



RESEARCH CENTER  
Paris - Rocquencourt

FIELD

Activity Report 2013

## Section Dissemination

Edition: 2014-03-19



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## AXIS Project-Team

# 8. Dissemination

## 8.1. Scientific Animation

### 8.1.1. Organization of Workshops and Conferences

Participation to Innovative City Convention Organisation (June 18th): this event ICC 2013 has attracted more than 2500 people from enterprises and territories.

- B. Trousse organised one workshop Inria-France Living Labs at Innovative City Convention on "Co-create with Users digital services of the territories of tomorrow" with around 100 attendants. At Innovative city convention 2013 (2500 attendants, June 18th, Nice), Inria and Fing has awarded several participants for their user involvement (idea production, viral marketing, questionnaires, sensor management). Two special winners being involved in many experiments received as awards one tablet offered by FING. The awarded citizen have expressed during this workshop their satisfaction related to MyGreenServices in producing IoT data, in being informed about the pollution where they live or when they move or in exchanging with others.

See the article on Atelier.net (the disruptive innovation BNP Paribas journal) ([here](#))

- Co-redaction of a flyer (English version) related to the PACALABS ECOFFICES project for the ICC conference in Nice distributed by "Chambre de Commerce et industrie" (Enterprise/Environment/Energy Department) ISGAN - CCI.

### 8.1.2. Editorial Boards and Reviewing

Axis members participate in the **editorial boards** of various journals:

#### Yves Lechevallier

- MODULAD (electronic journal) as co-editor
- BIT (Behaviour & Information Technology)
- ADAC (Advances in Data Analysis and Classification)

#### Dominique Scapin

- BIT (Behaviour & Information Technology) (Associate Editor)
- UAIS -International Journal of Universal Access in the Information Society)
- IJHCS - International Journal of Human-Computer Studies
- IWC - Interacting with Computers
- IJPOP - International Journal of People-Oriented Programming
- International Journal On Advances in Intelligent Systems
- JMUI - Journal of Mutimodal User Interfaces
- JIPS - "Journal d'Interaction Personne-Système"

#### Brigitte Trousse

- Journal of Symbolic Data Analysis
- IJDST - International Journal of Design Sciences & Technology (Europia Productions)
- Co-Design, International Journal of CoCreation in Design and the Arts Journal (Taylor Francis online)

AxIS members are very regularly **reviewers** for various major journals: ADAC "Advances in Data Analysis and Classification", BIT (Behavior and Information Technology), ADAC "Advances in Data Analysis and Classification", IJHCS (International Journal of Human-Computer Studies), JMUI (Journal of Multimodal User Interfaces), "Le Travail Humain", UAIS, IwC in 2012. Thierry Despeyroux was reviewer for a book: Advances in Knowledge Discovery and Management Vol. 4 to be published. B. Senach reviewed a paper for the BIT journal

### 8.1.3. Conferences - Workshops Scientific Program Committees

Y. Lechevallier and B. Trousse are members of the **supervising committee** of the association EGC (<http://www.egc.asso.fr/>).

AxIS permanent members are involved in the following program committees of conferences and workshops:

#### Thierry Despeyroux

- EGC 2013, January 29th - February 1st 2013, Toulouse, France.
- EGC 2014, 27-31 January 2014, Rennes, France.

#### Yves Lechevallier

- EGC 2013, January 29th - February 1st 2013, Toulouse, France.
- EGC 2014, 27-31 January 2014, Rennes, France.

#### Dominique Scapin

- EGC 2013, January 29th - February 1st 2013, Toulouse, France.
- HCII 2013, 21-26 July 2013, Las Vegas, Nevada, USA.
- SETIT 2014, 6th International Conference Sciences of Electronics, Technologies of Information and Telecommunications, 11-13 October 2013, Chongqing, China.
- INTERACT 2013, 2-6 September 2013, Cape Town, South Africa.
- CENTRIC 2013. October 27th - November 1st, 2013, Venice, Italy.
- IHM 2013, 12-15 November 2013, Bordeaux, France.
- ICMI, 5th ACM International Conference on Multimodal Interaction, December 9-13th, 2013, Sydney, Australia.
- PhyCS, 1st. International Conference on Physiological Computing Systems, January 7-9, 2014, Lisbon, Portugal.
- EGC 2014, 27-31 January 2014, Rennes, France.
- ACHI 2014, 23-27 March 2014 - Barcelona, Spain.
- SETIT 2014, 7th International Conference Sciences of Electronics, Technologies of Information and Telecommunications, March 24-28 2014, Kuala Lumpur, Malaysia.
- CHI 2014, April 26 - May 1, Toronto, Canada.
- HCII 2014, 22-27 June 2014, Heraklion, Crete, Greece.
- ErgoIA 2014, 15-17 October 2014, Bidart, France.

**Brigitte Trousse**

- EGC 2013, January 29th - February 1st 2013, Toulouse, France.
- CSCWD 2013, the 2013 17th IEEE International Conference on Computer Supported Cooperative Work in Design, June 27-29, Whistler, BC, Canada (sponsored by IEEE SMC Society).
- RAPC 2013?, 21th French Workshop on Case-based Reasoning.
- H2PTM 2013, 16-18 October, International Conference "Hypertextes et Hypermedia, Produits, Outils et méthodes, Usages et pratiques numériques", 2013 CNAM - Paris.
- IJCAI 2013, 3-9 August, 23rd International joint Conference on Artificial Intelligence, Beijing, China (reviewer).
- EGC 2014, 27-31 January 2014, Rennes, France.
- CSCWD 2014, 21-24 May 2014, the 2014 IEEE 18th International Conference on Computer Supported Cooperative Work, National Tsing Hua University, Taiwan in Design.
- DCC 2014, 23-25 June 2014, Sixth International Conference on design Computing and Cognition, University College London, London, UK.
- ICC 2014, 25-26 June 2014, Innovative City Convention, Nice, France.
- ICE 2014, 23-25 June 2014, 20th International Conference ICE on Engineering, Technology and Innovation, IEEE TMC Europe Conference, Bergamo, Italy.

**8.1.4. Invited talks or participations****Yves Lechevallier**

- Conference ECDA 2013: Y. Lechevallier gave an **invited talk** "Partitioning Methods On Dissimilarity Matrices Set" related to this publication [20] at the First European Conference on Data Analysis (ECDA 2013) (with around 300 participants) jointly hosted by the two Classification Societies (GkKI in Germany and SFC in France) in July at Luxembourg.

**B. Trousse**

- BIOVISION 2013, The World Life Sciences Forum (Lyon, March): B. Trousse as President of France Living Labs was invited to be panelist in the prospective session "eHealth: a coming medical revolution?".
- Conference of Ladies in mobility at Ever Monaco (Monaco, March 29): B. Trousse made an invited talk on "Innovative Services in Mobility (User Experience, Living Lab Approach)".
- 2030 Prospective ADEME workshop (2 days) organised by ADEME and Chronos firm, Sophia Antipolis.

**8.1.5. Other actions**

**Local Dissemination to Citizen** within ELLIOT project which has required a huge effort, both in terms of citizen workshop reporting, recruitment for our two 16 days experiments related to MyGreenServices in 2013 (February and June), community management within the forum, maintenance of a Scoop-it page on green services and finally MyGreenServices reporting for large audience. We realized for citizen recruitment a flyer on ELLIOT project and a call for participation for the workshops we published on various web sites: ICT Usage Lab, GreenCode, WebTimeMedias and Local networks such as the local JCI chapter. In addition to the recruitment we have prepared various packages for citizen related to the use of each citizen IoT stations. Finally for ELLIOT experiments we have recruited 48 participants from the idea generation until the experimentation.

**Participation to other events:**

B. Trousse participated in several events or meetings disseminating AxIS results:

- Workshop "Design & Living Labs: L'apport du design et des SHS dans les démarches d'innovation centrée usagers ?", January 16th, Marseille (France)
- R2DS Conference: "Dispositifs d'activation de l'innovation pour la ville durable: Espace coworking, fablab, living lab et Smart Cities", organised by Fondaterr and the Regional Council of "Ile de France", at Hémicycle - Regional Council Ile de France (Paris 7e),
- International Biennale of Design, Forum Design et Innovation, March, St Etienne (France).
- General Assembly of France Living Labs, March, St Etienne (France),
- Meeting of the Strategical Orientation Committee of Pacalabs (evaluation of the past Pacalabs four years, done by EDATER and PacaLabs Operational Committee ) June, Marseille (France)
- Innovative City Convention (ICC 2013), June, Nice (France),
- European Summer School on Living Labs, August, Manchester (UK),
- Final ELLIOT Review at EU, August, Brussels (Belgium),
- LIFT 2013 "Produire autrement!", 15 October, Marseille (France),
- Innovation & Territories - City of Antibes organised by Telecom valley (Innovation Committee), November 14th, Campus SophiaTech.

B. Senach participated in several scientific events:

- International Biennale of Design, Forum Design et Innovation, Saint-Etienne, March, St Etienne (France). Participation in the Workshop : "Passage de l'économie de la propriété à l'économie de l'usage".
- Conférence "L'intégration de la mobilité durable dans les villes intelligentes", Monaco, March, 29.
- Innovative City Convention (ICC 2013), June, Nice (France).

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

#### 8.2.1.1. Teaching Activities

##### Y. Lechevallier

- Master 2 Recherche *Systèmes intelligents* (resp: S. Pinson), University at Paris IX-Dauphine, France. Yves Lechevallier taught a course on "Du data mining au knowledge mining" (24h).
- ENSG: Yves Lechevallier taught a course on Clustering (12h).

### 8.2.2. Supervision

B. Trousse is involved in the supervision committee of two PhD in progress:

- **E. L. Moukhtar Zemmouri**, Ontology-based model for Multi-View KDD process, PhD student at ENSAM, Mathematics-Computer Science Departmenté Moulay Ismaël - Ecole Nationale Supérieure d'Arts et Métiers - Meknès (Morocco), supervision committee: H. Behja, A. Marzark, B. Trousse, B. Ouhbi and Y. Benghabrit
- **Dié Diya**, LIMOS, Université de Clermont Ferrand, supervisors Yannick Loiseau, Olivier Raynaud

### 8.2.3. Juries

AxIS researchers were members of the following Ph.D. committees in 2013:

##### Yves Lechevallier

- **Djamal Adboul Nasser Seck**, Ph.D, Arbres de décision symboliques, outils de validation et d'aide à l'interprétation, January, Dauphine University
- **Wafia Parr Bouberrima**, Ph.D, Modèles de mélange de Von Mises-Fisher, October, University Paris 5 and Sétif University



**Brigitte Trousse**

- **Malek Alaoui**, Ph.D., Application d'une démarche Living Lab au développement de services de TV sociale dédiée aux personnes âgées, December, Technology University of Troyes (UTT)
- **E.L. Moukhtar Zemmouri**, Ph.D., "Représentation et gestion des connaissances dans un processus d'Extraction de Connaissances à partir de Données multi-points de vue", December, Université Moulay Ismaël - Ecole Nationale Supérieure d'Arts et Métiers - Meknès (Morocco) [75] .

## ABSTRACTION Project-Team

# 9. Dissemination

## 9.1. Scientific Animation

### 9.1.1. Academy Members, Professional Societies

Patrick Cousot is a member of the [Academia Europaea](#).

Patrick Cousot is member of the IFIP working group WG 2.3 on programming methodology.

Patrick Cousot is a member of the Board of Trustees and of the Scientific Advisory Board of the [IMDEA](#) (Instituto madrileño de estudios avanzados—Research Institute in Software Development Technology), Madrid, Spain and of the Asian Association for Foundations of Software (AAFS).

### 9.1.2. Collective Responsibilities

Jérôme Feret and Xavier Rival are members of the lab council of the Laboratoire d'Informatique de l'École normale supérieure.

Jérôme Feret was a member of the *comité de sélection* (hiring committee) to hire an assistant professor at the Université de Lille 1.

Antoine Miné was a member of the *comité de sélection* (hiring committee) to hire an assistant professor at the École normale supérieure (Paris).

### 9.1.3. Editorial Boards and Program Committees

— Patrick Cousot is member of the advisory board of the [Higher-Order Symbolic Computation](#) journal (HOSC, Springer) and of the [Journal of Computing Science and Engineering](#) (JCSE, Kiise).

Patrick Cousot is member of the steering committees of the Static Analysis Symposium (SAS) and the Verification, Model-Checking and Abstract Interpretation (VMCAI) international conference.

— Radhia Cousot is member of the advisory board of the [Higher-Order Symbolic Computation](#) journal (HOSC, Springer) and the [Central European Journal of Computer Science](#) (CEJCS, Versita & Springer).

Radhia Cousot is member of the steering committees of the Static Analysis Symposium (SAS), the Workshop on Numerical and Symbolic Abstract Domains (NSAD), the Workshop on Static Analysis and Systems Biology (SASB) and the Workshop on Tools for Automatic Program Analysis (TAPAS).

Radhia Cousot was the program committee chair of the 40th ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages (POPL 2013), Rome, Italy, January 23-25, 2013 [25].

Radhia Cousot was member of the program committee of the 5th NASA Formal Methods Symposium (NFM 2013), May 13-16, 2013, NASA Ames Research Center, California, USA.

— Jérôme Feret is a member of the editorial board of the [Frontiers in Genetics](#) journal and the [Open Journal of Modelling and Simulation](#)

Jérôme Feret is a member of the steering committee of the Workshop on Static Analysis and Systems Biology (SASB).

Jérôme Feret was co-program committee chair of the 4th International Workshop on Static Analysis and Systems Biology (SASB 2013), Seattle, USA, June 19, 2013.

**ABSTRACTION**

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Jérôme Feret was member of the program committees of the 40th ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2013 ERC), Rome, Italy, January 23-25, 2013; the 5th International Conference on Bioinformatics, Biocomputational Systems and Biotechnologies (BIOTECHNO 2013), Lisbon, Portugal, March 24-29, 2013; the 4th International Workshop on Computational Models for Cell Processes (CompMod 2013), Turku, Finland, June 11, 2013; the 11th Conference on Computational Methods in Systems Biology (CMSB 2013), Klosterneuburg, Austria, September 23-25, 2013; the 2nd International Conference on Biomedical Engineering and Biotechnology (ICBEB 2013), 2013; the 15th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2014), San Diego, USA, January 19-21, 2014. He is member of the program committees of the 6th International Conference on Bioinformatics, Biocomputational Systems and Biotechnologies (BIOTECHNO 2014), Chamonix, France, April 20-24, 2014; the 10th International Workshop on Developments in Computational Models (DCM 2014), Vienna, Austria, July 13, 2014; the International Workshop on Verification of Molecular Devices and Programs (VEMDP 2014), Vienna, Austria, July 17, 2014; the 8th IFIP Theoretical Computer Science Conference (IFIP TCS 2014), Rome, Italy, September 1-3, 2014; the 5th International Workshop on Static Analysis and Systems Biology (SASB 2014), Munich, Germany, September 10, 2014; the 9th International Workshop on Formal Methods for Industrial Critical Systems (FMICS 2014), Florence, Italy, September 11-12, 2014; the 3rd International Conference on Biomedical Engineering and Biotechnology (ICBEB 2014), Beijing, China, September 19-21, 2014.

— Jonathan Hayman was a member of the program committees of the 40th ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2013 ERC), Rome, Italy, January 23-25, 2013; the 4th International Workshop on Static Analysis and Systems Biology (SASB 2013), Seattle, USA, June 19, 2013.

— Antoine Miné is a member of the editorial boards of The Scientific World Journal in Computer Science and of the journal Conference Papers in Computer Science.

Antoine Miné was a member of the program committee of the 20th International Static Analysis Symposium (SAS 2013), Seattle, WA, USA, June 20–22, 2013, and the 3rd International Workshop on Safety and Security in Cyber-Physical Systems (SSCPS 2013), Washington, D.C, USA., June, 18–20, 2013. He is a member of the program committee of the 11th School on Modelling and Verifying Parallel Processes (MOVEP 2014), Nantes, France, July 7–11, 2014, the 8th International Symposium on Theoretical Aspects of Software Engineering (TASE 2014), Changsha, China, 1–3 September, 2014, the 11th International Conference on Integrated Formal Methods (iFM 2014), Bertinoro, Italy, September 9–11, 2014, and of the external review committee of the 42nd ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2015 ERC), Mumbai, India, January 11–18, 2015.

— Xavier Rival is member of the steering committee of the Workshop on Tools for Automatic Program Analysis (TAPAS).

Xavier Rival is Co-Chair of the program committee of the 15th International Conference on Verification, Model Checking and Abstract Interpretation (VMCAI 2014, San Diego, USA, January 19-21, 2014 [26]).

Xavier Rival was member of the extended review committee of the 40th ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2013 ERC), Rome, Italy, January 23-25, 2013; the program committee of the program committee the European Symposium On Programming (ESOP 2013), Rome, Italy, March 2013; the program committee of the 41st ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2014), San Diego, USA, January 22-24, 2014;

#### **9.1.4. Participation in Conferences**

Luminy workshop: Workshop on Modelisation, Optimisation, and Static Analysis (Luminy, France, January 6–10, 2013).

Jérôme Feret attended the workshop and gave a talk on model reduction of Kappa models.

VMCAI: 14th International Conference on Verification, Model Checking, and Abstract Interpretation (Roma, Italy, January 20–22, 2013).

Antoine Miné, Xavier Rival, Antoine Toubhans and Caterina Urban attended the conference. Antoine Toubhans presented an article [20].

ABSTRACTION

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POPL: 40th ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages, (Roma, Italy, January 23–25, 2013).

Xavier Rival and Caterina Urban attended the conference.

Bytecode: Eighth Workshop on Bytecode Semantics, Verification, Analysis, and Transformation (Rome, Italy, March 23, 2013).

Mehdi Bouaziz attended the workshop and gave a talk on [11].

CC: Twenty-second International Conference on Compiler Construction (Rome, Italy, March 21–22, 2013).

Mehdi Bouaziz attended the conference.

ESOP: Twenty-second European Symposium on Programming (Rome, Italy, March 19–22, 2013).

Mehdi Bouaziz attended the conference.

FASE: Sixteenth International Conference on Fundamental Approaches to Software Engineering (Rome, Italy, March 20–22, 2013).

Mehdi Bouaziz attended the conference.

POST: Second Conference on Principles of Security and Trust (Rome, Italy, March 18–19, 2013).

Mehdi Bouaziz attended the conference.

TACAS: Nineteenth International Conference on Tools and Algorithms for the Construction and Analysis of Systems (Rome, Italy, March 18–21, 2013).

Mehdi Bouaziz attended the conference.

RBMW: Rule-Based Modelling Workshop (Paris, France, April 15–16, 2013).

Wassim Abou-jaoudé, Ferdinanda Camporesi, Jérôme Feret, and Norman Ferns attended the workshop. Jérôme Feret gave a talk on [12]. Norman Ferns gave a talk on backward bisimulation.

In'Tech: In'Tech Seminar on Formal validation of industrial critical systems (Grenoble, France, April 18, 2013).

Jérôme Feret attended the workshop and gave a talk on the **ASTRÉE** analyzer.

Dagstuhl 13162: Workshop on Pointer Analysis (Dagstuhl, Germany, April 14–19, 2013).

Xavier Rival attended the workshop and gave a talk on the modular construction of shape analyzers.

SASB: Fourth International Workshop on Static Analysis and Systems Biology (Seattle, USA, June 19, 2013).

Jérôme Feret and Jonathan Hayman attended the workshop. Jérôme Feret chaired the workshop and chaired half of the sessions. Jérôme Feret gave a talk on [12] and Jonathan Hayman gave a talk on [15].

SAS: 21th International Static Analysis Symposium (Seattle, WA, USA, June 20–22, 2013).

Jérôme Feret and Caterina Urban attended the conference, and Caterina Urban presented a paper [24].

ForumMF: Deuxième Forum Méthodes Formelles, Laboratoire d'Analyse et d'Architecture des Systèmes (LAAS-CNRS, Toulouse, France, June 28, 2013).

Mehdi Bouaziz attended the workshop and gave a talk on Specification and verification of programs with CodeContracts.

WST: 13th International Workshop on Termination (Bertinoro, Italy, 29–31 August, 2013).

Caterina Urban attended the workshop and presented an article [23].

DSS2013: Dave Schmidt Symposium (Festschrift for Dave Schmidt, Manhattan, Kansas, September 18–19, 2013).

Xavier Rival attended the symposium and presented an article [13].

In'Tech: In'Tech Seminar on Formal validation of industrial critical systems (Aix en Provence, France, October 1, 2013).

Jérôme Feret attended the workshop and gave a talk on the **ASTRÉE** analyzer.

**CMSB:** Computational Methods in Systems Biology (Klosterneuburg, Austria, September 23-25, 2013). Ferdinanda Camporesi, Jérôme Feret, and Norman Ferns attended the conference. Jérôme Feret chaired a session and gave a talk on [12].

**RAIM:** 6ème Rencontres Arithmétiques de l’Informatique Mathématique (Paris, France, 18–20 November, 2013). Antoine Miné attended the conference and gave a talk on generic and specific abstract domains for the static analysis of programs with floating-point arithmetic.

**AVDCPS:** Workshop on Analysis and Verification of Dependable Cyber Physical Software (Changsha, November 23-24, 2013). Mehdi Bouaziz, Tie Cheng, Jérôme Feret, Xavier Rival, and Caterina Urban attended the conference. Jérôme Feret chaired a session. Mehdi Bouaziz, Tie Cheng, Jérôme Feret, Xavier Rival, and Caterina Urban gave talks.

### 9.1.5. Invitations and Participation in Seminars

— Arlen Cox gave a talk at LIAFA (Paris 7) about “QUIC Graphs: Relational Invariant Generation for Containers”.

— Jérôme Feret gave a talk at IRIT (Toulouse, France) on the 28th of May, 2013 about model reduction in Kappa. He gave a talk on the **OPENKAPPA** platform at a meeting of the ANR BIOTEMPO project on the 30th of January, 2013 and a talk on context sensitive model reduction [12] at another meeting of the ANR BIOTEMPO project in Paris on the 10th of April, 2013. He gave a talk on context sensitive model reduction [12] at ETH Zürich on the 5th of June, 2013. He gave on talk on the analysis of digital filters [55], [56] at a meeting of the ANR VERASCO on the 16th of September, 2013.

— Norman Ferns gave two talks on the Kantorovich metric at the Computer Science Seminar of the University of Liège, Belgium, on the 5th of April 2013 and at the Technical Talk Seminar of the TU Dortmund University, Germany, on the 5th of July 2013.

— Antoine Miné gave a talk on “Constraint solving using numeric abstract domains” at the LIAFA Seminar “Vérification” (Paris, France) on April the 8th, 2013 and at the CEA LSL/LMeasi Seminar (Palaiseau, France) on June the 4th, 2013.

— Caterina Urban gave a talk on “The abstract domain of segmented ranking functions” at University of Udine (Italy) in March 2013.

— Xavier Rival gave a talk on the combination of memory abstractions at the IFIP 2.4 Working Group (Mysore, India, March 2013). He gave a talk on hierarchical shape abstract domains at IBM (Bangalore, India, March 2013). He gave a talk on the modular construction of shape analyzers at LIAFA (Université Paris 7, May 2013), at Cambridge University (Cambridge, UK, September 2013), at Seoul National University (Seoul, South Korea, October 2013), at KAIST (Daejeon, South Korea, November 2013), at Hanyang University (Ansan, South Korea, November 2013), at the Institute of Software of the Chinese Academy of Sciences (Beijing, November 2013). He gave a talk on the static analysis of safety critical embedded systems at Seoul National University (Seoul, South Korea, October 2013) and at KAIST (Daejeon, South Korea, November 2013). He gave a talk on hierarchical shape abstract domains at Seoul National University (Seoul, South Korea, November 2013).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence :

- Medhi Bouaziz, Introduction to Programmation and Computer Sciences (Practical Works), 36ETD, L1, Université Paris-Diderot, France.
- Mehdi Bouaziz, Intensive course of algorithm, 35h ETD, Epita, Le Kremlin-Bicêtre, France.

- Mehdi Bouaziz, Preparation to the International Olympiad in Informatics, 40h ETD, Epita, Le Kremlin-Bicêtre, France.
- Mehdi Bouaziz took the French team to the International Olympiad in Informatics at Brisbane, Australia.
- Tie Cheng, Introduction to algorithmics, 42h ETD, L3, École Polytechnique, Palaiseau, France.
- Jérôme Feret, and Caterina Urban, Mathematics, 40h ETD, L1, Licence Frontiers in Life Sciences (FdV), Université Paris-Descartes, France.
- Xavier Rival, Introduction to algorithmics, 40h ETD, L3, École Polytechnique, Palaiseau, France.
- Arnaud Spiwack, Introduction to recursive programming, 42h ETD, Université Pierre et Marie Curie (Paris 6), Paris, France.
- Antoine Toubans, Mathematics, 40hETD, L2, Université de Jussieu, Paris, France.

Master :

- Jérôme Feret, Computational Biology, 9h ETD, M1. Interdisciplinary Approaches to Life Science (AIV), Master Program, Université Paris-Descartes, France.
- Jérôme Feret, Antoine Miné, and Xavier Rival, Abstract Interpretation: application to verification and static analysis, 72h ETD, M2. Parisian Master of Research in Computer Science (MPRI). École normale supérieure. France.
- Xavier Rival, 20h ETD, M1, École Polytechnique, Palaiseau, France.
- Mehdi Bouaziz, Tie Cheng, Jérôme Feret, Antoine Miné, Xavier Rival, Caterina Urban, Abstract Interpretation, 30h ETD, M1-M2. East China Normal University, Shanghai, China.

Doctorat :

- Jérôme Feret, Abstract interpretation of intracellular signaling pathways, 4.5h ETD, CNRS Summer School on Formal modeling of Biological Regulatory Networks, Porquerolles, France.
- Antoine Miné, Inferring affine program invariants by abstract interpretation, 4.5h ETD, Spring School on Polyhedra Code Analysis and Optimization, Saint Germain au Mont d'Or, France, May 13–17, 2013.

### 9.2.2. Supervision

HdR : Antoine Miné, Static analysis by abstract interpretation of concurrent programs, École normale supérieure, 28 May 2013.

PhD in progress:

- Mehdi Bouaziz, Static analysis of security properties by abstract interpretation. November 2011, Patrick Cousot and Jérôme Feret, École Normale Supérieure.
- Ferdinanda Camporesi, Abstraction of Quantitative Semantics of Rule-based models, January 2009, Radhia Cousot and Jérôme Feret (co-directed thesis with Maurizio Gabrielli, University of Bologna).
- Arlen Cox, Representing dynamic languages heaps using parametric, modular, container abstract domains, 2013, Xavier Rival, École Normale Supérieure (co-directed thesis with Bor-Yuh Evan Chang, University of Colorado at Boulder).
- Tie Cheng, Static analysis of spreadsheet macros, October 2011, Xavier Rival, École Polytechnique.
- Vincent Laviron, Static Analysis of Functional Programs by Abstract Interpretation, October 2009, Patrick Cousot, École Normale Supérieure.

- Jiangchao Liu, Verification of the memory safety of a micro-kernel, December 2013, Xavier Rival, École Normale Supérieure
- Antoine Toubhans, Combination of shape abstract domains, October 2011, Xavier Rival, École Doctorale de Paris Centre
- Caterina Urban, Static Analysis of Functional Temporal Properties of Programs by Abstract Interpretation, November 2011, Radhia Cousot and Antoine Miné, École Normale Supérieure.

### **9.2.3. *Juries***

— Jérôme Feret reviewed the PhD thesis of Tatjana Petrov (ETH Zürich, Switzerland, June 6, 2013). He was also in the jury of Geoffroy Andrieux PhD thesis (Université Rennes 1, France, July 18, 2013).

— Antoine Miné reviewed the PhD thesis of Yassamine Seladji (CEA, Palaiseau, France, October 31, 2013). He was also in the jury of the PhD theses of Ramakrishna Upadrasta (Université Paris Sud, March 13, 2013) and Zhoulai Fu (Université Rennes 1, July 22, 2013).

— Xavier Rival reviewed the PhD theses of Valentin Perelle (Verimag, Université Joseph Fourier, Grenoble, February 22, 2013) and of Gideon Smeding (Inria Rhône-Alpes, Université Joseph Fourier, Grenoble, December 19, 2013).

## **9.3. Popularization**

Xavier Rival gave an interview about the verification of safety critical embedded softwares to the “Inriality” online magazine, in July 2013.

## AOSTE Project-Team

## 9. Dissemination

### 9.1. Scientific Animation

#### **Robert de Simone**

General Chair: RTNS 2013.

Technical Program Committee: EmSoft 2013, MEMOCODE2013, FDL2013, CSDM 2013.

Board of Administrators: CIM PACA Design Platform association

#### **Yves Sorel**

Technical Program Committee: RTNS 2013, DASIP 2013

Editorial Board: Traitement du Signal Journal

Steering Committee: OCDS/SYSTEM@TIC Paris-Region Cluster

#### **Liliana Cucu-Grosjean**

Inria Evaluation Commission: elected member

Technical Program Committee: IEEE RTSS 2013, IEEE ETFA 2013, DATE 2013 and IEEE SIES'2013.

Steering Committee and co-chair: RTSOPS2013, WMC2013 (workshops)

#### **Dumitru Potop Butucaru**

Technical Program Committee: Memocode 2013, ACSD 2013, EsISyn 2013, APRES 2013

#### **Julien Deantoni**

General Chair: organizer and chair: First international workshop on globalization of modeling languages (GeMoC)

Technical Program Committee: CIEL2013, GlobalDSL2013, Journal of System and Software

#### **Laurent George**

General Chair: ECRTS 2013

Program Committee Chair: ReTiMiCS 2013

Scientific Co-chair: ACTRISS group, supported by GDR ASR (CNRS, France) (<http://www.actriss.org/>).

### 9.2. Teaching - Supervision - Juries

#### 9.2.1. Teaching

Licence: Julien Deantoni, Computer Environnement, 30 h, L2 level, Polytech engineering school of University Nice/Sophia-Antipolis (UNS EPU) France.

Master: Julien Deantoni, Model Driven Engineering, 22 h, M2, UNS EPU.

Master : Julien Deantoni, C++ and Object Oriented Programming, 54 h, M1, UNS EPU.

Master: Julien Deantoni, Embedded Software and systems, 7 h, M2, UNS EPU.

Master: Julien Deantoni, VHDL, 40 h, M1, UNS EPU.

Licence: Sid-Ahmed-Ali Touati, Assembleurs et jeux d'instructions, 52h, L3, UNS Licence info.

Licence: Sid-Ahmed-Ali Touati, Systèmes informatiques, 30h, L1, UNS Licence info.

Master: Sid-Ahmed-Ali Touati, Programmation efficaces pour programmes embarqués et hautes performances, 16h, M1 Master ISI.



Master: Sid-Ahmed-Ali Touati, Systèmes d'exploitation avancés, 39h, M1, UNS Master ISI.

Master: Sid-Ahmed-Ali Touati, Programmation efficace et Optimisation de code, 16h, M1, UNS Master ISI.

Master: Sid-Ahmed-Ali Touati, Architecture des Processeurs, 15h, M1, UNS EPU.

Licence : Frédéric Mallet, Introduction à la Programmation Objet, 45h, L1, UNS.

Licence: Frédéric Mallet, Architecture des ordinateurs, 45h, L3, UNS.

Master: Frédéric Mallet, Programmation Avancée et Design Patterns, 93h, M1, UNS.

Master: Frédéric Mallet, Java pour l'Informatique Industrielle, 24h, M1, UNS.

Master: Frédéric Mallet, Architectures des ordinateurs, 12h, M1, UNS.

Master: Frédéric Mallet, Formal Models for Network-On-Chips, 3h, M2, UNS.

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.

Master : Robert de Simone, Formal Models for Networks-on-Chip, 24h , M2, UNS.

Master : Robert de Simone, Semantics of Embedded and Distributed Systems, 24 h, M1, UNS.

Master: Yves Sorel, Optimization of distributed real-time embedded systems, 24H, M2, University Paris Sud.

Master: Yves Sorel, Distributed real-time systems, 26H, M2, University Paris Est

Master: Yves Sorel, Specification and formal models for embedded systems, 28H, M2, ENSTA Engineering School Paris

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

Master: Dumitru Potop and Thomas Carle, Programmation synchrone des systèmes temps-réel, 8h, M1, EPITA Engineering School Paris

Licence: Laurent George, Java and Shell programming 48h, L1, IUT RT UPEC

Master: Laurent George, Distributed Real-Time Systems, 24h, M2, UPEC

### 9.2.2. Supervision

PhD: Carlos Ernesto Gomez-Cardenas, *Environnement multi-vues pour la métamodélisation sémantique formelle de systèmes embarqués*, UNS, defended Dec 20th 2013, supervised by Frédéric Mallet, co-supervised by Julien deAntoni.

PhD in progress: Matias Vara-Larsen, *Toward a formal and hierarchical timed model for concurrent heterogeneous model*, ANR/CNRS, started November 2012, supervised by Frédéric Mallet, co-supervised by Julien Deantoni.

PhD in progress: Ameni Khecharem, *High-Level modeling of hierarchical power management policies in SoCs*, UNS, started October 2012, supervised by Robert de Simone.

PhD in progress: Ying Lin, *Formal Analysis of polychronous models with MARTE/CCSL*, East China Normal University, started September 2011, supervised by Jing Liu (ECNU), co-supervised by Frédéric Mallet.

PhD in progress: Emilien Kofman, *Conception Haut Niveau Low Power d'objets mobiles communicants*, UNS, started Oct 2013, supervised by Robert de Simone, co-supervised by François Verdier (UMR CNRS/UNS LEAT).

PhD in progress: Amin Oueslati, *Modélisation conjointe d'applications et d'architectures parallèles embarqués en pratique*, UNS, started Jan 2014, supervised by Robert de Simone.

PhD in progress: Falou Ndoye, *Multiprocessor real-time scheduling taking into account preemption cost*, started January 2011, supervised by Yves Sorel.

PhD in progress: Manel Djemal, *Distributed real-time scheduling onto NoC architectures*, EDITE/UPMC, started Nov. 2010, co-supervised by Alix Munier (UPMC/Lip6) and D. Potop-Butucaru.

PhD in progress: Thomas Carle, *Real-time implementation of embedded control applications with conditional control onto time-triggered architectures*, EDITE/UPMC, started Sep. 2011, supervised by D. Potop-Butucaru.

PhD : Dorin Maxim, Probabilistic Real-Time Systems, University of Lorraine, December 10th, 2013, co-supervised by Liliana Cucu-Grosjean and Françoise Simonot-Lion

### 9.2.3. Juries

*Robert de Simone*

PhD reviewer: Adnan Bouakaz (U. Rennes 1), Jagadish Suryadevara (Malardalen U., Sweden)

HDR reviewer: Sébastien Gérard (U. Paris 11 Orsay).

*Frédéric Mallet*

PhD reviewer: Xin An (U. Grenoble 1), Clément Guy (U. Rennes 1)

PhD examiner: João Claudio Rodrigues Américo (U. Grenoble 1), Jair Gonzalez (Mines-Telecom)

*Laurent George*

PhD reviewer: Xiaoting Li (ENSEEIH), Ahmed Daghsen (UTC Compiègne)

*Yves Sorel*

PhD reviewer: Yassine Ouhammou (ENSMA Poitiers)

PhD examiner: Pierre Courbin (U. Paris Est)

*Dumitru Potop Butucaru*

PhD reviewer: Léonard Gérard (U. Paris Sud)

## 9.3. Popularization

We held a thematic Spring School in late April in Shanghai, based on the topics of the DAESD associated-team 8.4.1.1 . It was open to students from all over China, and we invited also chinese speakers (but the attendance of around sixty students was mostly from several universities in and around Shanghai).

