



RESEARCH CENTER  
**Sophia Antipolis - Méditerranée**

FIELD

Activity Report 2015

# Section Dissemination

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## **AOSTE Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific events organisation***

#### *10.1.1.1. Member of the organizing committees*

- Liliana Cucu: Dagstuhl seminar on Mixed Criticality Systems
- Robert Davis: Dagstuhl seminar on Mixed Criticality Systems

### ***10.1.2. Scientific events selection***

#### *10.1.2.1. Chair of conference program committees*

- Liliana Cucu: RTNS2015, WMC2015
- Robert Davis: RTAS2016, WMC2015

#### *10.1.2.2. Member of the conference program committees*

- Robert de Simone: EmSoft'2015, FDL'2015, Memocode'2015.
- Yves Sorel: RTNS 2015, DASIP 2015, EMSOFT 2015.
- Frédéric Mallet: DATE'2015, MoDELS'2015, MSR'2015, ESLsyn'2015, ICTERI'2015, FDL'2015
- Julien Deantoni: DAC'2015, MiSE'2015, GEMOC'2015
- Liliana Cucu: RTAS2015, ETFA2015, SIES2015, MISTA2015, DATE2015 and MAPSP2015
- Dumitru Potop Butucaru: RTNS 2015, LCTES 2015, ESLSyn 2015
- Adriana Gogonel: ACM RACS2015, RTNS2015 and WMC2015
- Dorin Maxim: DATE2015 and RTNS2015

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

#### *10.1.3.1. Member of the editorial boards*

- Yves Sorel: Traitement du Signal Journal, Real-Time System Journal

### ***10.1.4. Invited talks***

- Frédéric Mallet: International Summer School on Methods and Tools for the Design of Digital Systems, Bremen
- Liliana Cucu: VECOS2015

### ***10.1.5. Scientific expertise***

- Yves Sorel: Steering Committees of the System Design and Development Tools Group of Systematic Paris-Region Cluster, and of the Technologies and Tools Program of SystemX Institute for Technological Research
- Robert de Simone: Board of Administrators of CIM-France Design Platform.

### ***10.1.6. Research administration***

- Robert de Simone is member of the Board of the UNS Doctoral School EDSTIC.
- Liliana Cucu is member of Inria Evaluation Commission.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: Robert de Simone, Models of Computation for Networks-on-Chips (MoCs for NoCs), 36h, M2 International, UNS.

Master: Robert de Simone, Functional and Temporal Correctness, 36h, M1 International, UNS.

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

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

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

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

Master : Julien Deantoni, Systèmes embarqués et Ambient, 10h, M2, Polytech'Nice, France.

Master : Julien Deantoni, Langage C++, 88h, M1, Polytech'Nice, France.

Master : Julien Deantoni, Ingénierie Dirigée par les modèles par la pratique, 24h, M2, Polytech'Nice, France.

Master: Dumitru Potop Butucaru, Une approche synchrone des systèmes embarqués temps réel, 12h, M1, EPITA Paris

Master: Dumitru Potop Butucaru and Thomas Carle, L'approche synchrone de la construction des systèmes embarqués temps réel, 12h, M2, Polytech Paris UPMC.

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

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

Licence : Marie-Agnes Peraldi-Frati, Algorithms and programming 60h, L1, UNS Institute of technology.

Licence : Marie-Agnes Peraldi-Frati, System and Networks administration 80h, L2, UNS Institute of technology .

Licence : Marie-Agnes Peraldi-Frati, Web Programming 50 h, L2, UNS Institute of technology.

Licence: Frédéric Mallet, Conception Orientée Objet, 45h, L3, UNS.

Licence: Frédéric Mallet, Programmation Orientée Objet, 45h, L3, UNS.

Master: Frédéric Mallet, Programmation Avancée et Design Patterns, 45h, M1, UNS.

Master: Frédéric Mallet, Vérification temporelle et fonctionnelle, 24h, M1, UNS.

Master: Frédéric Mallet, Model-Driven Engineering, 24h, M1, UNS.

Master: Liliana Cucu, Distributed Databases, 56h, U. Dunarea de Jos, Romania

Master: Dumitru Potop Butucaru, Une approche synchrone des systèmes embarqués temps réel, 12h, M1, EPITA Paris

### 10.2.2. Supervision

PhD: Mohamed Bergach, *Adaptation of the Fast Fourier Transform processing on hybrid integrated CPU/GPU architecture*, UNS, defended October 2015.

PhD in progress: Matias Vara-Larsen, *Toward a formal and hierarchical timed model for concurrent heterogeneous model*, UNS, 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: 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: Yuanrui Zhang, ECNU-SEI/China, started Sep 2015, co-supervised by Frederic Mallet (joint supervision with Pr. Chen Yixiang(ECNU).

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

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

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

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

### **10.2.3. Juries**

Robert de Simone: reviewer of Adrien Guatto (ENS Ulm), examiner of Andrea Enrici (Mines-Telecom Paris).

Frederic Mallet: reviewer of Judith Peters (U. Bremen, Germany), examiner (president) of Damian Vicino (Carleton University/U. Nice Sophia Antipolis).

Julien Deantoni: reviewer of Erwan Bousse (IRISA, University of Rennes)

Liliana Cucu: reviewer of Antoine Bertout (LIFL, November 2015)

Dumitru Potop Butucaru: examiner of José Echeveste (Université Pierre et Marie Curie/EDITE).

## GALAAD2 Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events selection

#### 8.1.1.1. Member of the conference program committees

Evelyne Hubert, André Galligo and Bernard Mourrain were part of the selection committee for the conference MEGA that took place in Trento (Italy) in June.

#### 8.1.1.2. Reviewer

Laurent Busé wrote reviews for the conference ISSAC (International Symposium in Symbolic and Algebraic Computation), Bath, UK, July.

Bernard Mourrain was reviewer for the conferences MEGA (Effective Methods in Algebraic Geometry), Trento, Italy, June, ISSAC (International Symposium in Symbolic and Algebraic Computation), Bath, UK, July.

### 8.1.2. Journal

#### 8.1.2.1. Member of the editorial boards

Evelyne Hubert and Bernard Mourrain are associate editors of the Journal of Symbolic Computation (since 2007).

#### 8.1.2.2. Reviewer - Reviewing activities

Laurent Busé wrote reviews for the following journals: Graphical Models, IEEE Transactions on Visualization and Computer Graphics, Computer Aided Geometric Design, Journal of Algebra, Journal of Symbolic Computation, Math. Zeitschrift, Mathematical Problems in Engineering, Applicable Algebra in Engineering Communication and Computing, Applied Mathematics and Computation. He also reviewed a research proposal for the Austrian Science Fund (FWF).

Evelyne Hubert reviewed articles for the Journal of Symbolic Computation, Mathematics of Computation, Acta Applicandae Mathematicae, and the Journal of Mathematical Analysis and Applications.

Bernard Mourrain reviewed articles for Applied Numerical Mathematics journal, Computer Aided Geometric Design journal, Computing Surveys, Journal of Symbolic Computation, Journal of Pure and Applied Algebra, Reliable Computing, SIAM Journal on Matrix Analysis and Applications, SIAM Journal on Optimization, Transactions on Mathematical Software.

### 8.1.3. Invited talks

Evelyne Hubert was invited to give colloquium talks at the Aalto Science Institute (Finland) in April and at the department of mathematics of the University of Western Ontario (Canada) in november. She was also invited to give a talk at the *Workshop on Symbolic Combinatorics and Computational Differential Algebra* that took place in September at the Fields institute in Toronto (Canada).

Bernard Mourrain was an invited speaker of the Algebra and Geometry Meeting, Universitat de Barcelona, 2-5 December.



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

### **8.2.1. Teaching**

Master: Laurent Busé, Curves and Surfaces, 66h ETD, M1, EPU of the university of Nice-Sophia Antipolis.

Master: Bernard Mourrain, Real effective algebraic geometry, 30h, M2 Mathématiques, Univ. Nice Sophia Antipolis,

### **8.2.2. Supervision**

PhD in progress: Elisa Berrini, Parametric modeling for ship hull deformation and optimization. CIFRE with MyCFD, started in January 2014, supervised by Bernard Mourrain.

PhD in progress: Mathieu Collowald, Integral representation of shapes for feature conservation or extraction, started in 2011, supervised by Evelyne Hubert.

### **8.2.3. Juries**

Laurent Busé was part of the PhD jury of José Naéliton da Silva (residual intersections and annihilators of Koszul homologies) at IMPA, Rio de Janeiro, April 13.

Evelyne Hubert was part of the PhD juries of Romain Casati (modélisation numérique de structures élancées pour l'informatique graphique) from University of Grenoble, of Romain Basson (Arithmétique des espaces de modules des courbes hyperelliptiques de genre 3 en caractéristique positive) from University of Rennes, of Mathieu Collowald (Multivariate moment problems: applications of the reconstruction of linear forms on the polynomial ring) Inria, Sophia Antipolis, defended in December.

Bernard Mourrain was member of the PhD juries of Esteban Segura Ugalde (Computation of Invariant Pairs and Matrix Solvents) University of Limoges, defended in June; of Simone Naldi (Exact algorithms for determinantal varieties and semidefinite programming) LAAS, Toulouse, defended in September; of Mathieu Collowald (Multivariate moment problems: applications of the reconstruction of linear forms on the polynomial ring) Inria, Sophia Antipolis, defended in December.

Bernard Mourrain was member of the Jury for Inria CR2 positions at the center of Inria Rhône-Alpes, Grenoble.

## GEOMETRICA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Jean-Daniel Boissonnat and Frédéric Chazal co-organized the joint GUDHI-TOPDATA workshop in Porquerolles, October 20-24.
- Frédéric Chazal co-organised the Focused program on “Functoriality in Geometric Data” at the Institute for Advanced Study, HKUST Hong-Kong, April 2015.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Member of the conference program committees

Frédéric Chazal: Geometric Science of Information 2015 (GSI 2015).

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

Jean-Daniel Boissonnat is a member of the Editorial Board of *Journal of the ACM, Discrete and Computational Geometry, Algorithmica, International Journal on Computational Geometry and Applications*.

Frédéric Chazal is a member of the Editorial Board of *SIAM Journal on Imaging Sciences, Discrete and Computational Geometry, Graphical Models*.

Steve Oudot is a member of the Editorial Board of *Journal of Computational Geometry*.

### 10.1.4. Invited talks

Frédéric Chazal, Focused program on “Functoriality in Geometric Data”, Institute for Advanced Study, HKUST Hong-Kong, April 2015.

Frédéric Chazal, Geometry and Data Analysis conference, Stevanovich Center for financial mathematics, University of Chicago, June 2015.

Frédéric Chazal, Mini-conference on Topological Data Analysis, Oxford University, June 2015.

Frédéric Chazal, European Meeting of Statisticians (EMS 2015), Amsterdam, July 2015.

Frédéric Chazal, 2nda Escuela/Conferencia de Análisis Topológico de Datos, Queretaro, Mexico, December 2015

Steve Oudot, *GETCO (Applications of Algebraic Topology in Computer Science and Data Analysis)*, Aalborg, April 2015.

### 10.1.5. Scientific expertise

Frédéric Chazal was a member of the ANR committee, CES 40 (Mathematics and Computer Science).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : S. Oudot, *Computational Geometry: from Theory to Applications*, 18h, École polytechnique.

Master : S. Oudot, *Topological Data Analysis*, 36h, École polytechnique.

Master : S. Oudot, *Geometric Methods for Data Analysis*, 12h, École Centrale Paris.

Master : J.D. Boissonnat, *Winter School : "Algorithmic Geometry of Triangulations"*, January 2015.

Master : S. Oudot, *Summer School BioMed : "Topological Descriptors for Geometric Data Comparison"*, July 2015.

Master : S. Oudot, *Young Researchers School at the Journées de l'AFIG: "Topological Methods for 3D Processing"*, November 2015.

Doctorat : Frédéric Chazal, *Topology and Geometry of Data Analysis*, 9h eq-TD, nd EATCS Young Researchers School and TopDrim School "Understanding Complexity and Concurrency through Topology and Data", Camerino, Italy, July 2015.

### 10.2.2. Supervision

PhD in progress : Mael Rouxel-Labbé, *Anisotropic Mesh Generation*, started October 1st, 2013, Jean-Daniel Boissonnat and Mariette Yvinec.

PhD in progress : Alba Chiara de Vitis, *Computational Geometry in High Dimensions*, started February 2014. Jean-Daniel Boissonnat and David Cohen-Steiner.

PhD in progress : Siargey Kachanovich : *Manifold Learning*, started October 2015. Jean-Daniel Boissonnat

PhD in progress: Thomas Bonis, *Statistical Learning Algorithms for Geometric and Topological Data Analysis*, started December 1st, 2013, Frédéric Chazal.

PhD in progress: Ruqi Huang, *Algorithms for topological inference in metric spaces*, started December 1st, 2013, Frédéric Chazal.

PhD in progress: Eddie Aamari, *A Statistical Approach of Topological Data Analysis*, started September 1st, 2014, Frédéric Chazal (co-advised by Pascal Massart).

PhD in progress: Claire Brécheteau, *Statistical aspects of distance-like functions*, started September 1st, 2015, Frédéric Chazal (co-advised by Pascal Massart).

PhD in progress: Jérémy Cochoy, *Zigzag persistence: stability and applications to Topological Data Analysis*, started September 1st, 2015, Steve Oudot (co-advised by F. Chazal).

PhD in progress: Mathieu Carrière, *Signatures for Geometric Shapes*, started September 1st, 2014, Steve Oudot.

### 10.2.3. Juries

Jean-Daniel Boissonnat was a member of the HDR defense committee of Quentin Mérigot (Université de Grenoble).

Frédéric Chazal was a member of the HDR defense committee of Bertrand Michel (Université Pierre et Marie Curie).

Frédéric Chazal was a member (and reviewer) of the PhD defense committee of Julien André (Université Grenoble).

Frédéric Chazal was a member of the PhD defense committee of Stéphane Calderon (Telecom Paris).

Frédéric Chazal was a member of the PhD defense committee of Fabrizio Lecci (Carnegie Mellon University).

## **MARELLE Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

### **9.1.1. Scientific events organisation**

#### *9.1.1.1. Member of the organizing committees*

Yves Bertot is member of the organizing committee for the UITP (User-Interfaces for Theorem Provers) series of workshops.

Enrico Tassi organized a Coq coding Sprint in Sophia Antipolis, June 22-25, in Sophia Antipolis. There were 39 attendants.

Yves Bertot organized a Coq workshop in Sophia Antipolis on June 26. There were around 40 attendants.

### **9.1.2. Scientific events selection**

#### *9.1.2.1. Member of the conference program committees*

Yves Bertot was a member of the conference program committee for ITP'15 (Interactive Theorem Proving).

Cyril Cohen was a member of the conference program committee for JFLA'16 (Journées Francophones des Langages Applicatifs).

Laurent Théry was a member of the program committee for PxTP'15 (Proof exchange for Theorem Provers).

#### *9.1.2.2. Reviewer*

Members of the project reviewed papers for the conferences CPP'16 (Certified Programs and Proofs), ESOP'15 (European Symposium on Programming), Types, LICS'15 (Logic in Computer Science), Cade'15 (Conference on Automated Deduction), ITP'15 (Interactive Theorem Proving), JFLA'16 (Journées Francophones des langages applicatifs).

### **9.1.3. Journal**

#### *9.1.3.1. Reviewer - Reviewing activities*

Members of the project-team reviewed papers for the journals *Journal of Functional Programming*, *Journal of Formal Reasoning*, *Journal of Automated Reasoning*.

### **9.1.4. Invited talks**

Laurence Rideau gave an invited talk at the conference TFP'15 (Trends in Functional Programming).

Cyril Cohen and Yves Bertot gave invited talks at the workshop on Algebra, Geometry, and Proofs in Symbolic Computation in Toronto in December.

Cyril Cohen and Enrico Tassi gave lectures at the tutorial on Coq organized as satellite event to ITP'15 in Nanjing, China, in August.

### **9.1.5. Research administration**

- Members of the project-team evaluated project for the French national agency for research funding (ANR).
- José Grimm is a member of the local committee for Hygiene and Work Safety.
- Cyril Cohen regularly serves as secretary for the local committee of project-team leaders.
- Yves Bertot is the chairman of the *Coq Steering committee*, Enrico Tassi is a member of this committee.

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

### **9.2.1. Teaching**

Licence : Laurence Rideau, "programming and algorithms", 50 hours, Lycée Masséna, Nice, France.

Licence : Cyril Cohen, "paradigms of programming languages", 12 hours, University of Nice, France.

Master : Yves Bertot and Enrico Tassi, "software verification and computer proof", 21 hours, Université de Nice, France.

Master : Laurent Théry, "introduction to Coq", 3 hours, Ecole des Mines de Paris, France.

### **9.2.2. Supervision**

PhD in progress : Boris Djalal, starting in October 2015, supervised by Yves Bertot and Cyril Cohen

### **9.2.3. Juries**

Yves Bertot was examiner with written report duty for the thesis of Catherine Lelay (University of Paris-south) and examiner for the thesis of Robbert Krebbers (Radboud University Nijmegen).

## ACUMES Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific events organisation

#### 8.1.1.1. General chair, scientific chair

- J.-A. Désidéri and A. Habbal jointly held the chairs of the 27th IFIP TC7 Conference 2015 on System Modelling and Optimization, SophiaTech Campus Sophia Antipolis, France June 29 - July 3, 2015.
- A. Habbal was general co-chair of the LIRIMA Biomathematics workshop, 11-12 November 2015, In LERMA - Mohammadia Engineering School, Mohammed V University - Rabat, Morocco.

#### 8.1.1.2. Member of the organizing committees

- P. Goatin was member of the Organizing Committee of the workshop “*Mathematical Foundations of Traffic*” at IPAM (UCLA), Los Angeles (USA). Sept. - Oct. 2015. <http://www.ipam.ucla.edu/programs/workshops/workshop-i-mathematical-foundations-of-traffic/>
- P. Goatin co-organized with J. Härrri (EURECOM) the Labex UCN@Sophia thematic day “*Intelligent Transport Systems*”. March 2015.
- J.-A. Désidéri and A. Habbal directed the Organizing Committee of the 27th IFIP TC7 Conference 2015 on System Modelling and Optimization, SophiaTech Campus Sophia Antipolis, France June 29 - July 3, 2015

### 8.1.2. Journal

#### 8.1.2.1. Reviewer - Reviewing activities

- R. Duvigneau is reviewers for the following international journals : Computers & Fluids, International Journal for Numerical Methods in Fluids, Computer Methods for Applied Mechanical Engineering, Computer Aided Geometric Design, Applied Mathematics & Mechanics, Engineering Optimization.
- P. Goatin is reviewers for the following international journals: Acta Applicandæ Mathematicæ ; African Journal of Mathematics and Computer Science Research; Algorithms; Annales de l’Institut Henri Poincaré (C) Analyse Non Linéaire; Applied Mathematics and Computation; Computer-aided Civil and Infrastructure Engineering; Discrete and Continuous Dynamical Systems; European Journal of Operational Research; IEEE Transactions on Automatic Control; IEEE Transactions on Intelligent Transportation Systems; International Journal of Dynamical Systems and Differential Equations; Journal of Computational Physics; Journal of Flow, Turbulence and Combustion; Mathematical Models and Methods in Applied Sciences; Mathematics of Computation; Networks and Heterogeneous Media; New Journal of Physics; Nonlinear Analysis Ser. B: Real World Applications; SIAM Journal of Mathematical Analysis; SIAM Journal of Applied Mathematics; SIAM Journal of Numerical Analysis; SIAM Journal on Scientific Computing.
- A. Habbal is reviewer for the following international journals: Applied Mathematics (AM), Scientific Research Publishing ; Journal of Structural and Multidisciplinary Optimization ; Journal of Math. Model. Nat. Phenom. ; International Journal of Mechanical Sciences ; Modern Applied Science ; Asian Journal of Control ; Applied Mathematics and Computation ; Computer Methods in Applied Mechanics and Engineering.

#### 8.1.3. Invited talks

- J.-A. Désidéri: Contributions to PDE for Applications, Univ. Paris 6, Aug. 31-Sept. 1 2015. “Multiple-Gradient Descent Algorithm (MGDA) applied to the parametric optimization of pulsating jets in unsteady flow”.
- P. Goatin: 8th International Congress on Industrial and Applied Mathematics, Beijing (China), August 2015. Mini-symposium: “Data-driven mathematical models for production and traffic flow”. Invited talk: “*Uncertainty quantification in traffic flow models calibration from GPS data*”.
- P. Goatin: 13th Viennese Workshop on Optimal Control and Dynamic Games, Vienna (Austria), May 2015. Special session: “Mean-field models and control of multi-agent systems”. Invited talk: “*Conservation laws with non-local flux in traffic flow modeling*”.
- P. Goatin: CoToCoLa - Conference on Contemporary topics in conservation laws, Besançon (France), February 2015. Invited talk: “*Conservation laws with non-local flux in traffic flow modeling*”.
- A. Habbal: 1st Summer School Labex MS2T - Multi-objective design and optimisation of technological systems, Cap Hornu, August 2015. Invited lecture: *Multidisciplinary Optimization and Game Theory*.

### 8.1.4. Research administration

- P. Goatin is member of BCP (“Bureau du Comité des Projets”) at Inria Sophia Antipolis Méditerranée.
- R. Duvigneau is member of the "Conseil National des Universités" (CNU) for the 26th section (applied mathematics).

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

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

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

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

Licence: Numerical Methods I, 76hrs, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

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

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

Master: Concurrent design in building structures, M2 Students Project, Ecole Polytechnique Universitaire (EPU), Nice Sophia Antipolis (A. Habbal).

### 8.2.2. Supervision

PhD : Sébastien Bourasseau, *Contribution to a mesh refinement method based on the adjoint vector for the computation of aerodynamic outputs*, December 2015. Supervisors : J.-A. Désidéri and J. Peter (ONERA).

PhD : Matthias Mimault, *Crowd motion modeling by conservation laws*, University of Nice Sophia Antipolis, December 2015. Supervisor: P. Goatin.

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

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

PhD in progress : Maroua Mokni, *Development, analysis and numerical evaluation of MGDA*, October 2013. Supervisors : J.-A. Désidéri and M. Ayadi (LAMSIN-ENIT, Tunisia).

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

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

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

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

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

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

### 8.2.3. Juries

- P. Goatin was member of the selection (Inria Sophia Antipolis) committee for the competitive selection of young graduate scientists (CR2).
- P. Goatin was member of the committee of Y. Tang's PhD thesis "*Stability analysis and Tikhonov approximation for linear singularly perturbed hyperbolic systems*", Université de Grenoble, September 18th, 2015.
- P. Goatin was referee of U. Razafiston's Habilitation thesis "*Contribution à l'analyse théorique de problèmes elliptiques en domaine non borné, à la simulation numérique d'équations hyperboliques et aux méthodes de bases réduites*", Université de Besançon, December 3rd, 2015.
- A. Habbal was referee of M.F. Frabolot PhD thesis *optimisation de forme avec detection automatique de parametres* (Mécanique avancée, UT Compiègne), March 2015
- A. Habbal was referee of R.F. Coelho Habilitation HDR *Optimisation structurale et multidisciplinaire en mécanique et en Génie civil* (UT Compiègne), April 2015
- J.-A. Désidéri was referee of Gwladys Ravon's PhD thesis *Inverse problems for heart optical cartography*, December 18th, 2015.
- R. Duvigneau was reviewer of the PhD manuscript of D. Valizadeh ("*Development and analysis of a discrete adjoint operator for incompressible Navier-Stokes equations for low Reynolds number*", Ecole Centrale de Nantes).



