Janeiro.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Most permanent members of Zenith teach at the Licence and Master degree levels at UM2.

Reza Akbarinia:

Master Research: New approaches for data storage, 10h, level M2, Faculty of Science, UM

Florent Masseglia:

Science Popularization: 2 Ph.D students, from 2 different doctoral schools are having a 30h doctoral module under Florent Masseglia’s supervision.

Esther Pacitti:

IG3: Database design, physical organization, 54h, level L3, Polytech’ Montpellier, UM2

IG4: Networks, 42h, level M1, Polytech’ Montpellier, UM2

IG4: Object-relational databases, 32h, level M1, Polytech’ Montpellier, UM2

IG5: Distributed systems, virtualization, 27h, level M2, Polytech’ Montpellier, UM2

Industry internship committee, 50h, level M2, Polytech’ Montpellier

Patrick Valduriez:

Professional: Distributed Information Systems, Big Data Architectures, 75h, level M2, Capgemini Institut

### 10.2.2. Supervision

- PhD in progress: Gaetan Heidsieck Distributed Management of Scientific Workflows for High-Throughput Plant Phenotyping, started Oct 2017, Univ. Montpellier, Esther Pacitti, Christophe Pradal, François Tardieu
- PhD in progress: Christophe Botella, Large-scale Species Distribution Modelling based on crowdsourced image streams, started Oct 2016, Univ. Montpellier, Alexis Joly, François Munoz (IRD), Pascal Monestiez (INRA)
- PhD in progress: Titouan Lorieul, Pro-active Crowdsourcing, started Oct 2016, Univ. Montpellier, Advisor: Alexis Joly
- PhD in progress: Mehdi Zitouni Closed Pattern Mining in a Massively Distributed Environment started sept. 2014, Univ. Tunis, Advisor: Florent Masseglia, co-advisor: Reza Akbarinia
- PhD in progress : Djamel-Edine Yagoubi, Indexing Time Series in a Massively Distributed Environment, started oct. 2014, Univ. Montpellier, Advisors: Florent Masseglia and Patrick Valduriez, co-advisor: Reza Akbarinia
- PhD in progress : Sakina Mahboubi, Privacy Preserving Query Processing in Clouds, started oct. 2015, Univ. Montpellier, Advisor: Patrick Valduriez, co-advisor: Reza Akbarinia

- PhD in progress: Khadidja Meguelati, Massively Distributed Clustering, started Oct 2016, Univ. Montpellier, Advisor: Florent Massegli, co-advisor : Nadine Hilgert (INRA)
- PhD in progress: Vitor Silva, Supporting Human-in-the-Loop in Large-scale Workflows, started 2014, UFRJ, Brazil Advisors: Marta Mattoso (UFRJ), Daniel Oliveira (UFF), Patrick Valduriez
- PhD in progress: Renan Souza, Massively Distributed Clustering, started 2015, UFRJ, Brazil Advisors: Marta Mattoso (UFRJ), Daniel Oliveira (UFF), Patrick Valduriez

### **10.2.3. Juries**

Members of the team participated to the following PhD committees:

- A. Joly: Sanaa Chafik (ENSEM Casablanca)
- E. Pacitti: Vincent Leroy (HDR, Univ. Grenoble), Douglas Ericson Marcelino de Oliveira (UFF, Rio de Janeiro), Pauline Folz (Univ. Nantes, reviewer), Uras Tos (Univ. Toulouse, reviewer), Carlyna Bondlombouy (Univ. Montpellier).
- P. Valduriez: Patrick KamnangWanko (Univ. Bordeaux), Julien Pilourdault (Univ. Grenoble, reviewer), Yvan Brondino (Univ. Madrid, reviewer)
- F. Massegli: Andres Moreno (Univ. Nice-Sophia Antipolis), Kenza Kellou-Menouer (Univ. Versailles St-Quentin), Raef Mousheimish (Univ. Versailles St-Quentin, reviewer)

Members of the team participated to the following hiring committees:

- A. Joly: associate professor position, Univ. Toulon
- P. Valduriez: associate professor position, Univ. Nantes

## **10.3. Popularization**

Zenith has major contributions to science popularization, as follows.

### **10.3.1. Code Teaching for Kids**

Teaching code is now officially in the school programs in France. Class'Code is a PIA project that aims at training the needed 300,000 teachers and professionals of education France. The project is a hybrid MOOC (both online courses and physical meetings). Florent Massegli is co-author of the first course and scientific referent of the other courses.

Along with Class'Code, the association "La main à la pâte" has coordinated the writing of a school book on the teaching of computer science teaching, with Inria (Gilles Dowek, Pierre-Yves Oudeyer, Florent Massegli and Didier Roy), France-IOI and the University of Lorraine. The book has been requested by and distributed to 15,000 readers in less than one month. The extension of this book for the French "Collège" has been released this year with new activities and new scientific content.

F. Massegli is giving a doctoral training at different doctoral schools in Montpellier, in order to train facilitators for helping teachers and people of the education world to better understand the "computational thinking". So far, 14 people have been trained. He is also a member of the management board of "Les Petits Débrouillards" in Languedoc-Roussillon and the scientific responsible for school visits in the LIRMM laboratory.

F. Massegli is member of the pedagogic committee of "Edu'up", a project from France-IOI on learning code and computational thinking.

### **10.3.2. Science Outreach**

In the context of the Floris'tic project, A. Joly participates regularly to the set up of popularization, educational and citizen science actions in France (with schools, cities, parks, etc.). The softwares developed within the project (PI@ntNet, Smart'Flore and ThePlantGame) are used in a growing number of formal educational programs and informal educational actions of individual teachers. For instance, Smart'Flore is used by the French National Education in a program for reducing early school leaving. PI@ntNet app is used in the Reunion island in an educational action called Vegetal riddle organized by the Center for cooperation at school. It is also used in a large-scale program in the Czech republic (with an objective of 40 classrooms in the end). An impact study of the PI@ntNet application did show that 6% of the respondents use it for educational purposes in the context of their professional activity.

### **10.3.3. Events**

Zenith participated to the following events:

- F. Masseglia co-organized and co-animated the Inria's stand at "La fête de la science", Montpellier, held by Genopolys (a science village).
- F. Masseglia co-organized the regional Code-Week events with the local network of media-library ("réseau des médiathèques de Montpellier Méditerranée Métropole").
- F. Masseglia is member of the project selection committee for "La fête de la science" in Montpellier.
- A. Joly designed/animated several stands and public demos in events: "La fête de la science" (Montpellier, 1 day demo), 50 ans de l'Inria (Paris, 2-days demo), Expomobile Homonumericus (Itinerant expo in France).