## **CASCADE Project-Team**

### **6. Dissemination**

#### **6.1. Editorial Boards**

##### Editor-in-Chief

- of the *International Journal of Applied Cryptography (IJACT)* – Inderscience Publishers: David Pointcheval

##### Associate Editor

- of *Security and Communication Networks*: David Naccache (editor)
- of *Journal of Cryptographic Design*: David Naccache (editor)
- of *Encyclopedia of Cryptography and Security*: David Naccache (editor)
- of *Journal of Computer Security, IOS Press*: David Naccache (associate editor)
- of *Open Journal of Information Security and Applications, SOP*: David Naccache (editor)
- of *Cryptologia* – Taylor & Francis: David Naccache (editor)
- of *Information Processing Letters* – Elsevier: David Pointcheval
- of *IEEE Transactions on Information Forensics and Security*: Michel Abdalla
- of *IET Information Security*: Michel Abdalla

##### Columnist (in charge of the bi-monthly CryptoCorner)

- of the *IEEE Security and Privacy Magazine*: David Naccache

#### **6.2. Program Committees**

- FIC - January, Lille, France: David Naccache
- ComManTel - January, Ho Chi Minh City, Vietnam: David Naccache
- PKC - February, Nara, Japan: David Naccache
- CT-RSA - February, San Francisco, USA: Michel Abdalla
- IIT - March, Al Ain, UAE: David Naccache
- WAHC - April, Okinawa, Japan: David Naccache
- LightSec - May, Gebze, Turkey: David Pointcheval
- Eurocrypt - May, Athens, Greece: Vadim Lyubashevsky
- ASIACCS - May, Hangzhou, China: David Naccache
- HOST - June, Austin, Texas, US: David Naccache
- ACISP - July, Brisbane, Australia: Michel Abdalla
- SECRYPT - July, Reykjavik, Iceland: David Naccache
- Indocrypt - July, Mumbai, India: David Naccache
- Crypto - August, Santa Barbara, USA: Vadim Lyubashevsky
- ICACCI (SSCC) - August, Mysore, India: David Naccache
- CHES - August, Santa Barbara, CA, USA: David Naccache
- SPACE - October, Kharagpur, India: David Naccache
- IWSEC - November, Okinawa, Japan: Damien Vergnaud
- RIVF - November, Hanoi, Vietnam: David Naccache

- ICICS - November, Beijing, China: David Pointcheval, David Naccache
- Pairing - November, Beijing, China: Damien Vergnaud
- ISC - November, Dallas, Texas: David Naccache
- SBSeg - November, Manaus, Brazil: Michel Abdalla (Program Chair)
- ACM CCS - November, Berlin, Germany: David Naccache
- CANS - November, Paraty, Brazil: Michel Abdalla (Program Chair), Damien Vergnaud
- CARDIS - November, Berlin, Germany: David Naccache
- Asiacrypt - December, Bengaluru, India: Michel Abdalla, David Pointcheval, Hoeteck Wee
- IMACC - December, Oxford, UK: David Naccache
- Botconf - December, Nantes, France: David Naccache

## **6.3. Teaching - Supervision - Juries**

### **6.3.1. Teaching**

- Licence: David Naccache, Introduction to computer science, L1, Univ. Paris II
- Master: David Naccache, Scientific programming through practice, M1, ENS
- Master: David Naccache, Jacques Stern, Damien Vergnaud, Introduction to Cryptology, M1, ENS
- Master: Michel Abdalla, David Pointcheval, Vadim Lyubashevsky, Cryptography, M2, MPRI
- Master: David Naccache, Computer Security, M2, Univ. Paris II
- Master: David Naccache, Computer Security, M2, Beijing Jiaotong University
- Master: David Naccache, Risk Management, M2, Univ. Paris II
- Master: David Naccache, Computer Forensics, M2, Univ. Paris II
- Master: David Naccache, Computer Security, M2, University of Luxembourg
- Master: David Pointcheval, Cryptography, M2, ESIEA

### **6.3.2. Supervision**

- PhD: Jérémy Jean, Cryptanalyse de primitives symétriques basées sur le chiffrement AES, September 24th 2013, Pierre-Alain Fouque
- PhD: Mario Strefer, Diffusion chiffrée avec traçage de traîtres, ENS, September 26th 2013, David Pointcheval
- PhD: Léo Ducas, Signatures fondées sur les réseaux euclidiens: attaques, analyses et optimisations, Univ. Paris 7, November 12th 2013, Phong Nguyen
- PhD: Patrick Derbez, Attaques par rencontre par le milieu sur l'AES, ENS, December 9th 2013, Pierre-Alain Fouque
- PhD: Aurore Guillevic, Étude de l'arithmétique des couplages sur des courbes algébriques pour la cryptographie, ENS, December 20th 2013, Phong Nguyen & Damien Vergnaud
- PhD in progress: Tancrede Lepoint, Lattice-based cryptography, 2011, Vadim Lyubashevsky & David Pointcheval
- PhD in progress: Sylvain Ruhault, Randomness in cryptography, 2011, David Pointcheval & Damien Vergnaud
- PhD in progress: Sonia Belaid, Leakage-resilient cryptography, 2012, Michel Abdalla
- PhD in progress: Fabrice Ben Hamouda, Leakage of information in cryptography, 2012, Michel Abdalla & David Pointcheval
- PhD in progress: Diana Maimut, Fully Homomorphic Encryption, 2012, David Naccache

- PhD in progress: Thomas Prest, Lattice-based cryptography, 2012, Vadim Lyubashevsky & David Pointcheval
- PhD in progress: Olivier Sanders, Delegation of computations, 2012, David Pointcheval
- PhD in progress: Mario Cornejo, Security for the cloud, 2013, Michel Abdalla
- PhD in progress: Alain Passelègue, Security against related-key attacks , 2013, Michel Abdalla
- PhD in progress: Adrian Thillard, Counter-measures against side-channel attacks and secure multi-party computation, 2013, Damien Vergnaud
- PhD in progress: Houda Ferradi, Biometric protocols and mobile security, 2013, David Naccache
- PhD in progress: Simon Cogliani, Authenticated Encryption, 2013, David Naccache

### 6.3.3. *Juries*

- PhD: Maria Christofi *Preuves de sécurité outillées d'implémentations cryptographiques* Univ. Versailles – Saint-Quentin, February 15th 2013: David Naccache
- PhD: Alfredo Rial, *Privacy-Preserving E-Commerce Protocols*, KU Leuven, Belgium, March 28th 2013: David Pointcheval
- HDR: Jessy Clédière *Treize années au Centre d'Evaluation de la Sécurité des Technologies de l'Information du CEA-Grenoble (CESTI-Léti)* Institut Néel (CNRS), Grenoble, June 19th 2013: David Naccache
- PhD: Alex Ruiz, *Contributions to Secret Sharing and Other Distributed Cryptosystems*, Univ. Politècnica de Catalunya, July 22nd 2013: Michel Abdalla
- PhD: David Oswald *Implementation Attacks: From Theory to Practice* Univ. Bochum, Germany, August 1st 2013: David Naccache
- HDR: Valérie Nacheff *Cryptographie, Attaques génériques, Authentification* Univ. Cergy-Pontoise, September 25th 2013: David Naccache
- PhD: Mario Strefler, *Diffusion chiffrée avec traçage de traîtres*, ENS, September 26th 2013: David Pointcheval (supervisor), David Naccache
- PhD: Léo Ducas, *Signatures Fondées sur les Réseaux Euclidiens: Attaques, Analyses et Optimisations*, Univ. Paris 7, November 12th 2013: David Pointcheval, Vadim Lyubashevsky
- PhD: Jannik Dreier, *Formal Verification of Voting and Auction Protocols: From Privacy to Fairness and Verifiability*, Univ. Grenoble, November 25th 2013: David Pointcheval (chair)
- PhD: Sébastien Tiran *Side Channels in the Frequency Domain* Univ. Montpellier 2, December 11th 2013: David Naccache
- PhD: Patrick Derbez, *Attaques par Rencontre par le Milieu sur l'AES*, ENS, December 9th 2013: David Pointcheval
- PhD: Julien Devigne, *Protocoles de re-chiffrement pour le stockage de données*, Univ. de Caen – Basse-Normandie, December 13th 2013: Damien Vergnaud
- PhD: Viet Cuong Trinh, *Sécurité et efficacité des schémas de diffusion de données chiffrés*, Univ. Paris 8, December 19th 2013: Michel Abdalla, David Pointcheval
- PhD: Aurore Guillevic, *Étude de l'arithmétique des couplages sur les courbes algébriques pour la cryptographie*, ENS, December 20th 2013: David Pointcheval, Damien Vergnaud (advisor)

## 6.4. Invited Talks

### 6.4.1. *At Conferences*

- Vadim Lyubashevsky: “The LPN Problem in Cryptography” at the 14th IMA International Conference on Cryptography and Coding. Oxford, UK, December 2013

- David Naccache (common work with Roman Korkikian and Guilherme Ozari de Almeida): “Instantaneous Frequency Analysis” at SECRYPT 2013, the 10th International Conference on Security and Cryptography. Reykjavik, Iceland, July, 2013
- David Naccache (common work with Eric Brier and Li-yao Xia): “How to Sign Paper Contracts? Conjectures & Evidence Related to Equitable & Efficient Collaborative Task Scheduling” at Open Problems in Mathematical and Computational Sciences Conference, Istanbul, Turkey, September 2013.
- David Naccache (common work with Hervé Chabanne, Jean-Michel Cioranescu, Vincent Despiegel and Jean-Christophe Fondeur) “Using Hamiltonian Totems as Passwords” at SantaCrypt 2013, Prague, Czech Republic, November 2013

#### **6.4.2. At Organized Schools**

- Vadim Lyubashevsky: “Lattice-Based Cryptography” at the Ecole de Printemps d’Informatique Theorique. Autrans, France, March 2013
- Vadim Lyubashevsky: “Lattice Cryptography” (5 hour course) at the Summer School on Lattices and FHE at Chongqing University. Chongqing, China, July 2013
- Vadim Lyubashevsky: “Lattice-Based Digital Signatures” at the Workshop on Lattice-Based Cryptography. Bangalore, India, December 2013

### **6.5. Scientific Animation**

#### **6.5.1. Organisation of Events**

- a weekly seminar is organized: <http://www.di.ens.fr/CryptoSeminaire.html>

#### **6.5.2. Steering Committees of International Conferences**

- steering committee of CANS: David Pointcheval
- steering committee of PKC: David Pointcheval, David Naccache
- steering committee of FDTC: David Naccache (chair)
- steering committee of PROOFS: David Naccache
- steering committee of LATINCRYPT: Michel Abdalla
- steering committee of PAIRING: Michel Abdalla

#### **6.5.3. Board of International Organizations**

- Board of the *International Association for Cryptologic Research* (IACR): Michel Abdalla (2013 – 2015), David Pointcheval (2008–2016)

#### **6.5.4. French Research Community**

- Recruitment committee at Université of Rennes (PR 27): David Pointcheval
- Recruitment committee at Université of Versailles (MCF 27): Damien Vergnaud
- Recruitment committee at Université Paris 1 (PR 27): David Naccache
- Recruitment committee at Université Paris 2 (MCF 27): David Naccache
- Recruitment committee at Université Paris 2 (MCF 26): David Naccache
- Recruitment committee at École normale supérieure (MCF 27): Damien Vergnaud
- Recruitment committee at École normale supérieure (MCF 27): Damien Vergnaud
- Appointed member of the *Conseil National des Universités* (CNU): Damien Vergnaud
- Scientific board member, Agence pour les mathématiques en interaction avec l’entreprise et la société: David Naccache
- Scientific board member, Conseil supérieur de la formation et de la recherche stratégiques (CSFRS, a French government body): David Naccache
- Qualified Appointee, Banque de France’s Payment Security Observatory: David Naccache

## CONTRAINTES Project-Team

### 9. Dissemination

#### 9.1. Scientific Animation

- Grégory Batt's invited seminars:
  - Long-term model predictive control of gene expression, in *Bison seminar*, ETHZ, Zurich, March 2013
  - Modeling intrinsic and extrinsic variability: models, model identification methods and noise conversion, *Haredhol seminar*, ENS Paris, Paris, April 2013
  - Comprendre et contrôler le fonctionnement des cellules: apport de la biologie computationnelle, *Seminar Groupement de recherche interdisciplinaire sur les systèmes biologiques (Grisbi)*, Montpellier, Oct 2013
  - Comprendre et contrôler le fonctionnement des cellules: apport de la biologie computationnelle, *Symposium franco-britannique sur la biologie de synthèse*, London, Oct 2013
  - Cells driven by computers. *Pharmacometry and Bioinformatics Day*, Sanofi, Paris, Dec 2013

He has been a member of the EraSynBio evaluation committee (Lisbon), judge at iGEM competition (Lyon), and animator of the axis "Modélisation des réseaux biologiques, biologie systémique et synthétique" of the Groupement de Recherche "Bioinformatique moléculaire" (GdR BIM). He was member of the PhD advisory committees of Adrien Henry (laboratoire de génétique végétale du Moulon, Orsay) and of Géraldine Célière (Bang group, Inria Paris-Rocquencourt). He was a reviewer for Integrative Biology, PLoS Computational Biology, ACS Synthetic Biology, European Conference on Control, and Computational Methods in Systems Biology conference

- Xavier Duportet's invited seminar and contributed poster presentations:
  - Keystone Symposia on Precision Genome Engineering and Synthetic Biology, Colorado, USA, March 17-22
  - Synthetic Biology conference (SB6.0), London, July 9-12

He has been involved in technological transfer activities:

- Provisional patent application: High-throughput discovery of recombinase sites towards the engineering of recombinase specificity
- Consulting on mammalian synthetic circuit design for Lung LLC, USA

Xavier is also the President of a non-profit organization to promote science and technology entrepreneurship among European students and scientists and organizing the Hello Tomorrow Challenge, a European startup competition.

- François Fages is a member of
  - Editorial Board of **RAIRO Operations Research**,
  - Steering Committee of the International Conference series on Computational Methods in Systems Biology (CMSB).
  - Scientific Advisory Board of the Doctorate School Frontières du Vivant of the University Paris Descartes
  - "Comité de pilotage" of the OSEO BioIntelligence project, coordinated by Dassault-Systèmes
  - "Comité scientifique du LIFO", University of Orléans

- “Commission de spécialistes”, University of Lille.

He was member of the program committees of CHR’13 (Tenth International Workshop on Constraint Handling Rules Berlin, Germany – July 13th, 2013), CMSB’13 (Eleventh Conference on Computational Methods in Systems Biology, IST Klosterneuburg, Austria, September 2013), FroCoS’13 (Frontiers of Combining Systems, co-located with Tableaux 2013, Nancy, France, September 18-20, 2013), HSB’13 (Second International Workshop on Hybrid Systems and Biology associated to ECAL 2013, Taormina, Italy, September 2, 2013), ICLP’13 (29th International Conference on Logic Programming 24 - 29 August 2013, Istanbul, Turkey), WCB’13 (Workshop on Constraint-Based-Methods for Bioinformatics, Budapest, Hungary, co-located with CP’13, Uppsala, Sweden September 16-20, 2013), ICORES’13 (second International Conference on Operations Research and Enterprise Systems, held in conjunction with ICAART 2013 and ICPRAM 2013, Barcelona, Spain, Feb 2013).

He has reviewed articles for the following journals: ACM Transactions on Computational Logics, Artificial Intelligence, Journal of Logic and Computation, PLOS Computational Biology, Annals of Operations Research, Information and Computation, Journal of Mathematical Biology, Constraints, BMC Systems Biology,

François Fages was reviewer of research grants for

- the Netherlands Organisation for Scientific Research (NWO),
- the Research Foundation Flanders (FWO)

Invited talks:

- BRICS-CCI, 1st BRICS Countries Conference on Computational Intelligence, Recife, Brazil, October 2013.
- Symposium Biointelligence, Sophia-Antipolis, July 2013.
- Interdisciplinary Symposium on Signals and Systems for Medical Applications, Paris, 3-4 Jun 2013.
- Thierry Martinez was member of the Program Committee of CHR’13. He acted as reviewer for the journal Constraints, and for the conferences Concur’13, FRODOS’13 and ICLP’13.
- Sylvain Soliman acted as reviewer for LICS’13, and CMSB’13, and as member of the Program Committees of WLPE’13, JFPC’13 and SASB’13. He was also reviewer for the Austrian Science Fund (FWF) stand alone project proposals.
- Denis Thieffry is currently
  - member of the INSERM CSS2 evaluation/recruitment commission;
  - member of the board of the PhD Program Complexity in Post-Genomic Biology of the University of Torino;
  - member of the program committees for ISMB, JOBIM, CMSB, and SASB;
  - Editor of BioSystems;
  - Associated Editor of PLoS Computational Biology; as well as of BMC Systems Biology;
  - Adviser for the PLoS Biology Education series.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Contraintes is affiliated to the Doctoral school of Mathematical Science of the University Paris Diderot, and to the interdisciplinay Doctoral school “Frontières du Vivant” of the University Paris Descartes.



The following courses have been given by members of Contraintes:

Ecole thématique CNRS “Biologie des Réseaux”, Ile de Porquerolles, François Fages (6h), Denis Thieffry (4h).

Master M2 course C2-19 on *Computational Methods for Systemic and Synthetic Biology*, Master Parisien de Recherche en Informatique (MPRI) François Fages (responsable, 12h), Grégory Batt (12h), Denis Thieffry (12h).

Interdisciplinary Master in Life Science at the Ecole Normale Supérieure, Paris. Denis Thieffry (coordinator).

Master M2 course C2-35-1 on *Constraint Programming*, Master Parisien de Recherche en Informatique (MPRI) Sylvain Soliman (responsable, 24h) [beginning of the 2013-2014 academic year].

Master M1 course on *Computational Biology*, Master Approches Interdisciplinaires du Vivant (AIV), Grégory Batt (coordinator, 48h).

Master M2 course *Dynamical Modelling of Cellular Regulatory Networks*, Master of Biology of Cellular Systems, Grégory Batt (6h).

### 9.2.2. Supervision

PhD : Faten Nabli, “Approches de programmation par contraintes pour l’analyse des propriétés structurelles des réseaux de Petri et application aux réseaux biochimiques”, Université Paris Diderot, Paris, 10/07/2013, Dir. François Fages and Sylvain Soliman

PhD : Jannis Uhlendorf, “Real-time feedback control of gene expression”, Paris Diderot University, Paris, 19/04/2013, Dir. Grégory Batt and Pascal Hersen (MSC)

PhD in progress : François Bertaux, Université Pierre et Marie Curie, Paris, Sept 2011, Dir. Dirk Drasdo (EPI BANG) and Grégory Batt

PhD in progress : Xavier Duportet, Université Paris Descartes, Paris, Oct 2010, Dir. Grégory Batt, François Fages and Ron Weiss (MIT)

PhD in progress : Steven Gay, Université Paris Diderot, Paris, Oct 2009, Dir. François Fages and Sylvain Soliman,

PhD in progress : David Fournier, Université Paris Diderot, Paris, Oct 2011, Dir. François Fages and Denis Mulard (General Electric),

PhD in progress : Jean-Baptiste Lugagne, Université Paris Diderot, Paris, Oct 2012, Dir. Grégory Batt, François Fages and Pascal Hersen (MSC)

PhD in progress : Artemis Llamosi, Université Paris Diderot, Paris, Nov 2012, Dir. Grégory Batt, Jean-Marc di Meglio and Pascal Hersen (MSC)

PhD in progress : Pauline Traynard, Université Paris Diderot, Paris, Oct 2012, Dir. François Fages and Denis Thieffry (ENS)

PhD in progress : Luma Vittorino, Université Paris Diderot, Paris, Oct 2012, Dir. François Fages,

### 9.2.3. Juries

HDR of Cédric Lhoussaine, University of Lille. Dec 2013. Reviewer François Fages.

HDR of Nicolas Le Novère, University of Bordeaux. Nov 2013. Reviewer François Fages and Denis Thieffry.

PhD Thesis defense of Geoffrey Andrieux. University of Rennes. Jul 2013. François Fages.

PhD Thesis defense of Sucheendra Palaniappan, NUS, Singapore. June 2013. Reviewer Grégory Batt.

PhD Thesis defense of Andreas Miliadis-Argeitis, ETHZ. March 2013. Reviewer Grégory Batt.

MSc Thesis defenses of Lakshmeesh Maruthi and Yifan Pan, TU Delft. September 2013. Grégory Batt.

## CRYPT Team

## 6. Dissemination

### 6.1. Scientific Animation

#### 6.1.1. Editorial Boards

- Advances in Mathematics of Communications: Xiaoyun Wang
- Journal of Cryptology: Phong Nguyen and Xiaoyun Wang
- Journal of Mathematical Cryptology: Phong Nguyen
- Natural Science Review: Xiaoyun Wang

#### 6.1.2. Program Committees of International Conferences

- EUROCRYPT '13 - May, Athens, Greece: Phong Nguyen (Program co-chair)
- ASIACRYPT '13 - December, Bengaluru, India: Phong Nguyen and Xiaoyun Wang

### 6.2. Teaching - Supervision - Juries

#### 6.2.1. Teaching

PhD: Phong Nguyen, Advanced Cryptanalysis and Lattice Algorithms, 12h, CAS, China

#### 6.2.2. Supervision

PhD: Léo Ducas, Signatures fondées sur les réseaux euclidiens: attaques, analyses et optimisations, Univ. Paris 7, November 12th 2013, Phong Nguyen

PhD: Yuanmi Chen, Réduction de réseau et sécurité concrète du chiffrement complètement homomorphe, Univ. Paris 7, November 13th 2013, Phong Nguyen

PhD: Aurore Guillevic, Étude de l'arithmétique des couplages sur les courbes algébriques pour la cryptographie, ENS, December 20th 2013, Damien Vergnaud and Phong Nguyen

PhD: Yupeng Jiang, CAS, Summer 2013, Yingpu Deng

#### 6.2.3. Juries

PhD: Léo Ducas, Signatures fondées sur les réseaux euclidiens: attaques, analyses et optimisations, Univ. Paris 7, November 12th 2013, Phong Nguyen (supervisor)

PhD: Yuanmi Chen, Réduction de réseau et sécurité concrète du chiffrement complètement homomorphe, Univ. Paris 7, November 13th 2013, Phong Nguyen (supervisor)

### 6.3. Popularization

Phong Nguyen gave several invited talks:

- [17] at the Workshop on Number Theory, Geometry and Cryptography in UK.
- [16] at the Workshop on Algebraic Aspects of Cryptography in Japan.

## DEDUCTEAM Exploratory Action

# 8. Dissemination

## 8.1. Scientific Animation

- Guillaume Burel has been a PC member of IWIL.
- David Delahaye has been a PC member of PxTP 2013. He is a member of the steering committee of Calculemus since 2010.
- Gilles Dowek has been a PC member of RTA, ICECCS, NFM and eMooc.
- Gilles Dowek is a member of the Cerna.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Bachelor: Ali Assaf, Les bases de la programmation et de l'algorithmique, 36 hours, third year, École Polytechnique, France

Bachelor: Ali Assaf, Algorithmique et programmation, 36 hours, third year, École Polytechnique, France

Bachelor: Alejandro Díaz-Caro, Mathématiques 1: Calcul et fonctions, 72 hours, 1st year, Université Paris X, France

Bachelor: Alejandro Díaz-Caro, Statistiques et probabilités, 6 hours, second year, Université Paris X, France

Bachelor: Alejandro Díaz-Caro, Mathématiques 2, 24 hours, first year, Université Paris X, France

Bachelor: Alejandro Díaz-Caro, Méthodologie de la mesure en sciences humaines, 48 hours, first year, Université Paris X, France

Bachelor: Ronan Saillard, Programmation Orientée Objet en Java, 27 hours, Telecom ParisTech, France

Bachelor: Guillaume Burel, Programmation avancée, 25,5 hours, third year, ENSIIE, France

Bachelor: Guillaume Burel, Logique, 10,5 hours, third year, ENSIIE, France

Bachelor: Guillaume Burel, Projet informatique, 22,75 hours, third year, ENSIIE, France

Master: Guillaume Burel, Systèmes et langages formels, 21 hours, first year, ENSIIE, France

Master: Guillaume Burel, Compilation, 36,75 hours, first year, ENSIIE, France

Master: Guillaume Burel, Sémantique des langages de programmation, 21hours, second year, ENSIIE, France

Master: Pierre Halmagrand, Sureté fonctionnelle, 12,5 hours, second year, CNAM Saint-Denis, France

Master: Olivier Hermant, Méthodes formelles, 21 hours, second year, ISEP, France

Master: Olivier Hermant, Algorithmique, 9 hours, second year, ISEP, France

Master: Olivier Hermant, Complétude et élimination des coupures, 1,5 hours, second year, Université Paris Diderot, France

Master: Gilles Dowek, Fondement des systèmes de preuves, 27 hours, second year, MPRI.

Guillaume Burel is in charge of the 4th, 5th, and 6th semesters of the engineering degree at ENSIIE.

David Delahaye has taught at *Cnam* courses in the following topics: Algorithmics, Object-Oriented Programming Languages, Safety and Security, Formal Proofs and Automated Deduction.

### 8.2.2. Supervision

PhD in progress : Ali Assaf, Interoperability of proof systems, September 2012, Gilles Dowek and Guillaume Burel

PhD in progress: Raphaël Cauderlier, Mécanismes orientés objets pour le raffinement de données et d'algorithmes dans les systèmes de preuve, September 2013, Catherine Dubois

PhD in progress : Simon Cruanes, Automated reasoning modulo theories, August 2012, Gilles Dowek and Guillaume Burel

PhD in progress : Kailiang Ji, Model checking and automated theorem proving, September 2012, Gilles Dowek

PhD in progress: Kim-Quyen Ly, automated formal verification of termination certificates, October 2011, Frédéric Blanqui

PhD in progress: Pierre Halmagrand, Dédution automatique modulo, November 2013, David Delahaye and Olivier Hermant and Damien Doligez

PhD in progress: Vivien Maisonneuve, Préservation de preuve de système lors de la compilation sur micro-contrôleur, October 2011, François Irigoien and Olivier Hermant

PhD: Pierre Néron: A Quest for Exactness: Program Transformation for Reliable Real Numbers, December 2013, Gilles Dowek.

PhD in progress: Ronan Saillard, Dedukti: un vérificateur de preuves universel, October 2012, Pierre Jouvelot and Olivier Hermant

- David Delahaye, Olivier Hermant, and Damien Doligez have supervised the Master internship of Pierre Halmagrand.
- Catherine Dubois has supervised the undergrad internship of Frédéric Lang.

### 8.2.3. PhD and Habilitation juries

- Catherine Dubois has been a member of the PhD juries of Mounira Kezadri and Asma Tafat.
- Gilles Dowek has been a member of the PhD juries of Jianhua Gao, Maël Pégny, Alberto Naibo, and to the HDR jury of Benjamin Nguyen.

## 8.3. Popularization

- **Seminars in international workshops without peer review**
  - Alejandro Díaz-Caro. Identifying isomorphic propositions. In *First Workshop of ANR-NSFC project LOCALI*. Beijing, China. November 4–6.
  - Pierre Halmagrand. Proof compression and certification in Zenon Modulo. In *Third Workshop of the Amadeus Project for Proof Compression*. Nancy, France. September 16.
  - Gilles Dowek has participated to the workshop Locali in Beijing where he has given a talk.
- **Seminars in national workshops without peer review**
  - Alejandro Díaz-Caro. Identifying isomorphic propositions. In *Journées LAC*. Créteil, France. November 28–29.
  - Alejandro Díaz-Caro. Vectorial types, non-determinism and probabilistic systems: Towards a computational quantum logic. In *Quantum Computing in Nancy*. Nancy, France. March 21.
  - Gilles Dowek has participated to the workshop Rochebrune 2013 *La preuve et ses moyens*, where he has given a talk.
  - Gilles Dowek has given several talks on Computer Science in Education, at the congrès de la SIF, the workshop EPI in Nancy, the workshop UPS in Luminy, the journée ISN in Orsay, the journée Pascaline in Paris, etc.

- Gilles Dowek has given several popular science talks: in Paris for the young kangaroos, in Athens, and in the Lycée Raoul Folleraux.
- **Other seminars**
  - Alejandro Díaz-Caro. Hacia una lógica computacional cuántica. FCEIA, Universidad Nacional de Rosario. Rosario, Argentine. August 9.
  - Alejandro Díaz-Caro. Vectorial types, non-determinism and probabilistic systems: Towards a quantum computational logic. PPS, Université Paris-Diderot. Paris, France. May 7.
  - Alejandro Díaz-Caro. Vectorial types, non-determinism and probabilistic systems: Towards a quantum computational logic. LIAFA, Université Paris-Diderot. Paris, France. April 16.
  - Alejandro Díaz-Caro. Non determinism (and probabilities) through type isomorphism. LIP, École Normale Supérieure. Lyon, France. February 21.
  - Alejandro Díaz-Caro. Quantum computing, non-determinism, probabilistic systems...and the logic behind. Modal'X. Université Paris X. Nanterre, France. January 31.
  - Pierre Halmagrand. Zenon Modulo: When Achilles outruns the tortoise using Deduction modulo. Mines ParisTech laboratory CRI. Fontainebleau, France. October 30.

## FORMES Team

## 8. Dissemination

### 8.1. Scientific Animation

Frédéric Blanqui was member of the Steering Committee of the International Conference on Rewriting Techniques and Applications (RTA) for 3 years until June 2013.

Frédéric Blanqui was invited to present his work on “the formalization of  $\lambda$ -calculus and Tait-Girard’s notion of computability” at the 3rd Workshop on Proof Theory and Rewriting (PR), March 2013, Kanazawa, Japan.

Vania Joloboff has organized a LIAMA Open Day in Shanghai in May 2013, in collaboration with East China Normal University.

### 8.2. Teaching - Supervision - Juries

#### 8.2.1. Teaching

Frédéric Blanqui organized a 7-days school at the Institute of Applied Mechanics and Informatics (IAMA) of the Vietnamese Academy of Sciences and Technology (VAST) at Ho Chi Minh City, Vietnam, from 12 to 19 March 2013. The mornings were dedicated to theoretical lectures introducing basic notions in mathematics and logic for the analysis of computer programs. The afternoons were practical sessions introducing the OCaml programming language and the Coq proof assistant. Lecture notes are given in [17].

Vania Joloboff has taught simulation seminars at Shenzhen Institutes of Advanced Technology.

Licence: Jean-François Monin, Introduction to Interactive Proof of Software, 50 hours, L3, Tsinghua University, China

This course is expected to attract students in the FORMES group via the local PhD program; already one of them (2009) is currently a PhD student of Jean-Pierre Jouannaud, another (2010) in is the PhD track with Gu Ming and 2 others (2010) work with Jean-François Monin and Vania Joloboff.

Doctorate: Jean-François Monin (organizer and teacher), Coq Summer School, 30 hours, Tsinghua University, China

#### 8.2.2. Supervision

PhD : Xiaomu Shi, “Certification of an Instruction Set Simulator”, University of Grenoble, July 2013, [14] Jean-François Monin, Vania Joloboff.

PhD in progress: Kim-Quyen Ly, automated formal verification of termination certificates, October 2011, Frédéric Blanqui

PhD in progress : Jiaxiang Liu, Testing Confluence via Critical Pairs, 2012, École Polytechnique, Jean-Pierre Jouannaud

PhD in progress: Qian Wang, CoqMTU: a secure combination of the Calculus of Construction, inductive types, universes and built-in equality, 2011, École Polytechnique, Jean-Pierre Jouannaud

#### 8.2.3. Juries

Frédéric Blanqui has been in the jury of Zhiwu Xu for his PhD on “Parametric Polymorphism for XML Processing Languages” (directors: Giuseppe Castagna and Haiming Chen).

Frédéric Blanqui referred the habilitation thesis of René Thiemann (Innsbrück University) on “A Formalization of Termination Techniques in Isabelle/HOL”.

Jean-François Monin has been in the jury of Xiaomu Shi (see above).

Vania Joloboff has been in the jury of Xiaomu Shi (see above).

## **GALLIUM Project-Team**

# **9. Dissemination**

## **9.1. Scientific Animation**

### **9.1.1. Conference organization**

Didier Rémy organized the October 2013 meeting of IFIP working group 2.8 “Functional programming”, which took place in Aussois, France.

Thomas Braibant participated in the organization of the LOLA 2013 workshop, associated with LICS 2013.

### **9.1.2. Editorial boards**

Xavier Leroy is on the editorial board for the Research Highlights column of Communications of the ACM. He is a member of the editorial boards of Journal of Automated Reasoning, Journal of Functional Programming, and Journal of Formalized Reasoning.

### **9.1.3. Program committees**

Xavier Leroy was a member of the program committee for VSTTE 2013, the conference on Verified Software: Theory, Tools and Experiments.

François Pottier was a member of the program committee for ESOP 2014, the European Symposium On Programming.

### **9.1.4. Steering committees**

Xavier Leroy is a member of the steering committees for the Certified Programming and Proofs (CPP) conference and the Programming Languages meet Program Verification (PLPV) workshop.

François Pottier is a member of the steering committee for the ACM TLDI workshop.

Didier Rémy is a member of the steering committee of the OCaml Workshop.

### **9.1.5. Collective responsibilities**

Damien Doligez chairs the *Commission des actions de développement technologiques* of Inria Paris-Rocquencourt.

Xavier Leroy is *vice-président du comité des projets* of Inria Paris-Rocquencourt and appointed member of *Commission d'Évaluation*. He participated in the following Inria hiring and promotion committees: *jury d'admissibilité CR2 Paris-Rocquencourt* (vice-chair, with Philippe Robert as chair); *jury d'admissibilité DR2*; *promotions CR1, DR1, DR0*. He was a member of the hiring committee for a *Maître de conférences* position at Université Rennes 1.

Luc Maranget chairs the *Commission des utilisateurs des moyens informatiques – Recherche* of Inria Paris-Rocquencourt.

François Pottier is a member of the post-doctoral hiring committee of Inria Paris-Rocquencourt. He was a member of the hiring committee for a *Maître de conférences* position at Université Paris Diderot.

Jonathan Protzenko curated the Junior Seminar of Inria Paris-Rocquencourt until June 2013, which marked the end of his two-year involvement in the seminar.

Didier Rémy represents Inria in the *commission des études* of the MPRI master, co-organized by U. Paris Diderot, ENS Cachan, ENS Paris, and École Polytechnique.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence: Thibaut Balabonski, “Travaux dirigés de Caml Light”, 14 hours, L1, Collège Stanislas (classes préparatoires MPSI), France.

Licence: Julien Cretin, “Bases de données”, 26h, L3, U. Paris Diderot, France.

Licence: Julien Cretin, “Principe de fonctionnement des machines binaires”, 33h, L1, U. Paris Diderot, France.

Licence: Jacques-Henri Jourdan, “Langages de programmation et compilation”, 46h, L3, École Normale Supérieure, France.

Licence: François Pottier, “Algorithmique et programmation” (INF431), 13h30, L3, École Polytechnique, France.

Licence: Gabriel Scherer, “IF1: Introduction to computer science and programming”, 42h, L1, U. Paris Diderot, France.

Master: Xavier Leroy and Didier Rémy, “Functional programming and type systems”, 12h + 18h, M2, MPRI master, France.

Master: Luc Maranget, “Semantics, languages and algorithms for multicore programming”, 9h, M2, MPRI master, France.

Master: François Pottier, “Compilation” (INF564), 13h30, M1, École Polytechnique, France.

Master: Jonathan Protzenko, “Conception et mise en œuvre d’algorithmes” (MOOC), 32h, M1, Coursera / École Polytechnique, France.

Master: Gabriel Scherer, “Advanced Functional Programming”, 30h, M1, U. Paris Diderot, France.

Doctorat: Xavier Leroy, “Mechanized semantics”, 6h, Verification Technology, Systems & Applications summer school 2013, Nancy, France.

### 9.2.2. Supervision

PhD in progress: Julien Cretin, “Erasable coercions: a unified approach to type systems”, École Polytechnique, since December 2010, supervised by Didier Rémy, to be defended January 30th, 2014.

PhD in progress: Pierre Halmagrand, “Dédution Automatique Modulo”, CNAM, since September 2013, supervised by David Delahaye, Damien Doligez, and Olivier Hermant.

PhD in progress: Jonathan Protzenko, “Fine-grained static control of side effects”, U. Paris Diderot, since September 2010, supervised by François Pottier.

PhD in progress: Gabriel Scherer, “Term inference”, U. Paris Diderot, since October 2011, supervised by Didier Rémy.

PhD in progress: Jacques-Henri Jourdan, “Formal verification of a static analyzer for critical embedded software”, U. Paris Diderot, since September 2012, supervised by Xavier Leroy.

### 9.2.3. Juries

Damien Doligez was a member of the Ph.D. jury of Mélanie Jacquel, CNAM, Paris, april 2013.

Xavier Leroy was a member of the Ph.D. jury of Xiaomu Shi, Université Joseph Fourier, Grenoble, july 2013.

Xavier Leroy was president of the Ph.D. jury of Pierre-Nicolas Tollitte, CNAM, Paris, december 2013.

## 9.3. Popularization

Jacques-Henri Jourdan and Arthur Charguéraud participated in the organization of the Castor computer science contest (<http://castor-informatique.fr/>). This contest aims at making computer science more popular in French high schools and junior high schools. It attracted over 170,000 participants.



Fabrice Le Fessant is one of the organizers of the OCaml meetup in Paris. Four events were organized in 2013, each featuring four short presentations on topics related to OCaml. Each event was attended by about 60 participants.

Xavier Leroy gave a tutorial on using theorem provers in programming language research at the 2013 ACM SIGPLAN Programming Languages Mentoring Workshop, which was attended by about 80 undergraduate, graduate and post-doctoral students.

Since 2012, the Gallium team publishes a research blog at <http://gallium.inria.fr/blog/>, edited by Gabriel Scherer. This blog continued its activity in 2013, with 26 posts by 12 different authors. It covered various changes in the OCaml language, announced small software libraries from members of the team, and discussed Gallium's research, notably the Mezzo language.

## MUTANT Project-Team

## 9. Dissemination

### 9.1. Scientific Animation

MuTant acted as co-organizer and scientific chair for the first **International Conference on Geometric Science of Information 2013** which took place in École des Mines (Paris) in partnership with SEE, and THALES. The conference attracted more than 150 participants worldwide and conference proceedings were published by Springer. MuTant team members organized a special session on Audio and Music and further organized a special social session on music computing at Ircam.

The **Brillouin Seminar series on Information Geometry** is coordinated by MuTant in partnership with LIX and THALES. It gathers 80 international researchers on the topic from various disciplines. In 2013, we organized 4 major talks. The seminar activity on 2013 was particularly down due to the co-organization of the first International Conference on the topic by MuTant and collaborators. Videos are available on the seminar website.

Jean-Louis Giavitto is in the management team of the GDR GPL (Genie de la programmation et du logiciel), responsible with Etienne Moreau of the “Languages and Verification” pole of the GDR. He is also an expert for the ANR DEFI projects and a reviewer for FET projects for the UC. He is also the redactor-in-chief of TSI (Technique et Science Informatiques) published by Lavoisier.

Jean-Louis Giavitto has participated in the program committee of the following workshop and conferences: Rencontres interdisciplinaires de Rochebrune: “La preuve et ses moyens” 13 au 19 janvier 2013; Digital Entertainment Technologies and Arts (DETA) track at GECCO 2013, 6-10 July 2013, Amsterdam, The Netherlands NCSO 2013 The VI International Workshop on Nature Inspired Cooperative Strategies for Optimization, September 2-4, 2013 Canterbury, United Kingdom; HaPoC 2013 2nd International Conference on the History and Philosophy of Computing 2013. 28th - 31st October 2013, 27/11/13 4/9 Ecole Normale Supérieure, Paris; MeCBIC 2013 7th Workshop on Membrane Computing and Biologically Inspired Process Calculi, 7th July 2013, Riga, Latvia.

Jean-Louis Giavitto was cochair of the 6th Spatial Computing Workshop, satellite workshop of AAMAS 2013, Saint-Paul, USA.

Arshia Cont participated in the following events: Course in Collège de France, **Informatics of Time and Events** curated by Gérard Berry, June 2013; Invited keynote in Seoul (South Korea) on Antescofo, November 2013; Keynote in GSI, Grenoble in December 2013; Invited speech and demonstration for the 20th anniversary of **Prix La Recherche**; CHI workshop on Models of Time with Jean-Louis Giavitto and Florent Jacquemard, April 2013.

### 9.2. Teaching - Supervision - Juries

#### 9.2.1. Teaching

Licence : Arshia Cont, Audio Technology Review, 2h/week, L3, Paris Superior Conservatory of Music (CNSMDP), France.

Master : Arshia Cont, Machine Learning for Music, 15 hours, M2, UPMC/ATIAM, France.

Doctorat : Enseignant, titre du cours, nombre d’heures en équivalent TD, université, pays

Jean-Louis Giavitto has been invited to give a one week course on Spatial Computing at the University of Cali, Colombia (20 hours).

### 9.2.2. Supervision

PhD in progress :

Jose´ Echeveste, Synchronous Languages for Computer Music Composition and Performance, Started September 2011, co-directed by Jean-Louis Giavitto and Arshia Cont.

Philippe Cuvilier, Inference Mechanisms for on-line Machine Listening, Started September 2013, directed by Arshia Cont

Clement Poncelet, Formal analysis of human-machine interactions in complex timed scenarios. Started in October 2013, directed by Florent Jacquemard.

### 9.2.3. Juries

Florent Jacquemard participated in the selection committee to the 2013 recruitment campaign at the Inria center of Lille.

Florent Jacquemard participated to the defense committee for the PhD of Vincent Hugot, “Tree Automata, Approximations, and Constraints for Verification, Tree (Not-Quite) Regular Model-Checking”, University of Franche-Comté, September 2013. and to the mid-term PhD defense of Emil Mircea Andriescu on “Dynamic synthesis and deployment of mediation protocols in collaborative mobile environments”, a CIFRE agreement between UPMC, Inria and the SME Ambientic, in November 2013.

Jean-Louis Giavitto has expertised several project for the Ulysses Network <http://www.ulysses-network.eu/web/home/>; and has been reviewer of the PhD thesis of M. Obrovac (IRISA), A. Ajouli (LINA) and of the Habilitation of Arnaud Banos (Sorbonnes). He was also member of one selection committee for UPMC.

## 9.3. Popularization

MuTant team was featured in the 2nd edition of **Made In France (MIF) Expo** in the major Exhibition Hall in Paris (Porte de Versaille) with a **dedicated stand** for Antescofo with more than 3 million visitors during 3 days.



Figure 6. Antescofo demo in Ministry of Industry featuring Marlène Schaff (French THE VOICE, Season 2)

Antescofo was featured by the French Ministry of Industry for a public talk and largely diffused demo featuring the french star singer Marlène Schaff from *The Voice*.