## APICS Project-Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

- L. Baratchart gave a talk at the International Instrumentation and Measurement Technology Conference (I2MTC IEEE), May 11-14 2015, Pisa (Italy), at the AMS-EMS-SPM meeting, June 10-13 2015, Porto (Portugal), at the 10-th ISAAC congress (International Society for Analysis, its Applications and Computation), August 3-8 2015, Macau (China); he was a colloquium speaker at IUPUI, November 2015.
- M. Caenepeel gave a talk at the IMS 2015 in Phoenix [15] and at the EuMC 2015 in Paris [16].
- S. Chevillard gave a talk at the 27th IFIP TC7 Conference on System Modelling and Optimization, Sophia Antipolis (July 2015).
- J. Leblond presented a communication at the seminar “Mathématiques pour l’Analyse des Données” (MAD), Nice, May 21.
- C. Papageorgakis presented posters at the 1st International Conference on Mathematical Neuroscience (ICMNS, Juan les Pins, Jun.) [17] and at the International Conference on Basic and Clinical Multimodal Imaging (BACI, Utrecht, the Netherlands, September) [18], [19].
- D. Ponomarev gave talks at the seminar “Modèles et Algorithmes Déterministes” of Lab. Jean Kuntzmann, Univ. J. Fourier, Grenoble (May 28) and at the 27th IFIP TC7 Conference on System Modelling and Optimization, Sophia Antipolis (July 2015).
- F. Seyfert gave a talk at the European Microwave Week 2015 in the workshop dedicated to "Recent Advances in the Synthesis of Microwave Filters and Multiplexers", Paris, France

#### 9.1.1. Scientific events organisation

L. Baratchart and J. Leblond organized a special session on “Inverse Elliptic Problems” at the 27th IFIP TC7 Conference on System Modelling and Optimization, Sophia Antipolis (July 2015).

K. Mavreas and C. Papageorgakis are the PhD students in charge of the PhD students Seminar within the Research Center (since September).

##### 9.1.1.1. Member of the conference program committees

L. Baratchart was on the Program Committee of the 17th IFAC Symposium on System Identification (SYSID 2015), Beijing, China, October 19-21, 2015.

F. Seyfert was a member of the technical committee of the conference "International Workshop on Microwave Filters" in Toulouse, France, March 23-25 2015, <http://www.iwmf2015.com/>

#### 9.1.2. Journal

##### 9.1.2.1. Member of the editorial boards

L. Baratchart is a member of the Editorial Boards of the journals *Constructive Methods and Function Theory* and *Complex Analysis and Operator Theory*.

##### 9.1.2.2. Reviewer - Reviewing activities

L. Baratchart was a reviewer for several journals including, *SIAM Journal on Analysis, Inverse Problems, Journal of Approximation Theory, Annales de l’Institut Fourier*.

S. Chevillard was a reviewer for the journal *ACM Transactions on Mathematical Software*.

J. Leblond was a reviewer for the journals *Applied Mathematical Modelling, International Journal of Computer Mathematics*.

F. Seyfert was a reviewer of the journal *IEEE Microwave Transaction on Theory and Techniques*

### 9.1.3. Invited talks

L. Baratchart was an invited speaker at the Workshop on Blaschke Products and Function Theory, July 29-31 2015, Hong-Kong (China), and at the conference Orthogonal and Multiple Orthogonal Polynomials, August 9-14 2015, Oaxaca (Mexico). He was a plenary speaker at the “Journées du Gdr Analyse Fonctionnelle, Harmonique et Probabilités”, November 30-December 4 2015, Luminy (France).

J. Leblond was invited to give a communication at the conference “Harmonic Analysis, Function Theory, Operator Theory and Applications” (in honor of J. Esterle), Bordeaux, Jun. 1-4.

F. Seyfert gave a mini course on "Advanced Filter Synthesis" at the "International Workshop on Microwave Filters" in Toulouse, France, March 23-25 2015

### 9.1.4. Research administration

S. Chevillard is representative at the “comité de centre” and at the “comité des projets” (Research Center Inria-Sophia).

J. Leblond is an elected member of the “Conseil Scientifique” and of the “Commission Administrative Paritaire” of Inria. She is in charge of the mission “Conseil et soutien aux chercheurs” within the Research Center. She is also a member of the “Conseil Académique” of the Univ. Côte d’Azur (UCA).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

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

### 9.2.2. Supervision

PhD in progress: D. Ponomarev, Inverse problems for planar conductivity and Schrödinger PDEs, since Nov. 2012 (advisors: J. Leblond, L. Baratchart).

PhD in progress: M. Caenepeel, The development of models for the design of RF/microwave filters, since Feb. 2013 (advisors: Y. Rolain, M. Olivi, F. Seyfert).

PhD in progress: C. Papageorgakis, Conductivity model estimation, since Oct. 2014 (advisors: J. Leblond, M. Clerc, B. Lanfer).

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

### 9.2.3. Juries

L. Baratchart was a reviewer for the “Mémoire d’habilitation à diriger des Recherches” of Rachid Zarouf, Univ. Aix-Marseille, December 2015.

J. Leblond was a member of the “jury d’admission du concours CR” of Inria (Jun.).

## 9.3. Popularization

- M. Olivi is president of the Committee MASTIC (Commission d’Animation et de Médiation Scientifique) <https://project.inria.fr/mastic/>. She is responsible for Scientific Mediation.

## ECUADOR Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committees

- Laurent Hascoët is on the organizing committee of the EuroAD Workshops on Algorithmic Differentiation.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master : Laurent Hascoët, Optimisation avancée, 15 h, M2, University of Nice

### 9.2.2. Supervision

PhD : Gautier Brèthes, “Multigrilles anisotropes adaptatives”, defended december 10, advisor A. Dervieux

PhD in progress : Ala Taftaf, “Adjoint Automatic Differentiation on High-performance codes”, started july 2013, advisor L. Hascoët.

PhD in progress : Éléonore Gauci, “Norm-oriented criteria for CFD and coupled CSM-CFD systems”, started october 2014, advisor A. Dervieux

### 9.2.3. Juries

- Alain Dervieux, jury, PhD defense of Nicolas Barral, University Paris VI, november 27.
- Alain Dervieux, jury, PhD defense of Vilas Schinde, X-IMSIA, december 17.

## 9.3. Popularization

Alain Dervieux and Ala Taftaf participated to the event “la fête de la science” in Antibes, october 10-11.

## MCTAO Project-Team

### 9. Dissemination

#### 9.1. Teaching - Supervision - Juries

PhD: Helen Heninger, *Étude des solutions du transfert orbital avec poussée faible dans le problème des deux ou trois corps*, defended October 4, 2015, Université de Nice Sophia Antipolis, advisors: Bernard Bonnard and Jean-Baptiste Pomet.

PhD in progress: Jérémy Rouot, subject: *Moyennisation en contrôle et en contrôle optimal, effet des perturbations non périodiques*, Université de Nice Sophia Antipolis, started october, 2013, advisors: Bernard Bonnard and Jean-Baptiste Pomet.

PhD in progress: Zeinab Badredine, subject: *Techniques d'intégrabilité en dynamique des spins et applications au contrôle optimal*, Université de Bourgogne, started october, 2014, advisors: Bernard Bonnard and Ludovic Rifford.

MSc: Sofya Maslovskaya, *Finsler metric associated with average minimum time problems*, Ensta ParisTech, supervisors: Jean-Baptiste Pomet.

## NACHOS Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Scientific events organisation

##### 8.1.1.1. Member of the organizing committees

Claire Scheid and David Chiron (University of Nice - Sophia Antipolis) co-organized of the conference entitled "IDTPsi: Theory and Numerics" around Schrödinger equations, J.A. Dieudonné Laboratory, University of Nice - Sophia Antipolis, January 12-14, 2015.

Peter Bastian (Interdisziplinäres Zentrum für Wissenschaftliches Rechnen Universität Heidelberg) and Stéphane Lanteri have co-organized a mini-symposium on "Recent advances on scalable high order finite element type schemes for PDEs" in the framework of the Platform for Advanced Scientific Computing (PASC15), ETH Zurich, Switzerland, June 1-3, 2015.

Marcus Grote (Mathematisches Institut - Universität Basel) and Stéphane Lanteri have co-organized a mini-symposium on "Advanced time-stepping methods for wave propagation" in the framework of the International Conference on Scientific Computation And Differential Equations (SciCADE 2015), University of Potsdam, Germany, September 14-18, 2015.

##### 8.1.2. Invited talks

Claire Scheid, "Etude numérique de modèles milieux dispersifs et application en nanophotonique", Analyse Numérique et EDP seminar, Laboratoire de Mathématiques d'Orsay, March 12, 2015.

Claire Scheid, "Numerical study of dispersive media and application to nanophotonics", KIT Seminar, Karlsruhe, Germany, February 9, 2015

Stéphane Descombes, "Locally implicit and implicit discontinuous Galerkin time domain method for electromagnetic wave propagation in dispersive media", Numerical Solution of Differential and Differential-Algebraic Equations (Numdiff-14), Martin Luther University Halle-Wittenberg, Germany, September 7-11, 2015.

Stéphane Lanteri, "Numerical modeling of light/matter interaction on the nanoscale with a high order finite element type time-domain solver", Annual meeting of GDR PMSE (Plasmonique Moléculaire et Spectroscopies Exaltées), Inria Paris-Rocquencourt, November 25-27, 2015.

### 8.2. Teaching - Supervision - Juries

#### 8.2.1. Teaching

Stéphane Descombes is the head of the mathematical department of the faculty of sciences at the University of Nice-Sophia Antipolis. He is responsible of the management of all mathematical courses (around 13 000 hours/year), and especially of the M2 *Computational Biology*.

Stéphane Descombes, *Scientific computing*, M1, 18 h, University of Nice-Sophia Antipolis.

Stéphane Descombes, *Principal components analysis*, M2, 30 h, University of Nice-Sophia Antipolis.

Stéphane Descombes, *Statistics*, M2, 30 h, University of Nice-Sophia Antipolis.

Stéphane Lanteri, *Computational electromagnetics*, MAM5, 20 h, Polytech Nice.

Claire Scheid, *Practical works on ordinary differential equations*, 36 h, L3, University of Nice-Sophia Antipolis.

Claire Scheid, *Lectures and practical works, Analysis*, "Agrégation", 22h, University of Nice Sophia Antipolis.

Claire Scheid, *Lectures and practical works in Numerical Analysis*, 36 h, M1, Mathematics engineering, University of Nice-Sophia Antipolis.

Claire Scheid, *Lectures and practical works, Option*, "Agrégation", 16h, University of Nice Sophia Antipolis.

### 8.2.2. Supervision

PhD defended in December 2015: Marie Bonnasse, *Numerical simulation of frequency domain elastic and viscoelastic wave propagation using discontinuous Galerkin methods*, University of Nice-Sophia Antipolis, October 2012, Julien Diaz (MAGIQUE3D project-team, Inria Bordeaux - Sud-Ouest) and Stéphane Lanteri.

PhD defended in December 2015: Jonathan Viquerat, *Discontinuous Galerkin Time-Domain methods for nanophotonics applications*, October 2012, Stéphane Lanteri and Claire Scheid.

PhD in progress: Fabien Peyrusse, *Numerical simulation of strong earthquakes by a discontinuous Galerkin method*, University of Nice-Sophia Antipolis, October 2010, Nathalie Glinsky and Stéphane Lanteri.

PhD in progress: Colin Vo Cing Tri, *Numerical modeling of non-local dispersion for plasmonic nanostructures*, November 2014, Stéphane Lanteri and Claire Scheid.

PhD in progress: Nikolai Schmitt, *Numerical modeling of electron beam interaction with nanostructures*, October 2015, Stéphane Lanteri.

PhD in progress: Van Hieu Nguyen, *SMART-RATS: Small Animals RFID Integrated Antenna Tracking System*, October 2015, Philippe Lethuc (University of Nice-Sophia Antipolis and LEAT) and Stéphane Lanteri.

## TOSCA Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Promotion of Mathematics in the industry

- M. Deaconu was invited to give a talk at the Workshop *Table ronde Assurance*, on october 2015, in Luxembourg.
- D. Talay continued to serve as the Vice-President of the Fondation d'Entreprise Natixis which aims to contribute to develop research in quantitative finance. He also serves as a member of the Scientific Committee of the Foundation.
- D. Talay continued to serve as a member of the Scientific Committee of the AMIES National Agency aimed to promote interactions between Mathematics and Industry.

### 10.1.2. Scientific events organisation

- M. Deaconu organized an interdisciplinary workshop: Avalanches and rupture phenomena, 3-4 February 2015 in Nancy. URL: <http://iecl.univ-lorraine.fr/~Madalina.Deaconu/workshop2015>
- E. Tanré animates a transverse working group . In 2015, Philip Protter (Columbia University) gave lectures on Brownian Motion and Poisson Processes (six courses with around 45 participants issued from 12 teams).
- E. Tanré has organized two mini-courses for the interdisciplinary axe of University of Nice “Modélisation Théorique et Computationnelle en Neurosciences et Sciences Cognitives”. B. de Saporta (University of Montpellier) gave a course on Piecewise deterministic Markov Processes. M. Thieullen (University Paris 6) gave a course on a “Probabilistic study of membrane potential models, including ionic channels.”
- D. Villemonais organized a mini-symposium at the *Congrès SMAI 2015*, at Les Karellis in June 2015.

#### 10.1.2.1. Member of the organizing committees

- J. Inglis and E. Tanré were members of the organizing committee of the First International Conference on Mathematical NeuroScience (ICMNS) in Juan-les-Pins (June 2015), 170 participants.

### 10.1.3. Scientific events selection

#### 10.1.3.1. Chair of conference program committees

- D. Talay organized and chaired the NASPDE 2015 conference in Sophia Antipolis (September 2015), 50 participants.

#### 10.1.3.2. Member of the conference program committees

- A. Lejay is member of the conference program committees of *CANUM 2016* (Obernai, France) and *Journées de Probabilités 2015* (Toulouse, France).
- D. Talay served as a member of the scientific committee of the First International Conference on Mathematical NeuroScience (ICMNS) in Juan-les-Pins (June 2015), 2015 Conference in Stochastic Analysis and Mathematical Physics in Chile (September 2015), Conference in the honor of Vlad Bally (Le Mans, October 2015).

### 10.1.4. Journal

#### 10.1.4.1. Member of the editorial boards

- N. Champagnat served as an Associate Editor of *Stochastic Models*.

- A. Lejay is one of the three editors of the *Séminaire de Probabilités*.
- M. Bossy served as an Associate Editor of *Annals of Applied Probability*.
- D. Talay served as an Associate Editor of: *Stochastic Processes and their Applications*, *ESAIM Probability and Statistics*, *Stochastics and Dynamics*, *Journal of Scientific Computing*, *Monte Carlo Methods and Applications*, *Oxford IMA Journal of Numerical Analysis*, *SIAM Journal on Scientific Computing*, *Communications in Applied Mathematics and Computational Science*, *Éditions de l'École Polytechnique*. He also served as the Co-editor in chief of *MathematicS in Action*.

#### 10.1.4.2. Reviewer - Reviewing activities

- M. Bossy wrote reviews for manuscripts submitted to *Bernoulli Journal*, *Stochastic Processes and their Applications*.
- N. Champagnat wrote reviews for manuscripts submitted to *Journal of Mathematical Biology*, *Bernoulli Journal*, *Stochastic Processes and their Applications*, *Journal of Theoretical Biology*.
- M. Deaconu wrote reviews for *Mathematical Reviews of the American Mathematical Society (MathSciNet)* and for manuscripts submitted to *Mathematics and Computers in Simulation*, *ESAIM: Mathematical Modelling and Numerical Analysis*, *Journal of Computational and Applied Mathematics*, *Revue Roumaine de Mathématiques Pures et Appliquées* and *Journal of Nonlinear Analysis: Real World Applications*.
- C. Fritsch wrote reviews for manuscripts submitted to *Stochastic Models and Ecological Modelling*.
- J. Inglis wrote reviews for *Mathematical Reviews of the American Mathematical Society (MathSciNet)* and for manuscripts submitted to *Annales de l'Institut Henri Poincaré*.
- A. Lejay wrote reviews for manuscripts submitted to *Electronic Journal of Probability*, *Journal of Computational Mathematics*, *Journal of Mathematical Analysis and Applications*, *Journal of Scientific Computing*, *Journal of Statistical Computation and Simulation*, *Mathematics and Computers in Simulation*, *Probability and Mathematical Statistics*, *SIAM Journal of Control and Optimization* and *SIAM Journal of Mathematical Analysis*.
- E. Tanré wrote reviews for manuscripts submitted to *Bernoulli Journal*, *The Journal of Mathematical Neuroscience*, *Applied Mathematical Finance*, *Annales de l'Institut Henri Poincaré*, *Probabilistic Engineering Mechanics*.
- D. Villemonais wrote reviews for *Mathematical Reviews of the American Mathematical Society (MathSciNet)* and for manuscripts submitted to *Science China Mathematics*, *Journal of Inequalities and Applications*, *Theoretical Population Biology* and *Electronic Communications in Probability*.

#### 10.1.5. Invited talks

- M. Bossy has been invited to give talks at the *Workshop on "Subgrid-scale modeling for particle simulations in LES"* (Chatou) in March, at the *Workshop EDS Incertitudes of GDR MascotNum* (Paris) in May, at the *workshop "probabilistic numerical methods for non-linear PDE"* ICL (London) in June, and at the *NASPDE Workshop*, (Sophia Antipolis) in September.
- M. Bossy gave seminar talks at the MFEE departement EDF Chatou, and a Colloquium talk at LJAD (Nice) in November.
- N. Champagnat has been invited to give talks at the *Conference on Probability and Biological Evolution* at CIRM (Luminy), Marseille in June; at the *MMEE 2015* conference (Mathematical Models in Ecology and Evolution) in Paris in July; the *Workshop on Probabilistic models in Biology* in Playa del Carmen, Mexico, in October; and the *Colloque Franco-Maghrébin en Analyse Stochastique* in Nice in November.
- M. Deaconu has been invited to give talks to the *Eighth Congress of Romanian Mathematicians*, June 26-July 1, 2015, Iași, Romania; and the *Rencontre EDP/Probab*, March 6, 2015, Institut Henri Poincaré, Paris.



- C. Fritsch has been invited to give talks at the *Congrès SMAI 2015*, at Les Karellis in June and at the MMEE 2015 conference (*Mathematical Models in Ecology and Evolution*) in Paris in July.
- B. Henry has been invited to give talks at the *Congrès SMAI 2015*, at Les Karellis in June and at the *SPA Conference* (Stochastic processes and applications) in Oxford in July. He also presented a poster at the MMEE 2015 conference (*Mathematical Models in Ecology and Evolution*) (Paris, July).
- J. Inglis gave a talk at the workshop *QFT methods in neuronal networks dynamics* at the University of Bielefeld, as part of the Mathemacis European project.
- A. Lejay has been invited to give talks at the *Conference in honor of Professor Vlad Bally* (Le Mans, October), the conference *Stochastic Analysis and Numerical Perspectives* (Sophia-Antipolis, September), the *AMS / EMS / SPM International Meeting* (Porto, June), the *Stochastic analysis, controlled dynamical systems an applications* (Iena, February).
- A. Lejay also gave seminar talks at Univ. Paris 6 in June, Univ. Marne-la-Vallée in May and CMAP (École Polytechnique) in February.
- P. Pigato gave seminar talks at the *Séminaire de probabilités et statistiques* of IECL, Univ. Lorraine, in November, and at the *Séminaire de probabilités et statistiques* of Laboratoire Dieudonné, Univ. Nice, in December.
- A. Richard gave an invited talk at the *French-Maghrebi conference on stochastic analysis* held in Nice in November, and seminar talks at the *IECL Probability Seminar* in March, at the *Seminar of the CIMFAV* (Valparaíso) in June.
- K. Salhi gave a talk at the 8th European Summer School in Financial Mathematics (Le mans, September 2015) . He also participated to the Advanced Risk and Portfolio Management bootcamp 2015 organized by SYMMYS (New York University, July 2015).
- D. Talay gave a seminar at Ecole Polytechnique in March and at Paris 6 university in May.
- D. Talay gave an invited talk at the 2015 Conference on Stochastic Analysis and Mathematicla Physics (Chile, September 2015) and at the Conference of the Honor of Vlad Bally (Le Mans, October 2015).
- E. Tanré gave invited talks at the ANR SloFaDyBio meeting in March, at an HBP-EITN workshop in April, and a seminar talk at the *IECL Probability Seminar* in October.
- D. Villemonais has been invited to give a lecture on quasi-stationary distributions at the LPMA (Paris) during the *Thematic meeting of the STAB ANR project* of November 2015.

### 10.1.6. Scientific expertise

- M. Bossy wrote reports about research projects submitted to the PACA Region council.
- M. Bossy was member of the hiring committee 26 PRF 4320 (Univ. Nice).
- N. Champagnat reported on a proposal submitted to ANR (Agence Nationale de la Recherche).
- N. Champagnat was member of the hiring committee 26 MCF 1219 (Univ. Paul Sabatier, Toulouse III).
- M. Deaconu was member of the hiring committee 26 MCF 0221 (Univ. Bourgogne) and of the hiring committee 26 MCF 80 (Univ. Bordeaux).
- D. Villemonais was member of the hiring committee 26 MCF 0706 (IUT de Dijon).
- D. Talay reported on applications to Research Grants Council (RGC) of Hong Kong.
- D. Talay participated in a Professor position recruitment committee at Paris 7 University.

### 10.1.7. Research administration

- M. Bossy is a elected member of the Inria Evaluation Board.
- M. Bossy has been a member of the Committee for junior permanent research positions of Inria Grenoble Rhône-Alpes.

- M. Bossy is a member of the *Collectif Andromede* of the PACA Region council.
- N. Champagnat is a member of the *Commission de Développement Technologique* and the *Commission Information Scientifique et Technique* of Inria Nancy - Grand Est, a substitute member of the *Comité de Centre* of Inria Nancy - Grand Est, *Responsable Scientifique* for the library of Mathematics of the IECL, member of the *Conseil du laboratoire* of IECL (as *responsable scientifique* of the library). He is also local correspondent of the COERLE (*Comité Opérationnel d'Évaluation des Risques Légaux et Éthiques*) for the Inria Research Center of Nancy - Grand Est. This year, together with Aline Wagner (Inria Nancy - Grand Est), he is in charge of the new version of the application form for research approval by the COERLE (ethical committee of Inria).
- M. Deaconu is a member of the *Bureau du Comité de Projet* of Inria Nancy - Grand Est, and of the *Comité de Projet* of Inria Nancy - Grand Est.
- A. Lejay is a member of the Administration Council of the SMAI.
- A. Lejay is a member of the COMIPERS of Inria Nancy Grand-Est.
- A. Lejay has been appointed as representative of Inria Nancy-Grand Est in the Agence Mathématiques et Entreprise (AMIES)

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: M. Bossy, *Continuous time stochastic models for quantitative Finance*, 45h, M2 IMAFA (Informatique et Mathématiques Appliquées à la Finance et à l'Assurance), École Polytechnique Universitaire, Univ. Nice - Sophia Antipolis, France.

Master : M. Bossy, *Risk on energetic financial markets*, 27h, Master Spécialisé, Ingénierie et Gestion de l'Énergie, Mine ParisTech, France.

Master : M. Bossy *Stochastic Particle Methods for PDEs*, 18h, M2 Probabilité et Applications, Université Paris 6, France.

Master: N. Champagnat, *Introduction to Quantitative Finance*, 18h, M1, École des Mines de Nancy, France.

Master: N. Champagnat, *Introduction to Quantitative Finance*, 18h, M2, École des Mines de Nancy, France.

Master: N. Champagnat, *Processus de Markov et génétique des populations*, 22.5h, M2 MFA, Université de Lorraine, France.

Master: N. Champagnat, *Processus de Galton-Watson*, 22.5h, M2 "double diplôme" Mathématiques et Applications - Ecole Supérieure des Sciences et de Technologie de Hammam Sousse, Tunisie (lieu des cours) - Université de Lorraine, France.

Master: M. Deaconu, *Équations différentielles stochastiques : résolution numérique et applications*, 21h, M2, École des Mines de Nancy, France.

Master: M. Deaconu, *Simulation de variables aléatoires*, 12h, M1, École des Mines de Nancy, France.

Master: M. Deaconu, *Modélisation stochastique*, 30h, M2, Université de Lorraine, France.

Master: M. Deaconu, *Simulation Monte Carlo*, 24h, M1, Faculté de Droit, Sciences Economiques et Gestion, Université de Lorraine, France.

Master: C. Fritsch, *Introduction à la finance quantitative*, 3h, M1, École des Mines de Nancy, France.

Licence: C. Fritsch, *Analyse numérique*, 18h, L3, École des Mines de Nancy, France.

Licence: B. Henry, *Analyse numérique*, 18h, L3, École des Mines de Nancy, France.

Licence: B. Henry, *Probabilités*, 36h, L3, École des Mines de Nancy, France.

Master: J. Inglis, *Numerical Methods for Computational Finance*, 15h, M2, UNSA (Mathmods Erasmus Mundus), France.

Master: A. Lejay, *Simulation des marchés financiers*, 28.5h, M2, Université de Lorraine (Metz), France.

Master: A. Lejay, *Probabilités Appliquées*, 22.5h, M2, Université de Lorraine (Nancy), France.

Master: A. Richard and E. Tanré, *Advanced Numerics for Computational Finance*, 40h (2\*20h), M2, UNSA (Mathmods Erasmus Mundus), France.

Licence: K. Salhi, *Mathématiques Appliquées et Probabilités*, 24h, L3, Télécom Nancy, France

Master: K. Salhi, *Probabilités et Statistiques*, 42h, M1, ENSEM Nancy, France.

Master: D. Talay *Invariant measures of diffusion processes*, 18h, M2 Probabilité et Applications, Université Paris 6, France.

Master: E. Tanré, *Numerical Probability in Finance*, 44h, M2, Ecole PolytechNice (IMAF), France.

Master: E. Tanré, *Mathematical Methods for Neurosciences*, 37h, M2, ENS - Master MVA / Paris 6 - Master Maths-Bio, France.

### 10.2.2. Supervision

- HdR: Nicolas Champagnat, *Approches stochastiques et déterministes en biologie: dynamique adaptative, modélisation pour l'écologie, génétique des populations et dynamique moléculaire; caractère bien posé d'équations différentielles ordinaires et stochastiques*, Univ. Lorraine, 18 February 2015.
- PhD : Lionel Lenôtre, *Étude et simulation de processus de diffusion biaisés*, Université Rennes 1, November 27, 2015, Jocelyne Erhel (Irisa), Antoine Lejay, Géraldine Pichot (Irisa).
- PhD in progress: Maxime Bonelli, *Behavioral finance approach to risk assessment in quantitative portfolio management*, September 2013, M. Bossy.
- PhD in progress: Antone Brault, *Équations rugueuses linéaires*, October 2015, Laure Coutin (Université Toulouse III) and A. Lejay.
- PhD in progress: Baldwin Dumortier, *Contrôle acoustique des éoliennes*, October 2014, M. Deaconu and E. Vincent (EPI MULTISPEECH).
- PhD in progress: Benoît Henry, *Modeling Evolutionary Relationships Between Three-Dimensional Protein Structures*, October 2013, N. Champagnat, D. Ritchie (EPI ORPAILLEUR).
- PhD in progress: Radu Maftai, *A stochastic approach to colloidal particle agglomeration in turbulent flows*, November 2014, M. Bossy.
- PhD in progress: Khaled Salhi, *Estimation of Risk in Finance*, October 2013, M. Deaconu and A. Lejay.
- PhD in progress: Milica Tomasevic, *Stochastic approaches to Keller–Segel equations*, October 2015, D. Talay.

### 10.2.3. Juries

- M. Bossy served as a referee for the Ph.D. theses of Bénédicte Jourdier, *Ressource éolienne en France métropolitaine : méthodes d'évaluation du potentiel, variabilité et tendances*, École Polytechnique, September 2015, and of Lucie Rottner, *Reconstruction de l'atmosphère turbulente à partir d'un lidar Doppler 3D et étude du couplage avec Meso-NH*, Université Toulouse III Paul Sabatier, December 2015.
- M. Bossy served as an examiner for the Ph.D. thesis of M. Michaël Benguigui, *Valorisation d'option américaine et Value At Risk de portefeuille sur cluster de GPUs/CPUs hétérogène*. Université de Nice, August 2015.

- N. Champagnat served as a referee for the Ph.D. theses of Cristobal Quiniao, *Mathematical modeling in Neuroscience: collective behavior of neuronal networks and the role of local homeoproteins diffusion in morphogenesis*, UPMC, June 2, 2015, and of Marie-Noémie Thai, *Processus de Fleming-Viot, distributions quasi-stationnaires et marches aléatoires en interaction de type champ moyen*, Univ. Paris-Est, November 27, 2015.
- A. Lejay served as an examiner for the Ph.D. thesis of Thi Quynh Giang Nguyen, *Méthodes de Monte Carlo pour les diffusions discontinues : application à la tomographie par impédance électrique*, Université de Toulon, October 2015; of Willian Minvielle, *Some problems related to statistical error in stochastic homogenization*, Université Paris-Est, October, 2015; of Lionel Lenôtre, *Étude et simulation de processus de diffusion biaisés*, Université Rennes 1, November, 2015 and of Johann Nicod, *Approximation numérique par chaos de Wiener de quelques EDPS*, Université Paris-Est, December 2015.
- D. Talay served as an examiner for the HdR of Nicolas Champagnat (see above) and the Ph.D. theses of Lorick Huang, *EDS dirigées par des processus stables. Méthode parametrix pour des estimées de densités et application aux algorithmes stochastiques*, Université Paris Diderot Sorbonne Paris Cité, July 2015, and of Athena Picarelli, *Sur des problèmes de contrôle stochastique avec contraintes sur l'état*, Ecole Polytechnique, April 2015. He also served as a referee for the Ph.D. thesis of Clément Rey, *Etude et Modélisation d'équations différentielles stochastiques*, Paris-Est university, December 2015.

### 10.3. Popularization

- M. Deaconu gave an interview for a paper in Eureka Lorraine. URL : <http://eureka.lorraine.eu/jahia/Jahia/pid/1968?actu=23647>

## ABS Project-Team

# 8. Dissemination

## 8.1. Promoting Scientific Activities

### 8.1.1. Scientific Events Organisation

#### 8.1.1.1. General Chair, Scientific Chair

Together with J. Cortés (LAAS/CNRS, Toulouse), and C. Robert (IBPC/CNRS, Paris), we launched and have been organizing the Winter Schools series *Algorithms in Structural Bio-informatics*. These schools are meant to train PhD students and post-docs on advanced algorithmic techniques in structural biology. The 2015 Edition, who took place at the CNRS center in Cargèse, focused on *Sampling bio-molecular systems*, see <http://algosb.galaxy.ibpc.fr/>.

### 8.1.2. Scientific Events Selection

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

F. Cazals was member of the following program committees:

- Symposium On Geometry Processing

### 8.1.3. Invited Talks

– F. Cazals gave the following invited talks:

- *Energy Landscapes: Sampling, Analysis, and Comparison*, Max-Planck Institute for Solid State Research, Stuttgart, Germany. November 2015.
- *Beyond Two-sample-tests: Localizing Data Discrepancies in High-dimensional Spaces* GUDHI workshop on topological data analysis, Porquerolles, France. October 2015.
- *Exploring and modeling energy landscapes*, University Chemical Laboratories, Cambridge University, UK. February 2015.

– D. Mazaauric gave the following invited talks:

- *Mass Transportation Problems with Connectivity Constraints and Energy Landscape Comparison*, Laboratoire d'Informatique Fondamentale de Marseille. March 2015.
- *Representation of simplicial complexes*, Winter School on Algorithmic Geometry of Triangulations, Inria Sophia Antipolis - Méditerranée. January 2015.

### 8.1.4. Leadership within the Scientific Community

– F. Cazals:

- 2010-.... Member of the steering committee of the *GDR Bioinformatique Moleculaire*, for the *Structure and macro-molecular interactions* theme.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

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

Master: F. Cazals, *Algorithmic problems in computational structural biology*, 24h, Master of Science in Computational Biology from the University of Nice Sophia Antipolis, France, see <http://cbb.unice.fr>.

### 8.2.2. Supervision

**(PhD thesis, defended, November 2015)** A. Lhéritier, *Nonparametric methods for learning and detecting multivariate statistical dissimilarity*, University of Nice Sophia Antipolis. Advisor: F. Cazals.

**(PhD thesis, defended, May 2015)** D. Agarwal, *Topics in mass spectrometry based structure determination*, University of Nice Sophia Antipolis. Advisor: F. Cazals.

**(PhD thesis, ongoing)** C. Roth, *Modeling the flexibility of macro-molecules: theory and applications*, University of Nice Sophia Antipolis. Advisor: F. Cazals.

**(PhD thesis, ongoing)** S. Marillet, *Modeling antibody - antigen complexes*, University of Nice Sophia Antipolis. The thesis is co-advised by F. Cazals and P. Boudinot (INRA Jouy-en-Josas).

**(PhD thesis, ongoing)** R. Tetley, *Structural alignments: beyond the rigid case*, University of Nice Sophia Antipolis.

**(PhD thesis, ongoing)** A. Chevalier, *Sampling biomolecular systems*, University of Nice Sophia Antipolis.

### 8.2.3. Juries

– F. Cazals:

- Mathilde Le Boudic-Jamin, University of Rennes 1, December 2015. Rapporteur on the PhD thesis *Similarités et divergences, globales et locales, entre structures protéiques*. Advisor: R. Andonov.
- Nathan Desdouits, University Pierre et Marie Curie / Institut Pasteur Paris, May 2015. Rapporteur on the PhD thesis *Concepts et méthodes d'analyse numérique de la dynamique des cavités au sein des protéines applications à l'élaboration de stratégies novatrices d'inhibition*. Advisors: Michael Nilges and Arnaud Blondel.
- Petr Popov, University of Grenoble, January 2015. Committee member. *New methods for the prediction of protein - protein interactions at the structural level*. Advisor: Sergei Grudinin.

## 8.3. Popularization

**Dorian Mazaauric.** Dorian is a member of the group of Médiation et Animation des MATHématiques, des Sciences et Techniques Informatiques et des Communications (MASTIC), Inria Sophia Antipolis - Méditerranée. He participated to the following events:

- 12-16/10/2015: Fête de la Science at collège Yves Montand, Vinon-sur-Verdon. *Graphes et algorithmes pour tous*. Organized by Institut Esope 21.
- 13/10/2015: Conference at collège Yves Montand, Vinon-sur-Verdon (avec Frédéric Havet, COATI project-team). *Présentation du métier de chercheur*. Organized by Institut Esope 21.
- 10-11/10/2015: Village des sciences et de l'innovation au Palais des Congrès d'Antibes Juan-les-Pins. Fête de la Science 2015. *Graphes et algorithmes pour tous*.

- 17/06/2015: Stage MathC2+ à Inria Sophia Antipolis - Méditerranée. *Théorie des graphes et algorithmique*.
- 18/03/2015: Conference at lycée Henri Matisse de Vence. *La théorie des graphes et ses applications dans les réseaux*. Dans le cadre du dispositif régional "Science Culture".
- 17/12/2015: Presentation at école élémentaire Sartoux, Sophia Antipolis (classe de CM2). *La magie des graphes et du binaire, algorithmes et jeux*. This presentation is part of the cycle ASTEP (Accompagnement en Sciences et Technologies à l'École Primaire).
- 14/12/2015: Presentation at école élémentaire de Montaleigne, Saint-Laurent-du-Var (five classes). *La magie des graphes et du binaire, algorithmes et jeux*. This presentation is part of the cycle ASTEP (Accompagnement en Sciences et Technologies à l'École Primaire).

## ASCLEPIOS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- **X. Pennec** was general chair of the Mathematical Foundations of Computational Anatomy (MFCA 2015) workshop, which was held in conjunction with MICCAI at Munich, Germany, on October 9, 2015.

#### 9.1.1.2. Member of organizing committees

- **M. Sermesant** was a co-chair of the MICCAI 2015 Workshop Statistical Atlases and Computational Models of the Heart (STACOM 2015), which was held in Munich, Germany, on October 9, 2015.

### 9.1.2. Scientific events selection

#### 9.1.2.1. Member of conference program committees

- **X. Pennec** was area chair of the International Symposium on Biomedical Imaging (ISBI 2015, New-York, NY, USA), and program committee member of the conference Geometric Sciences of Information (GSI'2015, Palaiseau, France).
- **H. Delingette** was program committee member of the conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2015), the FIMH 2015 conference, and the conference on Virtual Reality Interactions and Physical Simulation (VRIPHYS'15). He was an associate editor for the conference IEEE EMBC 2015.

#### 9.1.2.2. Reviewer

- **H. Delingette** was a reviewer for the International Symposium on Biomedical Imaging (ISBI'15), the international conference on computer-aided interventions (IPCAI'15) the conference on Virtual Reality Interactions and Physical Simulation (VRIPHYS'15), the conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2015), the International Conference on Computer Vision (ICCV 2015), the International Conference on Computer Vision and Pattern Recognition (CVPR 2015).
- **M. Sermesant** was a reviewer for the MICCAI 2015 and FIMH 2015 conferences.
- **X. Pennec** was a reviewer for the 24th biennial international conference on Information Processing in Medical Imaging (IPMI 2015) and the conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2015).

### 9.1.3. Journal

#### 9.1.3.1. Member of editorial boards

- **N. Ayache** is the co-founder and the Co-Editor in Chief with J. Duncan (Professor at Yale) of *Medical Image Analysis*<sup>0</sup>. This scientific journal was created in 1996 and is published by Elsevier.
- **N. Ayache** is Associated Editor of *IEEE Transactions on Medical Imaging*<sup>0</sup> and a member of the editorial board of the following journals: *Medical Image Technology* (Japanese journal) and *Journal of Computer Assisted Surgery* (Wiley).
- **H. Delingette** is a member of the editorial board of the journal *Medical Image Analysis* (Elsevier).
- **I. Strobant** is editorial coordinator for *Medical Image Analysis*, Elsevier (since october 2001) and editorial assistant for *IEEE Transactions on Medical Image Analysis* (since october 2001).
- **X. Pennec** is a member of the editorial board of the journal *Medical Image Analysis* (Elsevier), of the *International Journal of Computer Vision* (Springer), of the *SIAM Journal on Imaging Sciences (SIIMS)*, and of the *Journal of Mathematical Imaging and Vision (JMIV)*.

<sup>0</sup>[http://www.elsevier.com/wps/find/journaleditorialboard.cws\\_home/620983/editorialboard](http://www.elsevier.com/wps/find/journaleditorialboard.cws_home/620983/editorialboard)

<sup>0</sup><http://www.ieee-tmi.org/>



### 9.1.3.2. Reviewer - Reviewing activities

- **H. Delingette** was a reviewer for the following journals : *Medical Image Analysis* (Elsevier), *IEEE Transactions in Medical Imaging*, *IEEE Transactions in Biomedical Engineering*, *Computer Vision and Image Understanding*, *Biomedical Engineering*, *Computers in Biology and Medicine* and *Journal of Fluids and Structures*.
- **X. Pennec** was a reviewer for the following journals : *Medical Image Analysis (MedIA)*, *IEEE Transactions in Medical Imaging (TMI)*, *NeuroImage (NIMG)*, *IEEE Transactions on Pattern Analysis (PAMI)*, *International Journal of Computer Vision (IJCV)*, *Journal of mathematical imaging and vision (IJCV)*, *SIAM journal on Imaging Sciences (SIIMS)* and *International Statistical Review (ISR)*.
- **M. Sermesant** was a reviewer for the following journals: *Journal of the American College of Cardiology*, *IEEE Transactions on Medical Imaging*, *IEEE Transactions on Biomedical Engineering*, *Medical Image Analysis* and *Computers in Biology and Medecine*.

### 9.1.4. Invited talks

- **Nicholas Ayache** gave the following invited lectures:
  - Symposium "Les savoirs de l'ENS", Ecole Normale Supérieure, Paris 2015.
  - First conference CYBERMED, Juan-les-Pins, 2015.
  - Forum Chili-France, La société intelligente, Paris 2015.
  - Conference ENIT organized by the Collège de France in Tunisia, Tunis, 2015.
  - Journées françaises des doubles cursus, Paris 2015.
  - Institut du cerveau et de la moelle épinière, Hôpital de la Pitié Salpêtrière, Paris 2015.
  - Keynote at the Multidisciplinary Computational Anatomy Initiative, Fukuoka, Japan 2015.
- **Hervé Delingette** gave the following invited lectures at the:
  - IHU Strasbourg Scientific Day on June 3rd in Strasbourg.
  - Biomed Summer School in Paris in July 2015.
  - Metice workshop in Bordeaux in September 2015.
- **Xavier Pennec** gave the following invited lectures:
  - Schrödinger institute Programme on Infinite-Dimensional Riemannian Geometry with Applications to Image Matching and Shape Analysis, Vienna, February 2015: a one week course and one workshop presentation.
  - 2015 Joint Mathematics Meetings (AMS/MAA): AMS Special Session on Differential Geometry and Statistics, San Antonio, Texas, January 2015.
  - Center for Health Sciences, SRI international, Menlo Park, USA, June 4 2015.
  - Statistics Department Seminar, Stanford University, April 21, 2015.
- **Maxime Sermesant** gave an invited lecture at Computing in Cardiology Conference, in Nice September 2015.

### 9.1.5. Leadership within the scientific community

- **Xavier Pennec** is a member of the MICCAI Society Board of Directors from 2012 to 2015.
- **Nicholas Ayache** is a member of the French Academy of Sciences in the section of Mechanics and Informatics.

### 9.1.6. Scientific expertise

- **Nicholas Ayache** was invited in Tokyo, Japan in February 2015 to evaluate a national program on the "Multidisciplinary Computational Anatomy Initiative" funded by the MEXT.

- **Xavier Pennec** was a member of the Member of the panel for the joint FLAG-ERA Joint / HBM flagship Transnational Call (JTC), 2015.
- **H. Delingette** was an evaluator for the ECOS Sud France-Chili program. He was involved in the redaction of the second application of the Université Côte d'Azur to the IDEX bid.
- **M. Sermesant** is a member of the Medical Simulation Working Group of Aviesan. He organized two hackfests for the medInria software.

### 9.1.7. Research administration

- **Nicholas Ayache** has been a member of the "Comité de la Recherche Biomédicale en Santé Publique (CRBSP)" of the Nice hospitals since 2008. He has been a member of the Research Council of the "Fondation pour la Recherche Médicale (FRM)" since January 2015.
- **Xavier Pennec** is a member of the Doctoral follow-up Committee (CSD) at Inria Sophia Antipolis and in charge of the relationships of Inria-Sophia with the Nice University Hospital (CHU).
- **H. Delingette** is a member of the local committee in charge of the scientific selection of visiting scientists (Comité NICE) and the local committee on the immersive platform.
- **M. Sermesant** is a member of the local committee in charge of the selection of funding for courses and conferences organisation and of the local organisation for scientific presentations in high schools.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

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

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

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

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

### 9.2.2. PhD defended

Vikash Gupta, *Diffusion tensor imaging of the brain: towards quantitative clinical tools*, Nice Sophia Antipolis University, March 2015.[5]

Thomas Benseghir, *3D/2D Coronary Registration for Interventional Cardiology Guidance*, Nice Sophia Antipolis University, July 2015.[2]

Rocio Cabrera Lozoya, *Radio frequency ablation planning for cardiac arrhythmia treatment through biophysical modelling and machine learning approaches*, Nice Sophia Antipolis University, September 2015.[3]

Chloé Audigier, *Modeling radio-frequency ablation for the planning of abdominal tumors resection*, Nice Sophia Antipolis University, October 2015.[1]

Loic Le Folgoc, *Biophysical Personalization of Cardiac Models based on Machine Learning*, Nice Sophia Antipolis University, November 2015.[6]

Nicolas Cordier, *Simulation and Analysis and Simulation of Brain Tumors Images*, Nice Sophia Antipolis University, December 2015.[4]

Jan Margeta, *Indexation of time-series 4D cardiac MR images*, Ecole des Mines de Paris, December 2015.[7]

### 9.2.3. PhD in progress

Pietro Gori, *Statistics on the brain connectivity of patients with neurological diseases*, University of Paris. Started in 2012. Thesis in collaboration with the Aramis project-team, co-directed by O. Colliot, S. Durrleman and N. Ayache. Defended on January 8, 2016.

Mehdi Hadj-Hamou, *Biophysical modeling of the anatomical evolution of the brain*, Nice Sophia Antipolis University. Started in September 2012. Co-directed by N. Ayache and X. Pennec.

Bishesh Khanal, *Modeling the atrophy of the brain in Alzheimer's disease*, Nice Sophia Antipolis University. Started in November 2012. Co-directed by X. Pennec and N. Ayache.

Nina Miolane, *Geometric Statistics in Computational Anatomy: Template Estimation and Subspace Learning in Manifolds, Lie groups and Stratified Spaces*, Nice-Sophia Antipolis University. Started in November 2013. Directed by X. Pennec.

Anant Vemuri, *Augmented reality for image-guided surgery*, Nice Sophia Antipolis University. Started in 2012. Co-directed by S. Nicolau and N. Ayache.

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

Sophie Giffard-Roisin, *Non-invasive Estimation of Cardiac Electrophysiological Parameters*, Nice Sophia Antipolis University. Started in 2014. Co-directed by N. Ayache and M. Sermesant.

Roch Molléro, *Uncertainty quantification in personalized electromechanical models. Application to cardiomyopathies and obesity*, Nice Sophia Antipolis University. Started in 2014. Co-directed by N. Ayache and M. Sermesant.