Arshia Cont was invited for a public presentation/demo of *Antescofo* for the 20th anniversary of the [Prix La Recherche](#). [Click for video](#).

Jean-Louis Giavitto has co-animated the public discussion following the movie "Codebreaker: Alan Turing" with C. Villani and G. Berry at the Cinema Grand Action. He gave several seminars for a non computer scientist audience:

“Analyse formelle des concepts, Q-analyse et programmation spatiale : quelques aspects philosophiques du nœud mathématique/musique/ informatique, séminaire MaMuPhi, l’Ecole Normale (february 2013);

“Écriture du temps et de l’interaction en informatique musicale”, séminaire Philosophie de l’informatique, de la logique et de leurs interfaces, Centre Cavailles, Ecole Normale, (mars 2013);

“Modélisation spatiale et approche géométrique en musique”, Journées nationales du RNSC (octobre 2013);

“Simultanéité, succession et durée dans l’interaction musicale en temps-réel”, séminaire MaMux Temps, rythme et arithmétique, (décembre 2013).

As the redactor-in-chief of TSI, Jean-Louis Giavitto has initiated a new section devoted to portraits and talking with french personalities in computer science. These articles are also published in the SIF journal.

José Echeveste has presented Antescofo and participated to the event organized for the “Fête des Sciences” at Forum des Halles and UPMC.

We have published a popularization article on "Computer Assisted Music" in the review [DocSciences](#), number 15.

## PARKAS Project-Team

## 9. Dissemination

### 9.1. Scientific Animation

- Albert Cohen was the program chair of CC 2014, the TPC chair of the DAC 2013 and 2014 ESS1 subcommittees, and the co-Program Chair of the APPT 2013 bi-annual Symposium on Advanced Parallel Processing Technology. Albert Cohen was also a member of the PC of PLDI 2014, and a member of the ERC of ASPLOS 2014, PPOPP 2014 and ICS 2014. Albert Cohen also participated to the PC of the IMPACT and HiRES workshops associated with HiPEAC 2014.
- Albert Cohen is an associate editor of ACM TACO and IJPP (Springer).
- Albert Cohen will be the general chair of PPOPP 2015.
- Albert Cohen was the sponsor chair for the HiPEAC 2013 and HiPEAC 2014 conference, and will serve as the exhibit and sponsor chair for HiPEAC 2015.
- Marc Pouzet was a member of the PC of DAC 2014, AFADL 2014, MSR 2013, RTNS 2013, DATE 2013.
- Marc Pouzet manages with Catherine Dubois (ENSIIE, Evry, France) the GDR (“Groupe de Recherche”) TLP (“Types, Langages et Preuves”) du CNRS (“Centre National de Recherche Scientifique”). Two one-day seminars are organised every year.

### 9.2. Teaching - Supervision - Juries

#### 9.2.1. Teaching

Licence: T. Bourke & J. Vuillemin, “Digital Systems”, 64h, L3, Ecole normale supérieure, France

Licence: L. Mandel, “Systèmes”, 42h, L3, Université Pars-Sud 11, France

Licence: L. Mandel & M. Pouzet, “Systèmes et réseaux”, 24h+24h, L3, Ecole normale supérieure, France

Licence: L. Mandel, “Langages de programmation et compilation”, 24h, L3, Ecole normale supérieure, France

Master: L. Mandel & M. Pouzet, “Synchronous Systems”, 8h+16h, M2, MPRI: Ecole normale supérieure and Université Paris Diderot, France

Master: A. Cohen & F. Zappa Nardelli, “Semantics, languages and algorithms for multicore programming”, 9h+14h, M2, MPRI: Ecole normale supérieure and Université Paris Diderot, France

Licence: “Components of a Computing System Introduction to Computer Architecture and Operating Systems” (L3), A. Cohen (44h), École Polytechnique, France

Master 1 École Polytechnique: “Operating Systems Principles and Programming” (M1), A. Cohen (38h), École Polytechnique, France

Marc Pouzet is supervising the national entry exam in computer science for École normale supérieure.

Marc Pouzet is director of studies (“Directeur des études”) for the CS department of École normale supérieure.

#### 9.2.2. Supervision

PhD : Léonard Gérard, Programmer le parallélisme avec des futures en Heptagon un langage synchrone flot de données et étude des réseaux de Kahn en vue d’une compilation synchrone, Université Paris-Sud 11, Orsay. Soutenue le 25 septembre 2013, au LRI, à Orsay.

PhD : Cédric Pasteur, Raffinement temporel et exécution parallèle dans un langage synchrone fonctionnel, Université Pierre et Marie Curie (UPMC), soutenue le 26 novembre 2013, au Collège de France. Encadrants: Louis Mandel et Marc Pouzet.

PhD in progress : Guillaume Baudart, Real-time fidelity in Quasi-synchronous Systems, Start: 1/10/2013, Timothy Bourke and Marc Pouzet

PhD in progress : Robin Morisset, Compiler Optimisations and Concurrency, 1/10/2013, F. Zappa Nardelli

### **9.2.3. Juries**

- Albert Cohen was the president of the Habilitation Thesis committee of Fabien Coelho, MINES ParisTech.
- Albert Cohen was the president of the PhD thesis committee of Bruno Bodin, UPMC (CIFRE Kalray).
- Albert Cohen was a reviewer for the PhD thesis of Martin Schindewolf at the Karlsruhe Institute of Technology.
- Albert Cohen was a reviewer for the PhD thesis of Daniel Cordes at TU Dortmund.
- Albert Cohen was a reviewer for the PhD thesis of Yuriy Kashnikov, UVSQ.
- Albert Cohen was an examiner in the PhD thesis committee of Thomas Preud'Homme, UPMC.
- Marc Pouzet was a reviewer for the PhD thesis of Boris Golden, École Polytechnique.
- Marc Pouzet was a reviewer for the PhD thesis of Gideon Smeding, Université de Grenoble.
- Albert Cohen was a member of a hiring committee for professors at the University of Strasbourg.
- Albert Cohen was a member of a hiring committee for assistant professors (“maître de conférences”) at the University Claude Bernard de Lyon.

## PL.R2 Project-Team

# 7. Dissemination

## 7.1. Scientific Animation

### 7.1.1. *Collective responsibilities*

Pierre-Louis Curien is member of the Conseil Scientifique of the INSII (CNRS). He is also a member of the Conseil Scientifique of CIRM (since June 2013).

### 7.1.2. *Editorial activities*

Pierre-Louis Curien is co-editor in chief of Mathematical Structures in Computer Science, and is an editor of Higher-Order and Symbolic Computation.

### 7.1.3. *Program committees and organising committees*

Alexis Saurin has been co-chair of the program committee and editor of the proceedings of the workshop *Control Operators and their Semantics* (COS'13, organized at RDP 2013, <http://cos2013.di.unito.it> and <http://rvg.web.cse.unsw.edu.au/eptcs/content.cgi?COS2013>). The proceedings were published by EPTCS.

Alexis Saurin has been a member of the scientific committee of the Summer School *Linear Logic and Geometry of Interaction* (<http://www.logoi.fr/events/school>) which took place in Torino as a satellite event of CSL 2013.

Alexis Saurin is a PC member of GaLoP 2014 (International Workshop on Games and Logic for Programming) which will take place during ETAPS 2014 in Grenoble.

Hugo Herbelin, Pierre Letouzey and Matthieu Sozeau are co-organizing and co-chairing the TYPES'14 conference in Paris in May.

Matthieu Sozeau was in the PC of DTP'13, JFLA'13 and JFLA'14. He is in the newly formed steering committee of the DTP workshop <https://www.pps.univ-paris-diderot.fr/dtp/>.

Matthieu Sozeau co-organized a (private) meeting at POPL'14 in San Diego, there were 30 participants. He gave a talk on the upcoming 8.5 version of Coq and a tutorial.

Hugo Herbelin organized with Gyesik Lee a workshop on constructive reverse mathematics in Seoul, March 2013.

Yves Guiraud and Philippe Malbos are organisers of the 5-weeks programme Mathematical Structures of Computation, held in Lyon in January-February 2014, and supported by the Labex MILYON. They are also organisers of the second week, Algebra and Computation, while Pierre-Louis Curien and Hugo Herbelin organised the first week, Recent Trends in Type theory.

Pierre-Louis Curien, Hugo Herbelin and Paul-André Melliès are the organisers of the IHP trimester Semantics of proofs and certified mathematics, to be held next spring. They also organise a spring school at CIRM preceding the trimester.

Pierre-Louis Curien is member of the steering committee of the conferences Typed Lambda Calculi (TLCA) and Applications and of the international workshops Games for Logic and Programming Languages (GaLop).

### 7.1.4. *Jury participation*

Alexis Saurin was an examiner for the computer science oral at the entrance exam for Ecoles normales supérieures and a member of the jury for Ecole normale supérieure de la rue d'Ulm.

Alexis Saurin has been member of the Jury for LMFJ Master.

### 7.1.5. Invited talks

Hugo Herbelin gave an invited talk on proving Gödel's completeness theorem with side-effects at the conference TLCA'13 in Eindhoven.

Philippe Malbos was invited speaker at the Sao Paulo - Lyon Algebra meeting, in October 2013.

Pierre-Louis Curien was an invited speaker at Glynn Winskel's anniversary workshop in Cambridge (where he presented his joint work with Garner and Hofmann on coherence issues in type theory), at the workshop Higher structures in China (Lanzhou, August), where he presented homotopical completions and reductions, at the International Symposium on Domain Theory, where he presented Thomas Ehrhard's result "Scott is the extensional collapse of Rel", and at the Loday's Mathematical Legacy conference in Strasbourg as well as at the Algebra and Computation workshop in Lyon where he presented his work on languages for operads and related structures.

### 7.1.6. Presentation of papers

Philippe Malbos has presented [16] at RTA 2013.

Lourdes González presented [14] at TYPES 2013.

Yann Régis-Gianas presented [14] at ITP 2013.

### 7.1.7. Other presentations

Yves Guiraud gave a talk on "Coherent presentations of Artin monoids" during the Journées PPS in September 2013.

Pierre Boutillier gave a talk on "An abstract machine to conceal strong reduction and fixpoints" during the journées PPS.

Yann Régis-Gianas presented the CerCo european project at two satellite workshops of HIPEAC (Berlin) in March 2013 and ETAPS (Roma) in April 2013.

Hugo Herbelin gave two lectures on reducibility candidates and their relation with completeness proofs to the Réalisabilité à Chambéry #6 workshop in June.

Hugo Herbelin gave a talk on the development of Coq at the Coq workshop '13 in Rennes.

Hugo Herbelin gave a talk at FOMCAF 2013 in Padova on the status of equality in type theory.

Hugo Herbelin gave a talk at TYPES 2013 in Toulouse on the status of equality in type theory.

Hugo Herbelin gave a talk at PCC 2013 in Toulouse on the Computational interpretation for the big five systems of reverse mathematics (joint work with Gyesik Lee and Keiko Nakata).

Matthieu Sozeau gave a talk at TYPES 2013 in Toulouse on universe polymorphism.

Matthieu Sozeau gave a talk at the TYPEX meeting in Paris on universe polymorphism.

Ludovic Patey gave a talk on Probabilistic Algorithms and Ramsey-Type Principles in Reverse Mathematics at the Workshop in Type Theory, in Séoul, on Rainbow Ramsey theorem for pairs at Computability in Europe, Milano, and on Classifying principles by the no randomized algorithm property at Logic Colloquium, Évora.

Jaime Gaspar gave a talk on Krivine's classical realisability and the unprovability of the axiom of choice and the continuum hypothesis at the 6th Young Set Theory Workshop 2013, Oropa, Italy. He gave a talk on "Refuting" Cantor at the Logic Colloquium 2013, Évora, Portugal.

### 7.1.8. Talks in seminars

Yves Guiraud gave three talks on "Coherent presentations of Artin monoids" at the Groupe de Travail Catégories supérieures, polygraphes et homotopie, PPS, Paris 7, in May-June 2013.

Matthieu Sozeau gave a talk on universe polymorphism at the Coq working group in Paris.



Alexis Saurin gave a talk at "Journées PPS" in september 2013 on linear head reduction and call-by-need, entitled "Éloge de la paresse".

Guillaume Claret gave a talk at Gallium on the Cybele plugin to do proofs by reflection in Coq using the extraction mechanism.

Guillaume Munch-Maccagnoni gave a talk on duploids at the PPS days in September 2013.

Zena Ariola presented a talk on Call-by-need: reduction, continuation passing style and abstract machines at Paris 7 University, 20 December 2012, and at Inria Saclay, 27 February 2013.

Jaime Gaspar gave a talk on Formalising  $ZF \subseteq ZF_\varepsilon$  in Paris, and at the Mathematical Logic Seminar, Lisbon. He gave a talk on Proof interpretations: what they are and what they are good for, at Junior Seminar, Rocquencourt, and at Parsifal team seminar, Palaiseau. He gave a talk on Krivine's classical realizability (see also above) at Technical University of Darmstadt, Darmstadt, and at University of Applied Sciences, Wiesbaden.

### **7.1.9. Attendance to conferences, workshops, schools,...**

Yves Guiraud and Philippe Malbos attended RTA 2013, Eindhoven, in June.

Pierre Boutillier, Alexis Saurin and Pierre-Marie Pédrot attended the JFLA 2013 conference in Aussois.

Pierre Boutillier and Lourdes González attended the Coq workshop 2013 in Rennes.

Pierre Boutillier attended ICFP and DTP 2013 in Boston.

Lourdes González attended the Workshop on Formal Meta-Theory organized by the Parsifal team (Lix and Inria) the 5-6th March 2013.

Lourdes González, Guillaume Claret and Pierre-Marie Pédrot attended TYPES 2013 in Toulouse.

Yann Régis-Gianas, Guillaume Claret and Lourdes González attended ITP 2013 in Rennes.

Lourdes González and Pierre-Marie Pédrot attended the Summer School on Linear Logic and Geometry of Interaction in Turin.

Lourdes González attended CSL 2013 and its satellite events in Turin.

Pierre Letouzey attended the Coq workshop 2013 in Rennes.

Matthieu Sozeau attended the JFLA'13 in Aussois.

Matthieu Sozeau attended the Coq workshop 2013 and ITP 2013 in Rennes.

Matthieu Sozeau attended the TYPES 2013 conference in Toulouse.

Matthieu Sozeau attended the POPL'14 conference in San Diego.

Pierre Letouzey, Matthieu Sozeau, Lourdes González, Guillaume Munch and Pierre-Marie Pédrot attended Pierre-Louis Curien's 60th birthday meeting in Venice.

Matthieu Sozeau attended the Conference on Type Theory, Homotopy Theory and Univalent Foundations at the Centre de Recerca Matemàtica in Barcelona.

Guillaume Claret attended the EJCP 2013 school at Saint-Malo and Rennes.

Alexis Saurin attended BLL, a workshop on Bounded Linear Logic, in November 2013.

Zena Ariola attended POPL 2013, Rome.

Jaime Gaspar attended Proof Theory in Lisbon (a one-day workshop), and a workshop on Reverse Mathematics in Paris.

### **7.1.10. Groupe de travail Théorie des types et réalisabilité**

Pierre-Marie Pédrot gave a talk on a classical realizability account of the Dialectica transformation, as well as a dependent version of it, in November.

Matthieu Sozeau gave a talk on a groupoid interpretation in March.

This year's other internal speakers were Hugo Herbelin, Philippe Malbos, and the external speakers were Maribel Fernández (King's College, London), Gregory Malecha (MIT), Marc Lasson (then postdoc at Cambridge Univ.), Keiko Nakata (Institute of Cybernetics, Tallinn), Cyril Cohen (Univ. of Göteborg), Eduardo Bonelli (Universidad Nacional de Quilmes), Barbara Petit (Sardes team, Inria Grenoble), Lionel Rieg (ENS Lyon), Fernando Ferreira (Univ. of Lisbonne), Chantal Keller (Univ. of Aarhus), Matthias Puech (Univ. of Aarhus), Dominic Hughes (Stanford University), Thomas Braibant (Gallium team), and Alexander Kreuzer (ENS Lyon).

## 7.2. Teaching - Supervision - Juries

### 7.2.1. Teaching

Licence: Pierre Boutillier has a temporary research and teaching position (A.T.E.R) at University Paris 7 for the academic year 2013–2014. He teaches this year Programmation fonctionnelle (L3) and Analyse lexicale et syntaxique (L3).

Master: Compilation, (Boutillier) 1/4, M1, Université Paris Diderot.

Master: Assistants de Preuve (Sozeau), 9, M2, Université Paris Diderot.

Master: Functional Programming and Type Systems (Regis-Gianas), 12, M2, Université Paris Diderot.

Master: Lambda-calculus (Saurin), 24H, M2 of Mathematics "Logique Mathématique et Fondements de l'Informatique", Université Paris Diderot.

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 Mellès).

### 7.2.2. Supervision

Internship: Yves Guiraud has supervised the M2 internship of Maxime Lucas.

Internship: Alexis Saurin has supervised the internship of Fanny He.

Internship: Alexis Saurin has supervised (with Claudia Faggian) the M2 internship of Amina Doumane.

PhD in progress: Pierre Boutillier, Représentation des effets et inférence de type dans le cadre du développement d'un langage de programmation à types riches, September 2010, Hugo Herbelin.

PhD in progress: Lourdes del Carmen González Huesca, Un langage de tactiques typées pour Coq, December 2011, Hugo Herbelin and Yann Régis-Gianas.

PhD in progress: Guillaume Claret, Programmation avec effets en Coq, September 2012, Hugo Herbelin and Yann Régis-Gianas.

PhD in progress: Pierre-Marie Pédro, Logique linéaire et types dépendants, september 2012, supervised by Alexis Saurin and Hugo Herbelin.

PhD in progress : Cyrille Chenavier, supervised by Yves Guiraud and Philippe Malbos.

PhD in progress : Maxime Lucas, supervised by Yves Guiraud and Pierre-Louis Curien.

PhD defended: Guillaume Munch-Maccagnoni, Syntaxe et modèles d'une composition non-associative des programmes et des preuves, Université Paris Diderot - Paris 7, December 10 2013, Pierre-Louis Curien and Thomas Ehrhard. [11]. Hugo Herbelin was a member of the jury.

### 7.2.3. Juries

Pierre-Louis Curien was referee and Yves Guiraud was jury member for the PhD defence of Pierre Rannou ("Réécriture de diagrammes et de Sigma-diagrammes", Univ. Aix-Marseille).

Pierre-Louis Curien was jury member of the thesis of Florian Hatat ("Jeux graphiques et théorie de la démonstration", Univ. Chambéry).

Pierre-Louis Curien was (as thesis director) in the jury of the theses of Stéphane Zimmermann (“Vers une ludique différentielle”, Univ. Paris Diderot) and of Alexis Goyet (“Le lambda lambda-bar calcul, un calcul dual pour les stratégies non contraintes”, Univ. Paris Diderot).

Pierre Letouzey was a referee for the PhD thesis of Pierre-Nicolas Tollitte in December 2013 (“Extraction de code fonctionnel certifié à partir de spécifications inductives”, CNAM), while Hugo Herbelin was a member of this PhD committee.

### **7.3. Popularization**

Yann Régis-Gianas organised the "Fête de la Science" event for the computer science department of the University Paris 7.

Yann Régis-Gianas co-organised the “Journée Francilienne de Programmation”, a programming contest between undergraduate students of three universities of Paris (UPD, UPMC, UPS).

Yann Régis-Gianas gave several conferences about computer science in several primary schools of Paris.

## POLSYS Project-Team

### 9. Dissemination

#### 9.1. POLSYS seminar

Our seminar hosted over twenty invited speakers in 2013.

<http://www-polsys.lip6.fr/Seminar/index.html>

#### 9.2. Scientific Animation

L. Perret was a PC member of Inscrypt'13, PKC'13 and Eurocrypt'14. L. Perret joined the editorial board of Designs, Codes and Cryptography.

L. Perret was invited speaker in the workshop “Computer algebra and polynomials” held on November 25-29, 2013 at the Research Institute for Symbolic Computation, Linz, Austria.

M. Safey El Din was invited speaker at

- the Polynomial Optimisation Program at Newton Institute in Cambridge (UK);
- the conference “Numerical Methods and Efficient Computations” in honor of J.-P. Dedieu, CIRM, France, 2013.
- the International Symposium on Symbolic and Algebraic Computation (ISSAC) [21].

C. Eder and E Tsigaridas were invited speakers in the workshop “Gröbner Bases, Resultants and Linear Algebra” held on 3-6 September 3-6, 2013 at the Research Institute for Symbolic Computation, Hagenberg, Austria.

G. Renault was invited speaker in the *Minisymposium On Coppersmith's Heuristic Algorithm for Finding Roots of Multivariate Polynomials* in the *SIAM Conference on Applied Algebraic Geometry* at Colorado State University, USA (August 1–4, 2013) ([http://meetings.siam.org/sess/dsp\\_programsess.cfm?SESSIONCODE=16747](http://meetings.siam.org/sess/dsp_programsess.cfm?SESSIONCODE=16747)).

M. Safey El Din co-organized (with P. Boito, G. Chèze and C. Pernet) the *Journées Nationales de Calcul Formel* in CIRM, France (May, 13-17, 2013) (<http://jnfc2013.imag.fr/>).

M. Safey El Din co-organized (with E. Kaltofen and L. Zhi) the *Minisymposium on Exact Certificates in Nonlinear Global Optimization* in the *SIAM Conference on Applied Algebraic Geometry* at Colorado State University, USA (August 1–4, 2013) (<http://meetings.siam.org/program.cfm?CONF CODE=AG13>).

J.-C. Faugère was invited speaker in the *Computer algebra and polynomials* International Workshop at Linz, Austria (Dec 2013).

J.-C. Faugère was invited speaker in the *Multivariate Polynomial Workshop* at Fukuoka, Japan (Fev 2013).

J.-C. Faugère was invited speaker in the *Groebner bases, resultants and linear algebra Workshop* at Linz, Austria (Sep 2013).

M. Safey El Din and E. Tsigaridas organized the *Minisymposium Algorithms in Real Algebraic Geometry and its Applications* in the *SIAM Conference on Applied Algebraic Geometry* at Colorado State University, USA (August 1–4, 2013) (<http://meetings.siam.org/program.cfm?CONF CODE=AG13>).

M. Safey El Din is member of the editorial board of Journal of Symbolic Computation.

E. Tsigaridas (in collaboration with O. Devillers, M. Karavelas, M. Teillaud) organized the *Workshop on Geometric Computing, Heraklion*, in Greece, January 21 – 25 2013 (<http://www.acmac.uoc.gr/GC2013/>).

E. Tsigaridas participated in the *International Symposium on Symbolic and Algebraic Computation (ISSAC)* which was held in June 26-29, 2013 at Northeastern University, Boston, Massachusetts, USA and presented the paper [32].

C. Eder participated in the *International Symposium on Symbolic and Algebraic Computation (ISSAC)* which was held in June 26-29, 2013 at Northeastern University, Boston, Massachusetts, USA and presented the paper [27].

C. Eder was invited in University of Mississippi, Hattiesburg Mississippi (USA) on 25 June 2013 and gave a talk on *Improved Gröbner Basis computation with applications in cryptography*.

J.-C. Faugère has the following editorial activities:

- Associate Editor of *Cryptography and Communications - Discrete Structures, Boolean Functions and Sequences (SPRINGER)*.
- Guest Editor of a special issue of the *Journal Of Symbolic Computation (2013)* (with L. Perret).

D. 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),
  - *Book Series on Mathematics Mechanization* (published by Science Press, Beijing),
  - *Book Series on Fundamentals of Information Science and Technology* (published by Science Press, Beijing).
- Member of the International Advisory Board for the *Communications of JSSAC (Japan Society for Symbolic and Algebraic Computation)* (published by JSSAC).
- Editor for the *Book Series in Computational Science* (published by Tsinghua University Press, Beijing).

D. Wang was involved in the organization of the following conferences

- General Co-chair of the *5th International Conference on Mathematical Aspects of Computer and Information Sciences (MACIS 2013)* (Nanning, China, December 11-13, 2013).
- Member of the Program Committee
  - *2nd International Workshop on Hybrid Systems and Biology (HSB 2013)* (Taormina, Italy, September 2, 2013),
  - *15th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC 2013)* (Timisoara, Romania, September 23-26, 2013).
- Co-organizer and Program Co-chair *Second International Seminar on Program Verification, Automated Debugging and Symbolic Computation (PAS 2013)* (Beijing, China, October 23-25, 2013).
- Member of the Steering Committee
  - *International Conference on Mathematical Aspects of Computer and Information Sciences (MACIS)*
  - *International Symposium on Symbolic Computation in Software Science (SCSS)*.

## 9.3. Teaching - Supervision - Juries

### 9.3.1. Teaching

Master : J.-C. Faugère. Cours sur les systèmes polynomiaux au MPRI Université Paris 7 Denis Diderot, France

Master : J. Berthomieu, Modélisation et résolutions numérique et symbolique de problèmes *via* les logiciels MAPLE et MATLAB, 35 heures équivalent TD, niveau M1, Université Pierre-et-Marie-Curie, France

Master : J. Berthomieu, Algèbre linéaire et applications, 35 heures équivalent TD, niveau M1, Université Pierre-et-Marie-Curie, France

Master : L. Perret, 96 heures équivalent TD, niveau M1 et M2, Université Pierre-et-Marie-Curie, France

Master : L. Perret, 96 heures équivalent TD, niveau L2 et M3, Université Pierre-et-Marie-Curie, France.

Master : G. Renault, Cryptologie Avancée, 50 heures équivalent TD, niveau M2, Université Pierre-et-Marie-Curie, France

Master : G. Renault, Algèbre linéaire et applications, 35 heures équivalent TD, niveau M1, Université Pierre-et-Marie-Curie, France

Licence : G. Renault, Introduction à la Cryptologie, 50 heures équivalent TD, niveau L3, Université Pierre-et-Marie-Curie, France

Master : M. Safey El Din, Modélisation et résolutions numérique et symbolique de problèmes *via* les logiciels MAPLE et MATLAB, 35 heures équivalent TD, niveau M1, Université Pierre-et-Marie-Curie, France

### 9.3.2. Supervision

PhD : Aurélien Greuet, 5 Dec 2013, [1]. *Optimisation polynomiale et variétés polaires : théorie, algorithmes et implantations*. University of Versailles Saint-Quentin and Université Pierre et Marie Curie, France. V. Cossart and M. Safey El Din.

PhD : Louise Huot, 13 Dec 2013. *Résolution de systèmes polynomiaux et cryptologie sur les courbes elliptiques*. Université Pierre et Marie Curie, France. J.-C. Faugère, P. Gaudry and G. Renault.

PhD : Jing Yang, 2013. Beihang University, China and North Carolina State University, USA. D. Wang and H. Hong.

PhD : Chenqi Mou, 2013. *Solving polynomial systems over finite fields*. Beihang University, China and Université Pierre et Marie Curie, France. J.-C. Faugère and D. Wang.

- J.-C. Faugère and M. Safey El Din supervise the PhD thesis of T. Verron.
- J.-C. Faugère and G. Renault supervise the PhD thesis of R. Zeitoun.
- J.-C. Faugère and L. Perret supervise the PhD thesis of F. Portzamparc.
- J.-C. Faugère supervises the PhD thesis of J. Svartz.
- J.-C. Faugère supervises the PhD thesis of A. Wallet (jointly with V. Vitse, UJF, Grenoble).
- M. Safey El Din supervises (jointly with D. Henrion, LAAS, Toulouse) the PhD thesis of S. Naldi.

### 9.3.3. Juries

M. Safey El Din was member of

- the Habilitation Thesis Committee of S. Graillat (UPMC) as an examiner (Dec. 2013) ;
- the PhD Thesis committee of A. Greuet (Univ. Versailles Saint-Quentin) as the PhD advisor (Dec. 2013) ;
- the PhD Thesis committee of L. Huot (UPMC) as an examiner (Dec. 2013) ;
- the PhD Thesis committee of C. Mou (UPMC and Beihang Univ.) as president (June 2013) ;
- the PhD Thesis committee of J. Rohal (North Carolina State Univ., USA) as an external examiner (Aug. 2013).

J.-C. Faugère was member of

- the PhD Thesis committee of L. Ducas (ENS Paris) as president ( 2013) ;
- the PhD Thesis committee of S. Montan (UPMC) as president ( 2013) ;
- the PhD Thesis committee of A. Greuet (Univ. Versailles Saint-Quentin) as examiner (Dec. 2013) ;
- the PhD Thesis committee of C. Mou (UPMC and Beihang Univ.) as PhD advisor (June 2013) ;
- the PhD Thesis committee of L. Huot (UPMC) as PhD advisor (Dec. 2013) ;

M. Safey El Din participated to the hiring committee for promotion to Associate Professor of the Academy of Mathematics and Systems Science in China.

G. Renault was member of

- the PhD Thesis committee of J.-G. Kammerer (Univ. Rennes 1) as examiner (May 2013) ;
- the PhD Thesis committee of L. Huot (UPMC) as PhD advisor (Dec. 2013).

## **PROSECCO Project-Team**

## **9. Dissemination**

### **9.1. Scientific Animation**

#### **9.1.1. Journal Editorial Boards**

Associate Editor

- of the *International Journal of Applied Cryptography (IJACT)* – Inderscience Publishers:  
Bruno Blanchet

#### **9.1.2. Conference Program Committees**

- FCS – June 2013, New Orleans, LA, USA: Bruno Blanchet (PC co-chair)
- POST – April 2014, Grenoble, France: Bruno Blanchet
- SEC@SAC – March 2013, Coimbra, Portugal: Graham Steel (PC co-chair)
- CSF – June 2013, New Orleans, USA: Graham Steel
- IWIL – December 2013, Stellenbosch, South Africa: Graham Steel

#### **9.1.3. Participation to Workshops and Conferences**

ETAPS – March 2013, Rome, Italy: Bruno Blanchet, David Cadé, Miriam Paiola, Benjamin Smyth

CSF, FCS, FCC – June 2013, New Orleans, LA, USA: Bruno Blanchet, Benjamin Smyth

CCS – November 2013, Berlin, Germany: Bruno Blanchet, David Cadé, Miriam Paiola, Gergely Bana

S&P – May 2013, San Francisco, USA: Karthikeyan Bhargavan, Alfredo Pironti

Usenix Security, WOOT – August 2013, Washington DC, USA: Karthikeyan Bhargavan, Alfredo Pironti, Antoine Delignat-Lavaud

CryptoForma – September 2013, San Francisco, USA: Alfredo Pironti

Black Hat USA – July 2013, Las Vegas, USA: Benjamin Smyth

## **9.2. Teaching - Supervision - Juries**

### **9.2.1. Teaching**

Karthikeyan Bhargavan, Cryptographic protocols: formal and computational proofs, 18h equivalent TD, master M2 MPRI, universit  Paris VII, France

Karthikeyan Bhargavan, TDs in INF431 and INF321, introductory programming language courses at Ecole Polytechnique, France

Bruno Blanchet, Cryptographic protocols: formal and computational proofs, 18h equivalent TD, master M2 MPRI, universit  Paris VII, France

Bruno Blanchet, Automatic Verification of Cryptographic Protocols in the Symbolic Model, the Automatic Verifier ProVerif, 6h equivalent TD, 13th International School on Foundations of Security Analysis and Design (FOSAD'13), Bertinoro, Italy

Miriam Paiola, Internet et Outils - IO2, TP, 52h equivalent TD, L1 en Math-Info, Universit  Paris VII, France

Miriam Paiola, Automates finis - AF4, TP, 26h equivalent TD, L2 en Informatique, Universit  Paris VII, France

Graham Steel, Formal Methods for the Science of Security Summer School, UIUC, July 2013, "Security APIs" (4 hours teaching)



Graham Steel, SecAppDev Days Training, Katholieke Universiteit Leuven, March 2013, "Security APIs" (3 hours teaching)

Graham Steel, University of Venice Ca' Foscari, PhD course "Security APIs" October/November 2013, (20 hours teaching)

Evmorfia-Iro Bartzia, Introduction to Mathematical Cryptography (cours + TD), MACS3: Mathématiques appliquées et calcul scientifique 3eme année, Université Paris 13

Evmorfia-Iro Bartzia, Elliptic Curves and Complex Torus (TD), MFPI: Mathématiques Fondamentales et Protection de l'Information, Université Paris 8

### **9.2.2. Supervision**

- David Cadé  
*Proved Implementations of Cryptographic Protocols in the Computational Model*, defended on December 16, 2013, supervised by Bruno Blanchet
- Miriam Paiola  
*Automatic Verification of Group Protocols*, since November 2010, supervised by Bruno Blanchet
- Robert Künnemann, *Secure APIs and Simulation-Based Security*, Started Oct. 2010, supervised by Steve Kremer (CASSIS) and Graham Steel, submitted October 2013 will defend January 2014
- Gavin Keighren, *A Type System for Security APIs*, since 2007 (submitted August 2013), advisors Graham Steel and David Aspinall (University of Edinburgh). Will defend January 2014.
- Antoine Delignat-Lavaud, since 2012, supervised by Karthikeyan Bhargavan
- Evmorfia-Iro Bartzia, since 2011, supervised by Karthikeyan Bhargavan and Pierre-Yves Strub

### **9.2.3. Internships**

- Benjamin Beurdouche did an undergraduate internship under the supervision of Alfredo Pironti and Karthikeyan Bhargavan
- Adam McCarthy did a masters internship under the supervision of Benjamin Smyth

### **9.2.4. Juries**

- Jannik Dreier – Ph.D. – Nov. 25, 2013 – Université de Grenoble  
Bruno Blanchet
- Maria Christofy – Ph.D. –Feb. 15, 2013– UVSQ  
Graham Steel (rapporteur)
- François Dupressoir – Ph.D.–Feb. 6, 2013– Open University  
Graham Steel (rapporteur)

## **9.3. Popularization**

### **9.3.1. Vulnerability Reports**

- Benjamin Smyth and Alfredo Pironti reported TLS truncation vulnerabilities to Helios, Microsoft, and Google, and presented a talk at BlackHat USA. They were acknowledged in Google's Hall of Fame.
- Karthikeyan Bhargavan and Antoine Delignat-Lavaud reported HTTPS header truncation vulnerabilities in Google Chrome and Apple Safari, resulting in a security update to Google Chrome.
- Karthikeyan Bhargavan and Antoine Delignat-Lavaud reported TLS protocol-level vulnerabilities in Internet Explorer, Google Chrome, and Mozilla Firefox, resulting in security updates to all three.
- Antoine Delignat-Lavaud reported new vulnerabilities in Akamai-hosted websites, resulting in an update to Akamai's web caching network.

## SECRET Project-Team

# 8. Dissemination

## 8.1. Scientific Animation

### 8.1.1. Workshop organization

- *CBC 2013 - the fourth Code-based Cryptography Workshop*, Rocquencourt, June 10-12, 2013. Organizing committee: G. Landais, Rafael Misoczki, N. Sendrier (chair) <http://cbc2013.inria.fr/>.

### 8.1.2. Editorial activities

- *Designs, Codes and Cryptography*, associate editor: P. Charpin, since 2003.
- *Finite Fields and Their Applications* associate editors: A. Canteaut, P. Charpin.
- Special issue in Coding and Cryptography, *Designs, Codes and Cryptography*, 2013, co-editor: A. Canteaut.
- *Finite Fields and Their Applications. Character Sums and Polynomials*, Radon Series on Computational and Applied Mathematics, Degruyter, In Press. Editeurs: P. Charpin, A. Pott (U. Magdeburg) et A. Winterhof (Austrian Acad. of Sc.)
- A. Canteaut serves on the steering committee of *Fast Software Encryption (FSE)*;
- N. Sendrier serves on the steering committee of *Post-quantum cryptography (PQCrypto)*;
- M. Naya-Plasencia serves on the steering committee of the *Coding and Cryptography* group of GDR-IM <https://crypto.di.ens.fr/c2:main>.

### 8.1.3. Program committees

- FSE 2013: March 11-13, 2013, Singapore, Singapore (A. Canteaut, M. Naya-Plasencia);
- WCC 2013: April 15-19, 2013, Bergen, Norway (A. Canteaut, N. Sendrier);
- PQCrypto 2013: June 4-7, 2013, Limoges, France (N. Sendrier, JP. Tillich);
- CBC 2013: June, 10-12, 2013, Rocquencourt, France (N. Sendrier, JP. Tillich);
- SAC 2013: August, 14-16, 2013, Vancouver, Canada (A. Canteaut, M. Naya-Plasencia);
- MoCrySEn 2013: September, 2-6, 2013, Regensburg, Germany (N. Sendrier, co-chair; D. Simos, chair; M. Naya-Plasencia, J.P. Tillich);
- Asiacrypt 2013: December 1-5, 2013, Bangalore, India (A. Canteaut, N. Sendrier);
- *IMA International Conference on Cryptography and Coding*: December 17-19, 2013, Oxford, UK (P. Charpin, M. Naya-Plasencia);
- *Optimal Codes and Related Topics - OC 2013*, September 6-8, 2013, Albena, Bulgaria (P. Charpin);
- FSE 2014: March 2-5, 2014, London, UK (A. Canteaut);
- Africacrypt 2014: May, 28-30, 2014, Marrakech, Morocco (M. Naya-Plasencia);
- Eurocrypt 2014: May, 11-15, 2014, Copenhagen, Denmark (M. Naya-Plasencia);
- YACC 2014: June, 9-14, 2014, Porquerolles, France (N. Sendrier, JP. Tillich)
- ACNS 2014: June 10-13, 2014, Lausanne, Switzerland (A. Canteaut);
- SAC 2014: August 14-15, 2014, Montréal, Canada (A. Canteaut, M. Naya-Plasencia);
- Crypto 2014: August 17-21, 2014, Santa Barbara, USA (M. Naya-Plasencia);
- SCN 2014: September 3-5, 2014, Amalfi, Italy (G. Leurent);
- Latincrypt 2014: September, 17-19, 2014, Florianópolis, Brazil (N. Sendrier);

- Asiacrypt 2014: December 7-11, 2014, China (M. Naya-Plasencia);
- Indocrypt 2014: December 14-17, 2014, New Delhi, India (A. Canteaut).

#### 8.1.4. Invited talks

- A. Canteaut, *Extended differential properties of cryptographic functions*, The 11th International Conference on Finite Fields and their Applications - Fq11, Magdeburg, Germany, July 2013.
- A. Canteaut, *Similarities between Encryption and Decryption: How far can we go?* (Stafford Tavares lecture.), Selected Areas in Cryptography - SAC 2013, Vancouver, Canada, August 2013.
- A. Leverrier, *A Combinatorial Approach to Nonlocality and Contextuality*, Quo Vadis, Quantum Physics?, Natal, Brazil, February 2013.
- A. Leverrier, *Security of continuous-variable quantum key distribution against general attacks*, APS March Meeting 2013, Baltimore, United States of America, March 2013.
- N. Sendrier, *The Construction of Code-Based Cryptosystems*, The 14th IMA International Conference on Cryptography and Coding, Oxford, United Kingdom, December 2013.

A. Canteaut and M. Naya-Plasencia have been invited to give a talk to the *Keccak & SHA-3 Day* organized in Brussels, following the selection of the hash function Keccak as the new SHA-3 standard:

- A. Canteaut, *On some algebraic properties of Keccak*, Keccak & SHA-3 Day, Brussels, Belgium, March 2013;
- M. Naya-Plasencia, *First practical results on reduced-round Keccak and Unaligned rebound attack*, Keccak & SHA-3 Day, Brussels, Belgium, March 2013.