Thomas Demarcy, *Segmentation and anatomic variability of the cochlea and other temporal bone structures from medical images*, Nice Sophia Antipolis University. Started in 2014. Directed by H. Delingette.

Loïc Devilliers, *Consistency of statistics on infinite dimensional orbifolds – Applications to computational anatomy*, Nice Sophia Antipolis University. Started in October 2015. Co-directed by X. Pennec and St. Allassonnière.

Raphaël Sivera, *Analyse statistique de l'évolution de structures morphologiques partir de séquences temporelles d'IRM*, Nice Sophia Antipolis University. Started in October 2015. Co-directed by N. Ayache and H. Delingette.

Pawel Mlynarski, *Tumor segmentation based on Random Forests and Convolutional Neural Networks trained on partially annotated data*, Nice Sophia Antipolis University. Started in December 2015. Co-directed by N. Ayache and H. Delingette.

#### 9.2.4. Juries

N. Ayache was co-supervisor of the PhD theses of Vikash Gupta (U. of Nice Sophia Antipolis), Rocío Cabrera Lozoya (U. of Nice Sophia Antipolis), Chloé Audigier (U. of Nice Sophia Antipolis), Loic Le Folgoc (U. of Nice Sophia Antipolis), Nicolas Cordier (U. of Nice Sophia Antipolis) and Jan Margeta (Ecole des Mines de Paris).

Hervé Delingette was co-supervisor of the PhD theses of Chloé Audigier (U. of Nice Sophia Antipolis), Loic Le Folgoc (U. of Nice Sophia Antipolis) and Nicolas Cordier (U. of Nice Sophia Antipolis). He was a reviewer in the PhD thesis committee of Vasyl Mykhalchuk (U. of Strasbourg) and of Romane Gauriau (Telecom ParisTech). He was a member of the PhD thesis committee of Alexandre Abraham (U. of Paris-Saclay) and Jan Margeta (Ecole des Mines de Paris).

Xavier Pennec was examiner of the HDR of Laurence Rouet (U. Paris-Descartes) and of the PhD thesis committee of Thomas Benseghir (U. of Nice Sophia Antipolis). He was co-supervisor of the PhD thesis of Vikash Gupta (U. of Nice Sophia Antipolis).

Maxime Sermesant was co-supervisor of the PhD thesis of R. Cabrera Lozoya (U. of Nice Sophia Antipolis).

### 9.3. Popularization

Maxime Sermesant gave presentations about research and medical imaging at Lycée Bristol in Cannes.

## ATHENA Project-Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

#### 9.1.1. Scientific events organisation

##### 9.1.1.1. General chair, scientific chair

- R. Deriche is Adj. Director at the Doctoral School EDSTIC (Website: <http://edstic.i3s.unice.fr/index.html>)
- T. Papadopoulo (since september 2011) is the coordinator of the Master of Science in Computational Biology and Biomedicine from University of Nice Sophia Antipolis (Website: <http://cbb.unice.fr>). The scientific goal of this program is to focus on the human being from different perspectives (understanding and modeling functional aspects or interpreting biomedical signals from various devices) and at different scales (from molecules to organs and the whole organism).

#### 9.1.2. Scientific events selection

##### 9.1.2.1. Member of the conference program committees

- R. Deriche is member of the conference Programme Committee (PC) of the International Symposium on Biomedical Imaging (ISBI), member of the PC of MICCAI 2015 Workshop on Computational Diffusion MRI and member of the PC of MFCA 2015 5th MICCAI workshop on Mathematical Foundations of Computational Anatomy.
- D. Wassermann is member of the conference Program Committee (PC) of Medical Image Computing and Computed Assisted Intervention (MICCAI 2015), and Information Processing in Medical Imaging (IPMI 2015).
- M. Clerc is a member of the Program Committee of BaCI 2015, and a member of the Scientific Committee of the Sophia Antipolis Colloquium.
- T. Papadopoulo is member of the PC of GRETSI 2015 and of MICCAI 2015 Workshop on Computational Diffusion MRI.

##### 9.1.2.2. Reviewer

- R. Deriche serves several international conferences (Isbi, MICCAI, ISMRM..) and international workshops ( CD-MRI Miccai, MFCA Miccai..)
- D. Wassermann serves several international conferences (ISBI, MICCAI, IPMI, ...) and international workshops ( CD-MRI Miccai, ..)
- T. Papadopoulo served the international conferences: (ICIP, ISBI, EUSIPCO. NER, VISAPP).

#### 9.1.3. Journal

##### 9.1.3.1. Member of the editorial boards

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

##### 9.1.3.2. Reviewer - Reviewing activities

- R. Deriche serves several international journals (NeuroImage, IEEE Transactions on Medical Imaging, Magnetic Resonance in Medicine, Journal of Mathematical Imaging and Vision, Medical Image Analysis Journal,...).
- D. Wassermann serves several international journals (NeuroImage, IEEE Transactions on Medical Imaging, Human Brain Mapping, Medical Image Analysis Journal,...).
- T. Papadopoulo serves several international journals (IEEE Transactions on Biomedical Engineering, Frontiers Neuroscience, Transactions on Neural Systems & Rehabilitation Engineering, International Journal on Computer Vision,...).

#### 9.1.4. Invited talks

- R. Deriche gave an invited talk at USTHB on September 20th, 2015.
- D. Wassermann gave the following invited talks:
  - MedICSS Summer School, London, UK, 2015: Gaussian Processes: Sound Bases for Stochasticity in Medical Imaging
  - Microbiology Department, University of Buenos Aires, Argentina, 2015: Diffusion MRI-based microscopy, applications to Neuroscience
  - ICM, Paris, France 2015: Automated in vivo dissection and microstructure-based tractography analyses of cerebral white matter structures
  - Universidad de Valladolid, Valladolid, Spain 2015: Automated in vivo dissection and microstructure-based tractography analyses of cerebral white matter structures
  - UCL, London, UK 2015: Automated in vivo dissection and microstructure-based tractography analyses of cerebral white matter structures
- M. Clerc gave the following invited talks:
  - TedX Cannes conference, March 2015.
  - Connected Health, Monaco, June 2015.
  - Keynote at EUSIPCO 2015 Conference, Nice, September 2015.
  - Invited talk at BaCI conference, Utrecht, September 2015.
  - ENS Lyon Colloquium, October 2015.
  - Horizon Maths (IBM Bois Colombes), December 2015.

#### 9.1.5. Leadership within the scientific community

The Inria Project-Lab **BCI-LIFT** was created in 2015, to foster the work of 8 Inria teams and 2 more teams outside Inria on Brain Computer Interfaces Learning, Interaction, Feedback and Training. It is coordinated by Maureen Clerc.

BCI-LIFT was responsible for setting up a **Brain Computer Interface Challenge** which attracted 260 participants. The results of the Challenge were presented at the IEEE EMBS Conference on Neural Engineering in Montpellier, April 2015.

#### 9.1.6. Scientific expertise

- R. Deriche serves several international journals (NeuroImage, IEEE Transactions on Medical Imaging, Magnetic Resonance in Medicine, Journal of Mathematical Imaging and Vision, Medical Image Analysis Journal,...).
- D. Wassermann serves as a reviewer for the following scientific funding institutions: French ANR, Dutch Organisation for Scientific Research, Argentine Agencia Nacional de Promocion Cientifica y Tecnologica.

#### 9.1.7. Research administration

- R. Deriche is Chair of the 2015 and 2016 Inria Sophia Antipolis recruitment committees

- R. Deriche is member of 4 Scientific Councils: University of Nice Sophia Antipolis, ITMO ITS (Institut des Technologies pour la Santé), Olea Medical Company (<http://www.olea-medical.com/>) and the GIS UNS-ENSL-CNRS-Inria.
- R. Deriche is member of the Administration Council of AFRIF (Association Française pour la Reconnaissance et l'Interprétation des Formes) and member of the Academic Council of UCA (Nice Côte d'Azur University)
- M. Clerc is Déléguée Scientifique Adjointe for the Inria Sophia Antipolis Research Center.
- M. Clerc is a member of the Evaluation Committee of Inria.
- M. Clerc is a member of the Commission Scientifique Interne of Inria.
- M. Clerc is a deputy member of the Administration Council of Université Côte d'Azur.
- M. Clerc was a member of the ENS Rennes Professor recruitment committee in 2015.
- M. Clerc was a member of the University of Nice, JAD laboratory Professor recruitment committee in 2015.
- T. Papadopoulo is a member of the Inria committee for software development.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Master: R. Deriche, Variational approaches and Geometrical Flows for Computational Brain Imaging, 36 ETD, M2 "Computational Biology and Biomedicine", University of Nice Sophia Antipolis, France.
- Master: R. Deriche, Advanced Image Processing Techniques, 12 ETD, M1 International CBB & Ubinet, University of Nice Sophia Antipolis, France.
- Master: R. Deriche, Computational Image Processing, Analysis and Artificial Vision, 18 ETD, Institut Telecom / Telecom SudParis, Evry, France.
- Master: T. Papadopoulo, *3D Computer Vision*, 12 ETD, M1 International Ubinet, University of Nice Sophia Antipolis, France.
- Master: T. Papadopoulo, *Inverse Problems in Brain Functional Imaging*, 36 ETD, M2 "Computational Biology and Biomedicine", University of Nice Sophia Antipolis, France.
- Master: T. Papadopoulo, *Inverse problems for brain functional imaging*, 24 ETD, M2, Mathématiques, Vision et Apprentissage, ENS Cachan, France.

### 9.2.2. Supervision

- PhD defended April 14, 2015: Sebastian Hitziger, "MEEG signal processing", started Nov. 2011, Supervisors: Théodore Papadopoulo & Maureen Clerc.
- PhD in progress: Rutger Fick, "Microstructure Recovery via dMRI", started Oct. 2013, Université Nice Sophia Antipolis. Supervisor: Rachid Deriche.
- PhD in progress: Kai Dang, "Modeling and characterizing electrical conductivity for cochlear implantation", started Dec. 2013, Université Nice Sophia Antipolis. Supervisor: Maureen Clerc.
- PhD in progress: Gabriel Girard, "fMRI & dMRI", started Sept. 2012, Supervisors: Rachid Deriche & Maxime Descoteaux (University of Sherbrooke, CA).
- PhD in progress: Mouloud Kachouane, "Invariants and biomarqueurs in dMRI", started Oct. 2012, Supervisors: Rachid Deriche & L. Boumghar (USTHB, Algiers).
- PhD in progress: Thinhinane Megherbi, "HARDI & High Order Tensors", started Sept. 2011, Supervisors: Rachid Deriche & L. Boumghar (USTHB, Algiers)
- PhD in progress: Marco Pizzolato, "Diffusion & Perfusion MRI: From bench to bedside" started Dec. 2013, Université Nice Sophia Antipolis. Supervisor: Rachid Deriche.

- PhD in progress: Brahim Belaoucha, “Using diffusion MR information to reconstruct networks of brain activations from MEG and EEG measurements”, Université Nice Sophia Antipolis, started Oct. 2013, Supervisor: Theo Papadopoulo.
- PhD in progress: Guillermo Gallardo Diez, “Connectivity-Based Brain Parcellation”, started Nov. 2015, Université Nice Sophia Antipolis. Supervisors: D. Wassermann/ R. Deriche
- PhD in progress: Nathalie Gayraud, “Structured Dictionary Learning”, University Nice Sophia Antipolis, started November 2015, supervisor: Maureen Clerc.
- Master: Guillermo Gallardo Diez, “Connectivity-Based Brain Parcellation”, Supervised by D. Wassermann.

### **9.2.3. Juries**

- R. Deriche participated in the PhD jury of Jianfei Yang (Delft University, Eindhoven, Sept. 2015).
- M. Clerc participated in the PhD jury of Juliette Spinnato (Aix-Marseille Université, July 2015).
- M. Clerc participated in the PhD jury of Ronan Hamon (ENS Lyon, Oct. 2015).
- M. Clerc participated in the PhD jury of Alexandre Fouchard (CEA LETI, Nov. 2015).
- D. Wassermann participated in the PhD jury of Ariel Hernan Curiale (Universidad de Valladolid, Spain, June 2015).

## **9.3. Popularization**

Maureen Clerc gave a conference at the TedX Cannes event in March 2015 (Youtube video link: <https://youtu.be/z5AO-603AmE>).

## **BIOCORE Project-Team**

# **10. Dissemination**

## **10.1. Promoting Scientific Activities**

### ***10.1.1. Scientific events selection***

#### *10.1.1.1. Members of the conference program committee*

J.-L. Gouzé is a member of the program committee for the conference BIOMATH, held in Sofia (Bulgaria). He is in the editorial committee of the proceedings of the conference in honor of E. Benoît (La Rochelle 2013), and in the scientific committees of several summer schools.

O. Bernard is in the technical committee of the Computer Applied to Biotechnology (CAB) conferences, and of the FOSBE conference (Foundations of Systems Biology in Engineering). He is in the scientific committee of the French conference "Stic et Environnement".

#### *10.1.1.2. Reviewers*

All BIOCORE members have been reviewers for the major 2015 conferences in our field: CDC, ECC, MED,...

### ***10.1.2. Journal***

#### *10.1.2.1. Members of the editorial board*

M. Chaves is an Associated Editor of SIAM Journal on Applied Dynamical Systems (SIADS), since January 2015

#### *10.1.2.2. Reviewers*

All BIOCORE members have been reviewers for the major journals in our field: Automatica, IEEE Transactions on Automatic Control, Journal of Mathematical Biology, Mathematical Biosciences, New Phytologist,...

### ***10.1.3. Invited talks***

O. Bernard gave a lecture on control and observation of anaerobic digestion in the framework of the 14th World Congress on Anaerobic Digestion (Vina del Mar, December, 13th).

O. Bernard was invited to give a conference on microalgae at Ecole Centrale de Paris ("Biotechnological challenge") "Use of microorganisms for biofuel production" (January, 22nd, 2015).

O. Bernard was invited to give a conference for the 50th anniversary of the Society for Energy from Ardeche (June, 1st, 2015).

O. Bernard gave a presentation at the EABA conference "Combining photovoltaic panels and microalgae: How to deflect the excess of solar energy to ensure optimal conditions of light and temperature for growth" (Lisbon, December, 2nd)

### ***10.1.4. Scientific expertise***

O. Bernard is a member of the scientific committee of the companies Fermentalg and BioEnTech.

J.-L. Gouzé was in several evaluation committees: Stic Amsud, INSEP...

### ***10.1.5. Research administration***

J.-L. Gouzé is in the Inria committee supervising the doctoral theses, and a member of the scientific committee of Labex SIGNALIFE of the University of Nice-Sophia-Antipolis, and of COREBIO PACA. He is a member of the board of the SFBT (French Speaking Society for Theoretical Biology).



M. Chaves is a member of the COST-GTRI (working group on International Relations at Inria's council for scientific and technological orientation). The group is charged with evaluating Inria's Associated Teams as well as some project proposals (EuroMed 3+3), and ERCIM post-docs. M. Chaves is a member of the CLHSCT (local committee for the safety of working conditions).

O. Bernard represents Inria at the ANCRE (Alliance Nationale de Coordination de la Recherche pour l'Energie), in the biomass committee. He is a member of the ADT (Technological Development Actions) at Inria.

S. Touzeau is an elected member of the scientific committee of the MIA departement at INRA (2011–2015). She is a member and a board member of the MBIA CSS (Specialised Scientific Commission), in charge of the research scientist evaluation at INRA (2011–2015). S. Touzeau was a member of a jury for the recruitment of junior research scientists at INRA in "Applied mathematics and computer science" (2 positions) and of a jury for the recruitment of a lecturer at Agroparistech in "mathematics applied to the analysis of deterministic models".

F. Grogard is a member of the NICE committee, which allocates post-doctoral grants and fundings for visiting scientists at Inria Sophia Antipolis. He is a member of the scientific committee of the doctoral school "Sciences de la Vie" at the University of Nice-Sophia Antipolis. F. Grogard is a member of the MBIA CSS since 2015.

L. Mailleret is the head of the M2P2 team (Models and Methods for Plant Protection) of ISA.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Bachelor: F. Grogard (45.5h ETD) and L. Mailleret (26h ETD), "Equations différentielles ordinaires et systèmes dynamiques", L3, 1st year Engineering in Modelling and Applied Mathematics, Polytech'Nice, Université of Nice Sophia Antipolis, France.

Bachelor: N. Bajeux (64h ETD), "Initiation to Scilab", L3, 1st year Engineering in Modelling and Applied Mathematics, Polytech'Nice, Université of Nice Sophia Antipolis, France.

Master: F. Grogard (21h ETD) and L. Mailleret (21h ETD), "Bio-Mathématiques", M1, 2nd year Engineering in Modelling and Applied Mathematics (eq. M1), Polytech'Nice, Université of Nice Sophia Antipolis, France.

Master: L. Mailleret (18h ETD) "Modélisation pour la biologie des populations et l'écologie". Université d'Oran.

Master: J.-L. Gouzé (9h ETD), M. Chaves (9h ETD), "Discrete and continuous approaches to model gene regulatory networks", Master of Science in Computational Biology (M2), University of Nice - Sophia Antipolis.

Master: J.-L. Gouzé (18h ETD), M. Chaves (12h ETD) "Modelling biological networks by ordinary differential equations", 4th year students, Génie Biologie, Polytech'Nice, University of Nice - Sophia Antipolis.

Master: O. Bernard (4.5h ETD), "Bioenergy from microalgae", M2, Master International Energy Management : alternatives pour l'énergie du futur, Ecole Nationale Supérieure des Mines de Paris, France.

Master: O. Bernard (18h ETD), "Modelling biotechnological processes", M2, Ecole Centrale de Paris, France.

Master: S. Touzeau (26.25h ETD), "Analyse de données", M1, 2nd engineering year in Génie Biologie, Polytech'Nice – Université Nice Sophia Antipolis, France.

O. Bernard together with F. Mairet and Q. Béchet supervised two projects for engineering school students. The first project involved 6 students of Ecole Nationale Supérieure des Mines de Paris (last year of engineering school, 1 week ("Combining photovoltaic panels and microalgae" ) and the second project involved three groups of 4 students from the Ecole Centrale de Paris (first year of engineering school), 4 months, to design a process with microalgae growing on a biofilm.

### 10.2.2. Supervision

PhD : I. Belgacem, "Modelling, analysis and control of biological networks", Univ. Nice, defended March 20, 2015. Supervisor: J.-L. Gouzé. [11]

PhD : H. Bonnefond, "Continuous improvement of microalgae for bioenergy production by selection pressure ", UPMC, defended December 9, 2015. Supervisors: A. Sciandra and O. Bernard. [12]

PhD : T. Morel Journal, "Stratégies d'introduction d'organismes dans un environnement spatialement structuré", Univ. Nice, defended December 9, 2015. Supervisors: E. Vercken (UMR ISA) and L. Mailleret. [13]

PhD in progress : G. Grimaud, "Controlled competition for the selection of microalgal species of interest ", since September 2012, Univ. Nice. Supervisors: O. Bernard, F. Mairet and S. Rabouille.

PhD in progress : C. Combe, "Effect of light spectrum and quality on microalgal growth ", since September 2012, UPMC. Supervisors: A. Sciandra, S. Rabouille and O. Bernard.

PhD in progress : D. Demory, "Impact of virus dynamics on microalgae mortality ", since September 2013, UPMC. Supervisors: A. Sciandra and O. Bernard.

PhD in progress : E. Rousseau, "Plant viruses adaptation to quantitative resistance: from the study of their impact on within-host viral evolutionary dynamics to their durable management in agroecosystems", since November 2012, Univ. Nice. Supervisors: F. Grogard, L. Mailleret, B. Moury, and F. Fabre (INRA Avignon).

PhD in progress : N. Bajoux, "Influence d'une densité dépendance dans les modèles impulsifs de dynamiques des populations", since October 2013, Univ. Nice. Supervisors: F. Grogard and L. Mailleret.

PhD in progress : S. Casagrande. "Analysis and control of cell growth models", since November 2013, Univ. Nice. Supervisors: J.-L. Gouzé and D. Ropers (Inria IBIS).

PhD in progress : S. Almeida. "Theoretical design of synthetic biological oscillators and their coupling", since October 2014, Univ. Nice. Supervisors: M. Chaves and F. Delaunay (Univ. Nice, iBV).

PhD in progress : M. Caña, "Characterization and modelling of a mixotrophic algae - bacteria ecosystem for waste recovery", since September 2015, University Montpellier. Supervisors: J.-P. Steyer and O. Bernard.

PhD in progress : M. Haond. "Causes et conséquences des fronts de colonisation poussés", since October 2015, Univ. Nice. Supervisors: E. Vercken (UMR ISA), L. Mailleret and L. Roques (UR BioSP).

### 10.2.3. Juries

L. Mailleret was in the PhD jury of T. Morel Journal "Stratégies d'introduction d'organismes dans un environnement spatialement structuré", Univ. Nice, defended December 9, 2015.

O. Bernard was reviewer for the PhD of G. Van Vooren "Influence of environmental conditions on microalgae lipids profile for biodiesel production", University of Nantes, January 23, 2015.

O. Bernard was in the PhD jury of H. Bonnefond "Continuous improvement of microalgae for bioenergy production by selection pressure ", UPMC, December 9, 2015.

M. Chaves was in the PhD jury of P. Trairatphisan "Studying signal transduction networks with a probabilistic Boolean network approach", University of Luxemburg, July 16, 2015.

M. Chaves was reviewer for the PhD of Christian Breindl "Identification, analysis and control of discrete and continuous models of gene regulation networks", University of Stuttgart, Germany, December 7, 2015.

M. Chaves was in the PhD jury of Vincent Picard "Réseaux de réactions : de l'analyse probabiliste à la réfutation", Université de Rennes, December 16, 2015.

J.-L. Gouzé was reviewer for the HDR of J.J. Tewa "Modélisation et Analyse Mathématique des Systèmes Complexes : Applications en Epidémiologie, Immunologie et Ecologie", Université du Havre, November 10, 2015.

J.-L. Gouzé was in the PhD jury of P.J. Meyer "Invariance and symbolic control of cooperative systems for temperature regulation in intelligent buildings", Université Grenoble Alpes, September 24, 2015.

J.-L. Gouzé was in the PhD jury of I. Belgacem, "Modelling, analysis and control of biological networks", Univ. Nice, March 20, 2015.

F. Mairet was reviewer for the PhD of Diego De Pereda "Methods for the treatment of uncertainty in dynamical systems: Application to diabetes", Universitat Politecnica de Valencia, July 23, 2015.

F. Mairet was in the PhD jury of Micaela Benavides "Parameter identification and robust state estimation of microalgae cultures", Université de Mons, Feb. 24, 2015.

O. Bernard is in the thesis committees of N. Giordano (University of Grenoble), Valeria Villanova (University of Grenoble) and Julie Laniau (Univ. of Rennes).

S. Touzeau is in the thesis committees of David Demory (UPMC, 2013–2016) and Eric Breton (Université de Nantes, 2013–2016).

### 10.3. Popularization

The activities related to microalgae have generated many articles in national newspapers (Le Monde, Nice Matin, La Principauté, ...), and broadcasts on national TV (France 3, France 2, Arte). Several articles were written by the team members to explain the hurdles and potential of microalgae [77].