The members of the project-team have also been invited to give talks to some workshops or international seminars, including:

- P. Charpin, *On binary  $[2^n - 1, 2^n - 1 - 2n, d]$  codes*, workshop "Coding Theory", Dagstuhl Seminar 13351, August 2013.
- A. Leverrier, *Does BosonSampling need Fault-Tolerance?*, Journées Informatique Quantique 2013, Nancy, France, October 2013.
- M. Naya-Plasencia, *Meet-in-the-middle through an Sbox*, ESC 2013 - Early Symmetric Crypto seminar, Luxembourg, Luxembourg, January 2013.
- N. Sendrier, *Classical algorithm techniques for decoding generic linear codes*, workshop "Quantum Cryptanalysis", Dagstuhl Seminar 13371, September 2013.

#### 8.1.5. Other responsibilities in the national community

- N. Sendrier is a vice-chair of the "Commission d'Evaluation" at Inria;
- N. Sendrier served on the following Inria juries: admissibilité DR2, admissibilité CR2 Rennes, admission CR;
- N. Sendrier has served on the selection committee of PEPS IQC (quantum information and communication, CNRS);
- A. Canteaut is a member of the "Comité de pilotage" of the Fondation Sciences Mathématiques de Paris;
- JP. Tillich is in charge of "Formation par la recherche" for the Paris-Rocquencourt Inria center.
- P. Charpin served on the selection committee for postdoctoral positions, Inria Paris-Rocquencourt.
- P. Charpin served on the selection committee for PhD fundings in Computer Science at University Pierre-et-Marie Curie (theme: *Software and Algorithms*).

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master: A. Canteaut, *Stream ciphers*, 9 hours, M2, Telecom ParisTech, France;

Master: A. Canteaut, *Introduction to symmetric cryptography*, 4.5 hours, M2, Telecom ParisTech, France;

Master: A. Canteaut, *Error-correcting codes and applications to cryptology*, 11 hours, M2, University Paris-Diderot (MPRI), France;

Master: N. Sendrier, *Code-based cryptography*, 4.5 hours, M2, University Paris-Diderot (MPRI), France;

Master: J.-P. Tillich, *Introduction to Information Theory*, 32 h, M2, Ecole Polytechnique, France.

The members of the project-team also gave advanced lectures to several summer schools for PhD students: *Icebreak 2013* (Reykjavik, Iceland, June 2013) [22], [25]; *Summer school on Design and Security of Cryptographic Functions, Algorithms and Devices* (Albena, Bulgaria, June 2013) [31]; *2013 Indian National Workshop on Cryptology* (Delhi, India, October 2013) [33]; *Forum des jeunes mathématicien-ne-s 2013* (Lyon, France, November 2013) [48].

### 8.2.2. Supervision

PhD: Mamdouh Abbara, *Quantum turbo-codes*, Ecole Polytechnique, April 9, 2013 (supervisor: JP. Tillich)

PhD: Rafael Misoczki, *Two Approaches for Achieving Efficient Code-Based Cryptosystems*, Université Pierre-et-Marie Curie, November 25, 2013 (supervisor: N. Sendrier)

PhD: Jean-Christophe Sibel, *Region-based approximation to solve inference in loopy factor graphs: decoding LDPC codes by the Generalized Belief Propagation*, Université de Cergy-Pontoise, June 7, 2013 (supervisor : D. Declercq)

PhD in progress: Marion Bellard, *Influence du mapping pour la reconnaissance d'un système de communication*, since January 2011, supervisors: N. Sendrier and J.-P. Tillich

PhD in progress: Virginie Lallemand, *Cryptanalysis for symmetric cryptography*, since October 2013, supervisors: M. Naya-Plasencia and A. Canteaut

PhD in progress: Grégory Landais, *Implementations of code-based cryptosystems and of their cryptanalyses*, since October 2010, supervisors: M. Finiasz and N. Sendrier

PhD in progress: Denise Maurice, *Quantum LDPC codes*, since September 2010, supervisor: JP. Tillich

PhD in progress: Joëlle Roué, *Security analysis of block ciphers*, since September 2012, supervisor: A. Canteaut

PhD in progress: Valentin Suder, *Permutations for symmetric cryptography*, since October 2011, supervisor: P. Charpin

PhD in progress: Audrey Tixier, *Reconnaissance de turbo-codes et de codes LDPC*, since October 2013, supervisor: J.P. Tillich

### 8.2.3. Juries

- Risto Hakala, *Results on Linear Models in Cryptography*, Aalto University, Helsinki, Finlande, February 2013, committee: P. Charpin (reviewer).
- Mohamed Ahmed Abdelraheem, *Cryptanalysis of Some Lightweight Symmetric Ciphers*, Danmarks Tekniske Universitet, Denmark, February 7, 2012, committee: A. Canteaut (reviewer);
- Mamdouh Abbara, *Turbo-codes quantiques*, Ecole Polytechnique, April 9, 2013, committee: JP. Tillich (supervisor);
- Paul Stankovski, Lunds University, Sweden, June 17, 2013, committee: A. Canteaut (opponent);
- Alexander Zeh, *Algebraic Soft- and Hard-Decision Decoding of Generalized Reed–Solomon and Cyclic Codes*, Ecole Polytechnique/University of Ulm, September 2, 2013, committee: P. Charpin (reviewer), JP. Tillich;

- Anne Marin, *Utilisation d'états multigraphes pour le partage de secret quantique*, Télécom Paris-Tech, September 17, 2013, committee: J.P. Tillich;
- Jérémy Jean, *Cryptanalyse de primitives symétriques basées sur le chiffrement AES*, École Normale Supérieure, September 24, 2013, committee: A. Canteaut (reviewer);
- Rafael Misoczki, *Two Approaches for Achieving Efficient Code-Based Cryptosystems*, University Pierre-et-Marie-Curie, November 25, 2013, committee: N. Sendrier (supervisor), JP. Tillich;
- Julien Schrek, *Signatures et authentification pour les cryptosystèmes basés sur les codes correcteurs en métrique de Hamming et en métrique rang*, University of Limoges, November 27, 2013, committee: N. Sendrier (reviewer), J.P. Tillich;
- Patrick Debrez, *Attaques par Rencontre par le Milieu sur l'AES*, École Normale Supérieure, December 9, 2013, committee: G. Leurent
- Alberto Passuello, *Semidefinite programming in combinatorial optimization with applications to coding theory and geometry*, University of Bordeaux, December 17, 2013, committee: J.P. Tillich

## **CAD Team**

### **8. Dissemination**

#### **8.1. Teaching - Supervision - Juries**

The permanent members teach in the computer Graphics and in the Mathematics Department. Pr. Jean-Claude Paul and Pr. Jun-Hai Young give several lectures around the world every year.

## CLASSIC Project-Team

## 8. Dissemination

### 8.1. Scientific Animation

#### 8.1.1. Conference organization

G rard Biau co-organized a one-day workshop on “High-dimensional clustering” at Ecole normale sup rieure (September 2013).

#### 8.1.2. Organization of seminars

We (co-)organized the following seminars:

- Statistical machine learning in Paris – SMILE (G rard Biau, Gilles Stoltz; see <http://sites.google.com/site/smileinparis/>);
- Parisian seminar of statistics at IHP (Vincent Rivoirard; see <https://sites.google.com/site/semstats>).

#### 8.1.3. Editorial activities, reports written on articles

G rard Biau is (co-)Editor-in-Chief of *ESAIM: Probability and Statistics* and serves as an Associate Editor for the journals *Annales de l'ISUP* and *International Statistical Review*.

Vincent Rivoirard serves as an Associate Editor for *ESAIM: Probability and Statistics*.

All permanent members of the team reviewed several journal papers during the year.

#### 8.1.4. Participation to national or local evaluation or recruitment committees, to scientific societies

Vincent Rivoirard is the General Secretary of SFdS and G rard Biau is the Vice-President of this society.

G rard Biau is a member of the national board of French universities (CNU) within the applied mathematics section (number 26).

Olivier Catoni is a member of the doctoral commission in mathematics of University Pierre et Marie Curie.

All permanent members of the team participated in several recruitment committees for assistants or full professors in universities.

#### 8.1.5. Honors and distinctions

G rard Biau is a member of the Institut Universitaire de France (IUF).

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Licence : Vincent Rivoirard, Statistiques, 39h, niveau L2, Universit  Paris-Dauphine, France

Licence : Olivier Catoni, Apprentissage, 10h, niveau L3, Ecole normale sup rieure, France

Licence : Gilles Stoltz, Statistiques pour citoyens d’aujourd’hui et managers de demain, 60h, niveau L3, HEC Paris, France

Master : G rard Biau and Olivier Catoni, Groupe de travail Statistique, 20h, niveau M1, Ecole normale sup rieure, France

Master : G rard Biau, Statistique math matique, 30h, niveau M1, Ecole normale sup rieure, France

Master : Vincent Rivoirard, Le ons de math matiques, niveau M1, 10h, Ecole normale sup rieure, France

Master : Vincent Rivoirard, Statistique non-paramétrique, 8h, niveau M1, Ecole normale supérieure, France

Master : Vincent Rivoirard, Statistique non-paramétrique, 35h, niveau M1, Université Paris-Dauphine, France

Master : Vincent Rivoirard, Classification et statistique en grandes dimensions, 18h, niveau M2, Université Paris-Sud, France

Master : Vincent Rivoirard, Méthodes pour les modèles de régression, 21h, niveau M2, Université Paris-Dauphine, France

Master : Vincent Rivoirard, Statistique bayésienne non-paramétrique, 21h, niveau M2, Université Paris-Dauphine, France

Master : Gilles Stoltz, Examineur à l'oral de probabilités et statistiques de l'agrégation de mathématiques, France

### **8.2.2. Supervision**

We only indicate the on-going PhD theses of members of our team.

PhD in progress : Thomas Mainguy, Statistical learning in computational linguistics, since September 2010, supervised by Olivier Catoni

PhD in progress : Emilien Joly, Phase transition of optimal risk and detection of contamination, since September 2011, supervised by Gábor Lugosi and co-supervised by Gilles Stoltz

PhD in progress : Pierre Gaillard, Aggregation of specialized predictors for the forecasting of electricity consumption, since September 2011, supervised by Gilles Stoltz

PhD in progress : Ilaria Giulini, Dimension free PAC-Bayes bounds for the Gram matrix and unsupervised clustering on the sphere of a Reproducing Kernel Hilbert space, since September 2012, supervised by Olivier Catoni

PhD in progress : Paul Baudin, Robust aggregation of predictors for the forecasting of air quality, with measures of uncertainties, since October 2012, supervised by Gilles Stoltz and co-supervised by Vivien Mallet

### **8.2.3. Juries**

Gérard Biau, Olivier Catoni and Vincent Rivoirard participated in different PhD/HdR defense juries, sometimes as external reviewers.

## **8.3. Popularization**

Gilles Stoltz

- wrote a blog post for MPT2013 and an article for The Huffigton Post, in the researchers' blog;
- gave a conference for high school teachers in Orléans;
- gave a mini-course on statistics to "classes préparatoires" professors at ENS Paris and a mini-course of game theory at ENS Rennes, targeted to inspectors of high-school-teachers.



## GAMMA3 Project-Team

# 7. Dissemination

## 7.1. Teaching - Supervision - Juries

### 7.1.1. Teaching

- T. Grosjes:
  - *Responsable du Master Science, Technologie et Santé (STS)*, Université de Technologie de Troyes, Troyes.
  - *Responsable de la filière Technologie et Commerce des Matériaux et Composants (TCMC)*, Département Matériaux, Economie et Technologie (MTE), Université de Technologie de Troyes, Troyes.
  - *Responsable du cours: Mesure Physique et Instrumentation (MS11)*, Université de Technologie de Troyes, Troyes.
  - *Responsable du cours: Méthodes mathématiques et numériques en optique (MO23)*, Université de Technologie de Troyes, Troyes.
  - *Responsable du cours: Technique d'achat et de réduction des coûts (TN19)*, Université de Technologie de Troyes, Troyes.
- D. Barchiesi:
  - *Responsable du cours: Design et sensorique (DS01)*, Université de Technologie de Troyes.
  - *Responsable du cours: Management de l'innovation (GE41)*, Université de Technologie de Troyes & Groupe École Supérieure de Commerce Troyes.

### 7.1.2. Supervision

PhD in progress : N. Barral, Adaptive ALE scheme for CFD, October 2012, F. Alauzet

PhD in progress : V. Menier, Adaptive Mesh Adaptation for Navier-Stokes Equations, October 2012, F. Alauzet and A. Loseille

### 7.1.3. Juries

P. Laug, participation au jury de thèse de Jie Zhang, *Procédure de remaillage adaptatif 3D avec modèle d'endommagement multi-axial pour la simulation numérique des procédés de mise en forme*, UTT, 21/03/2013.

## MATHRISK Project-Team

# 9. Dissemination

## 9.1. Scientific Animation

### 9.1.1. Collective responsibilities

- A. Alfonsi: Co-organizer of the working group seminar of MathRisk “Méthodes stochastiques et finance”.  
In charge of the Master “Finance and Application” at the Ecole des Ponts.
- B. Jourdain:
  - Head of the doctoral school MSTIC, University Paris-Est,
  - Associate Editor of ESAIM:Proc,
  - Member of editorial board of American Journal of Algorithms and Computing.
- B. Jourdain and A. Sulem: Guest Editors of a special issue on systemic risk, to appear in *Statistics and Risk modeling*.
- C. Labart: reviewer for : Mathematical Reviews and Referee for Stochastic Processes and Their Applications, Mathematical Finance and Mathematics of computation, Journal of Computational Finance, SIAM Numerical Analysis and Annals of Applied Probability.
- D. Lamberton: associate editor of *Mathematical Finance* and co-editor of *ESAIM Probability and Statistics*.  
Research Vice President of Université Paris-Est Marne-la-Vallée.
- B. Lapeyre: Head of the doctoral department of Université Paris-Est.
- A. Sulem:
  - Editorship:
    - *Journal of Mathematical Analysis and Applications (JMAA)*
    - *International Journal of Stochastic Analysis (IJSA)*
    - *SIAM Journal on Financial Mathematics (SIFIN)*
  - Participation to selection committees:
    - Full Professor of Mathematics, Ecole Centrale de Paris, September 2013.
    - Researcher, Inria Sophia-Antipolis, 2013.

### 9.1.2. Invitations and participations in conferences

- A. Alfonsi :
  - "Optimal execution and price manipulations", ANR Liquirisk Workshop, Paris Dauphine.
  - "Pathwise optimal transport bounds between a one-dimensional diffusion and its Euler scheme", (June at Mannheim, October at Evry).
- V. Bally
  - Visits to Ritsumeikan University (Japan), Collaboration with A. Kohatsu Higa, September 2013, and to Tor Vergata University, Roma (May-June and July 2013).
  - 29-31 August 2013. Conference for the 150 anniversary of the Mathematical Faculty of Bucharest. Romania
- R. Dumitrescu:
  - Poster Presentation, SMAI Congress, Seignosse (Landes), 27-31 May 2013.

- C. Fontana:
  - 7th Bachelier Colloquium on Mathematical Finance and Stochastic Calculus, Métabief, 13-20 January 2013 (speaker);
  - visits Politecnico di Milano, collaboration with Emilio Barucci, 27-29 January, 27 March - 1 April, 13-14 May.
  - Seminar: Université Marne La Vallée, Laboratoire d'Analyse et de Mathématiques Appliquées, 8 February 2013;
  - Current Topics in Mathematical Finance, Wien, 18-19 April 2013 (participant);
  - Seminar: Politecnico di Milano, Department of Mathematics, 14 May 2013;
  - 30th International French Finance Association Conference, Lyon, 28-31 May 2013 (speaker & discutant);
  - 6th General AmaMeF and Banach Center Conference, Warsaw, 10-15 June 2013 (speaker);
  - Workshop on Stochastic Portfolio, Arbitrage Theory, Role of Information and Credit Risk, Beijing, 24-28 June 2013 (invited speaker);
  - Seminar: Ludwig-Maximilians-Universität Munich, 8 July 2013, and collaboration with Alessandro Gnoatto et Christa Cuchiero, 7-10 July ? 37th Meeting of the Italian Association for Mathematics Applied to Economics and Social Sciences (AMASES), 5-7 September 2013 (speaker);
  - Workshop on Mathematics in Finance, Zurich, 18 October 2013 (participant);
  - Seminar: ENSTA Paris, 28 October 2013.
- B. Jourdain:
  - colloquium Bezout, 31 January 2013, Discretization of stochastic differential equations.
  - BigMC Seminar, 21 February 2013 , Optimal scaling of the transient phase of Metropolis-Hastings algorithms
  - Ergonom workshop , CIRM, 25-28 February 2013 : Optimal scaling of the transient phase of Metropolis-Hastings algorithms
  - Seminar of the chair "Financial risks", 22 April 2013 : American Put in an exponential Levy model with discrete dividends
  - German-Polish joint Conference on Probability and Mathematical Statistics, Torun, 6-9 juin 2013, Optimal scaling of the transient phase of Metropolis-Hastings algorithms
  - ANR Stab meeting, Paris Dauphine, 11-12 June 2013, Optimal transport bounds between a one-dimensional diffusion and its Euler scheme
  - LIASFMA Summer school : new developments in stochastic analysis : probability and PDE, interactions, Beijing, 8-12 July 2013 : Optimal scaling of the transient phase of Metropolis-Hastings algorithms
  - Scicade 2013, 19 September 2013, Optimal scaling of the transient phase of Metropolis-Hastings algorithms, in an invited session on MCMC algorithms
  - Seminar Stochastic Analysis, Oxford MAN Institute, 14 October 2013, Optimal transport bounds between a one-dimensional diffusion and its Euler scheme
  - Mathematics seminar of Marne-la-Vallée, 3 December 2013, Optimal scaling of the transient phase of Metropolis-Hastings algorithms
  - ANR Stab meeting, 16-17 December 2013, 4h lecture on "Discretization of stochastic differential equations : strong error, weak error and optimal transport"
- C. Labart:
  - Colloquium on Financial Mathematics and Numerical Probability, Beijing.

- Local organizer of the international conference IMACS 2013, which took place in Annecy.
- J. Lelong:
  - Conference "Les Nouveaux Outils du Développement Durable", Paris, October 2013.
  - 9th IMACS Seminar on Monte Carlo, Annecy, July 2013.
  - Workshop on Financial Mathematics and Numerical Probability, Beijing, June 2013.
- A. Sulem:
  - Plenary talk at the IFIP TC 7 Conference on System Modelling and Optimization, Klagenfurt, Austria. September 2013  
<http://ifip2013.uni-klu.ac.at/>
  - Invited talk, "Stochastic Analysis and Mathematical Finance", September 2013, Bergen
  - "PDE and Mathematical Finance V", Stockholm, June 10-14, 2013.  
<http://www.math.kth.se/pdefinance/2013/Welcome.html>
  - Stochastics and Real World Models 2013, July 2013, Bielefeld, Germany.  
<http://www.igk.math.uni-bielefeld.de/workshop2013>
  - Nomura seminar, Mathematical Institute, University of Oxford, March 8 2013,  
<http://www.maths.ox.ac.uk/events/seminars/upcoming/P10Y/4/1664>
  - Stochastic Analysis and Applications Conference, Växjö, Sweden, June 2013,
  - Seminar of Probability, Rennes University, June 2013
  - Talk at *Horizon Maths 2013*, Fondation Sciences Mathématiques de Paris, Paris, December 16-17 2013.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- A. Alfonsi:
  - Modéliser, Programmer et Simuler, second year course at the Ecole des Ponts, France.
  - Calibration, Volatilité Locale et Stochastique, third-year course at ENSTA (Master with Paris I).
  - 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.
- V. Bally:
  - Mini course (6 hours) for Phd and Post Doc students, Ritzumeikan University, Japan, September 2013.
  - "The Malliavin calculus and applications in finance", 30 hours, Master 2 Finance University Marne la Vallée,
  - "Risk methods in actuarial science", 36 hours, Master IMIS, University Marne la Vallée.
- R. Dumitrescu:
  - Evaluation d'actifs financiers par absence d'opportunité d'arbitrage (3rd year ENSAE, M2 MASEF Dauphine and M2 Modélisation aléatoire Paris Diderot).
  - Calcul stochastique appliqué à la finance (2nd year ENSAE).
  - Algèbre linéaire (L2, Paris Dauphine).

- B. Jourdain:
  - Course "Probability theory and statistics", 1st year ENPC.
  - Course "Introduction to probability theory", 1st year, Ecole Polytechnique.
  - Course "Stochastic numerical methods", 3rd year, Ecole Polytechnique.
  - Projects in finance and numerical methods, 3rd year, Ecole Polytechnique.
- B. Jourdain, B. Lapeyre:
  - Course "Monte-Carlo methods in finance", 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
- D. Lamberton: Master course "Calcul stochastique et applications en finance", Université Paris-Est Marne-la-Vallée.
- B. Lapeyre:
  - Monte-Carlo methods in finance, 3rd year ENPC and Master Recherche Mathématiques et Application, University Paris-Est Marne-la-Vallée
  - "Finance : mathematical and numerical aspects", 2nd year ENPC, professor, 15 hours/year
- J. Lelong:
  - Oct. 2012 – May 2013 : supervisor of 2 third year students from Ensimag to work on an adaptive Monte Carlo method for jump diffusion models. See the research report "Importance sampling for jump processes and applications to finance" I am co-responsible for the *Financial Engineering* major at Ensimag.
  - Lectures on "Parallel programming in financial mathematics" at Ensimag (third year course)
  - Lectures on "Monte-Carlo methods in financial engineering" at Ensimag (third year course)
  - Lectures on "Numerical methods for pricing American options" at Ensimag (third year course)
  - Lectures on "Martingales and stochastic approximation" at Ensimag (third year course)
  - Lectures on "Interest rate and Foreign exchange derivatives" at Ensimag (third year course)
  - Lectures on "Numerical programming in C++" at Ensimag (second year course)
  - Supervision of third year students for a long term project on "Pricing structured products"
  - Supervision of second year students for long term projects on numerical finance.
- A. Sulem:
  - Master of Mathematics, "Numerical methods in Finance", Luxembourg University, 20 hours
  - Master course, Université Paris IX-Dauphine, Department "Mathématiques et Informatique de la Décision et des Organisations" (MIDO), Master MASEF, 21 hours "Numerical Methods for PDEs in Finance"

### 9.2.2. Supervision

#### PhD theses defended in 2013:

- José Infante Acevedo, Méthodes et modèles numériques appliquées aux risques du marché et à l'évaluation financière, Université Paris-Est, December 9 2013, Adviser: A. Alfonsi and T. Lelièvre.
- Ayech Bouselmi, "Processus de Lévy et options américaines", University of Marne la Vallée, December 11 2013, Adviser : D. Lamberton.
- Maxence Jeunesse, "Etude de deux problèmes de contrôle stochastique : Put Américain avec dividendes discrets et principe de programmation dynamique avec contraintes en probabilités", Université Paris-Est, 29 January 2013, Adviser: B. Jourdain.

**PhD in progress:**

- Clément Rey: ENPC and UPMLV. Weak error analysis of discretization schemes for some financial processes. Advisers: A. Alfonsi and V. Bally (from Oct. 2012).
- Pierre Blanc: Modeling the price impact of limit and market orders. Adviser: A. Alfonsi. (from Nov. 2012).
- Anis Al Gerbi : Discretization of stochastic differential equations and systemic risk modeling. Adviser B. Jourdain (from Sept. 2013).
- J. Reygner, Longtime behaviour of particle systems : applications in physics, finance and PDEs, Advisers: B. Jourdain and L. Zambotti (from Sept. 2011).
- A. Kritoglou, Stochastic modelling for ferromagnetic materials, Since sept. 2013 : Advisers: J. Lelong and S. Labbé (from Sept. 2013).
- R. Dumitrescu, Reflected BSDEs with jumps, 2nd year : Advisers: A. Sulem and R. Elie (from Sept. 2012).
- Victor Rabiet, On a class of jump type stochastic equations, Adviser : V. Bally (from Sept. 2009).
- Paolo Pigato, Lower bounds for the density of the solution of SDE's under the weak Hörmander condition, and applications in finance, Advisers: V. Bally and A. Dai Pra.
- Ernesto Palidda (Since September 2010), Crédit Agricole, Operation Research group, Adviser: B. Lapeyre (from Sept. 2010).
- Marouen Iben Taarit (from September 2013), Cifre industrial contract Natixis/ENPC, Adviser: B. Lapeyre.
- Jyda Mint Moustapha (Since November 2012), IFSTTAR, Adisers: D. Daucher and B. Jourdain.

**9.2.3. Participation to PhD committees**

- A. Alfonsi
  - Florian Klöck, "Regularity of Market Impact Models, Time-Dependent Impact, Dark Pools and Multivariate Transient Impact", University of Mannheim, June 18 2013.
  - Timothée Papin, "Pricing of corporate loan: Credit risk and Liquidity cost", Université Paris-Dauphine, September 25 2013
- A. Sulem:
  - Myriana Grigorova, *Quelques liens entre la théorie de l'intégration non-additive et les domaines de la finance et de l'assurance*, (President of the committee), Laboratoire de Probabilités et Modèles Aléatoires (LPMA), Université Paris VII, October 18 2013
  - Fabien Guillaud, *Contrôle optimal dans des carnets d'ordres limites*, (President of the committee), LPMA, Université Paris VII, 1 February 2013

## MICMAC Project-Team

### 8. Dissemination

#### 8.1. Animation of the scientific community

S. Boyaval has co-organized:

- at SMAI 2013, Seignosse, 2 minisymposiums: "écoulements complexes en rivières" with E. Audusse and "Interactions Fluide-Structure" with M. Fernandez and L. Monasse.

E. Cancès

- is a member of the editorial boards of Mathematical Modelling and Numerical Analysis (2006-), of SIAM Journal of Scientific Computing (2008-), of Communications in Mathematical Sciences (2011-),
- is a member of the executive committee of the CEA-EDF-Inria schools in applied mathematics and computer science,
- is a member of the scientific committee of the GDR co-DFT.

He has organized or co-organized:

- the SIAM MS Minisymposium on "Electronic structure calculation", Philadelphia, USA, June 2013,
- the IHP mini-workshop on "The mathematics of interacting quantum systems in a random environment", Paris, June 2013,

C. Le Bris is editor-in-chief of Applied Mathematics Research Express (2003-). 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-), Networks and Heterogeneous Media (2005-), Nonlinearity (2005-), Journal de Mathématiques Pures et Appliquées (2009-).

He is a member of the editorial boards of the monograph series Mathématiques & Applications, Series, Springer (2008-), and Modeling, Simulations and Applications, Series, Springer (2009-).

C. Le Bris is a member of

- the Cabinet of the High Commissioner for Atomic Energy,
- the scientific board of ENPC, 2008- (nominated as representative of the research scholars),
- the "Comité d'experts" for the "Fondation de Recherche pour l'Aéronautique et l'Espace",
- the "Comité d'animation du domaine thématique Mathématiques appliquées, calcul et simulation" at Inria,
- 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 de perfectionnement du Master de Mathématiques" of the University Pierre et Marie Curie.

C. Le Bris has held a position of Visiting Professor at the University of Chicago, February-October-November 2013.

He has been a member of

- the Organizing Committee of the SIAM Materials Science meeting, 2013.
- the Scientific Committee of CANUM 2014.

He has co-organized

- with G. Bal, B. Engquist, H. Owhadi, the Oberwolfach workshop *Interplay of theory and numerics for deterministic and stochastic Homogenization*, Oberwolfach, 17-23 March 2013,
- with Ch. Lubich, the workshop *Mathematical and numerical challenges in quantum chemistry*, Institut Henri Poincaré, Paris, June 2013,
- with P.-M. Mariano, the one-week school *Multi-scale and multi-field representations of condensed matter behavior* at the Centro De Giorgi, Pisa, Italy, 25-29 November 2013,
- with S. Adams, J. Ball, Ch. Ortner, the workshop *Computational coarse graining of many-body systems*, University of Warwick, 9-13 December 2013.

F. Legoll

- is a member of the editorial board of SIAM MMS (2012-) and of ESAIM Proc (2012-),
- has co-organized with Y. Maday a mini-symposium on "Recent advances on parareal algorithms" at the SciCADE 2013 conference, Valladolid, September 16-20, 2013,
- has co-organized with R. Cottreau, L. Graham-Brady and M. Ostoja-Starzewski a mini-symposium on "Multi-scale methods for heterogeneous materials" at the 12th U.S. National Congress on Computational Mechanics (12th USNCCM), Raleigh, July 22-25, 2013,
- has co-organized with B. Kraczek, R. Jones and K. Mandadapu a mini-symposium on "The atomistic basis of non-equilibrium thermal processes in materials" at the 12th U.S. National Congress on Computational Mechanics (12th USNCCM), Raleigh, July 22-25, 2013.

T. Lelièvre

- is editor-in-chief of ESAIM: Proceedings (with D. Chafai, P. Lafitte and C. Mouhot).
- was an Ordway visiting professor at the University of Minnesota for the academic year 2012-2013 (one month-stay in April 2013).
- has co-organized the CEMRACS 2013 summer school: "Modelling and simulation of complex systems: stochastic and deterministic approaches" (with N. Champagnat and A. Nouy).
- has co-organized the workshop NASPDE (Numerical Analysis of Stochastic PDEs), 10 and 11 September 2013 (with E. Faou and J. Erhel).
- co-organizes the Journées EDP-Probab at Institut Henri Poincaré (with F. Malrieu).
- is the head of the GDR MoMaS, a French research group on the mathematical modeling and the numerical simulations for nuclear waste management problems (Main scientific themes: multiscale models for flows in porous media, molecular simulation of clays, multiphase flows).
- is in charge of the Theme 4 (Stochastic modeling, quantification and uncertainty propagation for multiscale mechanical models of materials) of the Labex MMCD.

## 8.2. Teaching - Supervision

The members of the team have taught the following courses:

- Licence: Calcul Scientifique, 12h, L3, Ecole des Ponts ParisTech (S. Boyaval).
- Licence: probabilités deuxième semestre, 12h, Ecole Centrale de Paris, (S. Boyaval).
- Licence: Analyse, 36h, L3, Ecole des Ponts, France (E. Cancès, F. Legoll, G. Stoltz, M. Rousset, W. Minvielle, V. Ehrlacher)
- Licence : Fonctions à plusieurs variables et équations différentielles, 60h, L2, ESIEE, France (D. Gontier)
- Licence: Projets de physique, 20h, L3, Ecole des Ponts, France (I. Dabo, G. Stoltz)
- Master: Processus Stochastiques, 18h. M1, ESIEA (C.-E. Bréhier).
- Master: Analyse spectrale, 39h, M1, Ecole des Ponts, France (G. Stoltz, V. Ehrlacher)



- Master: Méthodes déterministes en mathématiques financières, 42h, M2, Ecole des Ponts ParisTech (T. Lelièvre).
- Master: Modéliser Programmer Simuler, 28 h, M1, Cours Ecole des Ponts ParisTech (T. Lelièvre).
- Master: Méthodes numériques probabilistes, 36 h, M2 Mathématiques et Applications, Université Pierre et Marie Curie (T. Lelièvre).
- Master: Mathématiques des modèles multiéchelles, 39h, M1, Ecole des Ponts ParisTech, France (F. Legoll)
- Master: Problèmes multi-échelles, 24h, M2, Université Paris 6, France (F. Legoll)
- Master: Introduction au calcul Scientifique, 12h, M1, Ecole des Mines ParisTech, France (D. Benoit, W. Minvielle, G. Stoltz, F. Madiot)
- Master: Analyse Numérique et Optimisation, 56h, M1, Ecole Polytechnique, France (E. Cancès)
- Master: Méthodes variationnelles en mécanique quantique, 12h, M2, University Paris 6, France (E. Cancès)
- Master: Analyse spectrale, 39h, M1, Ecole des Ponts, France (V. Ehrlacher, G. Stoltz)
- Master: Spectral theory of Schrodinger operators, 30h, M2, Université de Marne-la-Vallée, France (G. Stoltz)
- Master: Outils Probabilistes pour la Finance, 24h, M1, Cours Ecole des Ponts ParisTech (M. Rousset).

The following PhD were defended by students members of the research group at the Ecole des Ponts:

- I. Acevedo Méthodes et modèles numériques appliqués aux risques du marché et à l'évaluation financière, Université Paris-Est, Université Paris Est, 10 dec. 2013, supervised by A. Alfonsi (Ecole des Ponts) et T. Lelièvre.
- F. Casenave, Méthodes de réduction de modèles appliquées à des problèmes d'aéroacoustique résolus par équations intégrales, Université Paris-Est, Université Paris Est, 10 dec. 2013, supervised by A. Ern (Ecole des Ponts) et T. Lelièvre.
- S. Lahbabi, Etude mathématique de modèles quantiques et classiques pour les matériaux aléatoires à l'échelle atomique, Université de Cergy Pontoise, supervised by E. Cancès and M. Lewin, July 2013.

The following PhDs are in progress:

- D. Benoit, Méthodes numériques pour la simulation des fluides non-Newtoniens, Université Paris-Est, Université Paris Est, started October 1st, 2010, supervised by C. Le Bris and T. Lelièvre, to be defended on January 22nd 2014.
- F. Madiot, Multiscale finite element methods for advection diffusion problems, Université Paris-Est, Ecole des Ponts ParisTech, started october 1st, 2013, supervised by C. Le Bris and F. Legoll
- W. Minvielle, Méthodes numériques pour les matériaux, Université Paris-Est, Université Paris Est, started october 1st, 2012, supervised by C. Le Bris and F. Legoll
- D. Gontier, Université Paris-Est, started September 1st, 2012, supervised by E. Cancès
- A.-A. Homman, Multiscale methods for the simulation of shock and detonation waves, Université Paris-Est, Ecole des Ponts ParisTech and CEA/DAM, started April 1st, 2013, supervised by G. Stoltz and J.-B. Maillet

### 8.3. Conference participation

Members of the project-team have delivered lectures in the following seminars, workshops and international conferences:

- S. Boyaval, NASCA 2013 (Calais)
- S. Boyaval, CEMRACS 2013
- S. Boyaval, seminar at the Universities of Montpellier and Toulouse
- C.-E. Bréhier, Conference NASPDE 2013, Rennes, September 2013.
- E. Cancès, workshop on Mathematical and numerical methods for electronic structure calculation, Berlin, January 2013.
- E. Cancès, workshop on Multiscale modeling, analysis, and computation of nano-optics, Michigan State University, Lansing, USA, March 2013.
- E. Cancès, IMA workshop on Mathematics and Chemistry, Chicago, April 2013.
- E. Cancès, Weekly seminar, Mathematics department, University of Chicago, USA, May 2013.
- E. Cancès, SIAM MS 2013, Philadelphia, USA, June 2013.
- E. Cancès, IHP mini-workshop on Mathematical and numerical challenges in quantum chemistry, Paris, June 2013.
- E. Cancès, plenary lecture, Enumath 2013, Lausanne, August 2013.
- E. Cancès, Enumath minisymposium on Multiscale methods for atomistic and continuum problems, Lausanne, August 2013.
- E. Cancès, IPAM workshop on Semiclassical origins of Density Functional Approximations, Los Angeles, September 2013.
- E. Cancès, plenary lecture, Q-Math 12, Berlin, September 2013.
- E. Cancès, IPAM workshop on Fuels from sunlight, Los Angeles, October 2013.
- E. Cancès, Conference in honor of Wolfgang Hackbusch's 65th birthday, Leipzig, October 2013.
- V. Ehrlacher, SIAM Conference on Computational Science and Engineering (CSE13), Boston, USA, February 2013.
- V. Ehrlacher, Seminar Zentrum Mathematik, TU München, Munich, Germany, February 2013.
- V. Ehrlacher, Applied mathematics seminar of Warwick University, Warwick, England, February 2013.
- V. Ehrlacher, Oberwolfach workshop on Interplay of Theory and Numerics for Deterministic and Stochastic Homogenization, Oberwolfach, Germany, February 2013.
- V. Ehrlacher, Congrès SMAI 2013, Seignosse, France, May 2013.
- V. Ehrlacher, CIRM workshop on Model Reduction and Approximation for Complex Systems, Luminy, France, June 2013.
- V. Ehrlacher, Seminar of Excellence cluster of Engineering of Advanced Materials, Erlangen, Germany, June 2013.
- V. Ehrlacher, Mathematik Seminar der Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany, June 2013.
- V. Ehrlacher, CEMRACS 2013, CIRM, Luminy, France, August 2013.
- V. Ehrlacher, ENUMATH, Lausanne, Switzerland, August 2013.
- V. Ehrlacher, QMATH 12, workshop on Mathematical results in quantum mechanics, Berlin, Germany, September 2013.
- V. Ehrlacher, Séminaire du laboratoire GeM, Ecole centrale Nantes, France, September 2013.

- V. Ehrlacher, Séminaire du laboratoire Jacques-Louis Lions, Université Paris 6, France, November 2013.
- V. Ehrlacher, MATHICSE seminar, EPFL, Lausanne, Switzerland, December 2013.
- D. Gontier, Annual meeting of the GDR co-DFT, Guidel, France, May 2013.
- D. Gontier, IHP Seminar, Paris, July 2013.
- S. Lahbabi, weekly seminar of the mathematics department University of Pau, May 2013.
- S. Lahbabi, IHP workshop on Mathematical properties of large quantum systems, Paris, June 2013.
- C. Le Bris, plenary lecture, SMAI 2013, Seignosse, 27-31 May 2013
- C. Le Bris, Workshop "Numerical Methods for Uncertainty Quantification", May 13-17, 2013, Hausdorff Center for Mathematics, Bonn.
- C. Le Bris, SIAM Materials Modeling minisymposium, Philadelphia, June 9-12, 2013.
- C. Le Bris, 2nd Pacific Rim Mathematical Association Congress, Shanghai, June 24-28, 2013.
- C. Le Bris, Scientific and statistical computing seminar University of Chicago
- C. Le Bris, Argonne National Laboratory,
- C. Le Bris, Colloquium of the Max Planck Institute Leipzig,
- C. Le Bris, Colloquium Ecole Polytechnique Fédérale de Lausanne,
- C. Le Bris, Computations in Science Seminar of the university of Chicago,
- C. Le Bris, PDE Seminar of the university of Chicago,
- C. Le Bris, Inaugural lecture in Mathematics for the "Semaine de la Science", Ecole Polytechnique
- F. Legoll, weekly seminar of the mathematics department, Université de Besançon, February 2013
- F. Legoll, weekly seminar of the Jacques-Louis Lions laboratory, March 2013
- F. Legoll, workshop on Interplay of Theory and Numerics for Deterministic and Stochastic Homogenization, Oberwolfach, March 2013
- F. Legoll, workshop on multiscale modelling and simulation in material science, Shanghai, April 2013
- F. Legoll, 11ieme Colloque National en Calcul des Structures, Giens, May 2013
- F. Legoll, workshop on slow-fast dynamics, Barcelona, June 2013
- F. Legoll, SIAM conference on mathematical aspects of material sciences, Philadelphia, June 2013
- F. Legoll, 12th US National Congress on Computational Mechanics, Raleigh, July 2013
- F. Legoll, SES 50th Annual Technical Meeting, Providence, July 2013
- F. Legoll, CEMRACS summer school, Marseille, August 2013
- F. Legoll, SciCADE conference, Valladolid, September 2013
- F. Legoll, MoMaS Multiphase Seminar Days, Orsay, October 2013
- F. Legoll, workshop "Stochastic Modeling of Multiscale Systems", Eindhoven, december 2013
- F. Legoll, Symposium on Statistical Mechanics, Warwick, december 2013
- T. Lelièvre, Kolloquium, Institut für Mathematik, Universität Mainz, January 2013.
- T. Lelièvre, Séminaire ANR BIGMC, Paris, February 2013.
- T. Lelièvre, Séminaire Institut de Mathématiques de Toulouse, March 2013.
- T. Lelièvre, Workshop "Genetic models and Quasi-stationarity", CIRM, Marseille, March 2013.
- T. Lelièvre, Workshop "Analysis and Stochastics in Complex Physical Systems", Leipzig, March 2013.
- T. Lelièvre, Math colloquium, University of Minnesota, April 2013.
- T. Lelièvre, PDE seminar, University of Minnesota, April 2013.