Biocore received an award from the Alpes-Maritimes department for its activities in sustainable development. Moreover, Biocore took part to the COP21 Inria stand, where the challenges for the use of mathematics dedicated to microalgae were presented. Biocore was involved in the "Spring of Researchers" and in the "Fête de la Science", the latter through Stefano Casagrande in the framework of his regional grant.

We have also made a short movie to explain the advantages of our supervision software ODIN and to present the pilot photovoltaic greenhouses which will be developed within the ANR Purple Sun project.

S. Touzeau, L. Mailleret, and F. Grogard gave talks on the importance of modelling during the Modelling day of UMT Fiorimed.

F. Mairet gave a talk during the Mediterranean Days (Feb 20, 2015; <http://leat.unice.fr/MEDDAYS2015>), to present Biocore's activities to various students from Greece, Italy, Spain, Algeria, Morocco...

P. Bernhard has given conferences in highschool Guillaume Appolinaire, in Nice, on February 5 ("Des insectes et des mathématiques", optimal foraging theory) and March 17 ("Un paradoxe en trafic automobile", Wardrop equilibrium and Evolutionary Stable Strategies in evolutionary biology), and in highschool Marcel Pagnol, in Marseille, on April 3rd ("Game theory", for a class of Social and Economic Sciences).

## CASTOR Project-Team

## 7. Dissemination

### 7.1. Promoting Scientific Activities

#### 7.1.1. Scientific events organisation

##### 7.1.1.1. Member of the organizing committees

- Journées CASTOR, Valberg, 26-27 janvier 2015.
- Rencontre NTM (Nice-Toulon-Marseille), Porquerolles, may 2015. <http://champion.univ-tln.fr/NTM/NTM2015.html>
- Journées numériques, Décomposition de domaine, Librairie de calcul parallèle, Nice, april 2015. [http://math.unice.fr/~minjeaud/Donnees/JourneesNumeriques\\_15-1/index.php](http://math.unice.fr/~minjeaud/Donnees/JourneesNumeriques_15-1/index.php)

#### 7.1.2. Journal

##### 7.1.2.1. Member of the editorial boards

- J. Blum is in the editorial board of Journal of Scientific Computing
- J. Blum is in the scientific committee of mathematics and statistics of ISTE books

##### 7.1.2.2. Reviewer - Reviewing activities

R. Pasquetti is reviewer for several journals including

- Journal of Computational Physics
- Computers and Fluids

J. Blum is reviewer for several journals including

- Journal of Computational Physics
- Fusion Science and Technology
- Mathematics and Computers in Simulations

#### 7.1.3. Invited talks

- J. Blum, Journée Mathématiques X-UPS, Des problèmes à N corps aux Tokamaks, May 2015
- Holger Heumann, An enhanced approximate cloaking scheme for the conductivity problem, Mathematics for Imaging, ENS, Paris, France, October 20-24, 2015.
- Holger Heumann, Quasi-static Free-Boundary Equilibrium of Toroidal Plasma: Computational Methods and Applications, Modeling and Numerical Methods for Hot Plasmas II, Institut de Mathématiques de Bordeaux, France, October 12-14, 2015.
- Hervé Guillard, “Asymptotic theory of reduced MHD models for fusion plasmas” : Oberwolfach Workshop: Recent Developments in the Numerics of Nonlinear Hyperbolic Conservation Laws, 13 September - 19 September 2015. Oberwolfach, Germany.
- Jacques Blum, Control methods for the optimization of plasma scenarios in a Tokamak, 27th IFIP TC7 Conference, Sophia Antipolis, June 29 - July 3rd, 2015

#### 7.1.4. Leadership within the scientific community

- J. Blum is president of thematic committee 6 (Mathematics, algorithmic and computer science) of GENCI
- J. Blum represents the University of Nice Sophia Antipolis in Alliance Nationale de Coordination pour la Recherche pour l’Energie (ANCRE).

## 7.2. Teaching - Supervision - Juries

### 7.2.1. Teaching

Ecole d'ingénieur: D. Auroux, Optimisation, 66h, M1, Polytech Nice, Université de Nice Sophia Antipolis, France

Ecole d'ingénieur: D. Auroux, Méthodes numériques, 36h, M1, Polytech Nice Sophia, Université de Nice Sophia Antipolis, France

Master: B. Faugeras, Optimisation, 18h, M1, Université de Nice Sophia Antipolis, France

Master: J. Blum, Optimisation et contrôle, 20h, M2, Université de Nice Sophia Antipolis, France

Master: J. Blum, Optimisation, 18h, M1, Université de Nice Sophia Antipolis, France

Ecole d'ingénieur: J. Blum, Commande Optimale, 37.5h, M2, Polytech Nice Sophia, Université de Nice Sophia Antipolis, France

Ecole d'ingénieur: C. Boulbe, Analyse Numérique, 71.5h, L3, Polytech Nice Sophia Antipolis, France

Ecole d'ingénieur: C. Boulbe, Méthodes numérique - EDP, 66h, M1, Polytech Nice Sophia Antipolis, France

Licence: S. Minjeaud, Analyse Numérique, 18 h, L3, Université de Nice Sophia Antipolis, France.

Licence: S. Minjeaud, Eléments de calcul différentiel, 18 h, L3, Université de Nice Sophia Antipolis, France.

Master: S. Minjeaud, Méthodes numériques en EDP, 18 h, M1, Université de Nice Sophia Antipolis, France.

Master: B. Nkonga, Analyse Numérique, 40h, M1, Université de Nice Sophia Antipolis, France

Ecole d'ingénieur/Master: B. Nkonga, Méthode des éléments finis, 24h, M2, Polytech Nice Sophia, France

Ecole d'ingénieur/Master: B. Nkonga, Calcul Parallèle, 48h, M2, Polytech Nice Sophia, France

Licence: F. Rapetti, Analyse Numérique, 18h, L3, Université de Nice Sophia Antipolis, France

Licence: F. Rapetti, Analyse, 70h, L1, Université de Nice Sophia Antipolis, France

Licence: A. Sangam, Analyse, 40h, L1, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Mathématiques 2, 30h, L1, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Modélisation, 10h, L1, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Analyse, 50h, L2, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Méthodes Numériques et Formelles, 40h, L2, Université Nice Sophia Antipolis, France

Licence: A. Sangam, Mathématiques Appliquées, 50h, L3, Université de Nice Sophia Antipolis, France

Master: R. Pasquetti, module "Modèles de turbulence", 20 h, Masters MSC & IMAG2E, Université de Nice Sophia Antipolis, France.

### 7.2.2. Supervision

HdR : B. Faugeras, Modélisation, simulation numérique et problèmes inverses. Contributions en physique des plasmas de Tokamak, en écologie marine et autres travaux, Université de Nice Sophia Antipolis, 12 Oct. 2016

PhD : C. Le Touze, "Etude du couplage entre modèles à phase séparée et modèles à phase dispersée pour la simulation de l'atomisation primaire en combustion cryotechnique", Université de Nice Sophia Antipolis, Décembre 2015, Hervé Guillard.

PhD in progress : J. Costa, Modeling of Elms, Sep 2012 - Sep. 2016, B. Nkonga

PhD in progress : E. Estibals, “MHD réduite: Modélisation et Simulation numérique utilisant des éléments finis stabilisés d’ordre élevés sur un maillage courbe non-structuré. Application à l’injection de glaçons et de masse dans ITER”, 15th october 2013, Hervé Guillard, Afeintou Sangam.

### **7.2.3. Juries**

R. Pasquetti was referee for the thesis of:

- L. Cappanera, Nonlinear stabilization of magnetohydrodynamics equations and applications to multiphase flows, Université Paris-Saclay, Orsay (3-12-2015).
- R. Oguic, Une méthode multidomaine parallèle pour les écoulements incompressibles en géométrie cylindrique: application aux écoulements turbulents soumis à rotation, Aix-Marseille Université, Marseille (19-10-2015).
- C. Mimeau, Conception and implementation of a hybrid vortex penalization method for solid-fluid porous media: application to the passive control of incompressible flows, Université de Grenoble, Grenoble (07-07-2015).

J. Blum and H. Guillard were in the HDR jury of B. Faugeras.

B. Nkonga was referee in the PhD thesis jury of

- Jan Velechovsky (Prague),
- Fabien Rozard(Bordeaux)

B. Nkonga was in the PhD thesis jury of

- Xavier Lacoste (Bordeaux),
- Clément Le Touze(Nice),
- Matthias Mimault(Nice),
- Gauthier Brerhes(Nice).

## COFFEE Project-Team

### 8. Dissemination

#### 8.1. Promoting Scientific Activities

##### 8.1.1. *Journal*

###### 8.1.1.1. *Member of the editorial boards*

T. Goudon is founding editor and co-Editor in chief of SMAI-J. Computational Mathematics

##### 8.1.2. *Scientific expertise*

FONDECYT (Chili), CERG (Hong-Kong), National Evaluation and Foresight Agency (Espagne), FRS-FNRS (Belgique), ANR and AERES/HCERES.

##### 8.1.3. *Research administration*

Roland Masson is the head of the team PDE and Numerical Analysis of the laboratory J.A. Dieudonné.

Thierry Goudon is member of the Evaluation Committee of Inria. He is also member of Scientific Committees of CIRM and FSMP.

#### 8.2. Teaching - Supervision - Juries

##### 8.2.1. *Teaching*

Members of the team are faculties of University Nice Sophia Antipolis and they teach in all degrees of the University.

T. Goudon is vice-President of the national competition to hire teachers (agregation de mathematiques).

##### 8.2.2. *Supervision*

- PhD : Yumeng ZHANG, Modélisation et simulation des dispositifs de ventilation dans les stockages de déchets radioactifs, Université Nice Sophia Antipolis, 17/12/2015, encadrée par Roland Masson & Thierry Goudon

## DEMAR Project-Team

# 7. Dissemination

## 7.1. Promoting Scientific Activities

### 7.1.1. Scientific events organisation

#### 7.1.1.1. General chair, scientific chair

D. Guiraud is the conference chair of IEEE EMBS Neural Engineering Conference to be held in Montpellier in April 2015.

M. Hayashibe is Co-Chair of IEEE Technical Committee on Human Movement Understanding at Robotics and Automation Society with E. Demircan (Univ. of Tokyo), D. Kulic (Univ. of Waterloo) and D. Oetomo (Univ. of Melbourne). <https://sites.google.com/site/ieeehmhu/>

#### 7.1.1.2. Member of the organizing committees

D. Andreu is organizer of the working group on Control Architectures of Robots of the french GdR Robotique.

D. Andreu is co-organizer of the "action transversale inter-GdR" ALROB (Architectures Logicielles pour la ROBotique autonome et les systèmes adaptables) of the CNRS, implying the french GdR Robotique and GdR Génie de la Programmation et du Logiciel

### 7.1.2. Scientific events selection

All the team members are involved in reviewing articles for various conferences and journals both in engineering and biomedical fields.

#### 7.1.2.1. Chair of conference program committees

D. Andreu has been Chair of Corporate Partnerships & Exhibits, IEEE EMBS Conference on Neural Engineering (NERO15)

C. Azevedo Coste was program chair of IEEE EMBS Neural Engineering Conference held in Montpellier in April 2015.

#### 7.1.2.2. Member of the conference program committees

Daniel Simon was member of the RTNS'15 (Real Time Networks and Systems), ETFA'15 (Emerging Technologies and Factory Automation) and ICINCO'15 (International Conference on Informatics in Control, Automation and Robotics) int. conference program committees.

Mitsuhiro Hayashibe was Associate Editor of IEEE ICRA'16 (International Conference on Robotics and Automation) in charge of handling reviews on 6 papers in Oct.2015.

#### 7.1.2.3. Reviewer

Daniel Simon was reviewer for the CDC'15 (Ieee Conf. on Decision and Control).

### 7.1.3. Journal

#### 7.1.3.1. Member of the editorial boards

M. Hayashibe is member of the Editorial Board of the International Journal of Advanced Robotic Systems, in Rehabilitation Robotics. M. Hayashibe is Guest Associate Editor, Frontiers in Neuroprosthetics, Biosig- nal processing and computational methods to enhance sensory motor neuroprosthetics, with David Guiraud, Dario Farina, and Jose L. Pons. <http://journal.frontiersin.org/ResearchTopic/1639>

C. Azevedo Coste is Associate Editor of Paladyn Journal Behavioral Robotics (Assistive robotics).



### 7.1.3.2. Reviewer - Reviewing activities

The members of the team reviewed numerous papers for numerous international conferences. Daniel Simon was reviewer for the 'Simulation: Transactions of the Society for Modeling and Simulation International' journal.

### 7.1.4. Invited talks

Daniel Simon gave talks about "real-time simulation of hybrid systems" at ALROB meeting (LIP6, december 7) and about "Feedback control and slacken real-time" at the Inria meeting on probabilistic scheduling (Paris, december 8).

Mitsuhiro Hayashibe was invited to give a talk about "Personalized Neuroprosthetics and Personalized Home Rehabilitation" at Faculty seminar, Portsmouth University, UK on 11th March 2015.

Mitsuhiro Hayashibe was invited to give a talk about "Personalized Neuroprosthetics - Evoked EMG based Muscle Activation Closed-loop Control in Electrical Stimulation" at ERC (European Research Council) DEMOVE Symposium on 12th June 2015 at University Medical Center Gottingen, Germany (Prof. Dario Farina) <http://4th-demove-symposium.bccn.uni-goettingen.de/>.

Mitsuhiro Hayashibe was invited to give a talk about Personalized Neuroprosthetics and Synergetic Learning Control" at 3rd Symposium on Embodied- Brain Systems Science, University of Tokyo, Japan on 21th August 2015.

Christine AZEVEDO COSTE was invited by CEFIPRA (India) to a workshop "Understanding and facilitation of neural plasticity for enhancing post stroke recovery" in New Delhi in October 2015.

Christine AZEVEDO COSTE was invited to give a presentation during the "Simpósio Internacional em Eletroestimulação Aplicada a Tecnologia Assistiva" in Brasilia, Brazil in December 2015.

Christine AZEVEDO COSTE gave a talk during scientific seminar of the "Institut du Mouvement Humain et Cybernétique" (Montpellier, France) in November 2015 "Analyse, modélisation et assistance du mouvement".

Christine AZEVEDO COSTE gave a talk during "Journées scientifiques Inria", in June 2015 (Nancy, France) "Contrôle artificiel du mouvement humain : observer, interpréter, assister".

## 7.2. Teaching - Supervision - Juries

### 7.2.1. Teaching

Master : D. Andreu, Software engineering, real time OS, discrete event systems, networks, neuro-prosthesis, 200h, master and engineers degrees, Polytech Montpellier, France;

Master: Christine Azevedo Coste, Ethics in bioengineering research, 3h, Master STIC pour la Sant, Univ. Montpellier 2, France;

Master: Mitsuhiro Hayashibe, Neuroprotheses I and II (module coordinator), EMG and EEG signal processing and other rehabilitation modeling issues, 12h, Master STIC pour la Sante, Univ. de Montpellier, France;

Christine AZEVEDO COSTE gave a lecture in December 2015 at University of Brasilia, "Functional Electro-stimulation (FES) and artificial control of Human Motion".

### 7.2.2. Supervision

HDR : Mitsuhiro Hayashibe, "Computational Modeling and Control for Personalized Neuroprosthetics and Rehabilitation", Oct. 12th 2015, Univ. de Montpellier

PhD : Yacine Berranen, "Modélisation volumique du muscle avec représentation des fonctions physiologiques", Dec. 2015, D. Guiraud, M. Hayashibe and B. Gilles

PhD : Mariam Abdallah, "Système d'acquisition de signaux bioélectriques multicanal, programmable et implantable", Dec. 2015, G. Cathébras and F. Soulier.

PhD in progress : Sijobert Benoît, Stimulation Electro-fonctionnelle pour l'assistance aux mouvements des membres inférieurs dans les situations de déficiences sensori-motrices , 01/12/2015, Christine Azevedo Coste, David Andreu

PhD in progress : Tigra Wafa, Assistance à la prehension par stimulation électrique fonctionnelle chez le patient tétraplégique, 11/2013, Christine Azevedo Coste, David Guiraud

PhD in progress: Thomas Guiho, "Stimulation électrique médullaire en vue de la restauration des fonctions urinaires, intestinales et sexuelles chez le patient blessé médullaire", Sept. 2013, C. Azevedo and D. Guiraud.

PhD in progress: Ibrahim Merzoug, "Validation formelle pour les systèmes embarqués critiques", Oct. 2014, K. Godary and D. Andreu.

PhD in progress: Melissa Dali, "Modle d'interaction électrode-nerf et optimisation en vue d'améliorer la stimulation sélective", Oct. 2014, O. Rossel and D. Guiraud.

PhD in progress: Marion Vincent, "Précision et modélisation des effets de la stimulation électrique directe lors des opérations de chirurgie éveillée des gliomes de bas-grade", Dec. 2013, F. Bonnetblanc and D. Guiraud.

Engineers : David Andreu supervises Baptiste Colombani. "HILECOP development". Computer engineering, Inria Expert Engineer (2 years contract, Inria).

David Andreu and David Guiraud supervise Milan Demarcq on "Implantable network design", Electronics, Engineer (1 year contract, Inria).

David Andreu and David Guiraud supervise Guillaume Souquet on "Design of implantable stimulator", Industrial Informatics Doctor, Research Engineer (1 year contract, Inria).

David Andreu supervises Arthur Haiarrassary on "Development of a stimulation real-time controller", Industrial Informatics Engineer, Research Engineer (2 years contract, UM).

David Andreu supervises Ronald Reboul on "Design of complex digital system". Electronics, Engineer (2 years contract, Inria).

### 7.2.3. *Juries*

Christine Azevedo Coste was member of the PhD thesis committee of Michelle RABELO, Universidade de Brasilia, "Confiabilidade das medidas de dinamometria isocinetica computadorizada para movimentos do tronco em sobreviventes de acidente vascular enceflico com hemiparesia crnica.", december 2015

Christine Azevedo Coste was member of the phd thesis committee of Franssis BARBOSA DE OLIVEIRA, Universidade de Braslia, "Opes diagnosticas no monitoramento de neuropatias diabeticas: em busca de parmetros para tomada de decises clinicas.", december 2015

D. Simon was reviewer and member of the PhD defense jury of Mohamed Ould Sass ("Le modèle BGW pour les systèmes temps réel surchargés", IRCCyN Nantes) and member of the jury for Mihaly Berekmeri ("Modeling and control of cloud services Application to MapReduce performance and dependability ",GIPSA-lab Grenoble).

Christine Azevedo Coste was reviewer of Nadia Khalfa Cheikh phd thesis "Ayant pour sujet : Détection de ruptures de signaux physiologiques en situation in vivo via la méthode FDpV : Cas de la fréquence cardiaque et de l'activité électrodermale de marathoniens" in september 2015 (UMPC Paris France / INSAT Tunis)

## LEMON Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events selection

#### 10.1.1.1. Member of the conference program committee

Fabien MARCHE is member of the scientific committee of [Advances in Numerical modeling of Hydrodynamics](#), 2015.

Fabien CAMPILLO is member of the scientific evaluation panels for the ANR's Generic Call for Proposals.

### 10.1.2. Journal

#### 10.1.2.1. Member of the editorial board

Vincent GUINOT : Journal of Hydroinformatics.

Antoine ROUSSEAU : Discrete and Continuous Dynamical Systems, Series S.

#### 10.1.2.2. Reviewer

Fabien MARCHE : Advances in Applied Mathematics and Mechanics, International Journal for Numerical Methods in Fluids, Journal of Applied and Computational Mathematics, Journal of Computational Physics, Journal of Scientific Computing and SIAM Journal on Scientific Computing.

Vincent GUINOT : Journal of Hydrology and Journal of Hydroinformatics.

Antoine ROUSSEAU : Applied Numerical Mathematics, International Journal for Numerical Methods in Fluids.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

F. Campillo, Stochastic modelling of ecosystems, 20 h, M2R Biostatistics, Univ. Montpellier .

F. Campillo, Object oriented programming: probabilistic modeling and statistical numerics for biology, 20 h, Doctoral lectures, Univ. Montpellier.

V. Guinot, Mécanique des fluides, 72h ETD, L3, Polytech'Montpellier, France

V. Guinot, Hydraulique à surface libre, 60h ETD, L3, Polytech'Montpellier, France

V. Guinot, Méthodes Mathématiques pour l'Ingénieur, 18h ETD, M1, Polytech'Montpellier, France

V. Guinot, Hydraulique des Réseaux, 30h ETD, M1, Polytech'Montpellier, France

V. Guinot, Mécanique des Fluides, Master SPAE, 36h ETD, M1, UMontpellier, France

V. Guinot, Transitoires hydrauliques, 54 h ETD, M1, Polytech'Montpellier, France

V. Guinot, tutorat de stages ingénieur, 15h ETD, M1, Polytech'Montpellier, France

V. Guinot, Modélisation hydraulique à surface libre 2D, 6h ETD, M2, Polytech'Montpellier, France

V. Guinot, Projet Industriel de Fin d'Etudes (PIFE), 30h ETD, M2, Polytech'Montpellier, France

V. Guinot, Tutorat de Stage de fin d'études ingénieur, 18h ETD, M2, Polytech'Montpellier, France

F. Marche, Biomaths, 72h TD., L1, Université Montpellier, France

F. Marche, Analyse numérique des EDP, 24H CM, 12H TD, 15H TP., M1, Université Montpellier, France

F. Marche, Calcul scientifique avancé, 26H CM, M2R, Université Montpellier, France

### 10.2.2. Supervision

PhD in progress: Mehdi Pierre Daou, *Développement d'une méthodologie de couplage multi-modèles avec changements de dimension. Validation sur un cas-test réaliste en dynamique littorale*, May 2013, Eric Blayo (EPI MOISE) and Antoine Rousseau

PhD in progress: Mohsen Chebbi, Modélisation stochastique de procédés membranaires de traitement des eaux usées. September 2014, S. Toumi (ENIT, Tunis) and F. Campillo.

PhD in progress: Oussama Hadj-Abdelkader, Filtrage particulaire pour le chemostat. September 2014, A. Hadj-Abdelkader (Univ. Tlemcen) and F. Campillo.

### 10.2.3. Juries

Fabien CAMPILLO : President of the jury of the associate professor (Maitre de Conférence) at the university of Bordeaux (mathematics).

Fabien CAMPILLO : Referee and jury member: M. Étienne Descamps (AgroParisTech). *Approche de modélisation Monte-Carlo individu-centrée opérant par événements discrets appliquée à un procédé d'homogénéisation d'une émulsion laitière*

Antoine ROUSSEAU : CR2 competition in Inria Sophia-Antipolis, spring 2015.

## 10.3. Popularization

Antoine ROUSSEAU co-authored two outreach publications in Interstices, see [17] and [18].