- T. Lelièvre, Workshop Randomness and PDE, Labex Lebesgue semester, Nantes, April 2013.
- T. Lelièvre, IMA Chem year Summit, Chicago, May 2013.
- T. Lelièvre, SMAI 2013, May 2013.
- T. Lelièvre, Plenary speaker at the SIAM conference on Mathematical Aspects of Materials Science, Philadelphia, June 2013.
- T. Lelièvre, Workshop Scicade 2013, Valladolid, September 2013.
- T. Lelièvre, Workshop on Reduced Basis, POD and PGD model, Blois, November 2013.
- T. Lelièvre, Séminaire de la Chaire FDD, IHP, Paris, December 2013.
- T. Lelièvre, Workshop “Computational coarse-graining of many-body systems”, Warwick, December 2013.
- T. Lelièvre, Workshop on Material Theories, Oberwolfach, December 2013.
- F. Nier, Collège de France, April 2013,
- F. Nier, workshop of the ANR Lodiquas à Vienne (Autriche), July 2013: Artificial gauge and adiabatic Ansatz for Bose-Einstein condensates.
- F. Nier, Berkeley, September 2013,
- F. Nier, Institute for Pure and Applied Mathematics, Workshop “Semiclassical Origins of Density Functional Theory”, Los Angeles, September 2013,
- F. Nier, CIRM, Microlocal analysis and spectral theory, September 2013,
- F. Nier, Orsay, Working group “Opérateurs de Dirac”, December 2013,
- M. Rousset, SIAM conference on mathematical aspects of material sciences, Philadelphia, June 2013
- M. Rousset, CEMRACS summer school, Marseille, August 2013.
- M. Rousset, Séminaire Institut de Mathématiques de Toulouse (Probabilités), December 2013
- G. Stoltz, Oberwolfach meeting "Large Scale Stochastic Dynamics" (Germany), October 2013
- G. Stoltz, QMaths12, Berlin (Germany), September 2013
- G. Stoltz, GDRE ConEDP Meeting, Grenoble (France), April 2013
- G. Stoltz, AMMP seminar, Imperial College London (United-Kingdom), October 2013
- G. Stoltz, daily seminar at CEMRACS 2013, Marseille (France), August 2013
- G. Stoltz, Mathematical Physics Seminar, Institut Poincaré, Paris (France), May 2013

In addition to the above, some members of the team have been invited for stays in institutions abroad:

- E. Cancès, University of Chicago, April-May 2013,
- E. Cancès, IPAM, UCLA, October 2013,
- T. Lelièvre, one month at the University of Minnesota as an Ordway professor.

Members of the project-team have delivered the following series of lectures:

- E. Cancès (15h) on numerical methods for electronic structure calculation, Summer school on the scientific trends at the interfaces mathematics - chemistry - high performance computing, Roscoff, France, July-August 2013,
- E. Cancès (6h) on the mathematics of quantum chemistry, Oberwolfach seminar, Germany, November 2013,
- C. Le Bris, Lectures on ‘Numerical homogenization’, The University of Chicago, 12 hours, February 2013,
- C. Le Bris, Lectures on ‘Renormalized solutions to parabolic equations’, The University of Chicago, 20 hours, Fall 2013,

- C. Le Bris, Lectures on 'Stochastic homogenization and related problems', Series of 4 one-hour lectures, Multi-scale and Multi-field Representations of Condensed Matter Behavior, Scuola Normale Pisa, November 2013,
- T. Lelièvre, Lectures on the adaptive biasing force method at the University of Minnesota,
- G. Stoltz, Lectures (4h) on "Molecular simulation: A mathematical introduction", School "Multi-scale and Multi-field Representations of Condensed Matter Behavior", Pisa (Italy), November 2013
- G. Stoltz, Lectures (4h) on "Molecular simulation: A mathematical introduction", School "Longtime limits of stochastic models" at CIRM, Marseille (France), February 2013
- G. Stoltz (9h) on numerical methods for statistical physics, Summer school on the scientific trends at the interfaces mathematics - chemistry - high performance computing, Roscoff, France, July-August 2013.

Members of the project-team have participated (without giving talks nor presenting posters) in the following seminars, workshops and international conferences:

- D. Gontier, Q-Math 12, Berlin, September 2013.
- D. Gontier, Oberwolfach seminar, November 2013.
- W. Minvielle, "Ecole Thématique du GdR CHANT", January 2013
- W. Minvielle, workshop on Interplay of Theory and Numerics for Deterministic and Stochastic Homogenization, Oberwolfach, March 2013
- W. Minvielle, Summer School in Analysis and Applied Mathematics, Roma, June 2013
- W. Minvielle, CEMRACS summer school, Marseille, August 2013
- W. Minvielle, workshop on "Quasistatic and Dynamic Evolution Problems in Plasticity and Fracture", Trieste, October 2013

## **MOKAPLAN Exploratory Action**

### **8. Dissemination**

#### **8.1. Teaching - Supervision - Juries**

##### **8.1.1. Teaching**

- Licence : Guillaume Carlier, Analyse complexe, 30hETD, Dauphine, L3,
- Master 2: Guillaume Carlier, Mean-Field-Games, 18hETD, Dauphine, M2,
- Doctorat : Guillaume Carlier, cours Optimization with divergence constraints and applications, Pise, Italie, 12h.

##### **8.1.2. Supervision**

PhD in progress : Luca Nenna, , 01/10/2013, J.D. Benamou & G. Carlier

PhD in progress : Maxime Laborde (01/09/2013) and Romeo Hatchi (01/09/2012), G. Carlier

##### **8.1.3. Juries**

Jean-David Benamou reviewer of PhD : Nicolas Bonnote, Unidimensional and Evolution Method for Optimal Transportation, Université Paris Sud, dec. 16 2013, Advisors : L. Ambrosio and F. Santambrogio

Guillaume Carlier jury member for the PhD of Vincent Nolot (Dijon), Miryana Grogorova (Paris 7) and Beatrice Acciaio (Vienna, reviewer), HDR committes: Pierre Bousquet (Marseille) and Naila Hayek (Paris 1).

#### **8.2. Popularization**

Jean-David Benamou run a Ipython Notebook web site <https://mathmarx.rocq.inria.fr:9999> on which simple Optimal Mass Transportation algorithm are coded in python and can be tested and modified.

## SIERRA Project-Team

# 9. Dissemination

## 9.1. Scientific Animation

### 9.1.1. Editorial boards

- F. Bach: Journal of Machine Learning Research, Action Editor.
- F. Bach: IEEE Transactions on Pattern Analysis and Machine Intelligence, Associate Editor.
- F. Bach: Information and Inference, Associate Editor.
- F. Bach: SIAM Journal on Imaging Sciences, Associate Editor.
- F. Bach: International Journal of Computer Vision, Associate Editor
- A. d'Aspremont: Optimization Methods and Software
- A. d'Aspremont: SIAM Journal on Optimization

### 9.1.2. Area chair

- F. Bach: International Conference on Machine Learning, 2013
- F. Bach: Neural Information Processing Systems, 2013

### 9.1.3. Workshop and conference organization

- S. Arlot, member of the program committee of the Second Workshop on Industry & Practices for Forecasting (WIPFOR), EDF R&D, Clamart. 5-7 June 2013.
- A. d'Aspremont was co-organizer of the workshop on optimization and machine learning at Les Houches in January 2013.
- F. Bach organized a workshop on "Big data: theoretical and practical challenges" - May, 14-15, 2013 - Institut Poincaré (co-organized with Michael Jordan), funded by the Fondation de Sciences Mathématiques de Paris and Inria.
- F. Bach and Michael Jordan coorganized the "Fête Parisienne in Computation, Inference and Optimization: A Young Researchers' Forum". A workshop organized in the framework of the the Schlumberger Chair for mathematical sciences at IHÉS. March 20, 2013. <http://www.di.ens.fr/~fbach/ihes.html>
- F. Bach also coorganized the "Workshop on "Succinct Data Representations and Applications", Theoretical Foundations of Big data. Simons Institute, Berkeley, September 2013.

### 9.1.4. Other

- S. Arlot is member of the board for the entrance exam in Ecole Normale Supérieure (mathematics, voie B/L).
- A. d'Aspremont is a member of the scientific committee of the programme Gaspard Monge pour l'optimisation (PGMO).
- A. d'Aspremont is a member of the scientific committee of Thales Alenia Space.

### 9.1.5. Invited presentations

- S. Arlot, "Kernel change-point detection", Workshop "Non-stationarity in Statistics and Risk Management" (CIRM, Marseille, January, 21-25, 2013).
- S. Arlot, "Sélection de modèles par validation croisée et sélection de paramètres pour la régression ridge et le Lasso", Groupe de Travail Neurospin-Select (Saclay, February, 20, 2013).

- S. Arlot, "Optimal model selection with V-fold cross-validation: how should V be chosen?", Fête Parisienne in Computation, Inference and Optimization: A Young Researchers' Forum (IHES, Bures-sur-Yvette, March, 20, 2013).
- S. Arlot, "Kernel change-point detection", Groupe de Travail de Statistique de Jussieu (Paris, November, 11, 2013).
- S. Arlot, "Analyse du biais de forêts purement aléatoires", Séminaire de l'Equipe de Probabilités et Statistiques (Institut Elie Cartan, Nancy, November, 28, 2013).
- S. Arlot, "Optimal data-driven estimator selection with minimal penalties", keynote lecture, Workshop "Mathematical Statistics with Applications in Mind" (CIRM, Marseille, December, 9-13, 2013).
- Simon Lacoste-Julien, "Harnessing the structure of data for discriminative machine learning":
  - Department of Statistics, University of Oxford, February 2013
  - Intelligent Systems Lab Amsterdam, University of Amsterdam, February 2013
  - Département d'informatique, Université de Sherbrooke, April 2013
  - School of Computer Science, McGill University, April 2013
  - Département d'Informatique, École Normale Supérieure, April 2013
- "Block-Coordinate Frank-Wolfe Optimization for Structured SVMs"
  - ICML, Atlanta, USA, June 2013
  - ICCOPT, Lisbon, Portugal, July 2013
- Simon Lacoste-Julien, "SiGMa: Simple Greedy Matching for Aligning Large Knowledge Bases", KDD, Chicago, August 2013
- Simon Lacoste-Julien, "Frank-Wolfe optimization insights in machine learning"
  - Département d'informatique, Université de Sherbrooke, August 2013
  - SMILE seminar, Paris, November 2013
  - SAIL meeting, UC Berkeley, December 2013
  - CILVR Lab, New York University, December 2013
  - Machine Learning Lab, Columbia University, December 2013
  - Reasoning and Learning Lab, McGill University, December 2013
- Simon Lacoste-Julien, "Making Sense of Big Data", CaFFEET, Stanford University, November
- Michael Jordan, Keynote Speaker, ACM Conference on Knowledge Discovery and Data Mining (SIGKDD), Beijing, China, 8/15/12
- Michael Jordan, Keynote Speaker, 21st Century Computing Conference, Tianjin, China, 10/25/12
- Michael Jordan, Keynote Speaker, ICONIP, Doha, Qatar, 11/12/12
- Michael Jordan, Invited Speaker, SAMSI Workshop on Massive Data Analysis, 9/9/12
- Michael Jordan, Invited Speaker, Méthodes Bayésiennes non Paramétriques pour le Traitement du
- Michael Jordan, Signal et des Images, Telecom ParisTech, Paris, France, 9/8/12
- Michael Jordan, Invited Speaker, Séminaire Parisien de Statistique, Paris, France, 9/17/12
- Michael Jordan, Invited Speaker, Workshop on Random Matrices and their Applications, Paris, France, 10/9/12
- Michael Jordan, Colloquium, Department of Informatique, Ecole Normale Supérieure, 10/2/12
- Michael Jordan, Vincent Meyer Colloquium, Israel Institute of Technology, 11/5/12
- Michael Jordan, Invited Speaker, Workshop on Optimization and Statistical Learning, Les Houches, France, 1/8/13
- Michael Jordan, Harry Nyquist Lecture, Department of Electrical Engineering, Yale, 1/23/13



- Michael Jordan, Invited Speaker, Simons Workshop on Big Data, New York, 1/24/13
- Michael Jordan, Keynote Speaker, Workshop on Nonsmooth Optimization in Machine Learning, Liege, Belgium, 3/4/13
- Michael Jordan, Keynote Speaker, StatLearn Workshop, Bordeaux, France, 4/8/13
- Michael Jordan, Lecture Series, Ecole Nationale de la Statistique et de l'Administration, Paris, 5/13
- Michael Jordan, Keynote Speaker, Amazon Machine Learning Conference, Seattle, 4/28/13
- Michael Jordan, Keynote Speaker, Bayesian Nonparametrics Workshop, Amsterdam, 6/10/13
- Michael Jordan, Invited Speaker, Workshop on High-Dimensional Statistics, Moscow, 6/26/13
- Michael Jordan, Distinguished Lecture, Department of Statistics, University of Oxford, 5/7/13
- Michael Jordan, Colloquium, Department of Statistics, University of Cambridge, 5/10/13
- Michael Jordan, Invited Speaker, GdR ISIS Conference, Telecom ParisTech, Paris 5/16/13
- Matthieu Solnon, "Analysis of the oracle risk in multi-task kernel ridge regression", Colloque Statistique Mathématique et Applications, Fréjus, France.
- Mark Schmidt, "Opening up the black box: Faster methods for non-smooth and big-data optimization problems". Invited talk at DeepMind Technologies, London (June 2013).
- Mark Schmidt, "Linearly-Convergent Stochastic-Gradient Methods". Invited talk at Paris 6, Paris (June 2013).
- Mark Schmidt, "Minimizing Finite Sums with the Stochastic Average Gradient Algorithm". "Invited" talk at ICCOPT, Lisbon (July 2013).
- Edouard Grave, Alpage, Inria / Paris 7, May 2013
- Edouard Grave, Criteo, September 2013
- Edouard Grave, Laboratoire de Science Cognitive et Psycholinguistique, EHESS / ENS / CNRS, November 2013
- Alexandre d'Aspremont, "Convex Relaxations for Permutation Problems"
  - Workshop on Succinct Data Representations and Applications, Simons Institute, Berkeley, Sept. 2013.
  - Workshop MAORI, Ecole Polytechnique, Nov. 2013.
- Alexandre d'Aspremont, "Phase Retrieval, MAXCUT and Complex Semidefinite Programming"
  - GdT CEREMADE, Paris Dauphine, April 2013.
  - Journée du GdR ISIS, Telecom, May 2013.
  - Journée du GdR MOA, June 2013.
- Alexandre d'Aspremont, "Approximation Bounds for Sparse PCA"
  - Workshop on Structured families of functions and applications, Oberwolfach, February 2013.
  - PACM seminar, Princeton, USA, February 2013.
  - Séminaire ENSAE, France, April 2013.
  - Big Data workshop, IHP, May 2013.
- Alexandre d'Aspremont, "An Optimal Affine Invariant Smooth Minimization Algorithm", International Workshop on Statistical Learning, Moscow, June 2013.
- F. Bach: Optimization and Statistical Learning, January 6 - 11, 2013. Les Houches, France (Invited presentation)
- F. Bach: international biomedical and astronomical signal processing (BASP) Frontiers workshop, January 2013 (Invited presentation)

- F. Bach: Convex Relaxation Methods for Geometric Problems in Scientific Computing, IPAM, Los Angeles, February 2013 (Invited presentation)
- F. Bach: Nonsmooth optimization in machine learning. March 04, 2013, University of Liège (Invited presentation)
- F. Bach: Microsoft Research Machine Learning Summit: April 22-24, 2013 (Invited presentation)
- F. Bach: International Workshop on Advances in Regularization, Optimization, Kernel Methods and Support Vector Machines: theory and applications, July 8 - 10, 2013, Leuven, Belgium (Invited presentation)
- F. Bach: European Conference on Data Analysis, Luxembourg, July 2013 (Invited presentation)
- F. Bach: European Meeting of Statisticians (EMS), Budapest, Hungary, 20-25 July 2013 (Invited presentation)
- F. Bach: Fourth Cargèse Workshop on Combinatorial Optimization. Institut d'Etudes Scientifiques de Cargèse, Corsica (France). September 30 - October 5, 2013 (Invited presentation)
- F. Bach: 9èmes Journées Nationales de la Recherche en Robotique, Annecy, October 16-18, 2013 (invited presentation)
- F. Bach: Radboud University, Nijmegen, Netherlands, November 29, 2013 (Seminar)
- F. Bach: GlobalSIP: IEEE Global Conference on Signal and Information Processing, December 3-5, 2013 (invited presentation)
- F. Bach: NIPS workshops, december 2013 (2 invited presentations)

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence: F. Bach, G. Obozinski, R. Lajugie: "Apprentissage statistique", 35h, Ecole Normale Supérieure, Filière "Math-Info", première année.

Mastère: S. Arlot and F. Bach, "Statistical learning", 24h, Mastère M2, Université Paris-Sud, France.

Mastère: F. Bach, G. Obozinski, Introduction aux modèles graphiques (30h), Master MVA (Ecole Normale Supérieure de Cachan).

Master: S. Arlot and F. Bach, "Statistical learning", 24h, Mastère M2, Université Paris-Sud, France.

Doctorat: S. Arlot, "Classification and statistical machine learning", 1h tutorial for the CEMRACS 2013, Marseille, France.

Licence : A. d'Aspremont, "Optimisation", 36h, L3, ENSAE, France.

Master M2: A. d'Aspremont, "Convex Optimization, Algorithms and Applications", 27h, M2, ENS Cachan, France.

Master M2: A. d'Aspremont, "Optimisation et simulation numérique.", 14h, M2, Paris Sud (Orsay), France.

### 9.2.2. Supervision

PhD: Matthieu Solnon, "Multi-task statistical learning", UPMC, November 25, 2013. Advisors: S. Arlot and F. Bach.

PhD in progress: Fajwel Fogel, "Optimisation et Apprentissage", September 2012, A. d'Aspremont.

PhD in progress: Bamdev Mishra

PhD in progress: Loic Landrieu

PhD in progress: Sesh Kumar, "Optimization and submodular functions", May 2012, F. Bach.

PhD in progress: Edouard Grave, "A Markovian approach to distributional semantics", F. Bach, G. Obozinski (defended January 20, 2014).

PhD in progress: Anil Nelakanti, "Structured sparsity and language models", F. Bach, G. Obozinski (to be defended February 11, 2014).

PhD in progress: Rémi Lajugie, September 2012, S. Arlot and F. Bach.

### **9.2.3. Juries**

- A. d'Aspremont was a member of the PhD committee of Nicholas Boumal's thesis at the Université Catholique de Louvain.
- F. Bach was a member of the PhD committee of Clément Calauzènes (UPMC), Azadeh Khaleghi (Inria Lille), Yao-Lian Yu (University of Alberta).
- F. Bach was a member of the HDR committee of Ivan Laptev (Inria-ENS), Pawan Kumar (Ecole Centrale).

### **9.3. Popularization**

- A. d'Aspremont, Journée Big Data, ENSAI, Rennes, November 2013.

## ANGE Team

## 9. Dissemination

### 9.1. Scientific Animation

11/01/13: Y. Penel was involved in the organisation of the second Forum for Jobs in Mathematics held at CNAM Paris.

27-31/05/13: Y. Penel was a member of the organising committee of the biannual congress of the French society for applied and industrial mathematics which gathered more than 400 mathematicians.

09/09/13: A. Mangeney and J. Sainte-Marie organised a workshop Mathematics & Geophysics in the framework of the Tarantola action proposed by Univ. Pierre et Marie Curie Paris 6 (Laboratoire Jacques-Louis Lions) and Univ. Denis Diderot Paris 7 (Institut de Physique du Globe).

E. Godlewski is also a member of the board of AMIES (see § 7.2 ).

A. Mangeney is a member of the scientific committees of the Institut de Physique du Globe de Paris (Univ. Paris 7), of Observatory of Côte d'Azur, of the Bureau de Recherches Géologiques et Minières and of the CNRS Institut National des Sciences de l'Univers "Natural Hazards". She is also a member of the management committee of the IPGP center of parallel computing and data processing.

### 9.2. Teaching - Supervision - Juries

#### 9.2.1. Teaching

**Master's degree** E. Godlewski and J. Sainte-Marie, (*Not so*) *Hyperbolic models for complex flows. Application to sustainable energies*, nombre d'heures en équivalent TD, 20 hours (lectures), M2, Univ. Pierre et Marie Curie Paris 6

**Engineering school** E. Audusse, *Finite Elements*, 30 hours (practical works), 2nd year (~ M1), SupGalilee

**Engineering school** E. Audusse, *Optimisation*, 27 hours (exercise sessions), 2nd year (~ M1), SupGalilee

**Engineering school** E. Audusse, *Introduction to scientific computing*, 36 hours (lectures), (~ L2), SupGalilee

**Engineering school** Y. Penel, *Partial Differential Equations*, 15 hours (exercise sessions), 1st year (~ L3), Ecole Centrale Paris

**Engineering school** Y. Penel, *Numerical Analysis*, 10 hours (lectures) + 15 hours (exercise sessions), 2nd year (~ M1), EFREI

We also mention that E. Godlewski is the head of the "Mathematics for Industry" M.Sc. program of Univ. Pierre et Marie Curie Paris 6. E. Audusse is the deputy director of the "Applied Mathematics and Scientific Computing" program of the SupGalilee engineering school.

### 9.2.2. Supervision

**HdR** Nicole Goutal, *Modélisation et simulation des écoulements à surface libre pour les eaux continentales*, Univ. Paris Est Marne-la-Vallée, 06/12/13

**PhD** Anne-Céline Boulanger, *Modélisation, simulation et assimilation de données autour d'un problème de couplage hydrodynamique-biologie*, Univ. Pierre et Marie Curie Paris 6, supervised by J. Sainte-Marie (in collaboration with B. Perthame), 13/09/13

**PhD** Saïda Sari, *Modélisation mathématique et numérique de transport de sédiment dans les écoulements d'eau en zone côtière*, Univ. Paris 13, supervised by E. Audusse (in collaboration with F. Benkhaldoun), 08/07/13

**M2 internship** Dena Kazerani, *Ondes de gravité et effets non-hydrostatiques*, Univ. Pierre et Marie Curie Paris 6, supervised by J. Sainte-Marie, Spring 2013

**M2 internship** Clément Mifsud, *Méthodes variationnelles et hyperboliques appliquées aux systèmes mécaniques sous contrainte*, Univ. Pierre et Marie Curie Paris 6, supervised by N. Seguin (in collaboration with J.-F. Babadjian and B. Després), Spring 2013

**PostDoc in progress** Aude Bernard-Champmartin, *Stabilité locale et montée en ordre pour la reconstruction de quantités volumes finis sur maillages coniques non structurés*, Univ. Pierre et Marie Curie Paris 6 (CEA grant), supervised by N. Seguin (in collaboration with P. Hoch), from Nov. 2013

**PostDoc in progress** Minh Lê, Univ. Paris 13 (IRSN grant), supervised by E. Audusse (in collaboration with F. Benkhaldoun and M. Bourgeois), from June 2013

**PostDoc in progress** Clara Levy, *Spatio-temporal analysis of gravitational activity using generated seismic signals*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeny, from 2012

**PhD in progress** Nora Aïssiouene, *Derivation and analysis of a non-hydrostatic Shallow water type model*, Univ. Pierre et Marie Curie Paris 6 (Inria grant), supervised by E. Godlewski and J. Sainte-Marie, from Nov. 2013

**PhD in progress** Tim Borikov, *Physical processes at play in Martian landslides*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeny (in collaboration with D. Mège), from 2012

**PhD in progress** Maxime Farin, *Analysis of the seismic signal generated by laboratory granular flows*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeny (in collaboration with R. Toussaint and J. de Rosny), from 2011

**PhD in progress** Khalil Haddaoui, *Couplage interfacial de systèmes hyperboliques. Application aux écoulements diphasiques*, Univ. Pierre et Marie Curie Paris 6 (ONERA grant), supervised by E. Godlewski (in collaboration with F. Coquel and F. Renac), from Oct. 2012

**PhD in progress** Dena Kazerani, *Simulation et modélisation de problèmes à frontière libre*, Univ. Pierre et Marie Curie Paris 6, supervised by N. Seguin (in collaboration with P. Frey and C. Audiard), from Oct. 2013

**PhD in progress** Jannes Kinscher, *Analysis of seismicity in quarries*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeny (in collaboration with P. Bernard and I. Contrucci), from 2011

**PhD in progress** Clément Mifsud, *Analyse et approximation des systèmes de Friedrichs : application à la modélisation de l'élastoplasticité*, Univ. Pierre et Marie Curie Paris 6, supervised by N. Seguin (in collaboration with J.-F. Babadjian and B. Després), from Oct. 2013

**PhD in progress** Laurent Moretti, *Modelling of seismic waves generated by landslides*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeny (in collaboration with Y. Capdeville), from 2010

**PhD in progress** Amandine Sergeant-Boy, *Detection and characterization of seismic sources generated by glaciers: numerical modelling and analysis of seismic waves*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with J.-P. Montagner, E. Stutzmann and O. Castelnaud), from 2013

**PhD in progress** Philippe Ung, *Simulation, modélisation et analyse numérique pour le transport sédimentaire*, Univ. Orléans (EDF-CNRS grant), supervised by E. Audusse (in collaboration with S. Cordier), from Nov. 2012

### 9.2.3. Juries (PhD)

**12/03/13** N. Seguin (referee) : Céline Sarazin-Desbois (Univ. Nantes, *Méthodes numériques pour des systèmes hyperboliques avec terme source provenant de physiques complexes autour du rayonnement*)

**04/06/13** N. Seguin (referee) : Marie Martin (Univ. Nice, *Modélisations fluides pour les plasmas de fusion : approximation par éléments finis  $C^1$  de Bell*)

**03/07/13** N. Seguin (co-supervisor) : Magali Tournus (UPMC Paris 6, *Modèles d'échanges ioniques dans le rein. Théorie, Analyse asymptotique et Applications numériques*)

**08/07/13** E. Audusse (co-supervisor) : Saïda Sari (Univ. Paris 13, *Modélisation mathématique et numérique de transport de sédiment dans les écoulements d'eau en zone côtière*)

**13/09/13** E. Godlewski, J. Sainte-Marie (supervisor), N. Seguin : Anne-Céline Boulanger (UPMC Paris 6, *Modélisation, simulation et assimilation de données autour d'un problème de couplage hydrodynamique-biologie*)

**28/10/13** E. Audusse, E. Godlewski (referee) : Manel Tayachi (UJF Grenoble, *Couplage de modèles de dimensions hétérogènes et application en hydrodynamique*)

**26/11/13** E. Godlewski : Sophie Gérald (UPMC Paris 6, *Méthode de Galerkin Discontinue et intégrations explicites-implicites en temps basées sur un découplage des degrés de liberté. Applications au système des équations de Navier-Stokes*)

**13/12/13** E. Godlewski (president) : François McKee (Univ. Nantes, *Etude et mise à l'échelle des écoulements diphasiques en milieux poreux hétérogènes par une approche d'optimisation*)

**19/12/13** J. Sainte-Marie (referee) : Christelle Lusso (univ. Paris-Est, *Modélisation numérique des écoulements gravitaires viscoplastiques avec transition fluide/solide*)

**22/01/14** J. Sainte-Marie (referee) : David Benoit (Univ. Paris-Est, *Divers problèmes théoriques et numériques liés à la simulation de fluides non newtoniens*)

## 9.3. Popularization

**08/01/13** J. Sainte-Marie together with O. Bernard (Inria BIOCORE) and B. Sialve (Nasceo) published a short article named "Un zeste de mathématiques pour les biocarburants de demain" on the french Mathematics for Planet Earth website.

**30/05-02/06/13** N. Seguin participated to the "Salon de la culture et des jeux mathématiques" at the UPMC stand. This forum aims at explaining the job of researcher in Mathematics to pupils and high school students.

**10-11/10/13** E. Audusse gave a talk for high school students at "Savante Banlieue".

**10-12/10/13** E. Audusse, E. Godlewski, R. Hamouda, Y. Penel and J. Sainte-Marie run the Inria stand at the 2013 edition of the "Fête de la Science". They presented animations of past tsunamis to a general public.

**2013** E. Audusse intervened in a secondary school (Pontault Combault) for "Maths en Jeans".

**2013-2014** E. Audusse, R. Hamouda and J. Sainte-Marie implemented a software ("Tsunamath") for simulating tsunamis in the context of a worldwide exhibition for Mathematics of Planet Earth. The first stage will be held in Berlin in March 2014.

## ARAMIS Team

## 9. Dissemination

### 9.1. Scientific Animation

O. Colliot acts as a reviewer for NeuroImage, NeuroImage: Clinical, IEEE TMI, Human Brain Mapping, Neurobiology of Aging and MICCAI.

O. Colliot is a member of the Editorial Board of the ISTE-Wiley-Hermes "Neural Engineering" book series.

O. Colliot acts as an expert for the Canada Foundation for Innovation (CFI), Fonds National de la Recherche Scientifique (Belgium), Alzheimer Nederland, and the FCS Sciences et Technologies pour l'Aéronautique et l'Espace.

O. Colliot gave an invited presentation at the National Academy of Medicine (title: "Biomarqueurs IRM de la maladie d'Alzheimer: apport du traitement des images"), October 2013.

O. Colliot gave invited talks at the meeting of the French Society of Neurology (October 2013), at University College London (may 2013) and at the CERCO CNRS Toulouse (may 2013).

S. Durrleman gave an invited presentation at the Rank Prize Funds symposium "Medical Imaging meets Computer Vision" (march 2013)

S. Durrleman gave an invited presentation at the imaging seminar of Université Paris Dauphine (April 2013)

S. Durrleman was organizer of the MICCAI Workshop "Mathematical Foundation of Computational Anatomy" (MFCA) together with X. Pennec, S. Joshi, M. Nielsen, T. Fletcher and S. Sommer, which was held in Nagoya, Japan in September 2013.

S. Durrleman was part of the scientific committee of the conference "Geometric Science of Information" (GSI) held in August 2013 in Paris.

S. Durrleman acts as reviewer for Medical Image Analysis (MedIA), NeuroImage, NeuroImage: Clinical, International Journal on Computer Vision (IJCV), and for the conferences Medical Image Computing and Computer Aided Intervention (MICCAI) and Information Processing in Medical Imaging (IPMI).

M. Chavez co-organized the CNRS school "Graphical models for the characterisation of information flow in complex networks: Application in neuroimaging", which took place in June 2013 at the l'Institut National Polytechnique de Grenoble, France

M. Chavez is Associated Editor of the physics journal "Chaos, Solitons and Fractals"

M. Chavez acts as an expert for the French "Agence National de la Recherche (ANR)" and the "Fond National Suisse de la Recherche Scientifique (FNSRS)"

M. Chavez currently acts as reviewer for different journals such as P Natl Acad Sci USA; Phys Rev Lett; Phys Rev E; J. Neurosci Methods and Clin Neurophysiol.

D. Dormont is member of the board of the French Society for Neuroradiology.

### 9.2. Teaching - Supervision - Juries

#### 9.2.1. 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, 12 hours (eqTD), Université Pierre et Marie Curie

Master: Stanley Durrleman, Master in Computer Science, 8 hours (eqTD), Université Pierre et Marie Curie

Master: Olivier Colliot, Master in Cognitive Science, 4.5 hours (eqTD), Ecole Normale Supérieure (Ulm)

Master: Stanley Durrleman, Master in Applied Mathematics, 2 hours (eqTD), Ecole Normale Supérieure (Cachan)

Master: Marie Chupin, Master in Computer Science, 3 hours (eqTD), Université Pierre et Marie Curie

Master: Dominique Hasboun, Master in Biology, 4 hours, Ecole Normale Supérieure (Ulm)

Master: Dominique Hasboun, Master in Cognitive Science, 12 hours, Ecole Normale Supérieure (Ulm)

Master: Dominique Hasboun, Master in Biology, 15 hours, Université Pierre et Marie Curie

Master: Dominique Hasboun, Master in Medical Physics, 7 hours, Université Paris-Sud

Master: Fabrizio De Vico Fallani, Master in "Méthodologies et applications en imagerie médicale", 3 hours (eqTD), Université Pierre et Marie Curie

Master: Damien Galanaud, Master in Medical Physics, 4 hours, Université Paris-Sud

Engineering school: Olivier Colliot, 4.5 hours (eqTD), Telecom ParisTech

Engineering school: Dominique Hasboun, 3 hours, ENSEA

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: Dominique Hasboun, Courses for Medical Students, Université Pierre et Marie Curie

Medical school: Damien Galanaud, Courses for Medical Students, Université Pierre et Marie Curie

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

Medical school: Didier Dormont, Courses to the university diplomas (DU) : "Maladie d'Alzheimer", and "Imagerie Vasculaire non Invasive"

Medical school: Damien Galanaud, courses to the University Diploma (DIU) "Diagnostic and Therapeutic Neuroradiology", Université Pierre et Marie Curie

Medical school: Dominique Hasboun, courses to the University Diploma (DIU) "Diagnostic and Therapeutic Neuroradiology", Université Pierre et Marie Curie

Paramedical studies: Dominique Hasboun, Psychomotricity, 50 hours, Université Pierre et Marie Curie

### 9.2.2. Supervision

HdR : Fabrizio de Vico Fallani, Université Pierre et Marie Curie, Oct 7th, 2013

PhD : Thomas Samaille, Segmentation automatique des anomalies de la substance blanche du sujet âgé, Université Pierre et Marie Curie, June 4th 2013, advisor: Didier Dormont, co-advisors: Marie Chupin, Olivier Colliot

PhD in progress : Claire Cury, Approches morphométriques pour les grandes bases de données - Application à l'imagerie génétique, Université Pierre et Marie Curie, Started in 2011, advisor: Olivier Colliot



PhD in progress : Takoua Kaaouana, Détection automatique et analyse des micro-saignements cérébraux : Application à des séquences d'imagerie cliniques et à de grandes populations de sujets, Université Pierre et Marie Curie, Started in 2012, advisor: Didier Dormont, co-advisors: Marie Chupin, Ludovic de Rochefort

PhD in progress: Pietro Gori, Statistical analysis of neuronal connectivity in patients with Gilles de la Tourette syndrome based on anatomical structures extracted from both structural and diffusion images, Université Pierre et Marie Curie, Started in 2012, advisors: N. Ayache, O. Colliot and S. Durrleman

PhD in progress: Jean-Baptiste Schiratti, Méthodes et algorithmes pour l'analyse statistique de données anatomiques longitudinales – application à la caractérisation des phases pré-symptomatiques des maladies neurodégénératives, Ecole Polytechnique, Started in 2013, advisors: S. Allassonnière and S. Durrleman

PhD in progress: Barbara Gris, Approche modulaire des méthodes de grandes déformations pour l'appariement de formes, Ecole Normale Supérieure de Cachan, Started 2013, advisors: A. Trounev and S. Durrleman

Master 2: Lorraine Hamelin, Morphométrie des sillons cérébraux dans la maladie d'Alzheimer, Université Pierre et Marie Curie, Feb-Sept 2013, advisors: Olivier Colliot and Marie Sarazin

Master 2: Pauline Bezivin, Etude comparative de biomarqueurs longitudinaux dans la maladie d'Alzheimer, Université de Rennes, Mar-Aug 2013, advisors: Olivier Colliot, Stanley Durrleman and Grégory Operto

Internship: Fanny Cohen, Morphométrie dans une forme génétique de démence fronto-temporale, Telecom Bretagne, July 2012-June 2013, advisor: Olivier Colliot

Internship Master 1: Andrei Besedin, Evaluation de métriques pour le recalage iconique - application au ciblage pré-opératoire en stimulation cérébrale profonde, February 2013 - August 2013), Master Bioengineering, Université Paris Descartes, advisors: S. Durrleman, E. Bardinet and S. Fernandez-Vidal

Master 2: Margherita Tringali, Mise en oeuvre d'un protocole expérimental pour la détection des patterns d'activité cérébrale par une Interface Cerveau Machine, Université Pierre et Marie Curie, Feb-Sept 2013, advisors: Mario Chavez and Fabrizio De Vico Fallani

Master 1: Boris Tchangang, Réalisation d'une interface graphique pour l'analyse de signaux EEG sous le logiciel Matlab, Institut Supérieur des Bio-Sciences, Université Paris Est, Créteil, Feb-Sept 2013, advisors: Mario Chavez

Internship: Martina Corazzol, Hierarchy of neural organisation in the zebra fish spinal cord: causality analysis of in-vivo calcium imaging data, April-August 2013, advisor: Fabrizio De Vico Fallani

### 9.2.3. *Juries*

Olivier Colliot participated, as referee, to the PhD committee of Jean-Baptiste Fiot (Université Paris-Dauphine, CEREMADE), entitled "Mathematical methods of image analysis for cross-sectional and longitudinal population studies", defended on Sep 17th, 2013 (supervisor: Laurent D. Cohen).

Olivier Colliot participated, as examiner, to the HDR committee of Fabrizio de Vico Fallani (Université Pierre et Marie Curie), defended on Oct 7th, 2013.

Stanley Durrleman participated, as examiner, to the PhD committee of Olivier Mirat (Université Paris Descartes), entitled "Analyse haut-débit du comportement spontané d'un organisme modèle "simple"", defended on Sept 25, 2013 (supervisor: Claire Wyart).

Stanley Durrleman participated, as examiner, to the PhD committee of Alexandre Imperiale (Université Pierre et Marie Curie), entitled "Imaged-based data assimilation methods for the personalization of mechanical models", defended on Dec 11, 2013 (supervisors: D. Chapelle and Ph. Moireau).

Stanley Durrleman participates to the PhD committees of James Fishbaugh and Anuja Sharma, PhD students at the University of Utah under the supervision of professor Guido Gerig.

Fabrizio De Vico Fallani participates to the PhD committee of Jonas Chatel Goldman, PhD student at the Université Joseph Fourier (Genoble) under the supervision of Marco Congedo.

Didier Dormont participated as examiner (he was also the Supervisor of the PhD with Marie Chupin) to the PhD committee of Thomas Samaille entitled “Segmentation automatique des anomalies de la substance blanche du sujet âgé.”, defended on June the 4th of 2013.