Antoine ROUSSEAU gave several conferences for highschool students and their teachers in France, on the topics of mathematical modeling for environmental sciences:

*Fête de la Science*, Oct. 2015, Genopolys Montpellier

*Fête de la Science*, Oct. 2015, Centre International de Valbonne

Antoine ROUSSEAU is member of the national Inria network for scientific outreach *Médiation scientifique*

Antoine ROUSSEAU gave several informal conferences in Grand Palais for the COP21 week (December 3-10, Paris)

## MODEMIC Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committees

The team has co-organized with UMR Eco& Sols a one-week Research School on resources-consumers models, in September 2015 (see <https://team.inria.fr/modemic/fr/francais-ecole-chercheur-modeles-ressources-consommateurs/>). The objectives of the school were

- filling the gap between lectures on dynamical population models given in theoretical ecology and the ones given in bioprocess or biochemical engineering,
- gathering biologists from different application fields (food fermentation, farming, marine ecosystems...) and mathematicians, about models that couple biotic and abiotic compartments.

Another similar school is scheduled in 2016, and we plan to propose later a methodological network on this subject.

### 9.1.2. Scientific events selection

#### 9.1.2.1. Reviewer

European Control Conference, IEEE Conference on Decision and Control, International Conference on System Theory, Control and Computing, Mediterranean Conference on Control and Automation.

### 9.1.3. Journal

#### 9.1.3.1. Reviewer - Reviewing activities

Applied Mathematical Modelling, Automatica, Biotechnology & Bioengineering, Continuous and Distributed Systems, Computational and Applied Mathematics, European J. of Control, J. of Dynamical and Control Systems, J. of Process Control, J. of Membrane Science, Mathematical Biosciences and Engineering, SIAM J. on Optimization & Control.

### 9.1.4. Invited talks

Alain Rapaport has been invited to give a plenary session at the next CMPDE'16 (Conference in Mathematical Population Dynamics and Epidemiology), Marseille, Sep 2016.

### 9.1.5. Scientific expertise

Jérôme Harmand has been a member of the selection committee for the recruitment of a Junior Professor ("Maître de Conférences") at University Montpellier.

Alain Rapaport has been a member of the HCERES evaluation panel of the CHRONO-ENVIRONNEMENT research unit, Jan. 2016.

### 9.1.6. Research administration

J. Harmand is member of the steering committee of the Inra meta-program 'MEM' (Metagenomics of Microbial Ecosystems), and member of the INRA evaluation committee "commission scientifique spécialisée" STEA.

A. Rapaport is member of the scientific committee of BIOS dept. of CIRAD, and is member of the scientific committee of Ecotechnologies department of Irstea.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

#### Engineering degree

B. Cloez and A. Rapaport, "Introduction à la modélisation", 12 hours, 1st year, SupAgro Montpellier.

#### Master

T. Bayen and A. Rapaport, "Commande optimale: conditions nécessaires et suffisantes", 21 hours, Master 2R 'MANU' (Modélisation et Analyse Numérique), Univ. Montpellier.

#### PhD

T. Bayen and A. Rapaport have proposed a new doctoral module on control, observation and optimization tools for modelling (24 hours) that will be launched in March 2016 at the Doctoral School 'I2S' (Information, Structures, System), Univ. Montpellier.

### 9.2.2. Supervision

#### Guilherme Pimentel

PhD: Modélisation dynamique, analyse et supervision d'un réacteur membranaire. cotutelle Univ. Montpellier II/Univ. Mons (Belgique), defended in Feb. 2015.  
Advisors: A. VandeWouwer (Univ. Mons) and A. Rapaport.

#### Sonia Hassam

PhD: Réduction de modèles biotechnologiques : application à la digestion anaérobie. Univ. Tlemcen, defended in Dec. 2015.  
Advisors: B. Cherki (Univ. Tlemcen) and J. Harmand.

#### Amel Ghouali

PhD: Analyse et commande optimale d'un bioréacteur de dépollution des eaux usées cotutelle Univ Montpellier II/Univ. Tlemcen (Algeria), defended in Dec. 2015.  
Advisors: J. Harmand and T. Sari (UMR ITAP, Montpellier).

#### Walid Bouhafs

PhD in progress: Commande optimale des réacteurs biologiques séquentiels discontinus. ENIT (Tunis), since 2010.  
Advisors: N. Abdellatif (ENIT-LAMSIN, Tunis), F. Jean (ENSTA) and J. Harmand.

#### Victor Riqueleme

PhD in progress: Commande optimale pour la préservation de ressources hydriques exploitées. cotutelle Univ. Montpellier II/Univ. Chile, since Sept. 2013.  
Advisors: H. Ramirez (Univ. Chile) and A. Rapaport.

#### Alejandro Rojas-Palma

PhD in progress: Etude de quelques problèmes dans la modélisation et l'optimisation de bioprocédés. cotutelle Univ. Montpellier II/Univ. Chile, since Sept. 2014.  
Advisors: H. Ramirez (Univ. Chile) and A. Rapaport.

#### Yessmine Daoud

PhD in progress: Analyse de modèles de la digestion anaérobie : application à l'optimisation de la production du biogaz.

cotutelle ENIT (Tunis)-Univ. Montpellier II, since sep. 2014.

Advisors: N. Abdellatif (ENIT, Tunis) and J. Harmand.

Zeyneb Khedim

PhD in progress: Modélisation et contrôle de la digestion anaérobie : vers une meilleure prise en compte des phénomènes d'inhibition.

cotutelle Univ. Tlemcen - Univ. Montpellier II, since nov. 2014.

Advisors: B. Benyahia (Univ. Tlemcen) and J. Harmand.

Anne Bisson

PhD in progress: Modélisation probabiliste du fonctionnement d'écosystèmes considérés comme des assemblages de communautés.

Univ. Montpellier II, since Dec. 2014 until Sep 2015

Advisors: B. Jaillard (UMR Eco & Sols, Montpellier) and A. Rapaport.

Maha Hmissi

PhD in progress: Contribution à l'élaboration d'un modèle de simulation d'un procédé de biométhanisation- Application à la digestion des boues résiduaires et au prétraitement d'un effluent industriel

ENIT, Tunisia, since 2011

Advisors: Hedi Shayeb (ENIT) and J. Harmand

Nesrine Kalboussi

PhD in progress: Détection précoce et contrôle du colmatage dans les réacteurs à membranes

INSAT, Tunisia, since 2014

Advisors: Nihel Benamar (INSAT) et J. Harmand

The team has supervised MsC and Engineering School internships [50], [44].

### 9.2.3. *Juries*

S. Martin. "D'oxymore en oxymore : du développement durable au contrôle complexe." Habilitation à diriger des recherches, Univ. B. Pascal (Clermont-Ferrand), Jan 2015 (referee : A. Rapaport).

J. Qian. "Identification paramétrique en boucle fermée par une commande optimale basée sur l'analyse d'observabilité." Thèse de doctorat, Univ. C. Bernard (Lyon), Sep 2015 (examinator : A. Rapaport).

N. Lebaz "Modélisation de l'hydrolyse enzymatique de substrats lignocellulosiques par bilan de population" Thèse de Doctorat, Université Toulouse, Sep 2015 (referee : A. Rapaport).

A. Hammoudi "Modélisation et analyse mathématique de la dynamique du carbone organique dans le sol" Thèse de Doctorat, Université Montpellier, Sep 2015 (examinator : A. Rapaport).

M. Diaby "Analyse globale de quelques modèles épidémiologiques: application à des modèles de la bilharziose" Thèse de Doctorat, Université Gaston Berger (Saint-Louis du Sénégal), Jan 2016 (referee : A. Rapaport).

## MORPHEME Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Member of the organizing committees

Xavier Descombes was member of the organization board for the "OPTITECH Event 2015".

### 9.1.2. Scientific events selection

#### 9.1.2.1. Member of the conference program committees

Laure Blanc-Féraud was associate editor of the workshop on New Computational Methods in Inverse Problems - NCMIP 2015 (NCMIP ) in ENS Cachan.

Eric Debreuve was the Area Chair of the topic "Image and video processing" for the conference European Signal Processing Conference (EUSIPCO).

#### 9.1.2.2. Reviewer

Laure Blanc-Féraud was a reviewer for the conferences ISBI, ICIP, and ICASSP.

Eric Debreuve was a reviewer for the conferences ISBI, ICIP, and ACIVS.

Xavier Descombes was reviewer for the conferences ISBI, ICIP, and ICASSP.

Grégoire Malandain was reviewer for the conferences ISBI, MICCAI, EMBC and TAIMA.

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

Laure Blanc-Féraud is Associate Editor of SIAM Journal Imaging Sciences and Traitement du Signal Journal.

Xavier Descombes is associated editor of DSP (Digital Signal Processing).

#### 9.1.3.2. Reviewer - Reviewing activities

Eric Debreuve was reviewer for the journals Journal of Computational Physics (Elsevier), Pattern Recognition (Elsevier) and Revue de Traitement du Signal.

Xavier Descombes was reviewer for the journals IEEE TMI, IEEE IP, and IEEE SP.

Grégoire Malandain was reviewer for the journals MedIA, NeuroImage, IEEE TMI, and Medical Physics.

### 9.1.4. Invited talks

Grégoire Malandain was invited to give a talk at the *journées* "Bioimage-informatics", organized by the GDR 2588, and at "OPTITECH Event 2015".

### 9.1.5. Leadership within the scientific community

Laure Blanc-Féraud is director of GdR 720 ISIS of CNRS, a group for the animation of research at national french level on the thematic Signal Image and Vision. This group includes around 160 academic laboratories and twenty industrial partners totaling almost 3,000 members. She is member of the IEEE BISP (Biomedical Imaging Signal Processing) Technical Committee.

Xavier Descombes is member of the Scientific Committee of the competitiveness pole Optitech, member of IEEE BISP (Biomedical Imaging Signal Processing) Technical Committee and member of the Scientific Committee of Labex SIGNALIFE.



Grégoire Malandain is member of the IEEE/EMB Technical Committee on Biomedical Imaging and Image Processing (BIIP). He is an invited member of the Scientific Committee of the MIA department of INRA.

### 9.1.6. Scientific expertise

Laure Blanc-Féraud is part of the scientific committee of laboratory GreyC (UMR CNRS 6072) and of "Institut des Technologies Avancées en sciences du Vivant" (ITAV, USR CNRS 3505). She was part of the AERES expert committee of LJK Lab in Grenoble and part of the recruitment panel of a MCF at ISAE Toulouse and a "Comité de sélection" of a professor at the institute of Mathematics in Toulouse (IMT). She was external expert for the CPER Région Poitou-Charentes, and expert for PES applications for Région Franche-Comté. She was member of the jury of the price "La Recherche" She was member of the CNRS admission for chargé de recherche at INS2I of CNRS. She is expert member of the MIUR: Italian Ministry for Education, University and Research (Italie).

Eric Debreuve was a reviewer of a "Jeune chercheur" ANR proposal.

Xavier Descombes is expert for the MESR within the CIR program, and reviewer for three ANR proposals.

### 9.1.7. Research administration

Xavier Descombes is member of the "comité des projets" and the "comité de centre" of Inria CRI-SAM.

Grégoire Malandain is the head of the committee "Comité de suivi doctoral" of the Inria CRI-SAM.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master : Xavier Descombes, Traitement d'images, Analyse de données, Techniques avancées de traitement d'images, 30h Eq. TD, Niveau M2, ISAE, France.

Master : Xavier Descombes, Traitement d'images, master ISAB, 12h Eq. TD, Niveau M2, Université de Nice Sophia Antipolis, France.

Master : Xavier Descombes, Traitement d'images, master VIM, 12h Eq. TD, Niveau M2, Université de Nice Sophia Antipolis, France.

Master : Xavier Descombes, Bio-imagerie, master IRIV, 6h Eq. TD, Niveau M2, Université de Strasbourg, France

Master : Xavier Descombes, Bio-imageire, 9h Eq. TD, Niveau M2, Université de Nice Sophia Antipolis, France.

Master : Agustina Razetti, Traitement d'images, master ISAB, 6h Eq. TD, Niveau M2, Université de Nice Sophia Antipolis, France.

IUT : Agustina Razetti, Initiation à la mesure du signal, 18h Eq. TD, IUT Nice Côte d'Azur, Université de Nice Sophia Antipolis, France.

Master : Laure Blanc-Féraud, Fluorescence image restoration, 18h Eq. TD, M2 Computational Biology, University Nice Sophia Antipolis, France

Master : Laure Blanc-Féraud, Image restoration, 12h Eq. TD, M2 ISAB, University Nice Sophia Antipolis, France

Master : Laure Blanc-Féraud, Traitement numérique des images, 12h Eq. TD, M2 VIM, EPU University Nice Sophia Antipolis, France

Master 2: Eric Debreuve, Introduction to Inverse Problems in Image Processing, 28h Eq. TD, International Master "Computational Biology and Biomedicine", University Nice Sophia Antipolis.

Engineer 5th year: Eric Debreuve, 3D Computer Vision with the Kinect sensor, 32h Eq. TD , Polytech'Nice Sophia, University Nice Sophia Antipolis.

Master: Emmanuel Soubies, Traitement Numérique des Images, 10h Eq. TD, Niveau M2, EPU, Université de Nice Sophia Antipolis, France.

Licence: Emmanuel Soubies, Images et Filtres, 54h Eq. TD, Niveau L3 , EPU, Université de Nice Sophia Antipolis, France.

### 9.2.2. Supervision

PhD: Alexis Zubiolo, Statistical Machine Learning for Automatic Cell Classification, Nice Sophia Antipolis university, defended december the 11th., Eric Debreuve (advisor).

PhD in progress: Lola Baustista, DIC microscopy image reconstruction, 1st november 2013, Laure Blanc-Féraud.

PhD in progress: Gaël Michelin, Quantitative tools for morphogenesis study, 1st october 2013, Grégoire Malandain (advisor).

PhD in progress: Agustina Razetti, Modelling and characterizing axon growth from in vivo data, 1st november 2014, Xavier Descombes (advisor), Florence Besse (co-supervisor).

PhD in progress: Emmanuel Soubies, MA-TIRF reconstruction and sparse l2-l0 optimization problem, 1st october 2013, Laure Blanc- Féraud and Sébastien Schaub.

### 9.2.3. Internships

Nicolas Cedilnik: L3 UNS. Detection and Classification of Cells Nuclei. Supervisors: X. Descombes, F. Besse.

Yaqun Liu: LM1 UNS. Tracking Growing Axons in 3D+t Microscopy Images. Supervisors: G. Malandain and C. Medioni.

Wei Shen: M2 Univ. Caen, RNA complex detection from confocal microscopy images. Supervisors: F. Besse, X. Descombes

Sen Wang: M2 Univ. Caen, Multiple Births and Cut algorithm including attractive interactions. Supervisors: E. Soubies, X. Descombes.

### 9.2.4. Juries

Laure Blanc-Féraud participated as chair to the PhD thesis committee of G. Tartavel (LTCI, Télécom ParisTech), as reviewer of the HDR of Anne Keonig (CEA LETI Grenoble) and reviewer of the 4 PhD theses: L. Gharsalli (Supelec, L2S, Gif sur Yvette), P. Irrera (LTCI, Télécom ParisTech), C. Soutour (IMB Bordeaux), O. Chabiron (IRIT Toulouse).

Xavier Descombes was examiner in the jury of A. Zubiolo and P. Cracium PhD defenses at University of Nice Sophia Antipolis and in the jury of Y. Quéau PhD defense at Paul Sabatier University (Toulouse) . He was reviewer for two PhD dissertations (M. Alsheh Ali at Paris V and R. Ben Salah, university of Poitiers) and one HdR (S. Chafik, university of Clermont Ferrand). He was president of three PdH juries (C. Meillier, university of Grenoble, S.G. Yeong, university of Nice Sophia Antipolis and R. Ben Salah, university of Poitiers).

Grégoire Malandain participated as chair to the PhD thesis committee of L. Guignard (Montpellier univ.), as reviewer to the PhD thesis of I. Melki (Paris Est univ.), H. Mi (Rouen univ.), M. Mustafa (Nottingham univ.), M. Vandenberghe (UPMC), W. Zhu (Strasbourg univ.), and as reviewer to the HdR of T. Delzescaux (UPMC).

## 9.3. Popularization

Gaël Michelin, Emmanuel Soubies, and Alexis Zubiolo participated as exhibitors to the "Fête de la science 2015" manifestation in Juan-les-Pins (palais des congrès).

## NEUROMATHCOMP Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Scientific events organisation

##### 8.1.1.1. General chair, scientific chair

Olivier Faugeras was the General Chair of the **1st International Conference on Mathematical Neuroscience**, held in Antibes-Juan les Pins, June 8-10 2015.

##### 8.1.1.2. Member of the organizing committee

Romain Veltz and James Inglis are members of organizing committee of the **1st International Conference on Mathematical Neuroscience**, held in Antibes-Juan les Pins, June 8-10 2015.

We have co-organized the conferences:

- **Confronting mean-field theories to measurements a perspective from neuroscience**, Paris 14-15 January 2015 (Bruno Cessac, Olivier Faugeras).
- **Modeling the early visual system: From natural vision to numerical applications**. Satellite of the **12eme colloque societe des neurosciences**, Montpellier, 19-22 May 2015 (Bruno Cessac).
- **Mathematical Modeling and Statistical Analysis in Neuroscience workshop**, Nice 8-10 September, (Bruno Cessac).
- **Workshop on Heteroclinic Dynamics in Neuroscience**, Nice 17-18 December, (Pascal Chossat, Mathieu Desroches, Maciej Krupa).

#### 8.1.2. Scientific events selection

##### 8.1.2.1. Chair of conference program committees

Pierre Kornprobst was area Chair of the 23rd edition of the European Signal Processing Conference (EUSIPCO 2015) for the theme Bio-inspired image and signal processing.

##### 8.1.2.2. Member of the conference program committees

Pierre Kornprobst was a member of the program committee of the Conference of "Groupement de Recherche en Traitement du Signal et des Images" (GRETSI 2015) and of the Conference on Computer Vision and Pattern Recognition (CVPR 2015).

#### 8.1.3. Journal

##### 8.1.3.1. Member of the editorial boards

Olivier Faugeras is the co-editor in chief of the open access **Journal of Mathematical Neuroscience**.

##### 8.1.3.2. Reviewer - Reviewing activities

Olivier Faugeras acts as a reviewer for the Journal of Mathematical Neuroscience, the Journal of Computational Neuroscience, the SIAM Journal on Applied Dynamical Systems (SIADS).

Maciej Krupa acts as a reviewer for Nonlinearity, Proceedings of the National Academy of Sciences of the USA (PNAS), the SIAM Journal of Applied Dynamical Systems (SIADS).

Mathieu Desroches acts as a reviewer for Journal of Nonlinear Science, Physica D, the SIAM Journal of Applied Dynamical Systems (SIADS).

#### 8.1.4. Invited talks

Pierre Kornprobst gave an invited talk at the workshop entitled “From Retina to Robots – Connecting the Neural Computations of Early Vision to Neuromorphic Engineering and Artificial Vision” at the Bernstein Conference for Computational Neuroscience in Heidelberg, Germany, on September 14, 2015 (organized by Tim Gollisch and Stefano Panzeri).

#### 8.1.5. Research administration

Pierre Kornprobst is an elected member of the Conseil Académique de l’UCA, member of the editorial committee of the Sophia Antipolis internal letter and "représentant de l’administration suppléant".

### 8.2. Teaching - Supervision - Juries

#### 8.2.1. Teaching

##### E-learning

Master 2: Bruno Cessac, *Neuronal dynamics*, 36 hours, Master of Computational Biology and Biomedicine, Université Nice Sophia Antipolis, France.

Summer school: Bruno Cessac, *Mean Field Methods in Neuroscience*, 3h, Lecture given in the conference *Dynamics of Multi-Level Systems*, Jun 2015, Dresde, Germany .

##### Chalk-learning

Master 2 MVA/UPMC: Romain Veltz, *Mathematical Methods for Neurosciences*, 20 hours, Paris, France.

#### 8.2.2. Supervision

PhD in progress: Kartheek Medathati, "Motion perception: from neuroscience to computer vision", started in September 2013, co-supervised by Pierre Kornprobst and Guillaume S. Masson (Institut de Neurosciences de la Timone, Marseille, France).

PhD in progress: Theodora Karvouniari, «Retinal waves in the retina: theory and experiments», defence planned in October 2017, supervised by Bruno Cessac.

#### 8.2.3. Juries

- Bruno Cessac. Reviewer of Luis Garcia Del Molino’s thesis, "Non-Hermitian random matrices and applications to randomly connected firing rate neuronal network" (supervision Jonathan Touboul, Khashayar Pakdaman). Paris, 01-10-15.

## VIRTUAL PLANTS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

- Christophe Godin was Session chair and organizer of the e-session "from plant cells to plant fields" (<http://cs-dc-15.org/e-tracks/organisms>) at the World e-Conference on Complex Systems, Tempe Arizona, Sept 30 - Oct 1 2015, and was a session chair at the International Conference on Arabidopsis Research (ICAR), Paris, France 5-9 July;

### 9.1.2. Scientific events selection

#### 9.1.2.1. Member of the conference program committees

- Christophe Godin is a member of the FSPM International Conference Board.
- Frédéric Boudon was member of the program committee of the Xe ISHS International Symposium on modelling in Fruit Research and Orchard Management.
- Yann Guédon was member of the program committee of the 47<sup>m</sup>e journées de statistique de la SFdS.
- S. Cohen-Boulakia has been members of the following program committees: ACM SIGMOD conf 2015, 2016, IEEE Int. Conf. on Data Engineering (ICDE) 2015, BPM 2015 (Business Process Management, ICDT workshop on Algorithms and Systems for MapReduce and Beyond (BeyondMR) 2015.

#### 9.1.2.2. Reviewer

- Frédéric Boudon was referee for papers submitted to the SIGGRAPH and Eurographics conferences and of the Journée Française d'Informatique Graphique (AFIG).

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

- Christophe Godin is an associate editor of the Journal *Frontiers in Plant Science*.
- S. Cohen-Boulakia is member of the editorial board of the *Journal of Data Semantics* (Springer).

#### 9.1.3.2. Reviewer - Reviewing activities

- Christophe Godin was referee for papers submitted to *Frontiers in Plant Science*
- Frédéric Boudon was referee for papers submitted to *Computer Graphics Forum*, *Computer and Electronics in Agriculture*, *Sensors*, *Remote Sensing and Environment*, *Robotics and Autonomous Systems*.
- Yann Guédon was referee for papers submitted to *Computational Intelligence and Neuroscience*, *Frontiers in Plant Science* and *PLoS ONE*.
- Christian Fournier was referee for papers submitted to *Computer and Electronics in Agriculture*

### 9.1.4. Invited talks

- C. Godin gave invited talks at: "CompSysBio: Advanced lecture course on computational systems biology", Aussois, France (April); Embo Practical Course on "In vivo Plant Imaging" Heidelberg, Germany (March); International Conference on Arabidopsis Research (ICAR);

- S. Cohen-Boulakia gave invited tutorials at the « DigiCosme Spring School 2015 on Data Management » (Saclay, May 2015) and at the summer school « Cumulo-Numbio : Cloud computing for the life sciences » (Aussois, June 2015).
- C. Pradal gave an invited talk at the "Nimbios Morphological Plant Models Workshop" (Knoxville, Tennessee, USA, September 2015) and at the "8th plenary meeting of the European TTO Circle" during the Expo Milan 2015 (Milano, Italy, June 2015).

### 9.1.5. Scientific expertise

- Christophe Godin was the external member of the mentoring and review committee of James Locke's group at the Sainsbury Laboratory, University of Cambridge. He is also a member of the Scientific Committee of INRA Environment/Agronomy department. Christophe Godin also participated in a concours for several CR2 positions at INRA, a concours of Professor in computer science at the University of Montpellier, to 2 thesis committee, to 2 PhD defences (1 as Jury president) and 2 HDR defences as a reviewer.
- Christophe Pradal is a member of the INRA expert scientific commissions (CSS Ecophysiologie, génétique et biologie intégrative des plantes) that assesses INRA individual researcher activities. He is also a member of the HCERES expert scientific commissions that assesses national research organisations.
- Christian Fournier is a member of of the INRA engineer evaluation commission (CEI Méthodes Pour la Recherche : Biologie végétale / Domaine Informatique, bio-informatique, statistiques et calcul scientifique) that assesses INRA individual engineer activities.

### 9.1.6. Research administration

- Christophe Godin is a member of the "bureau of comité des projets" at Inria Sophia-Antipolis Méditerranée research center. He is also a member of the Scientific board of the modeling axis of Labex NUMEV and a member of the direction board of the institut de biologie computationnelle de Montpellier (IBC) and the scientific co-coordinator with Patrick Lemaire of IBC 4th research axis on imaging and omics data.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Master in Life Sciences "IMaLis" of ENS Paris. Christophe Godin co-organizes with Patrick Lemaire of a 35 hours module on Plant and animal morphogenesis.

Master Plant Ecophysiology, Christian Fournier, Introduction to architectural plant modelling, 4h, M1, Montpellier University

Master Computer Science: Frédéric Boudon (resp.), Christophe Godin, Christophe Pradal, Benjamin Gilles [ICAR, LIRMM] and David Vanderhaege and Loïc Barthe [IRIT, Toulouse], Computer graphics, 45h, M2, University Montpellier, France.

Master Biostatistics : University Montpellier.

Yann Guédon teaches the stochastic modeling course (<http://www.agro-montpellier.fr/um2/um1/masterbiostatistique>). This involves 21h of M2 classes.

Master of bioinformatic and biomathematics (University Cheikh AntaDiop, Dakar, Sénégal). Christophe Godin and Yann Guédon participated to the module iPlant (M2 - 12h).

Master of Biology Fonctionnelle. Christophe Godin gave a class of Master 2 on 'Phyllotaxis' in the at the University of Montpellier 2 (M2 - 4h).

Engineering Degree: SupAgro Montpellier. Christophe Pradal and Christian Fournier. "Introduction to modelling" (1st year, 12h).

### 9.2.2. Supervision

- PhD : Léo Guignard, "*Segmentation, visualization and mechanical modeling of embryonic development in the ascidian*", Montpellier University, 9 Dec. 2015, C. Godin, P. Lemaire.
- PhD : Guillaume Garin, "*Développement d'un cadre générique de modélisation du couple plante – agent pathogène dans OpenAlea et d'une méthodologie de transfert vers un Outil d'Aide à la Décision*", 11 Dec. 2015, ANRT Ciffre ITK, C. Robert, B. Andrieu, C. Pradal, C. Fournier.
- PhD in progress : Jean-Philippe Bernard, "*Adaptive mechanical model of early flower development based on 4D imaging*", Montpellier University, C. Godin, B. Gilles.
- PhD in progress : Beatriz Moreno Ortega, "*Analysis and modeling of metabolic and hormonal controls of lateral root growth during their ontogeny. Application to the impact of water stress on the root architecture*", Montpellier SupAgro, B. Muller, Y. Guédon.
- PhD in progress : Sixtine Passot, "*Adaptation of millet root architecture : Phenotyping and spatio-temporal analysis of growing root systems*", Montpellier University, L. Laplaze, Y. Guédon.
- PhD in progress : Severine Persello, "*Structural-Functional modeling of yield and fruit quality build-up of the mango, and integration of the effects of cultural practices*", Montpellier University, F. Normand, I. Grechi, F. Boudon.
- PhD in progress : Marc Labadie, "*Study of the alternation between vegetative and floral development in strawberry: spatio-temporal architecture and analysis of key flowering genes*", Bordeaux University, Béatrice Denoyes, Y. Guédon.
- PhD in progress : Adama Ndour, "*Role of root architecture of pearl millet for tolerance to water stress*", Montpellier University, L. Laplaze, M. Lucas, C. Pradal.

### 9.2.3. Juries

- S. Cohen-Boulakia has been reviewer and member of the defense committee for the two following PhD thesis: Francois Moreews (U. Rennes 1), Mouhamadou Ba (INSA Rennes)

## 9.3. Popularization

- Christophe Godin and Frédéric Boudon presented the Secret Code of Flowers in the context of an Inria initiative at the Science Festival in October.
- Christophe Godin gave several classes at Lycée Pompidou, Castelnau Le Lez, at Terminal level and gave a "Café-in" seminar on "Comment les plantes font-elles des mathématiques ?"

## COATI Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Jean-Claude Bermond :

Mediterranean Days 2015 : February 18-20 (<http://campus.sophiatech.fr/meddays2015/>).

Frédéric Havet :

SGT 2015 : 2nd French School on Graph Theory, Porquerolles, France, May 18-22 2015;

15th JCALM : 15th Journées Combinatoire et Algorithmes du Littoral Méditerranéen. Sophia Antipolis, France, March 10-11, 2015.

Nicolas Nisse :

GRASTA-MAC : joint Workshops 7th Workshop on GRaph Searching, Theory and Applications and 5th workshop on Moving And Computing, Montréal, Canada, October 19-23rd, 2015. Organizers: G. Hahn and N. Nisse.

#### 10.1.1.2. Member of the organizing committees

David Coudert, Frédéric Havet (chair), Michel Syska : SGT 2015, 2nd French School on Graph Theory, Porquerolles, France, May 18-22 2015;

Frédéric Havet (chair) : 17th Journées Graphes et Algorithmes (JGA 2015), Orléans, France, November 4-6, 2015.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Chair of conference program committees

Frédéric Giroire

Algotel'15: 17es Rencontres Francophones sur les Aspects Algorithmiques de Télécommunications, Beaune, France, June 2-5, 2015; Chairs: L. Blin and F. Giroire.

#### 10.1.2.2. Member of the conference program committees

David Coudert :

ONDM'15 : 19th International Conference on Optical Networking Design and Modeling, Pisa, Italy, May 11-14, 2015;

PHYSComNet : International Workshop on Physics Inspired Paradigms in Wireless Communications and Networks, Bombay, India, May 29, 2015;

IEEE ICC'15 : IEEE International Conference on Communications, London, UK, June 8-12, 2015;

SEA'15 : 14th International Symposium on Experimental Algorithms, Paris, France, June 29 - July 1, 2015;

USRR'15 : 3rd International Workshop on Understanding the Inter-play between Sustainability, Resilience and Robustness in networks, Munich, Germany, October 7, 2015;

IEEE Globecom'15 : IEEE Global Communications Conference, San Diego, CA, USA, December 6-10, 2015.

Nicolas Nisse :



International Conference on Ad Hoc Networks and Wireless (Ad-Hoc Now), track on Mobile Agents, Athens, Greece (June 29-July 1st 2015).

VIII Latin-American Algorithms, Graphs and Optimization Symposium (LAGOS), Praia das Fontes, Beberibe, Ceará, Brazil (11-15 May, 2015).

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

Jean-Claude Bermond :

Combinatorics Probability and Computing (Cambridge University Press);  
 Computer Science Reviews (Elsevier);  
 Discrete Applied Mathematics (Elsevier);  
 Discrete Mathematics (ScienceDirect);  
 Discrete Mathematics, Algorithms and Applications (World Scientific);  
 Journal of Graph Theory (Wiley);  
 Journal of Interconnection Networks (Advisory Board, World Scientific);  
 Mathématiques et Sciences Humaines (<http://msh.revues.org>);  
 Networks (Wiley);  
 Parallel Processing Letters (World Scientific);  
 SIAM's Discrete Mathematics and Applications Book Series (SIAM).

David Coudert :

Discrete Applied Mathematics (Elsevier);  
 Networks (Wiley).

Frédéric Havet :

Discrete Mathematics and Theoretical Computer Science (<http://dmtcs.episciences.org/>).

#### 10.1.3.2. Reviewer - Reviewing activities

Members of COATI have reviewed numerous manuscripts submitted to international journals, including: Algorithmica, Bulletin of the Malaysian Mathematical Sciences Society, Computer Communications, Computer Networks, Computers & Operations Research, Discrete Applied Mathematics, IEEE/OSA Journal of Light-wave Technology, Networks, Photonic Network Communications, The Computer Journal, Theoretical Computer Science, IEEE/ACM Transactions on Communications, IEEE/ACM Transactions on Networking, etc

### 10.1.4. Invited talks

Frédéric Havet :

VIII Latin-American Algorithms, Graphs and Optimization Symposium (LAGOS 2015), Beberibe, Brazil (May 11-15, 2015), "Induced subdigraphs of digraphs with large chromatic number";

2015 Barbados Graph Theory Workshop, Holetown, Barbados (March 27-April 3), "Subdigraphs of digraphs with large chromatic number".

Nicolas Nisse :

Journées du GDR IM, Bordeaux (Feb. 2nd, 2015), "Cops and robber games in graphs";  
 Réunion ANR Displexity, Arcachon (September 3rd, 2015), "Allowing each node to communicate only once in a distributed system";  
 GRASTA-MAC'15, Montréal, Canada (October 19th, 2015), "Cops and Robber Games";  
 Journées Graphes et Algorithmes (JGA) 2015, Orléans (November 4th, 2015), "Jeux de Gendarmes et Voleur dans les Graphes".

### **10.1.5. Leadership within the scientific community**

David Coudert :

Member of the steering committee of *Pôle ResCom du GDR RSD du CNRS* (since 2005);  
Member of the steering committee of *Rencontres francophones sur les aspects algorithmiques des télécommunications* (AlgoTel).

Frédéric Giroire :

Member of the steering committee of *Action GREEN du GDR RSD du CNRS*.

Frédéric Havet :

Member of the steering committee of *GT Graphes du GDR IM du CNRS*;  
Member of the steering committee of *Journées Graphes et Algorithmes (JGA)*;  
Member of the steering committee of *Journée Combinatoire et Algorithmes du Littoral Méditerranéen (JCALM)*.

### **10.1.6. Scientific expertise**

Jean-Claude Bermond :

Expert for *DRTT-MESR (Crédit Impôt Recherche CIR)*;  
Expert for an *Eurostars* application *POF* transceiver;  
Evaluation of *PISCOPIA Fellowship Programme Marie Curie Action*, for the University of Padua (Italia).

Christelle Caillouet :

Member of the comité de sélection MCF of 27<sup>e</sup> section of Univ. Nice Sophia Antipolis;  
Member of the comité de sélection MCF of 27<sup>e</sup> section of Univ. Toulon.

David Coudert :

Expert for the *Future and Emerging Technologies Open Scheme (FET-Open)* European program, and the ANR;  
Member of the comité de sélection MCF of 27<sup>e</sup> section of *LIRMM*, Univ. Montpellier.

Frédéric Havet :

Expert for the ANR.

Joanna Moulhierac :

Member of the comité de sélection MCF of 27<sup>e</sup> section of Univ. Nice Sophia Antipolis.

Nicolas Nisse :

Expert for the ANR.

Michel Syska :

Expert for *DRTT PACA*.

### **10.1.7. Research administration**

Jean-Claude Bermond :

Member of the doctoral school of the Univ. of Marseille;  
Responsible of the Attractivity for *Inria Sophia Antipolis - Méditerranée* and more generally for the *Campus Sophia Tech* (in particular signature of bilateral agreements, contacts with French Embassies and creation of join grants).

Frédéric Giroire :

Elected member of *I3S* laboratory committee since 2012.

Frédéric Havet :

Responsible of Pôle ComRed of I3S laboratory.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

The members of COATI are strongly involved in teaching with more than 1200 hours in various university levels.

#### Licence

- Christelle Caillouet, *IT Tools*, 53h ETD, Level L1, IUT Nice Côte d'Azur, UNS;
- Christelle Caillouet, *Database and advanced information system*, 36h ETD, Level L2, IUT Nice Côte d'Azur, UNS;
- Christelle Caillouet, *Operations Research*, 81h ETD, Level L2, IUT Nice Côte d'Azur, UNS;
- Christelle Caillouet, *Delivery Optimization*, 30h ETD, Level L3, IUT Nice Côte d'Azur, UNS;
- Guillaume Ducoffe, *Introduction au Web*, 39h ETD, L2, Polytech'Nice, Univ. Nice Sophia Antipolis (UNS), France;
- Guillaume Ducoffe, *Programmation Objet*, 25.5h ETD, L2, Polytech'Nice, UNS, France;
- Guillaume Ducoffe, *Algorithmique et Structures de Données*, 39h ETD, L2, Polytech'Nice, UNS, France;
- Nicolas Huin, *Networks*, 42h ETD, Level L2, IUT Nice Côte d'Azur, UNS;
- Alvinice Kodjo, *Interfaces Homme Machine*, 24h ETD, Level L1, UNS;
- Alvinice Kodjo, *Réseaux*, 15h ETD, Level L2, UNS;
- Dimitris Letsios *Algorithmique et Programmation Impérative*, 36h ETD, Level L1, UNS;
- Dimitris Letsios *Programmation Web*, 8h ETD, Level L1, UNS;
- Dimitris Letsios *Informatique Fondamentale*, 36h ETD, Level L1, UNS;
- Dimitris Letsios *Algorithmique et Programmation Objet*, 54h ETD, Level L2, UNS;
- Dimitris Letsios *Programmation Orientée Objet Java*, 18h ETD, Level L2, UNS;
- Dimitris Letsios *Mathématiques*, 18h ETD, Level L3, UNS;
- Dimitris Letsios *Mathématiques*, 18h ETD, Level M1, UNS;
- Fatima Zahra Moataz, *Programmation avec Python*, 12h ETD, Level L1, UNS;
- Fatima Zahra Moataz, *Systèmes Informatiques*, 24h ETD, Level L1, UNS;
- Benjamin Momège, *Mathématiques Discrètes*, 75h ETD, Level L3, Polytech'Nice, UNS;
- Joanna Moulierac, *Introduction to Operating Systems*, 60h ETD, Level L1, IUT Nice Côte d'Azur, UNS;
- Joanna Moulierac, *Networks*, 100h ETD, Level L1, IUT Nice Côte d'Azur, UNS;
- Joanna Moulierac, *Algorithmics*, 60h ETD, Level L2, IUT Nice Côte d'Azur, UNS;
- Nicolas Nisse, *Introduction à l'informatique*, 24h ETD, Classe préparatoire MPSI (Lycée international de Valbonne), France;
- Michel Syska, *Operating Systems : Advanced Programming*, 90h ETD, Level L2, IUT Nice Côte d'Azur, UNS;
- Michel Syska, *Algorithmics*, 90h ETD, Level L2, IUT Nice Côte d'Azur, UNS;
- Michel Syska, *Distributed Programming*, 30h ETD, Level L2, IUT Nice Côte d'Azur, UNS;

Michel Syska, *Bash Scripting*, 40h ETD, Level L3, IUT Nice Côte d'Azur, UNS;  
 Michel Syska, *Introduction to Algorithms and Complexity*, 30h ETD, Level L3, IUT Nice Côte d'Azur, UNS;  
 Michel Syska, *Linux System Administration*, 40h ETD, Level L3, IUT Nice Côte d'Azur, UNS.

#### Master

David Coudert, *Algorithms for Telecoms*, 32h ETD, stream UbiNet of Master 2 IFI and Master RIF, UNS;  
 Frédéric Giroire, *Algorithmics of Telecommunications*, 18h ETD, stream UbiNet of Master 2 IFI, UNS;  
 Frédéric Giroire, *Green Networks*, 18h ETD, stream UbiNet of Master 2 IFI, UNS;  
 Frédéric Giroire, *Introduction to probability and statistics*, 15h ETD, International Master 1, UNS;  
 Frédéric Havet, *Combinatorial optimisation*, 24h ETD, M1 international, UNS, France;  
 Nicolas Nisse, *Resolution Methods*, 15h ETD, M1 international, UNS, France;  
 Nicolas Nisse, *Graph Algorithms*, 18h ETD, M2 IFI, parcours UBINET, UNS, France.

#### Doctorate

Nicolas Nisse, *Graph Theory and Optimization*, 27h ETD, University of Oulu, Finland, September 15-18th, 2015.

### 10.2.2. Internships

Paul Bertot : Nov 2014 - Feb 2015, IUT Nice Côte d'Azur, France  
 Flavian Jacquot : Nov 2014 - Feb 2015, IUT Nice Côte d'Azur, France  
 Bogdan Sirenko : March - Aug 2015, Master IFI, Ubinet, Univ. of Nice, France  
 Theodoros Karagkioulos : Oct 2015 - March 2016, National and Kapodistrian Univ. of Athens, Greece  
 Konstantinos Priftis : Oct 2015 - March 2016, Univ. of Patras, Greece  
 Steven Roumajon : March - Aug 2015, Master RIF, Univ. of Nice, France

### 10.2.3. Teaching Administration

Stream Ubinet, Master 2 IFI (<http://ubinet.unice.fr>)  
 Jean-Claude Bermond, member of the scientific committee;  
 Frédéric Giroire, responsible of the Internships, since October 2011.  
 International Master 1 (<http://computerscience.unice.fr/master1>)  
 Jean-Claude Bermond, member of the scientific committee of the international track of the M1, responsible of the recruiting committee and of the winter school.  
 IUT Nice Côte d'Azur  
 Christelle Molle-Caillouet, Co-Responsible of QLIO Department, since September 2015;  
 Joanna Moulhierac, Co-Responsible of the DUT Informatique en Alternance, Computer Science Department, since January 2014;  
 Joanna Moulhierac, member of the Conseil de D épartement Informatique at IUT Nice.

### 10.2.4. Supervision

PhD : Fatima Zahra Moataz, *Towards Efficient and Fault-Tolerant Optical Networks: Complexity and Algorithms* [14], Université Nice Sophia Antipolis, October 30, 2015. Supervisor : David Coudert;

PhD : Mohamed Amine Bergach, *Adaptation of the Fast Fourier Transform processing on hybrid integrated CPU/GPU architecture* [13], Université Nice Sophia Antipolis, October 2, 2015. Supervisors : Robert de Simone (AOSTE) and Michel Syska;

PhD in progress : Steven Roumajon, *Regional competitiveness and innovation networks*, since November 2015. Supervisors : Frédéric Giroire and Patrick Musso (GREDEG);

PhD in progress : Nicolas Huin, *Energy-Efficient Software Defined Networks*, since October 2014. Supervisors : Frédéric Giroire and Dino Lopez (I3S);

PhD in progress : Guillaume Ducoffe, *Metric properties of large graphs*, since September 2014. Supervisor : David Coudert;

PhD in progress : William Lochet, *Cliques and independent sets in graph classes, generalisation to the oriented case*, since September 2015, co-supervised by Frédéric Havet and Stéphan Thomassé (ENS Lyon).

### 10.2.5. Juries

Jean-Claude Bermond :

Member of the PhD jury of Fatima Zahra Moataz, Univ. Nice Sophia Antipolis, October 30, 2015.

David Coudert :

Member of the PhD jury of Fatima Zahra Moataz, Univ. Nice Sophia Antipolis, October 30, 2015;

Referee and member of the PhD jury of Benjamin Momège, Univ. Blaise Pascal, Clermont-Ferrand, July 8, 2015.

Frédéric Havet :

Referee and member of the PhD jury of M. Bonamy, Univ. of Montpellier, February 9 2015;

Referee and member of the PhD jury of R. Letourneur, Université of Orléans, July 9 2015;

Member of the PhD jury of Hang Zhou, ENS Paris, July 6 2015.

Michel Syska :

Member of the PhD jury of Mohamed Amine Bergach, Univ. Nice Sophia Antipolis, October 02, 2015.

## 10.3. Popularization

- Vulgarization talk : N. Nisse presented a talk on "Combinatorial Games", Lycée des Remparts (classes de seconde), Marseille (April 17th, 2015).
- Fête de la Science : F. Havet presented the stand "Pavage, art et preuves" et "Magie mathématique" at Vinon-sur-Verdon, France (October 12-16, 2015); F. Havet gave the talk "La science du ballon de football" at Vinon-sur-Verdon, France (October 16, 2015).
- Semaine des Mathématiques : F. Havet presented the stand "Les maths c'est magique" at Mouans Sartoux (March 18, 2015).
- Vendredis de la Science : F. Havet conducted scientific workshops for school children (6-11 year old) on friday afternoon in Rians, France. Once a month in March, April, May, June 2015, and weekly since November 2015.
- Jean-Claude Bermond presented a talk on the impact of big data on the telecommunications services and networks for banks investors at Paris, France (April 10 2015).

## **DIANA Project-Team**

# **9. Dissemination**

## **9.1. Promoting Scientific Activities**

Walid Dabbous is in member of the technical program committee of the IEEE INFOCOM International Workshop on Computer and Networking Experimental Research Using Testbeds, CNERT 2016. He gave an invited talk on Realistic and Reproducible Wireless Networking Experiments at the REPPAR'2015 workshop at Vienna. He is founding member of the ns-3 consortium and co-organized the ns-3 workshop in May 2015. He is vice-president of the PlanetLab Europe consortium. He co-organizes the workshop on Future challenges in User-Centric Networks, co-located with Sigmetrics 2016 in June 2016. He is member of the scientific council of the Inria Bell-Labs laboratory on Communication networks of the future. He also servers as a chair of the scientific committee of the User Centric Networking (UCN@Sophia) Laroratory of Excellence. He is member of board of directors of the Telecom Platform Association responsible for the deployment and operation of the Com4Innov mutualized platform. He co-organized the joint UCN@Sophia Labex - Com4Innov day on research and experimentation. He is also member of the Ubinet International Master program steering committee. He is member of the Inria Sophia Antipolis project committee's bureau (Bureau du CP).

Thierry Turletti, Senior ACM and IEEE member, served in 2015 in the program committees of the following international workshops: the 21th Packet Video Workshop, Sydney, Australia, USA, June 4-5, 2015, the 6th Workshop on ns-3 at Barcelona, Spain, May 13, 2015, the 10th ACM Mobicom Workshop on Challenged Networks at Paris, France, September 11, 2015, the 11th ACM SIGCOMM Asian Internet Engineering Conference (AINTEC), Bangkok, Thailand, November 2015 and the 13th ACM International Symposium on Mobility Management and Wireless Access (MOBIWAC), Cancun, Mexico, November 2015; Thierry Turletti is member of the Editorial Boards of the Journal of Mobile Communication, Computation and Information (WINET) published by Springer Science and of the Advances in Multimedia Journal published by Hindawi Publishing Corporation. He is president of the Committee for Technological Development (CDT) and member of the committee NICE that studies postdoc and visiting researcher applications at Inria Sophia Antipolis

Chadi Barakat is on the editorial board of the Computer Networks journal, on the Technical Program Committee for the Traffic Monitoring and Analysis (TMA) 2015 workshop, the Passive and Active Measurement (PAM) 2016 Conference, the Algotel 2016 Conference, the ACM SIGCOMM 2015 Posters and Demos Session, and Publicity Co-Chair for ACM SIGCOMM 2015. He is currently the scientific referee for international affairs at Inria Sophia Antipolis and member of the Conseil d'Orientation Scientifique et Technologique (COST) at Inria within the working group of international affairs (COST-GTRI).