Didier Dormont participated as examiner to the committee of the Medical Thesis (Paris-Sud University) of Gersende Favé entitled “Apport du tenseur de diffusion et de la spectroscopie comme outil pronostic de l’évolution neurologique des patients atteints d’hémorragie méningée grave », defended on June the 17th of 2013.

Didier Dormont participated as examiner to the committee of the Medical Thesis (Paris VI University) of Raphael Dautry, defended on June the 24th of 2013.

Didier Dormont participated as examiner to the committee of the Medical Thesis (Paris-Sud University) of Nadya Pyatigorskaya entitled “Mesure de la charge en fer par IRM dans les formes génétiques de la maladie de Parkinson », defended on September the 12th of 2013.

Didier Dormont participated as examiner to the committee of the Medical Thesis (Paris V University) of Marie Lémery Magnin entitled “Etude de la perfusion des gliomes de bas grade de l’enfant», defended on September the 30th of 2013.

### **9.3. Popularization**

The team is involved in the BrainCatalogue project (coordinator: Roberto Toro, Institut Pasteur) dedicated to the popularization of neuroanatomical knowledge. The project features MRI scans and 3D reconstructions for various vertebrates species (bear, mouse, macaque, dolphin, leopard, rhinoceros, human, squirrel ...).

The team has participated to the ICM "Donor days".

## **BANG Project-Team**

## **8. Dissemination**

### **8.1. Scientific Animation**

B. Perthame is editor in various journals (CALCOLO, CPDE, DCDS(B), Mathematical Medicine and Biology).

D. Drasdo is in the editorial board of TheScientificWorldJOURNAL and ISRN Biophysics. He is a member of the leadership team of the large scale grant project Virtual Liver Network (VLN) and was invited speaker to the European Association for Study in Liver Conference 2013 (Luxembourg, Feb 2013).

M. Doumic represents Inria at the expert group of the Aviesan Institute “Molecular and structural bases of the living” (ITMO Bases moléculaires et structurales du vivant, head Thierry Meinzel) and was a plenary speaker at the SMB annual conference (Texas, June 2013).

J. Clairambault represents Inria at the expert group of the Aviesan Cancer Institute (ITMO Cancer, head Fabien Calvo) and is also a member of the “Conseil des Partenaires de l’IUC” (Institut Universitaire de Cancérologie, UPMC, founded November 2012) as (nominated) representative of UPMC.

### **8.2. Teaching - Supervision - Juries**

#### **8.2.1. Teaching**

Licence: Jean Clairambault, 2 h “Croissance tissulaire” lecture to P2-L2 students at CHU St Antoine, January

Master: Jean Clairambault, (1) 1 h lecture Toulouse, April; (2) 9h lectures M2 mathbio, UPMC, September

Master: Marie Doumic, Méthode des Éléments Finis, M1 ENSTA, Paris: 12 h (TD, professeur en cours magistral: P. Ciarlet et S. Fliss)

Master: Dirk Drasdo, M2, Mathematical Biology, UPMC: “Towards systems biology of multicellular tissues.”: 24h

International schools: Jean Clairambault, 2 h tutorial “PK-PD models for chronotherapeutic optimisation in cancer treatments”, Systems Medicine of Multifactorial Disorders workshop and tutorial, CASyM, Ljubljana, June

#### **8.2.2. Supervision**

HDR: Marie Doumic, Etudes de modèles de croissance et fragmentation et applications en biologie, Habilitation thesis, UPMC, June [2]

PhD in progress: Aurora Armiento, Inverse Problems for aggregation models, since September 2013, supervision by M. Doumic and P. Moireau

PhD in progress: François Bertaux (since September 2011), supervision by Dirk Drasdo and Gregory Batt

PhD in progress: Noémie Boissier, “Flows in organs on histological scales” (since November 2013), supervision by Dirk Drasdo and Irene Vignon-Clémentel

PhD in progress: Youssef Bourfia, UPMC (since September 2011), supervision by Jean Clairambault, Mostafa Adimy (Dracula team, Lyon) and Hassan Hbid (UCAD, Marrakech)

PhD in progress: Thibault Bourgeron, UPMC, since September 2012, supervision by M. Doumic and B. Perthame

PhD in progress: Tanguy Cabana, started in 2013, supervision by Jonathan Touboul and Raphaël Krikorian

PhD in progress: Géraldine Cellière, UPMC (since October 2011), supervision by Dirk Drasdo, Andrei Zinovyev and Emmanuel Barillot (Institut Curie)

PhD in progress: Ján Eliaš, UPMC (since September 2012), supervision by Jean Clairambault and Benoît Perthame

PhD in progress: Casimir Emako-Cazianou, UPMC (since December 2012), supervision by Luís Almeida and Nicolas Vauchelet

PhD in progress: Sarah Eugène, Stochastic Models for Nucleated Polymerization, since September 2013, supervision by M. Doumic and P. Robert

PhD in progress: Adrian Friebel (since June 2011), supervision by Dirk Drasdo and Stefan Hoehme

PhD in progress: Luis Carlos García del Molino, “Heterogeneous networks and their dynamics”, supervision by J. Touboul and K. Pakdaman

PhD in progress: Hadjer Wafaâ Haffaf, UPMC (since September 2011), supervision by Marie Doumic

PhD in progress: Tommy Heck, on development of cell models and interaction with ECM. (since April 2013), co-supervised by Paul Van Liedekerke

PhD in progress: Johannes Neitsch, Univ. Leipzig (since June 2011), supervision by Dirk Drasdo and Stefan Hoehme

PhD in progress: Tim Odenthal (KULeuven), computational framework for individual cell-based models. Degree obtained December 2013. Co-supervision by Paul Van Liedekerke

PhD in progress: Adélaïde Olivier, Univ. Paris Dauphine, since September 2012, supervision by M. Doumic and M. Hoffmann

PhD in progress: Cristóbal Quiñinao, “McKean-Vlasov equations and neurosciences”, supervision by J. Touboul and S. Mischler

PhD in progress: Karina Vilches, (since September 2010), supervision by C. Conca and B. Perthame

### 8.2.3. *Juries*

Luís Almeida: Member of the Interdisciplinary Committee 51 of the Comité National de la Recherche Scientifique.

Luís Almeida: as PhD thesis jury president: Magali Tournus (UPMC).

Luís Almeida: as member of a University position application jury: Lyon 1 - 26 MCF 2626/4178, May-June

Jean Clairambault: as PhD thesis examiner: Jonathan Pascalie (Toulouse), October

Jean Clairambault: as PhD thesis reporter and examiner: (1) Marc Sturrock (Dundee), May; (2) Tommaso Lorenzi (Turin), June; (3) Anne-Cécile Lesart (Grenoble), November

Jean Clairambault: as president of a University position application jury: MC UPMC 1244/4178, April-May

Marie Doumic: selection committee member for the CR2 position at Inria Paris-Rocquencourt (2013). PhD thesis examiner: Peipei Shang (supervision by J-M. Coron), Erwan Hingant.

Dirk Drasdo: as PhD thesis reporter and examiner: Kevin Alessandri (Inst. Curie, 2.12.2013), Physics

Dirk Drasdo: as PhD thesis reporter, examiner and President of jury: Julien Delile, Univ. Paris VI, 14.2.2013, Computer Science

Dirk Drasdo: as PhD thesis reporter and examiner: Tim Odenthal, Univ. Leuven, 13.12.2013, Engineering.

Jonathan Touboul: selection committee member for the NSF-ANR call on computational neurosciences (CRCNS).

### **8.3. Popularization**

- Jean Clairambault: (1) 1 h Forum des métiers UPMC, September; (2) 2 h Exposé “Animath” lycée St Laurent, Lagny, November
- Marie Doumic: movie on the ERC grants for "Horizon 2020", <http://www.horizon2020.gouv.fr/cid75865/video-lancement-horizon-2020-decembre-2013.html>

## CLIME Project-Team

## 9. Dissemination

### 9.1. Scientific Animation

- Marc Bocquet is a member of the INSU/LEFE MANU scientific committee.
- Marc Bocquet is a member of the Scientific Council of the CERFACS institute in Toulouse, France.
- Marc Bocquet is Associate Editor of the Quarterly Journal of the Royal Meteorological Society.
- Marc Bocquet co-organised the LEFE-MANU workshop “Que peuvent attendre les modélisateurs de l’assimilation de données ?” with Frédéric Chevallier and Jacques Verron, 12 February 2013, Inria, Paris, France.
- Marc Bocquet co-organised the symposium “Open session on Data Assimilation” with Jacques Blum, and Olivier Talagrand. MCPIT 2013, GDRE ConEDP, Institut Henri Poincaré, Paris, France, 19 November 2013.
- Isabelle Herlin is a member of the Scientific Council of CSFRS (High Council for Strategic Education and Research in France).
- Isabelle Herlin is a member of the program committee of DIGITEO, french research cluster in science and technology of information.
- Isabelle Herlin is a member of the Scientific Council of OSU-EFLUVE.
- Isabelle Herlin is a member of Evaluation Committee at Inria.
- Isabelle Herlin co-organised a session on operational oceanography in the European Geosciences Union General Assembly 2013 (EGU2013), 07-12 April 2013, Vienna, Austria.
- Isabelle Herlin is a member of the scientific committee of the conference “Image Sequence Analysis for Object and Change Detection”, organized by the International Society for Photogrammetry and Remote Sensing (ISPRS).

### 9.2. Teaching - Supervision - Juries

#### 9.2.1. Teaching

Master OACOS/WAPE: Marc Bocquet, Vivien Mallet; Introduction to Data Assimilation for Geophysics; 30 hours; M2; UPMC, X, ENS, ENSTA ParisTech, École des Ponts ParisTech; France.

Master "Nuclear Energy": Marc Bocquet, Vivien Mallet; 12 hours; M2; École des Ponts ParisTech; France.

Master SGE and École des Ponts ParisTech: Vivien Mallet; Air Pollution; 6 hours; M2; École des Ponts ParisTech, Paris 7-Diderot, Paris Est; France.

Master in applied mathematics and scientific computing: Vivien Mallet; Introduction to Data Assimilation and Uncertainty Quantification in Geosciences; 11 hours; M2; Sup'Galilée, University Paris 13, École centrale Marseille; France.

Training: Vivien Mallet; Uncertainty Quantification: Ensembles and Data Assimilation – Application to Climate and Geosciences; 5.25 hours; CERFACS; France.

#### 9.2.2. Supervision

PhD : Karim Drifi, “Reduced models for image assimilation”, University Paris Centre, July 1st, 2012, Isabelle Herlin.

PhD : Yiguo Wang, "Une nouvelle approche de modélisation de la qualité de l'air à l'échelle régionale par assimilation de mesures lidar", École Polytechnique, 20 December 2013, Marc Bocquet, Karine Sartelet, Patrick Chazette.

PhD in progress : Paul Baudin, "Agrégation séquentielle de prédicteurs appliquée à la prévision de la qualité de l'air", September 2012, Vivien Mallet and Gilles Stoltz.

PhD in progress : Jean-Matthieu Haussaire, "Méthodes variationnelles d'ensemble pour la modélisation inverse en géosciences. Application au transport et la chimie atmosphérique", University Paris-Est, October 2013, Marc Bocquet.

PhD in progress : Yann Lepoittevin, "Tracking of image structures", University Paris Centre, October 2012, Isabelle Herlin.

PhD in progress : Jean Thorey, "Prévision d'ensemble du rayonnement solaire pour la production photovoltaïque du parc EDF", November 2013, Vivien Mallet.

PhD in progress : Victor Winiarek, "Dispersion atmosphérique en milieu urbain et modélisation inverse pour la reconstruction de sources", University Paris Est, October 2009, Marc Bocquet.

### 9.2.3. Juries

- Bocquet, M., member, PhD thesis, Benjamin Gaubert, "Assimilation des observations pour la modélisation de la qualité de l'air", Paris Diderot University, 8 July 2013, Créteil, France.
- Bocquet, M., member, PhD thesis, Bertrand Bonan, "Assimilation de données pour l'initialisation et l'estimation de paramètres d'un modèle d'évolution de calotte polaire", 15 November 2013, Grenoble University, Grenoble, France.
- Bocquet, M., member, PhD thesis, Yiguo Wang, "Une nouvelle approche de modélisation de la qualité de l'air à l'échelle régionale par assimilation de mesures lidar", 20 December 2013, University Paris-Est, Champs-sur-Marne, France.
- Herlin, I., reviewer, PhD thesis, Anastase Charantonis, "Méthodologie d'inversion de données océaniques de surface pour la reconstitution de profils verticaux en utilisant des chaînes de Markov cachées et des cartes auto-organisatrices", January 24th 2013, Paris, France.

## 9.3. Popularization

- Marc Bocquet made a presentation on employment in the environment sector at the second "Forum Maths Emploi", January 2013, Paris.
- Marc Bocquet wrote a paper [32] on "Modélisation numérique de la dispersion atmosphérique accidentelle des radionucléides : l'état de l'art de la recherche" in the journal "Revue du Centre de Défense NBC".
- Isabelle Herlin and Vivien Mallet wrote an introduction to air quality simulation [33] for a special issue on Mathematics for Planet Earth dedicated to teachers in french "collèges" and "lycées" and an internet contribution [35] "Votre air, votre santé": <http://mpt2013.fr/votre-air-votre-sante/>
- Vivien Mallet introduced numerical simulation of air pollution at the 2013 edition of "Mathématiques en mouvement".
- Vivien Mallet and Anne Tilloy took part to the festival "Futur en Seine" and presented, during four days, research advances in air quality simulation at urban scale.

## POMDAPI Project-Team

## 7. Dissemination

### 7.1. Scientific Animation

J. Jaffré organized (with P. Knabner) the mini symposium “Complementarity Problems for Flow in a Porous Medium” at the SIAM Geosciences conference, June 17–20, 2013, Padova, Italy.

C. Japhet and M. Kern organized the mini symposium “Coupled Models and Domain Decomposition in Geosciences” at the SIAM Geosciences conference, June 17–20, 2013, Padova, Italy.

M. Kern was co-chair of the Scientific Committee of the SIAM Conference on Mathematical and Computational Issues in the Geosciences <http://www.siam.org/meetings/gs13/>, June 17–20, Padova, Italy.

M. Kern is Deputy Director of **Maison de la Simulation**, a joint project between CEA, CNRA, Inria, Université de Paris 11 and Université de Versailles, focused on applications of high end computing.

J. E. Roberts is a member of the External Advisory Board for **CFSES** (Center for Frontiers of Subsurface Energy Security), University of Texas at Austin and SANDIA National Laboratories, Albuquerque, New Mexico.

J. E. Roberts organized (with A. Scotti and L. Formaggia) the mini symposium “Discrete-fracture Models for Porous Media Flow” at the SIAM Geosciences conference, June 17–20, 2013, Padova, Italy.

J. E. Roberts is a member of the prize committee for the Interpore society.

J. E. Roberts is a member of the selection committee for recruiting professors in the department of maths of the University of Bergen, and a member of the national Norwegian committee for the promotion of professors.

M. Vohralík was member of the ENUMATH 2013 scientific committee, see <http://enumath2013.epfl.ch/>.

M. Vohralík organized a workshop on “A posteriori error estimates and mesh adaptivity for porous medium problems”, on November 13th, 2013, see [https://who.rocq.inria.fr/Martin.Vohralik/A\\_posteriori/13/](https://who.rocq.inria.fr/Martin.Vohralik/A_posteriori/13/).

### 7.2. Teaching - Supervision - Juries

#### 7.2.1. Teaching

Licence : I. Ben Gharbia, *Mathématiques 4*, 54 h, L2, Université de Paris 2, France.

Licence : I. Ben Gharbia, *Statistiques 4*, 54 h, L2, Université de Paris 2, France.

Master : J. Ch. Gilbert, *Optimisation différentiable – Théorie et algorithmes*, 42 h, M1, ENSTA ParisTech, France.

Master : M. Kern, *Éléments finis*, 30 h, M1, Mines ParisTech, France.

Master : M. Kern, *Problèmes inverses*, 26 h, M1, Mines ParisTech, France.

Master : M. Vohralík, A posteriori error estimates for efficiency and error control in numerical simulations, 36 h, M2, Université de Paris 6, France.

Master : M. Vohralík, A posteriori error estimates for efficiency and error control in numerical simulations, 21 h, M2, Charles University, Czech Republic.

#### 7.2.2. Supervision

PhD : T. T. P. Hoang, *Méthodes de décomposition de domaine espace-temps pour la formulation mixte de problèmes d'écoulement et de transport en milieu poreux*, Université de Paris 6, December 11th, 2013, J. E. Roberts, C. Japhet, M. Kern.



PhD : Carole Widmer-Heinry, Adaptive finite volume method based on a posteriori error estimators for solving two phase flow in porous media, Université de Paris 6, November 21st, 2013, M. Vohralík, Vivette Girault (LJLL), Huy Tran (IFPEN).

PhD : Soleiman Yousef, A posteriori error estimates and adaptivity based on stopping criteria and adaptive mesh refinement for multiphase and thermal flows. Application to steam-assisted gravity drainage, Université de Paris 6, December 10th, 2013, M. Vohralík, Vivette Girault (LJLL), Éric Flauraud (IFPEN).

PhD in progress : E. Ahmed, *Modélisation d'écoulements diphasiques dans un milieu poreux fracturé*, January 2012, J. E. Roberts and A. Ben Abda.

PhD in progress : S. Ali Hassan, *Estimations d'erreur a posteriori et critères d'arrêt pour des solveurs par décomposition de domaine et avec des pas de temps locaux*, November 1st, 2013, M. Vohralík.

PhD in progress : N. Birgle, *Écoulements souterrains, méthodes numériques, et calcul haute performance*, October 2012, J. Jaffré.

PhD in progress : F. Cheikh, *Identification de failles dans un milieu poreux par une méthode d'indicateurs*, December 2011, J. E. Roberts and H. Ben Ameer.

PhD in progress : C. Jozs, *Optimisation globale des flux d'énergie dans un réseau de transport d'électricité*, May 1st, 2013, J. Ch. Gilbert.

PhD in progress : M. H. Riahi, *Identification de paramètres hydrogéologiques dans un milieu poreux*, December 2011, J. Jaffré and H. Ben Ameer.

### 7.2.3. Juries

J. Ch. Gilbert was a member of the Selection Commmity for a Maître de Conférence position at both Université Joseph Fourier (Grenoble 1) and ENSEEIHT (INP Toulouse).

M. Vohralík was the referee of the PhD thesis of Simon Lemaire (Université de Paris 12, December 12th, 2013) and examiner of the HdR thesis of Ludovic Chamoin (ENS Cachan, October 11th, 2013).

## 7.3. Popularization

J. Ch. Gilbert has written the following pages on Wikipedia.fr in 2013: [Algorithme des directions alternées](#), [Borne d'erreur](#), [Complémentarité](#), [Cône dual](#), [Ensemble de sous-niveau](#), [Gradient projeté](#), [Inéquation variationnelle](#), [Lagrangien \(optimisation\)](#), [Lemme de Hoffman](#), [Matrice complètement positive](#), [Matrice copositive](#), [Méthode de Gauss-Seidel](#), [Optimisation complètement positive](#), [Optimisation conique](#), [Optimisation convexe](#), [Optimisation copositive](#), [Optimisation SDP](#).

M. Kern gave a talk on “Mathematics and Simulation” at the *Palmarès académique des Olympiades de mathématiques de l'Académie de Paris*, on May 29th, 2013.

M. Kern gave a talk on “Mathematics and Subsurface Water”, as part of the *Promenades mathématiques* program for students in Terminale S and 1ère S, at Lycée Émilie du Châtelet (Serris), on May 22nd, 2013.

## REO Project-Team

# 8. Dissemination

## 8.1. Scientific Animation

- Laurent Boudin
  - Member of the Board of Mathematics Licence (*EFU de Licence de mathématiques*), UPMC.
  - Co-organizer of the monthly workgroup “Humaniste” focusing on mathematics applied to humanities, alternatively taking place at UPMC, UP7D and Orléans and jointly handled by LJLL, MAPMO and CAMS.
  - Member of the think-tank for first-year programs in Mathematics at UPMC.
  - Member of the IREM (Institutes for Research on Mathematics Teaching) Scientific Committee.
  - Co-organizer of the conference "Multiscale multiphysics modelling for the respiratory system", with C. Grandmont and B. Grec,
  - Co-organizer of first-year ending workshop of the Kindymo project, with J.-P. Nadal and A. Vignes.
- Muriel Boulakia
  - Organization of the workshop "Mathematical Aspects of Fluid-Structure Interactions", IHP (Paris), November 2013
- Miguel Ángel Fernández Varela
  - Member of the Postdocs Selection Committee, Inria Paris-Rocquencourt
  - Mini-symposium on *Advanced numerical methods for fluid mechanics*, ENUMATH 2013, August 26-30, Lausanne, Switzerland (organized with E. Burman and A. Ern).
  - Mini-symposium on *Fluid-structure interaction and fictitious domain methods*, SMAI 2013, 6ème biennale française des mathématiques appliquées et industrielles, May 27-31, 2013, Seignosse Le Penon, France (organized with S. Boyaval and L. Monasse).
  - Member of the "Ramón y Cajal" Program selection committee, mathematics section, Ministry of research, development and innovation (Spain).
  - Member of the committee CEA-EDF-Inria summer school on Numerical methods for interface problems in fluid and solids with discontinuities, June 23-July 4, 2014, Cadarache (with P. Massin and J. Segré).
- Jean-Frédéric Gerbeau
  - Editor-in-Chief of Mathematical Modelling and Numerical Analysis (M2AN)
  - Member of the editorial boards of International Journal for Numerical Methods in Biomedical Engineering (IJNMBE) and of Communications in Applied and Industrial Mathematics.
  - Service activity at Inria: Délégué Scientifique / Chairman of the project-teams' committee of Inria Paris-Rocquencourt research center; Member of the Inria Evaluation Committee; Member of the Inria International Chairs committee.
  - Service activity in other French institutions: Member of the Mathematics Faculty Council of University P. & M. Curie Paris 6 (conseil de l'UFR 929); member of the scientific committee of the Faculty of Science, University Versailles Saint-Quentin; 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);
- Organizing Committee of the SIAM APDE 2013 conference. Orlando, USA.
- Scientific Committee of the ENUMATH 2013 conference. Lausanne, Switzerland.
- Advisory Committee of the 3rd International conference on Computational & Mathematical Biomedical Engineering (CMBE 2013). Hong-Kong
- Céline Grandmont
  - Member of the CNU 26 (2011–2015).
  - Co-organizer of the international conference "Multiscale multiphysics modelling for the respiratory system" June 26-27, 2013, Paris, around 50 participants. <https://www.ljll.math.upmc.fr/m3rs2013/>
  - Co-organizer of the second Math-parity Day (on gender issues in the mathematics community), 24 juin 2013, IHP, Paris. <http://postes.smai.emath.fr/apres/parite/journee2013/>
- Jessica Oakes
  - International Society of Aerosol Medicine Student Forum Leader. September 2013 - Present.
  - 4th International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease. Sub-Organizer. November 2013 - Present.
- Elisa Schenone
  - Co-organizer of the monthly Junior Seminar of Inria Paris-Rocquencourt
- Marc Thiriet
  - Member of the Scientific committee of the collaborative platform [DiscInNet](#).
  - President of thematic committee CT3 (Biomedical Simulation and Applications to Health) of GENCI (Grand Equipement National de Calcul Intensif – National Large Equipment for Intensive Computation)
  - Member of several Evaluation Groups of the Canadian Granting Agency NSERC (mainly Mechanical Engineering, but also Mathematics)
- Marina Vidrascu
  - Member of the Postdocs Selection Committee, Inria Paris-Rocquencourt
- Irène Vignon-Clementel
  - Review Editor of *Frontiers in Pediatric Cardiology*
  - Organizing the monthly seminar at Inria Paris-Rocquencourt on “modeling and scientific computing”
  - Inria: member of the “Conseil d’orientation scientifique et technologique” (scientific and technologic orientation council) of Inria, in the subgroup “GT Actions Incitatives” (incentive action working group), PhD grant committee
  - Mediator between PhD students and their supervisors for Inria Paris-Rocquencourt
  - Coordinator of the associated team CARDIO between REO and Prof. Taylor’s lab at Stanford University, USA and colleagues both at Inria and in the USA (2008-present)

### Conferences

- Grégory Arbia
  - Contributed talk, Congrès SMAI , Seignosse, France, May 2013.
  - Contributed talk, Modelling of physiological flows , Chia, Italy, June 2013.
  - Inria Junior Seminar, January 2013 Inria Junior Seminar, January 2013
- Laurent Boudin

- Seminar, Numerical analysis, Irmar, Univ. Rennes 1, January 2013
- Seminaire, MIP, Univ. Toulouse 3, February 2013.
- Muriel Boulakia
  - Seminar, Univ. Darmstadt (Germany), february 2013
  - Seminar, Maths-Club, Univ. Paris-Diderot, march 2013
  - Contributed talk, Workshop Control of fluid-structure systems, Paris, november 2013
- Miguel Ángel Fernández Varela
  - Talk at minisymposium, SMAI 2013, 6ème biennale française des mathématiques appliquées et industrielles, May 27-31, 2013, Seignosse Le Penon
  - Seminar, University of Montpellier, May
- Benoit Fabrèges
  - Contributed talk, M3RS ending conference, UPMC Paris 6, June 2013
  - Contributed talk, 3th International Conference on Computational & Mathematical Biomedical Engineering, 16-18 December 2013, Hong Kong, China
  - Seminar, Nantes, January 2013
  - Contributed talk, Journée Dynamo 2013, March 2013, Orléans
  - Seminar, Strasbourg, May 2013
- Justine Fouchet-Incaux
  - Seminar at "Groupe de Travail des Thésards", March 2013, Laboratoire Jacques-Louis Lions, Paris 6
  - Poster, VIIIème congrès de Physiologie, de Pharmacologie et de Thérapeutique (P2T'13), April 2013, Angers
  - Seminar at "Groupe de Travail Numérique", May 2013, Laboratoire de Mathématiques d'Orsay
  - Talk at minisymposium "Calcul scientifique et pathologies pulmonaires", Congrès SMAI 2013, May 27-31, Seignosse,
  - Seminar of "Analyse Numérique et Equations aux Dérivées Partielles" team, June 2013, Laboratoire de Mathématiques d'Orsay
  - Contributed talk, workshop "Multiscale multiphysics modelling for the respiratory system", ANR M3RS ending conference, June 2013, Laboratoire Jacques-Louis Lions, Paris 6
  - Poster, colloque EDP-Normandie, October 2013, Caen
  - Invited speaker, workshop "BioPhysMath", December 2013, Nice
- Jean-Frédéric Gerbeau
  - Invited conference, Workshop "EDP Normandie", Caen, 2013
  - Seminar Simon Fraser University, Vancouver, Canada, November, 2013
  - Seminar Université de Rouen, February 2013.
  - Talk at minisymposium, SIAM Conference on Analysis of Partial Differential Equation, Orlando, USA, 2013
  - Talk at minisymposium, USNCCM, Raleigh, USA, 2013
  - Talk at minisymposium, ECCOMAS, Lausanne, Switzerland, 2013
- Céline Grandmont
  - Invited speaker, Opening day of GDR Metice, May 2013, Paris
  - Contributed talk, Minisymposium, Equadiff 13, sept. 2013, Prague, Czech Republic

- Invited speaker, PDEs and Dynamical system in Biology, Oct. 2013, Tel Aviv, Israel
- EDP Seminar, Univ Paris-Sud, oct. 2013
- Matthieu Hillairet
  - Invited talk at Mathematical Aspects of Fluid-Structure Interactions, November 4-8, Paris,
  - Invited talk at Asymptotic behaviour of systems of PDE arising in physics and biology: theoretical and numerical points of view, November 6-8, Lille
  - Seminar, University of Paris 13, November
  - Seminar, University of Avignon, November
  - Seminar, University of Toulouse, December
  - Seminar, University of Lyon, December
- Mikel Landajuela
  - Contributed talk, 12th U.S National Congress on Computational Mechanics (US-NCCM12), Raleigh, USA, July 22-25, 2013
- Damiano Lombardi
  - Contributed talk “Tom Hughes 70”, San Diego USA, February 2013.
- Ayman Moussa
  - Workshop Kinetic Days (Toulouse, April 2013)
  - M3RS Ending Conference (LJLL, June 2013)
  - Workshop Math Bio (Versailles, March 2013)
  - Numerical Analysis/PDE Seminar (ENS Ker Lann, October 2013)
  - MFO “Classical and Quantum Mechanical Models of Many-Particle Systems” (Oberwolfach, December 2013)
  - Numerical Analysis/PDE Seminar (ENS Cachan, December 2013)
- Jessica Oakes
  - Talk and poster, 19th International Congress of the International Society for Aerosols in Medicine, Chapel Hill, USA, April 2013.
  - Poster, University of California, San Diego Research Exposition. April 2013.
  - Poster, Whitaker Grantee Orientation, July 2013.
  - Inria Junior Seminar, October 2013.
- Sanjay Pant
  - Contributed talk and poster, 4th International Workshop on Statistical Atlases and Computational Models of the Heart held in conjunction with the 16th International conference on Medical Image Computing and Computer Assisted Intervention, Sep 22–26, 2013, Nagoya, Japan.
- Elisa Schenone
  - Contributed talk at V International Symposium on Modelling Of Physiological Flows - MPF2013, June 11-14, 2013
  - Contributed talk at Mini Symposium on Cardiovascular Biomechanics at AP-COM&ISCM2013, Singapore, December 11-14, 2013.
  - 2nd Feel++ Users Days, January 23-25, 2013
  - Matinée "Contrôle" avec Alfio Quarteroni, LJLL, 21 mars 2013
- Saverio Smaldone
  - 5th International Symposium on Modelling of Physiological Flows (MPF 2013), Chia Laguna, Sardinia, Italy, 11-14 June 2013;

- Marc Thiriet
  - Keynote speaker 11th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, April 3-7, 2013, Salt Lake City, Utah
  - Keynote speaker at Annual Meeting of the Canadian Applied and Industrial Mathematics Society, CAIMS 2013, Quebec City, June 16 - 20 (joint work with Deleuze, TWH. Sheu)
  - 4th CREST-SBM International Symposium, 13-14 March 2013, Tokyo, Japan.
  - International Conference on Life Science & Biological Engineering (LS&BE'13), 15-17 March, 2013, Tokyo (joint work with Y. Deleuze, TWH. Sheu, M. )
  - 2013 International Conference on Life Science & Biological Engineering (LS&BE'13), 15-17 March, 2013, Tokyo (joint work with M. Solovchuk, TWH. Sheu)
  - 2014 IEEE International Symposium on Biomedical Imaging, Beijing, China, April 29 - May 2, 2014 (Passat N. )
- Marina Vidrascu
  - Plenary talk 22st International Conference on Domain Decomposition Methods, September 16-20, 2013 - Università della Svizzera italiana - Lugano, Switzerland
  - Seminar Laboratoire Jacques Louis Lions, Paris 6 UPMC, October, 2013
- Irène Vignon-Clementel
  - Contributed talk in honor of TJR Hughes 70th birthday, FEF2013, Feb 24th-27th, San Diego, USA
  - Seminar, Department of Mechanical and Aerospace Engineering, University of California San Diego, Feb 28th, San Diego, USA
  - Plenary, CREST-SBM conference, March 13th-14th, Tokyo, Japan
  - Invited lecture (3h), University of Tokyo, March 15th, Tokyo Japan
  - Contributed talk, BIS' workshop, May 20th-21st, Paris, France
  - Invited talk, GDR Metice, June 17th-19th, Paris, France
  - Contributed talk, MAFELAP, June 10th-13th, London, UK
  - Seminar, Department of Biomedical Engineering, King's College London, June 12th, London, UK
  - Invited talk, Multiscale multiphysics modelling for the respiratory system workshop, June 26th-27th, Paris, France
  - Contributed talk, USNCCM12, July 22nd-25th, Raleigh, USA
  - Seminar, Demi-heure de science, Inria, Sept 12th, Rocquencourt, France
  - Evaluation seminar, associated team CARDIO 2008-2013, Oct 9th, Online
  - Contributed talk, 3rd International Conference on Computational and Mathematical Biomedical Engineering, Dec 15th-18th, Honk-Hong, China

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

DUT :

- Justine Fouchet-Incaux 1ère année: Mathématiques S'1, 45h, IUT d'Orsay, département Mesures Physiques, Université Paris-Sud,
- Justine Fouchet-Incaux 1ère année: Informatique et algorithmique S'1, 28h, IUT d'Orsay, département Mesures Physiques, Université Paris-Sud

Licence :

- Grégory Arbia
  - Algèbre 1 : calcul vectoriel, 36h, L1, UPMC
  - Calcul matriciel numérique, 24h, L3, UPMC.
- Chloé Audebert Calculus, 22h, L1 - undergraduate, Université Paris 6 UPMC
- Laurent Boudin
  - Series and integrals (10h), L2, UPMC.
  - Multivariable calculus and multiple integrals (111 h), L2, UPMC.
  - Shared studies supervision in mathematics licence for approximately 250 students (20h), L2, UPMC.
  - Co-supervisor (for mathematics) of the bidisciplinary computer science / applied mathematics licence program and of the joint program UPMC-Brown on computer science / applied mathematics (no hour dedicated), L2, UPMC.
- Muriel Boulakia
  - Scilab (30h), L2, UPMC
  - Hilbertian analysis (30h), level L3, Polytech'Paris,
- Miguel Àngel Fernández Varela Scientific computing, 30h, level L3, École des Ponts ParisTech,
- Céline Grandmont Numerical Analysis, 36 h, L3, UPMC
- Elisa Schenone
  - Calcul vectoriel, 72h, L1, UPMC
  - Calcul matriciel numérique, 24h, L3, UPMC
  - Scilab, 34h, L2, UPMC
- Irène Vignon-Clementel Mathematics for biology, 64h ETD, L1 - undergraduate, Université de Versailles Saint Quentin

Master :

Laurent Boudin

- Basics for numerical methods (48h), M1, UPMC.
- Studies supervision in mathematics master for 15 students (10h), M1, UPMC.

Muriel Boulakia

- Numerical Methods (48h), level M1, Polytech'Paris,
- Preparatory course for teaching admission examination Agrégation (80h), M2, UPMC,

Jean-Frédéric Gerbeau

- Numerical methods in hemodynamics (20h), level M2, UPMC / Univ Paris-Sud / Ecole Polytechnique.

Miguel Àngel Fernández Varela

- Numerical methods in bio-fluids, 6h, level M2, University of Vigo, Spain.
- Numerical methods for fluid-structure interaction, 6h, level M2, Université de Laval, Québec, Canada

Marc Thiriet

- “Biofluid flows”, 12 h, University Pierre & Marie Curie

Others

- Irène Vignon-Clementel Ecole d'ingénieur: Numerical simulations of blood flow, 1h30, as part of the undergraduate "continuum mechanics" class at AgroParisTech, France

### 8.2.2. Supervision

PhD in progress : Grégory Arbia, *Multi-scale Modeling of Single Ventricle Hearts for Clinical Decision Support*, since October 2010. Supervisors: J-F. Gerbeau & I. Vignon-Clementel.

PhD in progress : Chloé Audebert, *Modeling of liver hemodynamics*, since October 2013. Supervisors: J-F. Gerbeau & I. Vignon-Clementel.

PhD in progress : Justine Fouchet-Incaux, *Mathematical and numerical modeling of the human breathing*, since October 2011. Supervisors: C. Grandmont & B. Maury.

PhD in progress : Mikel Landajuena, *Coupling schemes and unfitted mesh methods for fluid-structure interaction*, since October 2012, Supervisor: M.A. Fernández Varela.

PhD in progress : Stéphane Liwarek, *Air flow in the nasal cavity*, since October 2010. Supervisors: M.A. Fernández Varela & J-F. Gerbeau

PhD in progress : Jimmy Mullaert, *Fluid-structure interaction*, since September 2009. Supervisors: M.A. Fernández Varela & Y. Maday

PhD in progress : Elisa Schenone, *Inverse problems in electrocardiology*, since October 2011. Supervisors: J-F. Gerbeau & M. Boulakia.

PhD in progress : Saverio Smaldone, *Numerical methods for cardiac hemodynamics*, since October 2010, Supervisors: J-F. Gerbeau & M.A. Fernández Varela.

### 8.2.3. Juries

- Laurent Boudin
  - Member of the PhD committee of Nicolas Lelong (Univ. Tours, Sept. 2013).
- Muriel Boulakia
  - Hiring committee: UPMC (MCF position)
- Miguel Àngel Fernández Varela
  - Member of the PhD committees (referee) of I. Dione (Université de Laval, Québec, Canada).
- Jean-Frédéric Gerbeau
  - Habilitation (HDR) committee: Jing-Rebecca Li (HDR), Université Paris-Sud.
  - PhD committees: Simon Labarthe, Université de Bordeaux (reviewer), Vincent Chabannes, Université de Grenoble (reviewer), Alexandre Impérial, Univ. Paris 6.
  - Hiring committee: Université Paris-Sud (assistant prof), Inria Bordeaux (junior researcher), Inria (senior researcher).
- Céline Grandmont
  - AERES Committee: LMPA, Calais Univ., Nov 2013
  - Hiring committee: Metz Univ. (Professor position).
- Marc Thiriet
  - Member of the PhD committee of Robin Chatelin, (University Toulouse)
- Marina Vidrascu
  - Member of the PhD committee (referee) of Vincent Visseq (University Montpellier)
- Irène Vignon-Clementel
  - Member of the PhD committee Jessica Oakes, University of California San Diego, USA, May 31st
  - Member of the PhD committee Charlotte Debbaut (referee), Ghent University, Belgium, Sept 20th;
  - Member of the PhD committee (referee) Alessandro Melani, MOX, Politecnico di Milano, Italy, Sept 30th.

### 8.3. Popularization

- Ayman Moussa
  - Participation at “Fête de la science” at Paris 7



## SISYPHE Project-Team

## 9. Dissemination

### 9.1. Scientific Animation

P.-A. Bliman:

- Chargé de mission at Direction Générale de la Recherche et de l'Innovation, Ministère de l'Enseignement Supérieur et de la Recherche (since 2012, part-time, 60%) ; Scientist in charge of latin America at Direction des Affaires Internationales, Inria (since 2009, part-time, 20%) ; Member of the Scientific Committees of the regional collaboration program MATH AmSud and STIC AmSud (since 2009).

- Associate Editor of *Systems & Control Letters* (since 2008) ; Reviewer for *IEEE Transactions on Automatic Control, Automatica...* ; Expert for *Fonds National de la Recherche Scientifique* (FNRS), Belgium ; Member of the Conference Editorial Board of European Control Association (EUCA), actuating for 13th European Control Conference, Strasbourg, June 2014.

Frédérique Clément: Participation to INRA selection committees: CR2 2013 (admissibility and admission) "Modelling in cell biology and biology of organisms" ; DR2 2013 (admission) "Animal and plant genetics and physiology".

Appointed member of the scientific board of the BCDE (Cell Biology, Development and Evolution) ITMO (Multi Organization Thematic Institute) of the French National Alliance for Life and Health Sciences <http://www.aviesan.fr/en>.

M. Mirrahimi: Associate Editor of *Systems & Control Letters* ; Member of IFAC Technical Committee on Distributed Parameter Systems.

M. Sorine: Member of IFAC Technical Committee on the Biological and Medical Systems (IFAC TC 8.2) ; Member of the scientific board of the **ITMO Circulation, Metabolism and Nutrition** (Multi Organization Thematic Institute of the French National Alliance for Life and Health Sciences).

Q. Zhang is Member of two IFAC Technical Committees on 1/ Fault Detection, Supervision and Safety of Technical Processes ; 2/ Modelling, Identification and Signal Processing.

### 9.2. Teaching - Supervision - Juries

#### 9.2.1. Teaching

Master: P.-A. Bliman, "Advanced tools for system analysis and design by Linear Matrix Inequalities (LMI) techniques", Instituto Tecnológico de Aeronáutica, São José dos Campos (SP), Brazil (3h).

Master: S. Steer, "Modélisation et simulation des systèmes dynamiques", 20 heures, M2, Ecole Polytechnique, France.

Master: S. Steer, "Traitement numérique du signal et application aux signaux physiologiques", 32 heures, M2, Université d'Evry, France.

#### 9.2.2. Supervision

PhD: Thiago Pereira das Chagas [33], *Stabilisation d'orbites périodiques pour des systèmes en temps discret et en temps continu*. Université Paris-Sud, Orsay, June, 25 2013. Supervisor: P.-A. Bliman.

PhD: David Marie-Luce [32], *Modélisation réduite et commande d'éléments du système de dépollution d'un groupe motopropulseur en vue des normes Euro 6 et Euro 7*. Université Paris-Sud, Orsay, March, 4 2013. [Theses.fr](http://theses.fr). Supervisor: P.-A. Bliman. Co-supervisor: M. Sorine.

PhD: Alexandre Guerrini [31], *Évaluation des performances de systèmes d'assistance au contrôle pour la réanimation : Application au contrôle de la glycémie*. Université Paris-Sud, Orsay, June, 21 2013. Supervisor: M. Sorine.

### 9.3. Popularization

The high profile publications in *Nature* and *Science* are popularizing the new field of quantum engineering.

## ALPINES Team

## 9. Dissemination

### 9.1. Scientific Animation

Xavier Claeys reviewed articles for the following journals:

- American Mathematical Society
- Comptes Mathématiques de l'Académie des Sciences
- BIT Numerical Mathematics
- Numerical Methods for Partial Differential Equations
- Differential Equations and Applications

Laura Grigori's scientific animation activities are:

- Area Co-chair, Algorithms, IEEE/ACM SuperComputing 2013.
- Area editor for Parallel Computing Journal, Elsevier, since June 2013.
- Member of Program Committee of IEEE International Parallel and Distributed Processing Symposium, IPDPS 2013.

Frederic Hecht's scientific animation activities are:

- Organization of FreeFem++ days, December 2013, UPMC. There were around 60 participants from different countries (France, Italy, Spain, Slovenia).

### 9.2. Teaching - Supervision - Juries

#### 9.2.1. Teaching

Master : Xavier Claeys, MM009: Informatique de base, 72 hrs de travaux pratiques en programmation C++, niveau M1, Université Pierre et Marie Curie, France

Master : Xavier Claeys, NM406: Résolution des EDP par la méthode des éléments finis, 18 hrs de travaux pratiques en programmation C++, niveau M2, Université Pierre et Marie Curie, France

Master : Xavier Claeys, MM031: Informatique Scientifique, 44 hrs de de cours magistral, niveau M1, Université Pierre et Marie Curie, France

Master : Laura Grigori, High performance computing, 12 hours, Master Université Paris XI, France

Master : Laura Grigori, Course on Parallel Computing, 30 hours IFIPS, Ingenieurs 3, Polytech, Université Paris XI, France

Master : Frederic Hecht, Tutorials of practical C++ programming for the course *Informatique de Base*, 36 hours, Master 1 Mathématiques et Applications, UPMC, France

Master : Frederic Hecht, Course on Numerical methods for fluid mechanics, 30 hours, Master 2 Mechanics, UPMC, France.

Master : Frederic Hecht, From PDEs to their resolution by finite element methods, 36 hours per year, Master 2 UPMC, France.

Master : Frederic Nataf, Course on Domain Decomposition Methods, 30 hours, Master 2, UPMC, France.

Master : Frederic Nataf, Course on Domain Decomposition Methods, 15 hours, Master 2, ENSTA, France.

#### 9.2.2. Supervision

PhD : Amal Khabou, Dense matrix computations : communication cost and numerical stability, University Paris-Sud 11, February 2013, advisor Laura Grigori

PhD in progress : Sebastien Cayrols, since October 2013 (funded by Maison de la simulation), advisor L. Grigori.

PhD in progress : Pierre Jolivet, since October 2011 (funded by University of Grenoble), advisors F. Nataf, C. Prudhome and F. Hecht

PhD in progress : Sophie Moufawad, since October 2011 (funded by Inria), advisor L. Grigori

PhD in progress : Nicole Spillane, since December 2010 (funded by Michelin), co-advisor F. Nataf

PhD in progress : Ryadh Haferssas, since October 2013 (funded by Ecole Doctorale, UPMC), co-advisor F. Nataf

PhD in progress : Sylvain Auliac, since October 2009 (funded by UPMC), advisor F. Hecht

PhD in progress : Pierre-Henri Tournier, since October 2011 (funded by UPMC), advisor F. Hecht and M. Comte

### 9.2.3. *Juries*

- Laura Grigori: Phd thesis of Soleiman Youssef, UPMC, December 2013, Invited member.
- Laura Grigori: HDR habilitation of Stef Graillat, UPMC, December 2013, Examineur.
- Laura Grigori: PhD thesis Mouraid Gouicem, defended on 14 October 2013, LIP6, Paris 6, examinatrice, president of the jury.
- Frederic Nataf : PhD thesis of Paul-Marie Berthe, defended on 18 December 2013, University Paris XIII.
- Frédéric Hecht: Phd thesis Charles Dapogny, defended on 29 december 2013, Univ Rouen, examinateur
- Frédéric Hecht: HDR BENNIS Chakib , defended on 29 november 2013, UMPC, examinateur.
- Frédéric Hecht: Phd thesis Charles Dapogny, defended on 4 december 2013, UMPC, Président.
- Frédéric Hecht: Phd thesis Nicolas Kowalski, defended on 5 december 2013, UMPC, examinateur.
- Frédéric Hecht: Phd thesis Brahim Yahoui, defended on 17 december 2013, UTT, Rapporteur.

## 9.3. Popularization

Xavier Claeys dedicated an afternoon to participation to the "fête de la science".

## ARLES Project-Team

# 8. Dissemination

## 8.1. Scientific Animation

### 8.1.1. Programme Committees of Conferences and Workshops

- Nelly Bencomo is PC chair of SEAMS'13;
- Nelly Bencomo is PC member of the following international conferences: MODELS'13, CibSE'13, Poster track at RE'13, SANES session at PECCS'13, SBES'13;
- Nelly Bencomo is PC member of the VAMOS'13 international workshop;
- Nikolaos Georgantas is PC member of the following international conferences: CloudCom'13, Aml'13, DATA'13, ICSOFT-EA'13, ICSOFT-PT'13, SCC'13, ANT'13, SOSE'13;
- Nikolaos Georgantas is PC member of the following international workshops: MW4NG'13, ARM'13;
- Valérie Issarny is PC member of the following international conferences: CBSE'13&14, Coordination'14, ECSA'13, ESSOS'14, FASE'13&15, FSE'14, ICDCS'13, ICSE'13, ICSE-SEIP'14, IFIPTM'13, ISARCS'13, Middleware'13&14, MobiCASE'13, SEAMS'13&14;
- Valérie Issarny is PC member of the following international workshops: SESO@ICSE'13, SERENE'13;
- Animesh Pathak is PC member of the following international conferences: S-Cube'13, EWSN'14, and Sensornets'14; and
- Animesh Pathak is PC member of the GeoHCI'13 international workshop.

### 8.1.2. Leadership Services in Academic Events and Edited Journals

- Nikolaos Georgantas is associate editor of the International Journal of Ambient Computing and Intelligence (IJACI);
- Nikolaos Georgantas is associate editor of the International Journal of Advances in Human-Computer Interaction;
- Valérie Issarny is member of the Steering Committee of the ESEC/FSE conference;
- Valérie Issarny is associate editor of the Springer JISA Journal of Internet Services and Applications;
- Valérie Issarny is the general chair of the ESSoS 2013, the International Symposium on Engineering Secure Software and Systems; and
- Animesh Pathak is the Production Chair of HiPC 2013, and Publicity Chair of DCOSS 2014.

### 8.1.3. Other Academic Services

- Nikolaos Georgantas is member of the PhD monitoring committee at Inria Paris-Rocquencourt;
- Valérie Issarny is scientific leader of the EC FP7 ICT IP CHOReOS;
- Valérie Issarny is member of the IFSTTAR Scientific Council & "Commission d'évaluation des chercheurs";
- Valérie Issary is member of the GDR GPL scientific council;
- Valérie Issarny is member of the evaluation committee of ANR Blanc JCJC'13, and of the Swedish Research Council subcommittee for Computer Science'2013.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Nikolaos Georgantas gives a 12 hours lecture on “Pervasive Service Oriented Computing” as part of the SWAS lecture of the M2 COSY of the University of Versailles Saint-Quentin en Yvelines;

Animesh Pathak co-taught a M2 COSY level course on “Web sémantique, contenus et usages” at University of Versailles Saint-Quentin-en-Yvelines in Spring 2013; and

Animesh Pathak gave two three-hour guest lectures at CNAM, Paris as part of a M2 level course on embedded systems in Spring 2013.

### 8.2.2. Supervision

In 2013, the following students successfully defended their PhD:

- Amel Bennaceur, *Dynamic Synthesis of Connectors in Pervasive Environments*, UPMC-EDITE, defended in July 2013, advised by V. Issarny
- Pankesh Patel, *Enabling High-Level Application Development for the Internet of Things*, UPMC-EDITE, defended in November 2013, advised by A. Pathak and V. Issarny

Additionally, the following PhD theses are currently in progress at the ARLES project-team:

- Emil Andriescu, *Synthèse et déploiement dynamiques de protocoles de médiation pour l'interopérabilité dans les environnements collaboratifs nomades*, started October 2012, UPMC-EDITE, CIFRE Inria-Ambientic, advised by Valérie Issarny and Roberto Speicys-Cardoso (Ambientic).
- Benjamin Billet, *Self-adaptive Streaming Middleware for the Internet of Things*, started October 2012, UVSQ-EDSTV, advised by Valérie Issarny
- Sara Hachem, *Middleware pour l'Internet des objets intelligents*, started October 2012, UVSQ-EDSTV, advised by Valérie Issarny and Animesh Pathak.
- Georgios Bouloukakis, *Runtime adaptation of middleware connectors for emergent mobile systems*, started October 2013, UPMC-EDITE, advised by Nikolaos Georgantas and Valérie Issarny.

Also, Valérie Issarny is co-advising with Ansgar Radermacher from CEA-LISE, the PhD thesis of Amel Belaggoun on *Adaptabilité et reconfiguration des systèmes temps-réel embarquées*; this is a PhD from UPMC-EDITE with the research being undertaken at CEA-LISE.

### 8.2.3. Juries

- Valérie Issarny served on the HDR committee of Marc-Olivier Killijian (Université Paul Sabatier, Toulouse).
- Animesh Pathak served on the PhD committee of Miruna Stoicescu (CNRS-LAAS & INP, Toulouse).

## 8.3. Popularization

- Benjamin Billet was invited to speak at a one-day Android tutorial event organized by the ARAMIS business network at Lyon.
- Animesh Pathak attended the “India-France Technology Summit” in New Delhi, India as part of the Inria delegation, where he was part of a panel on urban rail, and also presented a technology showcase of “TravelDashboard: Smart Mobility for Urban Travelers”.
- Animesh Pathak was invited to be part of a panel on the “Chronique marché des applications mobiles” television programme on the French TV channel TVFIL78.
- Emil Andriescu, Sara Hachem, Kim Hwa Khoo, Georgos Mathioudakis Animesh Pathak, and George Rosca represented Inria at the “Futur en Seine” technology expo in Paris.

## **DYOGENE Project-Team**

# **9. Dissemination**

## **9.1. Scientific Animation**

- François Baccelli:
  - Member of IFIP WG 7.3,
  - Advisory Editor, Queueing Systems, Springer Verlag,
  - Associate Editor IEEE Tr Information Theory,
  - TPC Member IEEE Wiopt 2013,
  - TPC Member IEEE ISIT 2013.
  - Organization of the first Simons Lectures on Network Mathematics in May 2013: <http://www.ma.utexas.edu/conferences/SimonsChairLectures/>
  - Co-organization of the workshop “Modern probabilistic techniques for design, stability, large deviations, and performance analysis of communication, social, energy, and other stochastic systems and networks”, Isaac Newton Institute, Cambridge, UK, 12-16 August 2013.
  - Inaugural lecture at the Workshop on Geometry and Physics of Spatial Random Systems, Aarhus, Denmark, April 2013, on stochastic geometry and information theory.
  - Invited lecture at the Asymptotics of Large-Scale Interacting Networks Workshop, Banff, February-March 2013, on the dynamics of peer to peer networks.
- Bartek Błaszczyszyn:
  - reviewer of all major IEEE journals publishing in wireless domain,
  - organizing and co-chairing of the “Workshop on Spatial Stochastic Models for Wireless Networks” in Riva del Garda, Italy (2005), Berlin, Germany (2008), Tokyo, Japan (2013).
  - organizing and chairing of the 17th Workshop on Stochastic Geometry, Stereology and Image Analysis, Torun, Poland 2013.
  - Reviewer for DIGITEO and Israel Science Foundation.
- Ana Bušić:
  - TPC Member Performance 2013; <http://performance.cs.univie.ac.at/>.
  - TPC Member Valuetools 2013; <http://valuetools.org/2013/show/home>.
- Marc Lelarge:
  - Associate Editor: QUESTA, Bernoulli
  - TPC Member IEEE Wiopt 2013
  - TPC Member ACM SIGMETRICS 2013,
  - Reviewer for Swiss National Science Foundation.
- Alexandre Proutière:
  - Associate editor of IEEE transactions on Networking, Queueing Systems.
  - TPC: ACM Mobihoc, IEEE Infocom, Performance.

## **9.2. Teaching - Supervision - Juries**

### **9.2.1. Teaching**

Licence : Anne Bouillard, Structures et algorithmes aléatoires, 60h eqTD, L3, ENS, France

Licence: Ana Bušić, Réseaux de communications, 36h, L3, ENS, France

Licence: Ana Bušić, Conception of algorithms and applications, 27h, L3, UPMC Sorbonne Universités, France

Licence: Marc Lelarge, Théorie de l'information et codage, 40h, L3, ENS, France

Master : Anne Bouillard, Probabilistic aspects of computer science, 15h eqTD, M1, ENS Cachan, France

Master : Anne Bouillard, Introduction to tropical mathematics, 32h eq TD, Tokyo institute of technology, Japan.

Master: Ana Bušić, Foundations of network models, 14h, M2 MPRI, France

Master: Marc Lelarge, Algorithmique des réseaux sociaux, 40h, M1, ENS, France

Doctorat: Bartek Błaszczyszzy and Laurent Massoulié, Graduate Course on point processes, stochastic geometry and random graphs (program “Master de Sciences et Technologies”), 45h, UPMC, Paris 6.

Doctorat: Alexandre Proutière, Invited short course at IIT Bombay, Decentralized learning in repeated games and network optimisation, 4h, IIT Bombay, India

### 9.2.2. Supervision

PhD: Tien Viet Nguyen, On the modelling of wireless communication networks using non-poisson point processes [65], Ecole Doctorale Sciences Mathématiques de Paris Centre, defense: January 9, 2013, advisor: F. Baccelli.

PhD : Aurore Junier, Analyses de performance et de stabilité des réseaux de télécommunication [60], ENS Cachan (Bretagne), defence: 16 december 2013, supervisors: Anne Bouillard and Claude Jard (Université de Nantes/LINA)

PhD: Mathieu Leconte, Load-balancing and resource-provisioning in large distributed systems [2], EDITE, CIFRE Technicolor, defense: December 18, 2013, advisors: Marc Lelarge and Laurent Massoulié.

PhD in progress :

- Kumar Gaurav, “ Convex comparison of network architectures” started in October 2011, adviser B. Błaszczyszyn;
- Miodrag Jovanović, “Evaluation and optimization of the quality perceived by mobile users for new services in cellular networks” started in January 2012, adviser B. Błaszczyszyn;
- Christelle Rovetta, Applications of perfect sampling to queuing networks and random generation of combinatorial objects, from December 2013, co-supervised by Anne Bouillard and Ana Bušić.

### 9.2.3. Juries

- François Baccelli:
  - David Coupier, Habilitation, Université de Lille, Décembre 2013.
  - Nicolas Chenavier, Université de Rouen (Rapporteur), Décembre 2013.
  - Mathieu Leconte, Institut Mines Télécom, Décembre 2013.
- Bartek Błaszczyszyn was a member in PhD jury of: Anaïs Vergne, Telecom ParisTech, 28/11/2013 and Manjesh Kumar Hanawal, Univ. Avignon, 06/11/2013
- Anne Bouillard was part of the jury of the PhD defence of Aurore Junier.
- Marc Lelarge was part of the jury of the PhD defense of Feng Yan, EDITE, September 2013 and Mathieu Leconte, EDITE, December 2013.
- Alexandre Proutière was a member of the jury, Niek Bouman, Technical University in Eindhoven, December 2013.

## GANG Project-Team

## 8. Dissemination

### 8.1. Scientific Animation

**Participants:** Carole Delporte, Hugues Fauconnier.

Most participants have been invited for the TRANSFORM Summer School on research Directions in Distributed Computing Heraklion, Greece 10-14 june <http://www.ics.forth.gr/carv/transform/srdc/index.html>

### 8.2. Teaching - Supervision - Juries

#### 8.2.1. Teaching

Master MPRI University of Paris Diderot:

- M. Habib, graph algorithms, 12 hours;
- P. Fraigniaud, "Algorithmique distribuée pour les réseaux", 12 hours;
- C. Delporte and H. Fauconnier, "Algorithmique distribuée avec mémoire partagée"; C. Delporte, 12 hours and H. Fauconnier, 12 hours.

Master Professional University of Paris Diderot:

- M. Habib, Search Engines, 50 hours;
- M. Habib, Parallelism and mobility which includes peer-to-peer overlay networks, 50 hours;
- C. Delporte, Distributed programming, 33 hours;
- H. Fauconnier, Internet Protocols and Distributed algorithms, 44 hours;

Master Bioinformatique University of Paris Diderot:

- L. Viennot, System, network and Internet, 15 hours.

Master: F. Mathieu, Peer-to-Peer Techniques, 30 hours, University of Paris 6;

D.U.T. : Y. Boufkhad, computer science and networks, 192 hours, University of Paris Diderot;

U.F.R.: F. de Montgolfier, foundation of computer science, algorithmics, and computer architecture, 192 hours, University of Paris Diderot;

Master: F. de Montgolfier, Peer-to-Peer theory and application, M2, University of Marne-la-Vallée;

Elementary school: L. Viennot, "Ateliers de fondements de l'informatique", 30 hours (CM1, corresponding to 4th grade).

#### 8.2.2. Supervision

PhD :Hung Tran-The, "Le Problème du Consensus dans les Systèmes avec Homonymes", University of Paris Diderot June 06 2013, supervised by Hugues Fauconnier and Carole Delporte [1],

PhD in progress : François Durand, "Manipulabilité des systèmes de vote et applications aux réseaux", since 2012, supervised by Fabien Mathieu and Ludovic Noirie

Jérémie Dusart, "Parcours de graphes de cocomparabilité", since 2011, supervised by Michel Habib  
Antoine Mamcarz, "Algorithmes de décomposition de graphes", since 2010, supervised by Michel Habib

The-Dang Huynh , "Extensions de PageRank et Applications aux Réseaux Sociaux", since 2012, supervised by Fabien Mathieu, Dohy Hong and Laurent Viennot,

Leonardo Linguaglossa, "Design of algorithms and protocols to support ICN functionalities in high speed routers", since 2013, supervised by Fabien Mathieu, Diego Perino and Laurent Viennot.



### 8.2.3. *Juries*

HdR reviews: C. Delporte-Gallet reviews Coelho's HdR thesis "Contributions à la performance du calcul scientifique et embarqué" (october 11th 2013)

L. Viennot has reviewed Nicolas Bonichon's HdR thesis "Quelques algorithmes entre le monde des graphes et les nuages de points" (April 3rd 2013) and Adrian Kosowski's HdR thesis "Time and space-efficient algorithms for mobile agents in an anonymous network" (October 26th 2013).

PhD review: L. Viennot has reviewed Przemyslaw Uznanski's PhD thesis "Large scale platform : instantiable models and algorithmic design of communication schemes" (October 11th 2013), Remigiusz Modrzejewski's PhD thesis "Distribution and storage in networks" (October 24th 2013) and Christian Glacet's PhD thesis "Algorithmes de routage, de la réduction des coûts de communication à la dynamique" (December 6th 2013).

## 8.3. Popularization

### 8.3.1. *scientific popularization*

**Participant:** Laurent Viennot.

Laurent Viennot is correspondent for the Inria Paris-Rocquencourt center concerning scientific popularization. In that context, he has participated to a document describing how scientific popularization actions could take place at Inria [26]

## HIPERCOM2 Team

# 9. Dissemination

## 9.1. Scientific Animation

**Pascale Minet** was member of the program committee of:

- AdHocNets 2013, 5th International ICST Conference on Ad Hoc Networks, October 2013.
- DCNET 2013, International Conference on Data Communication Networking, July 2013,
- ETFA 2013, 18th IEEE International Conference on Emerging Technologies & Factory Automation, September 2013.
- ICN 2013, the 12th International Conference on Networks, January 2013.
- IFIP Wireless Days 2013, November 2013.
- IUCC 2013, the 12th IEEE International Conference on Ubiquitous Computing and Communications, August 2013.
- IWCMC 2013, the 9th International Wireless Communications and Mobile Computing Conference, July 2013.
- PAEWN 2013, International workshop on Performance Analysis and Enhancement of Wireless Networks, November 2013.
- PECCS 2013, 3rd international conference on Pervasive and Embedded Computing and Communication Systems, February 2013.
- RAWSN 2013, first International Workshop on RFID and Adaptive Wireless Sensor Networks, in conjunction with NETYS 2013, Marrakech, Morocco, April 2013.
- RTNS 2013, 20th International Conference on Real-Time and Network Systems, September 2013.
- SERA 2013, Int. Conf. on Software Engineering Research & Applications, August 2013.
- SNPD 2013, 12th International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing, June 2013.

**Pascale Minet** was also reviewer for the following journals:

- IEEE Transactions on Vehicular Technology,
- The International Journal of Networked and Distributed Computing,
- International Journal of Communication Systems,
- International Journal of Distributed Sensor Networks,
- Computer Communications Journal,
- Ad Hoc Networks journal.

**Paul Muhlethaler** was reviewer for the following projects:

- the call 8 of the European commission: "Networks of the future".
- ANR projects,
- ASTRID projects.

**Paul Muhlethaler** was reviewer for the following journals:

- IEEE Transactions on Wireless Communications,
- IEEE Transactions on Vehicular Technology,
- IEEE Transactions on Information Theory.

**Paul Muhlethaler** was also member of:

- the Steering committee of MobileHealth 2013, 3rd ACM MobiHoc Workshop on Pervasive Wireless Healthcare In Conjunction With MobiHoc 2013 Conference, June 2013, Hilton Head Island, South Carolina, USA,
- the Technical committee of the second International Workshop on Performance Evaluation and Modeling in Wireless Networks, PEMWN 2013, November 2013, Hammamet, Tunisia.

**Cédric Adjih** was member of the program committee of:

- AINTEC 2013, ACM Asian Internet Engineering Conference, November 2013.
- PEMWN 2013, 2nd International Workshop on Performance Evaluation and Modeling in Wireless Networks, November 2013, Hammamet, Tunisia.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : **Ichrak Amdouni** taught "Imperative programming" at Univeristy of Versailles Saint-Quentin (L1).

Master : **Pascale Minet** taught:

- Networks and quality of service in Master Systèmes Electroniques et Traitement de l'Information, at INSTN (Saclay).
- Mobile ad-hoc networks: medium access, routing and quality of service in Master Ingénierie informatique of the University of Marne-la-Vallée.
- Mobile ad hoc networks and wireless sensor networks: medium access, routing and energy efficiency in Master ScTIC (Systèmes complexes, Technologies de l'Information et du Contrôle) of the University of Paris 12.

### 9.2.2. Supervision

PhD : **Ichrak Amdouni**, "Wireless Self-adaptive Ad hoc and Sensor Networks: Energy Efficiency and Spatial Reuse", University Pierre et Marie Curie - Paris VI, February 2013, Pascale Minet, adviser.

### 9.2.3. Juries

HdR : Rami Langar, "Urban wireless networks: mobility, routing and resource management concerns", University Pierre et Marie Curie, Sorbone universities, December 2013, Paul Muhlethaler, reviewer.

PhD :

- Mouhannad Alattar, "Security supervision of mobile ad hoc networks: a lightweight, robust and reliable intrusion detection system", University of Franche-Comté, July 2013, Pascale Minet, reviewer.
- David Fotue, "Agrégation et routage efficace de données dans les réseaux de capteurs sans fil", Telecom ParisTech, October 2013, Pascale Minet, president.
- Skander Azzaz, "Maintenance proactive des réseaux de capteurs sans fil", ENSI, Tunisia, November 2013, Pascale Minet, examiner.
- Abir Ben Ali, "Contrôle de congestion dans les applications multimédia dans l'Internet sans fil", ENSI, Tunisia, November 2013, Paul Muhlethaler, reviewer.
- Ahmed Soua, "Réseaux véhiculaires: dissémination, routage et collecte de données: modèles et algorithmes", Telecom SudParis & University Pierre et Marie Curie, Sorbone universities, November 2013, Paul Muhlethaler, examiner.

### 9.3. Popularization

- **Futur en Seine**, in Paris, June 2013. The HIPERCOM2 team was very active and presented demonstrations of Wireless Sensor Networks with a focus on the context of Smart Cities. The demonstration prepared by Cédric Adjih, Ichrak Amdouni, Hana Baccouch, Ridha Soua and Ala-Edin Weslati concerned the principles of wireless sensor networks, the energy-efficient routing protocol, the node coloring algorithm running in the OCARI network to maximize network lifetime; along with application of wireless sensor networks to Smart Cities. The open testbeds for wireless sensor networks, Senslab and Equipex-FIT were also presented: what do they offer and how to use them.
- Nadjib Achir, Cédric Adjih, Hana Baccouch, Ichrak Amdouni and Ridha Soua explained the principles of communication and routing in wireless sensor networks and organized several demonstrations for undergraduates and students who visited Inria in February 2013.

## RAP Project-Team

# 7. Dissemination

## 7.1. Leadership within scientific community

*Christine Fricker* is member of the jury of agrégation.

*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”. He is member of the scientific council of EURANDOM. He is also associate Professor at the École Polytechnique in the department of applied mathematics where he is in charge of lectures on mathematical modeling of networks.

*James Roberts* is a Fellow (membre émérite) of the SEE. He is an associate editor of IEEE Transactions on Networking.

## 7.2. Teaching

*Nicolas Broutin* has taught at the Master Parisien de Recherche en Informatique (MPRI), in the course 2.15 on Analysis of Algorithms. He also gave a series of tutorials on the continuum random tree at the Adama summer school in Mahdia, Tunisia.

*Christine Fricker* is member of the jury of agrégation.

*Philippe Robert* gives Master2 lectures in the laboratory of the Probability of the University of Paris VI. He is also giving lectures in the “Programme d’approfondissement de Mathématiques Appliquées et d’Informatique” on Networks and Algorithms at the École Polytechnique.

## 7.3. Conference and workshop committees, invited conferences

*Nicolas Broutin* is member of the steering committee of the international meeting on analysis of algorithms (AofA).

*Nicolas Broutin* has given invited lectures at annual meeting of the ANR presage, the annual meeting of the workgroup ALEA of the GDR-Im, and at the Oberwolfach workshop on extremes of branching random walk and branching Brownian motion. He has presented his results in seminars to the complex networks team at LIP6, in Paris X Nanterre, Nancy, ETH Zürich, Bell Labs France, and Frankfurt university. He has visited the computer science department of UL in Brussels, the mathematics institute of the Universität Zürich and of the mathematics institute of the Universität Frankfurt.

*Nicolas Broutin* has defended and obtained the HDR in July.

*Philippe Robert* has been a member of the technical programme committee of the conferences ACM Sigmetrics(2013) ICCCN (2013). He gave a talk at the PDMP workshop in Rennes in May. He gave an invited conference at the workshop “Modern probabilistic techniques for stochastic systems and networks” in Cambridge in August 2013 and in Eindhoven at the occasion of the 15th anniversary on December 11.

*James Roberts* was a member of the technical programme committee of the following conferences: NOMEN, CoNext, ITC. He gave keynote talks at Infocom (March), SaCoNeT (June) and ValueTools (December), invited talks at Rescom (February), Bell Labs France (October) and AINTEC (November), and a tutorial at ITC 25 (September).

## REGAL Project-Team

### 8. Dissemination

#### 8.1. Scientific Animation

Bertil Folliot is:

- Co-program chair du 13th IEEE International Symposium on Parallel and Distributed Computing (ISPDC 2014), Porquerolles Island, France.
- Co-editor (with Juhnyoung Lee, IBM Watson) of International Journal of Networked and Distributed Computing (IJNDC),
- PC Member of 12th International Symposium on Parallel and Distributed Computing (ISPDC 2013), Bucharest, Roumanie, June 2013.
- PC Member of The 2013 International Conference on High Performance Computing & Simulation (HPCS 2013), Helsinki, Finlande, July 2013.
- PC Member of 13th IEEE International Symposium on Parallel and Distributed Computing (ISPDC 2014), Porquerolles Island, France, June 2014.

Swan Dubois is:

- PC member of the 1st International Workshop on Models and Algorithms for Reliable and Open Computing.
- External reviewer for the 31st Symposium on Theoretical Aspects of Computer Science (STACS 2014).

Julia Lawall is:

- Member of the steering committee of Generative Programming and Component Engineering.
- Secretary of IFIP TC2.
- Member-at-large of the SIGPLAN Executive Committee.
- Member of the editorial board of Science of Computer Programming.
- Associate editor of Higher Order and Symbolic Computation.
- Expert reviewer of DAC 2013, Design Automation Conference, Austin, TX, USA, June 2013.
- PC Member of GPCE 2013, Generative Programming and Component Engineering, Indianapolis, IN, October 2013.
- PC Member of OOPSLA 2013, formerly the ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications, Indianapolis, IN, USA, October 2013.
- External review committee of ASE 2013, the 28th IEEE/ACM International Conference on Automated Software Engineering, Palo Alto, CA, USA, November 2013.
- PC Member for various workshops: MISS, PLOS, Hotswup, Scheme Workshop, Real Time Linux Workshop.
- Member of IFIP WG 2.11 (Program Generation).

Gilles Muller is:

- Member of the EuroSys steering committee
- Workshop co-organizer of PLOS 2013, Nemaquin Woodlands Resort, Pennsylvania, USA, November 2013.
- PC member of DSN 2013, Budapest, Hungary, June 2013.
- PC member of EuroSys 2013, April 2013, Prague, Czech Republic.
- PC member of ICDCN 2013, January 2013, Mumbai, India.

Franck Petit is:

- Invited Editor of Journal of Theoretical Computer Sciences (TCS), Special Issue on Distributed Computing (ICDCN 2013)
- Invited Editor of Journal of Theoretical Computer Sciences (TCS), Special Issue on Stabilization, Safety, and Security (SSS 2011)
- PC Member of 14th International Conference on Distributed Computing and Networking (ICDCN 2013)
- PC Member of 22th Conférence d’informatique en Parallélisme, Architecture et Système (ComPass 2013)

Pierre Sens is:

- PC Member of 28th IEEE International Parallel & Distributed Processing Symposium (IPDPS’2014)
- PC Member of 2nd IEEE/SAE International Conference on Connected Vehicles and Expo (ICCVE 2013)
- PC Member of 42nd IEEE International Conference on Parallel Processing (ICPP’2013)
- PC Member of 27th IEEE International Parallel & Distributed Processing Symposium (IPDPS’2013)
- Project reviewer for Swiss National Science Foundation (Switzerland).
- Project reviewer for Agence Nationale de la Recherche (France).

In 2013, Marc Shapiro served as:

- Invited speaker at Int. W. on Exploiting Concurrency Efficiently and Correctly ((EC)2), <http://zvonimir.info/events/ec2-2013/>.
- Member of the Scientific Advisory Board of the **Center for Informatics and Information Technologies (CITI)** of **Universidade Nova de Lisboa**.
- Member of the **ACM Europe Council**.
- Member of the board (Conseil d’Administration) of **Société Informatique de France (SIF)**, the French learned society in Informatics.
- Member of the board of the **Euro. Forum for Info. and Comm. Sciences and Technologies (EFICST)**.
- Member of the “Consolidator Grants” for the PE6 (Computer Science) selection panel of the European Research Council (ERC).
- Co-chair of Dagstuhl workshop “Consistency in Distributed Systems” [24].
- Coordinator of FP7 project **SyncFree** (Section 7.2.1.1).
- Coordinator of ANR project (Section 7.1.6 ConcoRDanT).
- PC co-chair for Int. Conf. on Principles of Distr. Sys. (OPODIS) 2014.
- PC member for for **Int. Conf. on Principles of Distr. Sys. (OPODIS) 2013**.
- Review committee member of **ACM Symp. on Principles and Practice of Parallel Programming (PPoPP) 2014**.
- Reviewer for **Int. Symp. on DIStributed Computing (DISC) 2013**.
- Reviewer for **ACM Symp. on Principles of Dist. Comp. (PODC) 2013**.
- Project reviewer for Swiss National Science Foundation (Switzerland).
- Project reviewer for Agence Nationale de la Recherche (France).
- Project reviewer for US-Israel Binational Science Foundation.

Gaël Thomas is:

- PC Member of 7th Workshop on Programming Languages and Operating Systems (PLOS'2013)

Olivier Marin is:

- PC Member of the 1st Workshop on Real Applications for P2P Networks 2013 (RAPP'2013)

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master: Julia Lawall, Coccinelle, 4h, niveau M2, ENSEIRB, Bordeaux.

Licence: Gaël Thomas, Introduction to the C programming language, L1, Université Paris 6

Licence: Swan Dubois, Franck Petit, C programming language, L2, Université Paris 6

Licence: Gaël Thomas, Introduction to computer architecture, L2, Université Paris 6

Licence: Luciana Arantes, Bertil Folliot, Julien Sopena, Franck Petit, Pierre Sens, Principles of operating systems, L3, Université Paris 6

Licence: Mesaac Makpangou, Client/server architecture, L3 professionnelle, Université Paris 6

Licence: Sébastien Monnet, Gaël Thomas, System and Internet programming, L2, Université Paris 6

Licence: Sébastien Monnet, Computer science initiation, L1, Université Paris 6

Master: Luciana Arantes, Sébastien Monnet, Pierre Sens, Julien Sopena, Gaël Thomas, Operating systems kernel, M1, Université Paris 6

Master: Luciana Arantes, O. Marin, Maria Potop-Butucaru, Distributed algorithms, M1, Université Paris 6

Master: Luciana Arantes, Oliver Marin, Pierre Sens, Advanced distributed algorithms, M2, Université Paris 6

Licence: Luciana Arantes, Bertil Folliot, Olivier Marin, POSIX Advanced C system programming, M1 d'Informatique, Université Paris 6

Master: Bertil Folliot, Julien Sopena, Distributed systems and client/serveur, M1, Université Paris 6

Licence: Bertil Folliot, C programming & systems, L2, Université Paris 6

Licence: Bertil Folliot, Directed projects, L2, Université Paris 6

Licence: Bertil Folliot, Head of the Computer Courses "Applications of Computer Technology and Communication", L2, Université Paris 6

Master: Franck Petit, Resistance of Distributed Attacks, M2, Université Paris 6,

Master: Franck Petit, Embedded communicant systems, M2, Université Paris 6

Master: Luciana Arantes, Sébastien Monnet, Julien Sopena, Gaël Thomas, Middleware for advanced computing systems, M2, Université Paris 6"

Master: Marc Shapiro, Julien Sopena, Gaël Thomas, multicore kernels and virtualisation, M2, Université Paris 6

Master of Engineering: Marc Shapiro, OS-User, PolyTech-UPMC I4.

### 8.2.2. Supervision

PhD: Ruijing Hu, "Epidemic dissemination algorithms in large-scale networks: comparison and adaption to topologies", UPMC, 2/12/2013, Luciana Arantes, Isabelle Demeure, Julien Sopena, Pierre Sens.

PhD: Guthemberg Da Silva Silvestre, "Designing Adaptive Replication Schemes for Efficient Content Delivery in Edge Networks", UPMC, 18/10/2013, Sébastien Monnet, Pierre Sens.



PhD: Massata Ndiaye, “Techniques de gestion des défaillances dans les grilles informatiques tolérantes aux fautes”, UPMC, 17/09/2013, Pierre Sens.

PhD: Thomas Preud’homme, “Optimized inter-core communication for pipeline parallelism”, UPMC, 10/06/2013, Bertil Folliot, Gael Thomas, Julien Sopena.

PhD: Suman Saha, Improving the Quality of Error-Handling Code in Systems Software using Function-Local Information, UPMC, 25/03/2013, Giller Muller and Julia Lawall.

PhD: Anissa Lamani, “Algorithmes avec optimisation de ressources pour des problèmes et des systèmes distribués variés”, UPJV, 19/03/2013, Franck Petit et Vincent Villain.

### 8.2.3. *Juries*

Bertil Folliot was member of the jury of:

- Alexandre Carbon. Accélération matérielle couplée au processeur en charge de la compilation dynamique afin d’en accroître les performances. Thèse de Doctorat de l’Université Paris VI, CEA+Nano-INNOV, Palaiseau, October 2013 (président du jury).
- Ruijing Hu. Un système adaptatif de publication-abonnement pour des réseaux mobiles. Thèse de Doctorat de l’Université Paris VI, November 2013 (président du jury).
- Ridha Benosman. Conception et évaluation de performances d’un bus applicatif, parallèle et orienté services. Thèse de Doctorat du Conservatoire National des Arts et Métiers, Paris, December 2013 (président du jury).

Julia Lawall was member of the jury of:

- Tegawendé F. Bissyandé. PhD University of Bordeaux (Advisor: Laurent Réveillère)

Gilles Muller was the reviewer of:

- Sylvain Geneves, PhD U. of Grenoble (Advisor: Vivien Quema)
- Emmanuel Sifakis, PhD U. of Grenoble (Advisor: Laurent Mounier)

Gilles Muller was member of the jury of:

- Preston Rodrigues, PhD University of Bordeaux (Advisor: Laurent Réveillère)
- A MCF position at INSA of Lyon.
- Four committees for engineer positions at the Inria Paris-Rocquencourt.

Franck Petit was the reviewer of:

- Yvan Rivierre. PhD VERIMAG, Grenoble (Advisors: Florence Maraninchi, Fabienne Carrier, Stéphane Devismes)
- Sylvie Delaët, HDR LRI, Orsay.
- Hung Tran-The, PhD LIAFA, Paris (Advisors: C. Delporte-Gallet, H. Fauconnier)

Franck Petit was member of the jury of:

- Ndeye Massata Ndiaye, PhD LIP6, Paris (Advisors: Pierre Sens, Ousmane Thiare)

Pierre Sens was the reviewer of:

- Martin Quinson. HDR Loria, Nancy
- Houssein Chihoub. PhD ENS Cachan, Rennes (Advisors: Luc Bougé, Gabriel Antoniu)
- Aeiman Gadafi. PhD ENSHEIT, Toulouse (Advisor: Daniel Hagimont)
- Marko Obravac. PhD Rennes 1, Rennes (Advisor: Thierry Priol, Cedric Tedeschi)
- Mehdi Diouri. PhD ENS Lyon, Lyon (Advisor: Eddy Caron)

Gaël Thomas was the reviewer of:

- François Goicho, PhD Université de Lyon (Advisors: Stéphane Frénot, Guillaume Salagnac)
- Quentin Sabah, PhD Université de Grenoble (Advisor: Jean-Bernard Stefani)
- Konstantinos Kloudas, PhD Université de Rennes (Advisor: Anne-Marie Kermarrec)
- Geoffroy Cogniaux, PhD Université de Lille (Advisor: Gilles Grimaud, Michael Hauspie)

### **8.3. Popularization**

- Marc Shapiro presented a tutorial on “From strong to eventual consistency: getting it right” at [OPODIS 2014](#).
- Marc Shapiro organized the Dagstuhl workshop on “Consistency in Distributed Systems,” in February 2013 [[24](#)].

## ALPAGE Project-Team

### 9. Dissemination

#### 9.1. Scientific Animation

- Alpage members were involved in many Program, Scientific or Reviewing Committees for other journals and conferences. For example, Éric Villemonte De La Clergerie participated to the program committees of IWPT'13, LGC'13, HMGE'13, DepLing'13, EPIA'13 TeMA, AAAI'13 Student workshop, plus reviewing for ACL'13, NAACL'13, and TALN'13; Djamé Seddah was a PC member of SPMRL'13, EMNLP, IJCNLP, CICLing, TALN, IWPT; Laurence Danlos was a reviewer for ACL, the Generative Lexicon Workshop, TALN, and the TAL journal; Benoît Crabbé was a reviewer for Formal Grammar, CSSP, TALN, RECITAL, Dependency Linguistics, Journal of Language Modelling, Language Ressources and Evaluation; Benoît Sagot was a Program Committee member or reviewer for the LRE and for the TAL journal (vol. 54:1 and 54:2), as well as for the conferences TALN, ACL, SFCM, IJCNLP and SPMRL
- Participation of Éric Villemonte De La Clergerie to the editorial board of French journal T.A.L. as “Redacteur en chef” (chief editor)
- Benoît Sagot is elected board member of the French NLP society (ATALA) and was its Secretary until June 2013.
- Benoît Sagot is a member of the scientific board of the consortium Corpus Écrits, which belongs to the TGIR Huma-Num
- Benoît Sagot represents Alpage at the board of the Institut de Linguistique Française, a CNRS federation (Alpage is a member of the Institut de Linguistique Française since June 2013)
- Laurence Danlos is a member of the Permanent Committee of the TALN conference organized by ATALA.
- Laurence Danlos is a member of the Scientific Committee of the UFR of Linguistics of University Paris Diderot.
- Benoît Crabbé and Laurence Danlos are members of the Administrative board of the UFR of Linguistics of University Paris Diderot.
- Benoît Crabbé co-organized the research seminar : lectures in experimental linguistics (Univ P7)
- Benoît Crabbé is responsible for the L3 computational linguistics (Univ Paris Diderot)
- Benoît Sagot is a member of the Governing Board and of the Scientific Board of the **LabEx EFL**, as head of the research strand on language resources; he is also in charge of several reserach operations; Benoît Crabbé is deputy-head of the research strand on experimental grammar; Marie-Hélène Candito and Laurence Danlos are in charge of one research operation each. Laurence Danlos is a member of the Scientific Board, representing Alpage.
- Djamé Seddah is one of the founders of the statistical parsing of morphologically rich language initiative (**SPMRL**) that started during IWPT'09. He was the program co-chair of the successful SPMRL 2010 NAACL-HLT Workshop and of its 2011 (at IWPT) and 2012 (at ACL) editions. In 2013, he was chair of the Shared Task that was organized together with this year's edition of SPMRL, for which he, Marie-Hélène Candito, Benoît Crabbé and Benoît Sagot were member of the program committee. Finally, Alpage is a major sponsor of this series of workshops.
- Marie-Hélène Candito organized the Alpage research seminar.
- Benoît Sagot served as a project reviewer for the National Research Agency (ANR), calls “bilatéraux SHS” and “STIC”.
- Djamé Seddah is the “Responsable pédagogique” for the C2I courses for Université Paris-Sorbonne

- Benoît Crabbé taught an invited course on Experimental Grammar at the Summer School on Empirical Linguistics at the Berder island (France), organized by the LabEx EFL (international audience)
- Benoît Sagot was an invited speaker at the workshop on Computational Approaches to Morphological Complexity organized by the Surrey Morphology Group in Paris
- many members of the team were invited to give talks in France and abroad, as for example in Geneva (Marie-Hélène Candito), Düsseldorf (Djamé Seddah, Benoît Sagot), Montreal (Djamé Seddah, Rosa Stern), Columbia University (Benoît Sagot).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Laurence Danlos, Introduction to NLP, 28h, L3, Université Paris-Diderot, France  
 Laurence Danlos, Discourse, NLU and NLG, 28h, M2, Université Paris-Diderot, France  
 Marie-Hélène Candito, Information retrieval, 12h, M2, Université Paris-Diderot, France  
 Marie-Hélène Candito, Clustering and Classification, 12h, M2, Université Paris-Diderot, France  
 Marie-Hélène Candito, Automatic semantic analysis, 12h, M2, Université Paris-Diderot, France  
 Marie-Hélène Candito, Machine translation, 48h, M1, Université Paris-Diderot, France  
 Benoît Crabbé, Linguistic data analysis, 24h, M2, Université Paris-Diderot, France  
 Benoît Crabbé, Introduction to computer science, 24h, L3, Université Paris-Diderot, France  
 Benoît Crabbé, Introduction to Statistics and Probability, 24h, L3, Université Paris-Diderot, France  
 Benoît Crabbé, Probabilistic methods for NLP, 48h, M1, Université Paris-Diderot, France  
 Benoît Crabbé, Introduction to Computational Linguistics, 24h, L3, Université Paris-Diderot, France  
 Benoît Sagot, Natural Language Parsing, 28h, M2, Université Paris-Diderot, France  
 Djamé Seddah, Linguistic Models and Computational Linguistics, 38h, M1, Université Paris-Sorbonne, France  
 Djamé Seddah, Machine Translation, 30h, M2, Université Paris-Sorbonne, France  
 Djamé Seddah, C2I, 30h, L2, Université Paris-Sorbonne, France

### 9.2.2. Supervision

Charlotte Roze, *Vers une algèbre des relations de discours*, Université Paris-Diderot, May 22, PhD thesis supervised by Laurence Danlos, co-supervised by Philippe Muller  
 Enrique Henestroza Anguiano, *Efficient Large-Context Dependency Parsing and Correction with Distributional Lexical Resources*, Université Paris-Diderot, June 27, PhD thesis supervised by Laurence Danlos, co-supervised by Alexis Nasr and Marie-Hélène Candito  
 Rosa Stern, *Identification automatique d'entités pour l'enrichissement de contenus textuels*, Université Paris-Diderot, June 28, PhD thesis supervised by Laurence Danlos, co-supervised by Benoît Sagot  
 Pierre Magistry, *Unsupervised Word Segmentation and Wordhood Assessment: the case for Mandarin Chinese*, Université Paris-Diderot, December 19, PhD thesis supervised by Sylvain Kahane, co-supervised by Benoît Sagot and Marie-Claude Paris  
 Corentin Ribeyre, *vers la syntaxe profonde pour l'interface syntaxe-sémantique*, started in November 2012, supervised by Laurence Danlos, co-supervised by Djamé Seddah and Éric Villemonte De La Clergerie.  
 Isabelle Dautriche, *Exploring early syntactic acquisition: a experimental and computational approach*, started in September 2012, co-supervised by Benoît Crabbé.

Marion Baranes, *Correction orthographique contextuelle de corpus multilingues et multicanaux*, started in January 2012, supervised by Laurence Danlos, co-supervised by Benoît Sagot, in collaboration with the *viavoo* company.

Marianne Djemaa, *Création semi-automatique d'un FrameNet du français, via interface syntaxe-sémantique*, started in October 2012, supervised by Laurence Danlos, co-supervised by Marie-Hélène Candito

Chloé Braud, *Développement d'un système complet d'analyse automatique du discours à partir de corpus annotés, bruts et bruités*, started in September 2011, supervised by Laurence Danlos, co-supervised by Pascal Denis

Valérie Hanoka, *Construction semi-automatique de réseaux lexicaux spécialisés multilingues*, started in January 2011, supervised by Laurence Danlos, co-supervised by Benoît Sagot

Emmanuel Lassalle, *Résolution automatique des anaphores associatives*, started in September 2010, supervised by Laurence Danlos, co-supervised by Pascal Denis

### 9.2.3. Juries

We do not mention in this section participations to PhD defense committees as supervisor or co-supervisor.

- Laurence Danlos served in the PhD defense committee of Noémie-Fleur Sandillon-Rezer. Field: computer science. Title: *Acquisition de grammaires catégorielles à partir de corpus annotés*. Other members of the committee: Christian Rétoré (U. Bordeaux, supervisor), Richard Moot (CNRS, co-supervisor), Mark Steedman (University of Edinburgh, reviewer), Annie Forêt (U. Rennes, reviewer), Alexis Nasr (U. de la Méditerranée), Géraud Sénizergues (U. Bordeaux), Tim van de Cruys (CNRS).
- Marie-Hélène Candito served in the PhD defense committee of Assaf Urieli. Field: linguistics. Title: *Robust French syntax analysis: reconciling statistical methods and linguistic knowledge in the Talismane toolkit*. Other members of the committee: Ludovic Tanguy (CNRS, supervisor), Alexis Nasr (U. de la Méditerranée, reviewer), Éric Wehrli (LATL, reviewer), Nabil Hathout (CNRS).
- Djamel Seddah served in the PhD defense committee of Anthony Sigogne. Field: computer science. Title: *Intégration de ressources lexicales riches dans un analyseur syntaxique probabiliste*. Other members of the committee: Eric Laporte (U. Paris-Est, supervisor), Matthieu Constant (U. Paris-Est, co-supervisor), Alexis Nasr (U. de la Méditerranée, reviewer), Thierry Poibeau (CNRS, reviewer), Isabelle Tellier (U. Sorbonne-Nouvelle).
- Benoît Sagot and Laurence Danlos served in the PhD defense committee of Rosa Stern, as PhD supervisors. Field: linguistics. Title: *Identification automatique d'entités pour l'enrichissement de contenus textuels*. Other members of the committee: Adeline Nazarenko (LIPN, reviewer), Frédéric Béchet (U. de la Méditerranée, reviewer), Éric Charton (U. Polytechnique de Montréal), Denis Teyssou (AFP, CIFRE industrial supervisor)
- Laurence Danlos served in the PhD defense committee of Charlotte Roze, as PhD supervisor. Field: linguistics. Title: *Vers une algèbre des relations de discours*. Other members of the committee: Philippe Muller (IRIT, co-supervisor), Francis Corblin (U. Paris Sorbonne, reviewer), Owen Rambow (Columbia University, reviewer), Liesbeth Degand (U. Catholique de Louvain), Laure Vieu (CNRS).
- Laurence Danlos (supervisor) and Marie-Hélène Candito (co-supervisor) served in the PhD defense committee of Enrique Henestroza Anguiano. Field: computer science. Title: *Efficient Large-Context Dependency Parsing and Correction with Distributional Lexical Resources*. Other members of the committee: Alexis Nasr (U. de la Méditerranée, co-supervisor), Matthieu Constant (U. Paris-Est, reviewer), Joakim Nivre (Uppsala University, reviewer), Bernd Bohnet (University of Birmingham).
- Sylvain Kahane (supervisor) and Benoît Sagot (co-supervisor) served in the PhD defense committee of Pierre Magistry. Field: linguistics. Title: *Unsupervised Word Segmentation and Wordhood Assessment: the case for Mandarin Chinese*. Other members of the jury: Marie-Claude Paris (U. Paris-Diderot, co-supervisor), Hsieh Shukai (National Taiwan University, reviewer), Yves Lepage (Waseda University, reviewer), Pierre Zweigenbaum (CNRS).

### **9.3. Popularization**

- Benoît Sagot has given in December 2013 a tutorial about the MElt POS-tagger for approx. 20 linguists, as part of the activities of the Corpus Écrits consortium, which belongs to the TGIR Hum-Num.
- General NLP presentation at the ISN day (for Math teachers, computer science option, December 4th)
- Interventions at Digilinguo (organized by DGLFLF) on April 15th and June 5th, in particular for the promotion of Mgwiki
- Intervention at the Inria I-Match day, organized during the "Futur en Seine" event (June 14th)

## SMIS Project-Team

## 9. Dissemination

### 9.1. Scientific Animation

Philippe Pucheral:

- Area Editor of the Information Systems international journal (2007-2013)
- General chair of BDA'2014
- PC member of EDBT'14, APVP'13, MOBIWIS'14

Luc Bouganim:

- PC member of EDBT'14, ICDE'14, HardDB'13
- President of the Inria Post-Doc and Delegation Commission
- Member of the Inria "Bureau du Comité des Projets" (BCP)
- Member of the Inria "Cordi-S (Inria PhD grant)" commission

Nicolas Anciaux:

- Co-chair and co-organiser of APVP'2013
- PC member of BDA 2013
- Member of the Inria "Commission des Développements Technologiques" (CDT)
- Member of the recruiting committee at Université Paris-Dauphine for the assistant professor position N°0230

Benjamin Nguyen:

- chair of BDA'2013 Demonstration Track
- co-chair and co-organiser of APVP'2013
- PC member of ICCSAMA'13 and ACOMP'2013
- Editorial Committee of TSI French Journal since 2012
- Member of the recruiting committees of Paris Dauphine and Paris VI

Iulian Sandu Popa:

- PC member of MOBILWARE'2013

### 9.2. Teaching - Supervision - Juries

#### 9.2.1. Teaching

SMIS is a joint project-team with University of Versailles St-Quentin (UVSQ) and CNRS. Hence SMIS members are naturally deeply involved in teaching.

P. Pucheral:

- Full professor at UVSQ : courses on databases, DBMS architecture and security in Master1, Master2 and engineer school ISTY
- Director of the research Master COSY (UVSQ)
- Co-Director of the future Master DataScale to be launched at Univ. Paris-Saclay (UPSay) in 2015 with UVSQ, ENSIIE, Télécom SudParis and Télécom ParisTech
- Member of the HDR committee of the STV doctoral school
- Co-founder of the "Masses de Données Distribuées" French summer school and co-organizer of its last three editions (2010, 2012, 2014)

L. Bouganim: (90h/y)

- Courses on DBMS architecture, data security, database technology in Master1 and Master2 (AFTI, Orsay) and in engineering school (ENST Paris)

B. Nguyen:

- Associate Professor at UVSQ. Courses on databases, programming in Master 2, Licence

- Responsible for the Computer Science Masters at UVSQ
- Responsible for in-house training course for Computer Science high-school teachers at UVSQ for Académie de Versailles

N. Anciaux: (90h/y)

- Courses on DBMS internal mechanisms, database technology in Master1 and Master2 (AFTI, Orsay), and in engineering school (ENSTA Paris)

I. Sandu Popa:

- Assistant professor at UVSQ. Courses on databases, DBMS architecture and security in Licence, Master1, Master2 and engineer school ISTY

### 9.2.2. Supervision

PhD in progress : Quoc-Cuong To, Secure Global Computations on Personal Data Servers, since November 2012, co-supervised by Benjamin Nguyen and Philippe Pucheral

PhD in progress : Saliha Lallali, Document Indexing for Embedded Personal Databases, since November 2012, co-supervised by Nicolas Anciaux, Iulian Sandu Popa and Philippe Pucheral

PhD in progress : Athanasia Katsouraki, Access and Usage Control for Personal Data in Trusted Cells, since October 2013, supervised by Luc Bouganim

PhD in progress : Matias Bjørling, Boosting IO Subsystem Performance on NVM Devices, since December 2011, co-supervised by Philippe Bonnet and Luc Bouganim

PhD in progress : Niv Dayan, Database Algorithms and Flash Internals, since December 2011, co-supervised by Philippe Bonnet and Luc Bouganim

PhD in progress : Javier Gonzalez, Trusted Cell X: A Client-side Reference Monitor for Usage Control on a Trusted Execution Environment, since November 2011, co-supervised by Philippe Bonnet and Luc Bouganim

PhD in progress : Dai-Hai Ton-That, Secure Management and Sharing of Private Personal Traces, since November 2012, co-supervised by Iulian Sandu Popa and Karine Zeitouni (Univ. of Versailles)

### 9.2.3. Juries

- P. Pucheral: reviewer of Adeel Anjum PhD (Univ. Nantes, June 2013).
- B. Nguyen : PhD committee member of Johann VINCENT (Univ. Caen, June 2013).
- I. Sandu Popa: PhD Proposal Defense committee member of Susan (Juan) Pan (New Jersey Institute of Technology, April 2013), PhD committee member of Susan (Juan) Pan (New Jersey Institute of Technology, December 2013).

## 9.3. Popularization

- "Comment préserver l'anonymat", Pour la Science, n° 433, novembre 2013.
- "Bases de données en Classe Préparatoire", séminaire à Luminy, mai 2013.
- Tutorial on experimental methodology at the BDA summer school 2014 "Masses de données distribuées".
- Participation to the "Futur en Seine" event in Paris: <http://web-tech.fr/linria-nous-devoile-ses-recherches-sur-les-smart-cities/>
- "Une nouvelle approche de la protection de nos données", My Science Work, July 8, 2013, by Abby Tabor <http://www.mysciencework.com/news/10335/une-nouvelle-approche-de-la-protection-de-nos-donnees>



## WILLOW Project-Team

# 9. Dissemination

## 9.1. Scientific Animation

- Conference and workshop organization
  - Workshop co-organizer, ICCV'13 THUMOS: The First International Workshop on Action Recognition with a Large Number of Classes, Sydney, Australia, 2013 (Ivan Laptev).
- Editorial Boards
  - International Journal of Computer Vision (I. Laptev, J. Ponce, J. Sivic and A. Zisserman).
  - Image and Vision Computing Journal (I. Laptev).
  - Foundations and Trends in Computer Graphics and Vision (J. Ponce, A. Zisserman).
  - IEEE Transactions on Pattern Analysis and Machine Intelligence (K. Alahari, co-guest editor of a special issue).
  - I. Laptev and J. Sivic co-edit a special issue on "Video representations for visual recognition" in the International Journal of Computer Vision.
  - J. Sivic co-edits a special issue on "Advances in Large-Scale Media Geo-Localization" in the International Journal of Computer Vision.
- Area Chairs
  - IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2013 (I. Laptev, J. Ponce, J. Sivic).
  - IEEE International Conference on Computer Vision (ICCV), 2013 (J. Sivic)
  - European Conference on Computer Vision (ECCV) 2014 (I. Laptev)
- Peer reviewing
  - IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2013 (K. Alahari, M. Cho, V. Delaitre, V. Kantorov).
  - IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2014 (K. Alahari, M. Cho, V. Delaitre, V. Kantorov, J. Sivic, I. Laptev).
  - IEEE International Conference on Robotics and Automation (ICRA), 2013 (J. Sivic).
  - International Conference on Neural Information Processing Systems (NIPS), 2013 (I. Laptev, J. Sivic).
  - ACM Symposium on User Interface Software and Technology (UIST) 2013 (I. Laptev).
  - ACM International Conference on Computer Graphics and Interactive Techniques (SIGGRAPH), 2013 (J. Sivic).
  - ACM International Conference on Computer Graphics and Interactive Techniques (SIGGRAPH Asia), 2013 (J. Sivic).
  - I. Laptev, reviewer for ERC grant applications (2013).
- Prizes and distinctions:
  - Sr. Member, Institut Universitaire de France (J. Ponce).
  - Inria Prime d'excellence scientifique (I. Laptev, J. Sivic).
  - ENS Prime d'excellence scientifique (J. Ponce).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. HdR

- HdR: Ivan Laptev, Modeling and visual recognition of human actions and interactions, École normale supérieure

### 9.2.2. Teaching

Licence : J. Ponce, “Introduction to computer vision”, L3, Ecole normale supérieure, 36h.

Licence : M. Pocchiola and J. Ponce, “Geometric bases of computer science”, L3, Ecole normale supérieure, 36h.

Master : I. Laptev, J. Ponce and J. Sivic (together with C. Schmid, Inria Grenoble), “Object recognition and computer vision”, M2, Ecole normale supérieure, and MVA, Ecole normale supérieure de Cachan, 36h.

Doctorat : I. Laptev, J. Ponce, J. Sivic and A. Zisserman were speakers at the Inria/ENS Visual Recognition and Machine Learning Summer School <http://www.di.ens.fr/willow/events/cvml2013/>, Paris, 15h.

Doctorat: I. Laptev, Tutorial on human action recognition at the Inria Visual Recognition and Machine Learning Summer School, Paris, July 2013.

Doctorat: I. Laptev, Short course on Visual object and action recognition, Samsung Electronics Polska, Warsaw, Poland, November 2013.

### 9.2.3. Supervision

PhD in progress : Mathieu Aubry, “Visual recognition and retrieval of 3D objects and scenes”, started in 2011, J. Sivic and D. Cremers (TU Munich).

PhD in progress : Louise Benoît, started in 2009, J.Ponce.

PhD in progress : Piotr Bojanowski, “Learning to annotate dynamic video scenes”, started in 2012, I. Laptev, J. Ponce, C. Schmid and J. Sivic.

PhD in progress : Florent Couzinié-Devy, started in 2009, J.Ponce.

PhD in progress : Vincent Delaitre, “Modeling and recognition of human-object interactions”, started in 2010, I. Laptev and J. Sivic.

PhD in progress : Warith Harchaoui, “Modeling and alignment of human actions in video”, started in 2011, I. Laptev, J. Ponce 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 (MSR), I. Laptev and J. Sivic.

PhD in progress : Guillaume Seguin, “Human action recognition using depth cues”, started in 2010, J. Sivic and I. Laptev.

PhD in progress : Marc Sturzel, started in 2008, J. Ponce, A. Zisserman.

PhD in progress : Tuang Hung VU, “Learning functional description of dynamic scenes”, started in 2013, I. Laptev.

### 9.2.4. Juries

- PhD thesis committee:
  - Nicolas Ballas , Mines Paristech, 2013 (J. Ponce (rapporteur), J. Sivic).
  - Yanal Wazaefi (Aix Marseille), 2013 (J. Ponce).
  - Anton Andriyenko, TU Darmstadt, Germany, 2013 (I. Laptev (rapporteur)).

- HDR thesis committee:
  - Ivan Laptev, ENS Ulm, 2013 (J. Ponce).
- Other:
  - ICRA 2013 best computer vision paper award committee (J. Ponce).
  - Member of the PSL Research Council (J. Ponce).
  - Chair of the CMLA AERES evaluation committee at ENS Cachan, November 2013 (J. Ponce).
  - Member of the Mathematics and Systems Unit AERES evaluation committee at Mines ParisTech, January 2014 (J. Ponce).
  - Member of the Inria postdoc selection committee, 2012- (I. Laptev).
  - Member of Conseil de Laboratoire DI, ENS, 2013 (I. Laptev).
  - Member of Inria Commission de developpement technologique (CDT), 2012- (J. Sivic).

### 9.3. Inria/ENS Visual Recognition and Machine Learning Summer School 2013

<http://www.di.ens.fr/willow/events/cvml2013>

I. Laptev, J. Ponce and J. Sivic (together with C. Schmid, Inria Grenoble) co-organized a one week summer school on Visual Recognition and Machine Learning. The summer school, hosted by ENS, attracted 177 participants from 34 countries (28% France / 32% Europe / 40% other countries (including Australia, Brazil, Canada, China, India, Israel, Japan, Malaysia, Saudi Arabia, Singapore, South Korea, Turkey and USA)), and included Master students, PhD students as well as Post-docs and industrial participants. The summer school provided an overview of the state of the art in visual recognition and machine learning. Lectures were given by 14 speakers (5 USA, 1 UK, 1 Austria, 1 Germany, 6 France), which included top international experts in the area of visual recognition (J. Malik, UC Berkeley, USA; M. Hebert, CMU, USA; K. Grauman, UTexas, USA, A. Oliva, MIT, USA; Y. LeCun, NYU, USA; . Zisserman, Oxford, UK / WILLOW). Lectures were complemented by practical sessions to provide participants with hands-on experience with the discussed material. In addition, a poster session was organized for participants to present their current research.

### 9.4. Invited presentations

- I. Laptev, Invited talk at the 1st Workshop on Understanding Human Activities, Sydney, Australia, Dec. 2013.
- I. Laptev, Invited talk at the IEEE Workshop on Decoding Subtle Cues from Social Interactions, Sydney, Australia, Dec. 2013.
- I. Laptev, Invited talk at the Int. Workshop on Action Similarity in Unconstrained Videos, Portland, Oregon, USA, June 2013.
- I. Laptev, Seminar at Technicolor, Paris, France, June 2013.
- I. Laptev, Seminar at TU Darmstadt, Darmstadt, Germany, May 2013.
- I. Laptev, Seminar at Xerox Research Centre Europe, Grenoble, France, March 2013.
- I. Laptev, Seminar at University of Washington, Seattle, USA, Feb. 2013.
- J. Ponce, Invited talk at the 2013 Polaris Colloquium, Lille, January 2013
- J. Ponce, Invited talk at the The Google cultural center, June 2013
- J. Ponce, keynote speaker at the 2013 Annual Workshop of the Austrian Association for Pattern Recognition in Innsbruck, May 2013
- J. Ponce, 20th anniversary distinguished speaker at the Xerox Research Centre Europe in Grenoble, July 2013

- J. Sivic, ICCV AC workshop, Oxford, August 2013.
- J. Sivic, Seminar at Ecole Centrale, Paris, September 2013.
- J. Sivic, Invited talk at the Int. Workshop on Visual Analysis and Geo-Localization of Large-Scale Imagery, CVPR 2013, June 2013.
- J. Sivic, Invited talk at the 1st IEEE Workshop on Visual Analysis beyond Semantics, CVPR 2013, June 2013.
- J. Sivic, Invited talk at the IST Austria Symposium on Computer Vision and Machine Learning, Vienna, Austria, Sep. 2013.
- J. Sivic, Invited talk at the Workshop on Large-scale video search and mining, ICCV 2013.

## **9.5. Popularization**

- J. Ponce participated in the iMatch meeting at Futur en Seine, June 2013
- J. Sivic participated in the CityLabs@Inria presentation at Futur en Seine, June 2013

## IMARA Project-Team

## 9. Dissemination

### 9.1. Scientific Animation

- Guy Fayolle is
  - Scientific advisor at the *Robotics Laboratory of Mines ParisTech*. In this respect, he participates in the contract COVADEC, which is an industrial project (FUI / FEDER 15) involving 8 partners, among which Peugeot, Valeo, Armines and All4tec. The acronym stands for *Conception et Validation des Systèmes Embarqués d'Aide à la Conduite*. Armines will propose a Markov chain analysis aiming at optimizing test generation, taking into account non independent parameters.
  - Associate editor of the journal *Markov Processes and Related Fields*,
  - Regular reviewer for some journals of high repute (PTRF, MPRF, QUESTA, IEEE-IT, JSP), and also for the *AMS Mathematical Reviews*.
  - Member of the working group IFIP WG 7.3.
  - Program committee member of the regular *Int. Symposium on Computer and Information Sciences*, held in Paris at IHP (28-29 oct. 2013). The chairman-organizer is E. Gelenbe (Imperial College, UK).

He gave two invited talks :

- *Séminaire de Probabilités* of the LAGA Laboratory (Univ. Paris 13, 23 may 2013) to speak on *Random walks in the quarter Plane: analytic and probabilistic aspects*.
- *Séminaire du Groupe de travail en Probabilités du MAP5, Univ. Paris 5*, where he presented the paper [11].

He was invited to attend the follow-up meeting of the Workshop Programme *Modern probabilistic techniques for design and analysis of stochastic systems and networks*, held at the *Isaac Newton Institute* (Cambridge Univ. UK), 12-16 aug. 2013. He also chaired a session at the *Rencontres de Probabilités*, 9-10 sept. 2013, Rouen University.

- Jean-Marc Lasgouttes has been reviewer for the European Journal on Operation Research (EJOR) and the IEEE Transactions on Intelligent Transportation Systems.
- Philippe Morignot
 

has been member of the steering committee of the French association for Artificial Intelligence (AFIA). He is Editor-in-Chief of the newsletter of this association. He has been session chair of the session entitled "Human and Hydrologic applications" at the IASTED AIA'13 conference.
- Fawzi Nashashibi is:
  - Scientific advisor at the *Robotics Laboratory of Mines ParisTech*.
  - Supervisor of 1 PhD thesis at Mines ParisTech in 2013: Miss Anne-Sophie Puthon
  - supervisor of 4 PhD thesis at Inria: B. Lefaudeux, H. Li, G. Tréhard, P. Merdrignac.
  - Associate editor of the journal *Traitement du signal*,
  - Associate editor and reviewer of major conferences in ITS and Robotics (IEEE IV, IEEE, ITSC, IEEE ICRA, IEEE ICARCV, IEEE ICVES,...)
  - Regular reviewer for some journals of high repute (Transportation Research Part C, IJRR, IJVAS, IEEE Transactions on Instrumentation and Measurement, IEEE Robotics and Automation Magazine, IEEE Transactions on ITS, IEEE TVT,...).

- Member of the European working group on Automation of the iMobility Forum.
- Member of the International Committee on Vehicle Highway Automation (AHB30)
- Member of the Technical Program Committee of the WUSPE Workshop on in Kumamoto (Japan).

Fawzi Nashashibi was co-organizer of the ict-PAMM Workshop on “*Mobility Assistance and Service Robotics*” held in Kumamoto (Japan) on November 9th, 2013.

Fawzi Nashashibi was an invited keynote speaker at the following events:

- ITSWC’2013 (Tokyo, Japan): Executive session “*ES01: Autonomous Vehicles - the Path to Implementations*”, at the International 20th ITS World Congress, Tokyo (Japan).
- ITS Dublin: presentation at the session “*Towards Automation of Vehicles and Roads in Europe*” entitled “*Design of fully automated vehicle transport system in urban settings and related Requirements for fully automated urban vehicles*”.
- WUSPE’2013 (Hanoi, Vietnam), Sept. 2013. International workshop on Wireless Communications and User centered Services in Pervasive Environments 2013. Presentation on “*Cooperative wireless communications for road users*” at the International Research Institute MICA of the HANOI UNIVERSITY of SCIENCE and TECHNOLOGY.
- AHB030 TRB Committee: a presentation at the Vehicle-Highway Automation session entitled “*Current advancements in urban mobility: the CityMobil use-case.*”.
- eu-Robotics Workshop: presentation about the results of the EU project PICAV.
- Intech seminar: presentation at Inria Rhône-Alpes about the “*Technical lessons learned from the urban mobility demonstration in La Rochelle*” (joint presentation with M. Matthieu Graindorge from the City of La Rochelle), Oct. 24th, Grenoble.

Fawzi Nashashibi participated to the following round tables:

- ITS Dublin: participation in the International round table on “*ITS Standardization towards deployment*”.
  - National Assembly / Sénat OPECST: participation to the national roundtable organized by the OFFICE PARLEMENTAIRE D’ÉVALUATION DES CHOIX SCIENTIFIQUES ET TECHNOLOGIQUES on the “*New serene and sustainable mobility: designing ecological vehicles*”.
  - Intech: roundtable about legal issues and deployment strategies for vehicle automation. Oct. 24th, Grenoble.
- Joshué Pérez Rastelli
    - Guest-Editor of IEEE Intelligent Transportation Systems Magazine (special issue of ELECTRO-MOBILITY).
    - Associate editor of IEEE Intelligent Vehicles Symposium 2013, Gold Coast, Australia.
    - Session Chairs of Autonomous Marine Vehicles, 2013 IFAC Intelligent Autonomous Vehicles Symposium.
    - Reviewer in a number of international journals: ROBOTICA, IEEE Transactions on Vehicular Technology, Journal of the Franklin Institute, IEEE Transaction on Intelligent Transportation Systems, Journal of Control, IEEE Robotics and Automation Magazine and International Journal of Electrical Power and Energy Systems (Elsevier).
    - Reviewer in a number of international conferences including IEEE Intelligent Vehicles 2013, IEEE International Conference on Vehicular Electronics and Safety 2013, IEEE Intelligent Transportation Systems 2013, ICRA 2013, among others.
    - Responsible of the PAL Inria (Personally Assisted Living) at IMARA team.
    - Séminaire des doctorants (April 2013, Inria Rocquencourt) *Control Architecture for autonomous vehicles in urban environments.*

- **Evangeline Pollard**  
is a reviewer for several international journals and conferences: 15th IEEE Intelligent Transportation Systems Conference, International Conference on Intelligent Robots and Systems, IEEE Intelligent Vehicles Symposium, IEEE Transactions on Vehicular Technology (TVT), IEEE Transactions on Aerospace and Electronics Systems (AES), Journal of Zhejiang University Science C (Computers & Electronics).
- **Oyunchimeg Shagdar**  
is an associate editor of Wiley International Journal of Communication Systems and a technical program committee of the IEEE Vehicular Technology Conference (VTC 2014) and the IARIA International Conference on Emerging Network Intelligence (Emerging 2013). She is a reviewer of a number of international journals and conferences, including IEEE Communications Magazine, IEEE Communications Letter, IEICE Transactions on Communications, IEEE Vehicular Technology Conference (VTC), IEEE International Conference on Communications (ICC), and Intelligent Vehicle Symposium. She was a keynote speaker at the workshops "Journée National Communications dans le Transport 2013", in June 2013, in Nevers, France and "Wireless Communications and User Centric Services in Pervasive Environments 2013", in September 2013, in Hanoi, Vietnam

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

*Jean-Marc Lasgouttes*

Master: "Analyse de données", 59.5h, second year of Magistère de Finance (M1), University Paris 1 Panthéon Sorbonne, France

*Victorin Martin*

Licence: "Statistiques", 9h, first year of Ecole Centrale Paris (L3) Châtenay-Malabry, France

*Philippe Morignot*

Master: "Constraint programming", 15h, M2, Epita (Le Kremlin-Bicêtre), France

Master: "Linear programming", 15h, M2, Epita (Le Kremlin-Bicêtre), France

Master: "Rule-based systems", 15h, M2, Epita (Le Kremlin-Bicêtre), France

Master: "Task planning", 15h, M2, Epita (Le Kremlin-Bicêtre), France

*Fawzi Nashashibi*

Licence: "Programmation avancée", 84h, L1, Université Paris-8 Saint-Denis, France

Master: "Programmation C++/OpenGL", 16h, 2nd year (MAREVA), Mines ParisTech, France

Master: "Synthèse d'images", 12h, M2, INT Télécom SudParis.

*Joshué Pérez Rastelli*

Master: "Digital environment and road -ITS applications- (Voie Numérique)", 20h, M2, François Rabelais University, Tours, France

Master: "Systèmes embarqués (embedded systems)", 22,5h, M2, Leonard Da Vinci University - l'ESILV-, La Défense, France

*Guillaume Tréhard*

Master: "C++ programming language", M1, 20h, Paris 8 University, France

DUT Génie Electrique et Informatique Industrielle: "C++ programming language", L1, 20h, IUT Chartres, France

### 9.2.2. Supervision

PhD in progress: Mohammad Abualhoul, “Visible Light and Radio Communications for automated driving”, from September 01, 2013, supervisor: Fawzi Nashashibi, co-supervisor: Oyunchimeg Shagdar

PhD in progress: Ines Ben Jemaa, “Communications and Management Control for Cooperative Vehicular Systems”, from January 01, 2011, supervisor: Arnaud De La Fortelle, co-supervisor Paul Muhlethaler, Oyunchimeg Shagdar

PhD: Benjamin Lefaudeux, “Détection, localisation et suivi d’objets mobiles à partir d’une plateforme de stéréovision”, Mines ParisTech, defended on September 30 2013, supervisor: Fawzi Nashashibi

PhD: Victorin Martin, “Modélisation probabiliste et inférence par propagation de croyances: application au trafic routier”, Mines Paristech, May 23, 2013, supervisor Arnaud De La Fortelle, co-supervisors Cyril Furtlehner and Jean-Marc Lasgouttes

PhD in progress: Pierre Merdrignac, “Development of cooperative perception and communication system for vulnerables’ safety enhancement”, from October 01, 2012, supervisor: Fawzi Nashashibi, co-supervisor: Oyunchimeg Shagdar, Evangeline Pollard

PhD in progress: Guillaume Tréhard, “Autonomous urban driving: dealing with intersections”, from October 01, 2012, supervisor: Fawzi Nashashibi, co-supervisor: Evangeline Pollard

### 9.2.3. Juries

Fawzi Nashashibi was the Jury President of the following PhD thesis defense:

- Yadu PRABAKHAR. “Detection and counting of Powered Two Wheelers in traffic using a single-plane Laser Scanner”. University of Normandy – INSA Rouen. Defended on: 10/10/2013.

Fawzi Nashashibi was a reviewer of the following PhD thesis defense:

- Benoit FORTIN. “Méthodes conjointes de détection et suivi basé-modèle de cibles distribuées par filtrage non-linéaire dans les données lidar à balayage”. University of Littoral Côte d’Opale. Defended on: 22/11/2013.
- Maxime CAUSERET. “Peindre avec des matières dynamiques : les systèmes procéduraux pour la création et l’expérimentation artistique.”. University of Paris-8 Saint-Denis. Defended on: 09/07/2013.
- Amnir HADACHI. “Travel Time Estimation using Sparsely Sampled Probe GPS data in Urban Road Networks Context”. University of Normandy – INSA Rouen. Defended on: 31/01/2013.

Fawzi Nashashibi was an examiner of the following PhD thesis defense:

- Jorge GODOY. “Arquitectura de control para la conducción autónoma de vehículos en entornos urbanos y autovías”. Universidad Polytechnica de Madrid – Escuela Tecnica Superior de Ingenieros Industriales. Defended on: 21/10/2013.
- Adam HOUENOU. “Calcul de trajectoires pour la préconisation de manoeuvres automobiles sur la base d’une perception multi-capteurs – Application à l’évitement de collision”. Université de Technologie de Compiègne. Defended on: 09/12/2013.

## 9.3. Popularization

Several members of the team have participated in the exhibition Futur-en-Seine (104, Paris, June 13-16 2013) by presenting the CITRIS association and explaining videos to industry (June 13-14) and public (June 15-16).

Guillaume Tréhard supervised three students from the Lycée Henri Bergson, Angers for their TIPE (TIPE, travaux d’initiative personnelle encadrés) “Assistance au freinage d’urgence par contrôle moteur d’un véhicule électrique”.

Jean-Marc Lasgouttes has presented “some solvable models for road traffic” at the *demi-heure de science* of the Paris–Rocquencourt Inria research center.