Arnaud Legout is on the editorial board of the Computer Networks journal, and was PC member of the ACM CoNEXT 2015 conference. Arnaud Legout is the president of the Commission of the users of IT resources of Sophia Antipolis Inria research center.

Damien Saucez is member of the TPC of DRCN 2016 and CCNC 2016. Damien Saucez is secretary and document shepherding at the IETF LISP working group (details about the secretary and shepherd roles can be found in RFC 2418 and RFC 4858). Damien Saucez is secretary of the Project Committee (CP) at Inria Sophia Antipolis Méditerranée.

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

### **9.2.1. Teaching**

Master Ubinet: Chadi Barakat and Walid Dabbous, Evolving Internet, 31.5 hours, M2, University of Nice-Sophia Antipolis, France.

Master Ubinet: Chadi Barakat and Walid Dabbous, Internet Measurements and New Architectures, 31.5 hours, M2, University of Nice-Sophia Antipolis, France.

Master 1 International: Chadi Barakat, Algorithms for Networking, 22.5 hours, M1, University of Nice-Sophia Antipolis, France.

Master Estel: Chadi Barakat, Voice over IP, 9 hours, University of Nice-Sophia Antipolis, France.

Master RISM: Chadi Barakat, Mobility and wireless networking, 10.5 hours, University of Avignon, France.

Master Ubinet: Arnaud Legout, From BitTorrent to Privacy, 36 hours, M2, University of Nice-Sophia Antipolis, France.

Master 1 International: Arnaud Legout, Oral and written communications, 18 hours, M1, University of Nice-Sophia Antipolis, France.

Master IUP GMI: Damien Saucez, Security and privacy in networks, 38h, M2, University of Avignon, France.

IUT : Damien Saucez, Advanced Network Services and Operator Network Technologies, 27h, L1 and L2, University of Nice-Sophia Antipolis, France.

### **E-learning**

Mooc: Arnaud Legout and Thierry Parmentelat, Python : des fondamentaux à l'utilisation du langage, 7 weeks, FUN (<https://www.france-universite-numerique-mooc.fr/>), Inria, 9615 registered persons, 1487 qualified for the final attestation of achievement.

### **9.2.2. Supervision**

PhD in progress: Maksym Gabielkov works on "Information propagation in social networks" since October 2012. His thesis is supervised by Arnaud Legout.

PhD: Alina Quereilhac defended her PhD on "A Platform and Domain Independent Approach to Network Experiment Automation" in June 2015. Her thesis was co-supervised by Walid Dabbous and Thierry Turletti.

PhD in progress: Mohamed Naoufal Mahfoudi works on cross-layer optimization techniques for next generation MIMO-based networks since November 2015. His thesis is co-supervised by Walid Dabbous and Robert Staraj (LEAT).

PhD in progress: Ghada Moualla works on "the problem of network faults and how to circumvent them by the means of Software Defined Networking, virtualization, and service function chaining" since November 2015. Her thesis is co-supervised by Thierry Turletti and Damien Saucez.

PhD in progress: Xuan Nam Nguyen works on "Software Defined Networking in challenged environments", since October 2012. His thesis is co-supervised by Thierry Turletti and Walid Dabbous.

PhD in progress: Vitalii Poliakov works on "the application of Software Defined Networking on 5G networks in order to optimise the Quality of Experience of network services" since November 2015. His thesis is co-supervised by Damien Saucez and Lucile Sassatelli (I3S).

PhD in progress: Hardik Soni works on "Software Defined Networking in challenged environments" since September 2014. His thesis is co-supervised by Thierry Turletti and Walid Dabbous.

PhD in progress: Riccardo Ravaioli works on "Active and Passive Inference of Network Neutrality" since October 2012. His thesis is co-supervised by Chadi Barakat and Guillaume Urvoy-Keller (I3S).

PhD in progress: Luigi Vigneri works on "Vehicles as a Mobile Cloud: Leveraging mobility for content storage and dissemination" since April 2014. His thesis is co-supervised by Chadi Barakat and Thrasylvoulos Spyropoulos (Eurecom).

### **9.2.3. Juries**

Chadi Barakat served as reviewer of Quentin Jacquemart PhD thesis, "Towards Uncovering BGP Hijacking Attacks" defended in October at Eurecom.

Chadi Barakat served as reviewer of Florin Coras PhD thesis, "On the Scalability of LISP and Advanced Overlaid Services " defended in July 2015 at Polytechnic University of Catalonia (UPC), Barcelona.

Chadi Barakat served as reviewer of Pavlos Sermpezis PhD thesis, "Performance Analysis of Mobile Social Networks with Realistic Mobility and Traffic Patterns" defended in February 2015 at Eurecom.

Thierry Turletti served as examiner of Diala Naboulsi PhD thesis, "Analysis and exploitation of mobile traffic datasets", defended in September 2015 at INSA Lyon.

Walid Dabbous served as reviewer of Patrick Senac HDR thesis, "L'Internet de l'extrême. Modèles, protocoles et mécanismes de bout en bout pour les réseaux de communication de nouvelle génération" defended in October 2015 at UPMC.

Walid Dabbous served as reviewer of Gwendal Simon HDR thesis, "Massive Interactive Multimedia Services Over the Internet" defended in April 2015 at Télécom Bretagne, Univ. of Rennes 1.

Walid Dabbous served as reviewer of Natalya Rozhnova PhD thesis, "Congestion control for Content-Centric Networking" defended in May 2015 at UPMC.

Thierry Turletti served as examiner and president of Haiyang Jiang PhD thesis, "Research on parallelization of network intrusion detection system", defended in May 2015 at Univ. of Grenoble.

Thierry Turletti served as reviewer of Peng He PhD thesis, "Design and evaluation of high performance software based packet classification systems", defended in May 2015 at Univ. of Grenoble.

Thierry Turletti served as reviewer of Michelle Tortelli PhD thesis, "Information-Centric Networking: Routing Design and Performance Evaluation Methodologies", defended in January 2015 at Politecnico di Bari.

### **9.3. Popularization**

Chadi Barakat presented ACQUA at the Scientific Day of the Afnic (JCSA 2015). See <https://www.afnic.fr/fr/l-afnic-en-bref/actualites/actualites-generales/9333/show/jcsa15-retour-sur-la-journee-du-conseil-scientifique-de-l-afnic-2015.html>.

Walid Dabbous was invited again in October 2015 to present Future Internet challenges to high school students at CIV for the Science Week (Fête de la science).

Arnaud Legout presented at lycée Amiral de Grasse to students in première and terminale a conference on privacy in the Internet in April 2015.

Damien Saucez has made a speech on the reproducibility of experimentation at the Journée Cloud 2015 of the GdR RSD Cloud Action Transverse (see <https://rsd-cloud.lip6.fr/journee.html>).



## FOCUS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. Chair of conference program committees

**I. Lanese:** Co-chair of 8th Interaction and Concurrency Experience (ICE 2015)

#### 9.1.1.2. Member of the conference program committees

**M. Bravetti:** Int. Conference on Simulation and Modeling Methodologies, Technologies and Applications (SIMULTECH 2015); 9th IEEE Int. Conference on Big Data Science and Engineering (IEEE BigDataSE 2015); 4th European Conference on Service-Oriented and Cloud Computing (ESOCC 2015); 20th Int. Workshop on Formal Methods for Industrial Critical Systems (FMICS 2015); 6th Int. Conference on Fundamentals of Software Engineering (FSEN 2015); 13th Int. Conference on Software Engineering and Formal Methods (SEFM 2015).

**U. Dal Lago:** 18th Int. Conference on Foundations of Software Science and Computation Structures (FOSACS 2015); 6th Workshop on Developments in Implicit Computational Complexity (DICE 2015); 31st Workshop on Mathematical Foundations of Programming Semantics (MFPS 2015); 42nd Int. Colloquium on Automata, Languages, and Programming (ICALP 2015); 11th Int. Workshop on Developments in Computational Models (DCM 2015); 16th Italian Conference on Theoretical Computer Science (ICTCS 2015); 24th EACSL Annual Conference on Computer Science Logic (CSL 2015).

**D. Hirschhoff:** 18th Int. Conference on Foundations of Software Science and Computation Structures (FoSSaCS), 2015.

**I. Lanese:** 12th Int. Conference on Formal Aspects of Component Software (FACS 2015); 7th Conference on Reversible Computation (RC 2015); 35th IFIP Int. Conference on Formal Techniques for Distributed Objects, Components and Systems (FORTE 2015); 11th Int. Workshop on Developments in Computational Models (DCM 2015); Special Session on Formal Approaches to Parallel and Distributed Systems (4PAD) of the 23rd Euromicro Int. Conference on Parallel, Distributed and Network-based Processing (PDP 2015).

**S. Martini:** 30th ACM/IEEE Symposium on Logic in Computer Science (LICS) 2015.

**F. Montesi:** 6th Int. Conference on Ambient Systems, Networks and Technologies (ANT 2015); 31st Annual ACM/SIGAPP Symposium On Applied Computing (SAC 2015) - Operating Systems track; 8th Programming Language Approaches to Concurrency- and Communication-centric Software (PLACES 2015). 8th Interaction and Concurrency Experience (ICE 2015).

**D. Sangiorgi:** 20th Int. Symposium on Fundamentals of Computation Theory 2015 (FCT); 10th Int. Andrei Ershov Memorial Conference (PSI 2015); 10th Int. Conference on Language and Automata Theory and Applications.

**V. Vignudelli:** 8th Interaction and Concurrency Experience (ICE 2015).

**G. Zavattaro:** 17th Int. Conference on Formal Engineering Methods (ICFEM 2015); 12th Int. Colloquium on Theoretical Aspects of Computing (ICTAC 2015); 8th IEEE Int. Conference on Service Oriented Computing and Applications (SOCA 2015); 4th European Conference on Service-oriented and Cloud Computing (ES-OCC' 15); 5th Int. Workshop on Adaptive Services for the Future Internet (WAS4FI 2015); 3rd IEEE Int. Workshop on Formal Methods Integration (FMi 2015); 20th Int. Symposium on Formal Methods (FM2015); Int. Conference on Cloud Computing Technologies and Applications (CLOUDTECH 2015); 30th ACM/SIGAPP Symposium On Applied Computing - track on Software Verification and Testing (ACM-SAC 2015).

### *9.1.1.3. Member of the editorial boards*

**U. Dal Lago:** Logical Methods in Computer Science.

**M. Gabrielli:** Int. Journal Theory and Practice of Logic Programming.

**C. Laneve:** Frontiers in ICT (Section Formal Methods).

**I. Lanese:** Editor in chief of the Open Journal of Communications and Software (Scientific Online).

**F. Montesi:** Guest editor for "Special issue on Service-Oriented Architecture and Programming (SOAP 2013)". Science of Computer Programming.

**D. Sangiorgi:** Logical Methods in Computer Science, Acta Informatica, Distributed Computing, RAIRO Theoretical Informatics and Applications.

### *9.1.2. Invited talks*

**M. Bravetti:** 14th Int. Workshop on Foundations of Coordination Languages and Self-Adaptive Systems (FOCLASA 2015).

**U. Dal Lago:** gave an invited course "From Implicit Complexity to Quantitative Resource Analysis" at the Warsaw's Open PhD lectures in Computer Science.

**C. Laneve:** Int. Symposium on Web Services, Formal Methods and Behavioural Types (WS-FM/BEAT 2015).

**S. Martini:** Colloque "Computing, Logic and Types", Université Jean Moulin Lyon 3.

**D Sangiorgi:** DIMAP Logic Day 2015, Centre for Discrete Mathematics and its Applications, University of Warwick; Joint 22th Int. Workshop on Expressiveness in Concurrency and 12th Workshop on Structural Operational Semantics, Madrid; 12th Int. Colloquium on Theoretical Aspects of Computing (ICTAC 2015), Cali, Colombia.

**G. Zavattaro:** 26th Conference on Concurrency Theory (CONCUR'15).

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

- Mario Bravetti
  - Undergraduate: “Tecnologie Web”, 66 hours, 3rd year, University of Bologna, Italy.
  - Master: “Linguaggi di Programmazione e Modelli Computazionali”, 120 hours, 2nd year, University of Bologna, Italy.
- Ugo Dal Lago
  - Undergraduate: “Introduction to Programming in Python”, 20 hours, 1st year, University of Bologna, Italy.
  - Undergraduate: “Optimization”, 36 hours, 2nd year, University of Bologna, Italy.
  - Master: “Cryptography”, 36 Hours, 2nd Year, University of Bologna, Italy.
- Maurizio Gabbrielli
  - Undergraduate: “Programming languages”, 40 hours, 2nd year, University of Bologna, Italy.
  - Master: “Artificial Intelligence”, 60 hours, 2nd year, University of Bologna, Italy.
- Elena Giachino
  - Undergraduate: “Programmazione”, 40 hours, 1st year, University of Bologna, Italy.
- Saverio Giallorenzo
  - Undergraduate: “Laboratorio di Operating Systems”, 40 hours, 2nd year, University of Bologna, Italy.
- Ivan Lanese
  - Undergraduate: “Programmazione”, 32 hours, 1st year, University of Bologna, Italy.
  - Master: “Ingegneria del Software Orientata ai Servizi”, 22 hours, 2nd year, University of Bologna, Italy.
- Cosimo Laneve
  - Undergraduate: “Programmazione”, 70 hours, 1st year, University of Bologna, Italy.
  - Master: “Analisi di Programmi”, 42 hours, 1st year, University of Bologna, Italy.
- Simone Martini
  - Undergraduate: “Introduction to programming in Python”, 58 hours, 1st year, University of Bologna, Italy.
  - Undergraduate: “Computer abilities for biologists”, 8 hours, 1st year, University of Bologna, Italy.
  - Master: “Logical Foundations of Computer Science”, 48 hours, 2nd year, University of Bologna, Italy.
  - Undergraduate: “Programming languages”, 50 hours, 2nd year, University of Bologna, Italy.
- Jacopo Mauro
  - Undergraduate: “Algoritmi e strutture dati”, 20 hours, 1st year, University of Bologna, Italy.
- Giulio Pellitta
  - Undergraduate: “Tutorato informatico trasversale”, 100 hours, Degree in Quantitative Finance, University of Bologna, Italy.
  - Undergraduate: “Attività di supporto alla didattica universitaria di Informatica nell’ambito della Piattaforma di e-learning A3”, 120 hours, 1st year, University of Bologna, Italy.

Undergraduate: “Idoneita’ Informatica”, 50 hours, 1st year, University of Bologna, Italy.

Undergraduate: “C.I. Fisica, Informatica e Statistica - Modulo 2 Informatica”, 12 hours, 1st year, University of Bologna, Italy.

- Davide Sangiorgi
  - Undergraduate: “Operating Systems”, 110 hours, 2nd year, University of Bologna, Italy.
  - Master: “Models for concurrency”, 15 hours, 2nd year, University of Bologna, Italy.
- Marco Solieri
  - Undergraduate: “Programmation impérative”, 33 hours, 1st year, Inst. Galilée, Université Paris 13.
  - Undergraduate: “Structures de données”, 12 hours, 2nd year, Coursus préparatoire intégré ingénieurs, Sup Galilée, Université Paris 13.
  - Undergraduate: “Programmation fonctionnelle”, 14 hours, 2nd year, Inst. Galilée, Université Paris 13
  - Undergraduate: “Programmation web”, 20 hours, 3rd year, Inst. Galilée, Université Paris 13
  - Undergraduate: “Administration système” 30 hours, 3rd year, Inst. Galilée, Université Paris 13
  - Master: “Internet, Intranet, Web”, 35 hours, 2nd year, Ecole d’ingénieurs Sup Galilée, Université Paris 13
  - Master: “Administration système Unix”, 44 hours, 3rd year, Ecole d’ingénieurs Sup Galilée, Université Paris 13
- Gianluigi Zavattaro
  - Master: “Linguaggi di Programmazione e Modelli Computazionali”, 120 hours, 1st year, University of Bologna, Italy.

### 9.2.2. Supervision

PhD thesis completed in 2015:

- Jean-Marie Madiot, “Higher-order languages: dualities and bisimulation enhancements”, jointly supervised by D. Sangiorgi and D. Hirschhoff. March 2015 [11].
- R. Amadini. “Portfolio Approaches in Constraint Programming”, University of Bologna, June 2015 [10].

Below are the details on the PhD students in Focus: starting date, topic or provisional title of the thesis, supervisor(s). These are all PhDs in progress.

- Ferdinanda Camporesi, January 2009, “Analysis of system biology”, R. Cousot (Ecole Normale, Paris) and M. Gabbrielli
- Alberto Cappai, January 2013; “Security, ICC and probabilistic bisimulation”, U. Dal Lago.
- Abel Garcia, January 2014, “Analysis of Cloud Computing Systems”, C. Laneve.
- Francesco Gavazzo, October 2015, “Causality in coinduction”, D. Sangiorgi.
- Saverio Giallorenzo, January 2013, “Real-World Choreographies”, M. Gabbrielli and F. Montesi
- Vincenzo Mastandrea, October 2015, “Deadlock analysis in ASP”, Cosimo Laneve (with Ludovic Henrio, CNRS Sophia Antipolis).
- Alessandro Rioli, January 2012; Bisimulation equivalence in quantum lambda calculi, U. Dal Lago.
- Marco Solieri, December 2011; “Géométrie de l’interaction, réseaux, et lambda-calcul”, S. Guerrini (Paris Nord) and S. Martini.
- Valeria Vignudelli, January 2014, “Probabilities in Higher-Order languages”, D. Sangiorgi.

### 9.2.3. *Juries*

Dal Lago has been member of the PhD evaluation committee for Erika De Benedetti (January 2015, University of Torino).

Laneve has been member of the PhD evaluation committee for Abiar Al-Homaimedi, King's College London, June 2015

Simone Martini has been rapporteur and member of the PhD evaluation committee for Matthieu Perrinel (Ecole Normale Supérieure de Lyon); member of the PhD evaluation committee for Paolo Pistone (Università Roma Tre) and Federica Panarotto (Università di Verona).

## 9.3. Popularization

Simone Martini has carried out extended work of scientific divulgation:

- member of the technical committee of Olimpiadi del Problem Solving (at Italian Ministry of Education), <http://www.olimpiadiproblemsolving.com>;
- member of the technical committee of two national projects of Italian Ministry of Education, founded by ESF - European Social Fund: 'Robotica educativa', and 'Informatica nei licei';
- various talks at institutes and workshops on the teaching methods for Computer Science.
- coordinator of some initiatives for the 'Hour of Code', see <https://italia.code.org/> and <http://www.programmailfuturo.it>.

D. Hirschhoff takes part in several popularization activities in schools, in Lyon (association "Maths en Jeans").

### 9.3.1. *Other duties*

Simone Martini is a member of the Board of CINI (Italian National Interuniversity Consortium for Informatics), designated by the Ministry for Semplificazione e Pubblica Amministrazione, from 2015.

Simone Martini has been elected Head of the Department of Computer Science and Engineering, Università di Bologna, for the term 2015-2018.

Davide Sangiorgi is coordinator of undergraduate studies at the Department of Computer Science and Engineering, Università di Bologna (Informatica per il Management).

## INDES Project-Team

## 8. Dissemination

### 8.1. Promoting Scientific Activities

#### 8.1.1. Scientific events organisation

##### 8.1.1.1. General chair, scientific chair

Manuel Serrano was the General chair of the 11th ACM Dynamic Language Symposium (DLS'15), co-located with Splash 2015 (<http://2015.splashcon.org/track/dls2015>). Manuel Serrano was the General chair of 13th Trends In Functional Programming Symposium. (<https://tfp2015.inria.fr/>).

##### 8.1.1.2. Member of the organizing committees

Nataliia Bielova was a publication chair of International Symposium on Engineering Secure Software and Systems (ESSoS 2015). Ilaria Castellani co-organised the workshop TRENDS 2015, affiliated with the CONCUR 2015 conference which took place in Madrid at the beginning of September.

#### 8.1.2. Scientific events selection

##### 8.1.2.1. Member of the conference program committees

- Ilaria Castellani served on the programme committee member of the conferences CONCUR 2015, TGC 2015, TTCS 2015 and ICTAC 2015.
- Tamara Rezk served on the programme committee member of the conferences ESSOS 2015, CSF 2015, POST 2015, PLAS 2015.
- Manuel Serrano served on the program committee of the 20th ACM ICFP'15.

## 8.2. Teaching - Supervision - Juries

### 8.2.1. Teaching

Master : Nataliia Bielova, Information Flow Security in Web Applications, 15 ETD, University of Pierre et Marie Curie, France

Doctorat : Ilaria Castellani, Behavioral Types, 15H ETD, University of Florence, Italy

Licence : Vincent Prunet, Algorithms and Data Structures, 80 ETD, L2, Lycée International de Valbonne Sophia Antipolis (within the scope of the national Inria action to promote early CS courses in all scientific curricula), France

Master : Tamara Rezk, Web Application Security, 28H ETD, University of Nice Sophia Antipolis, France

Master : Tamara Rezk, Proofs of Cryptography, 28H ETD, University of Nice Sophia Antipolis, France

Master : Tamara Rezk, Information Flow Security in Web Applications, 15 ETD, University of Pierre et Marie Curie, France

Master: Bernard Serpette, From Lambda-calculus and Pi-calculus to an Abstract Distributed Machine, 24H ETD, Escuela de Verano de Ciencias Informáticas, Rio Cuarto, Argentina

Master: Manuel Serrano, Programming the Diffuse Web, 4,5h ETD, Ecole Normale Supérieure de Cachan, France

### 8.2.2. Supervision

PhD : Johan Grande, Conception and Implementation of a modular concurrent programming language, University of Nice Sophia Antipolis, September 2015, Manuel Serrano and Gérard Boudol

PhD in progress: Yoann Couillec, Langages de programmation et données ouvertes, University of Nice Sophia Antipolis, 1/10/2012, Manuel Serrano

PhD in progress : Francis Dolière Some, Web Tracking Prevention, November 2015, Nataliia Bielova and Tamara Rezk

PhD in progress : Colin Vidal, HipHop, September 2015, Manuel Serrano and Gérard Berry

PFE master 2: Julien Chiramello, Décomposition en nombres premiers en informatique quantique, Tamara Rezk and Benjamin Grégoire

### 8.2.3. *Juries*

Iliaria Castellani was a member of the “Comité de sélection” for a position of Maître de conférences at the University of Paris-Est Créteil (Paris 12).

Iliaria Castellani was an examiner of the PhD thesis of Ioana Cristescu, Université Paris-Diderot (Paris 7).

Tamara Rezk was an examiner of the PhD thesis of Marco Patrignani, KU Leuven University.

Manuel Serrano was a member of a "comité de sélection" of UPMC (Paris 6).

## 8.3. Transfer

### 8.3.1. *Price discrimination in e-commerce*

In 2014, we started a collaborative project with Thomas Vissers, Wouter Joosen (KULeuven, Belgium) and Nick Nikiforakis (Stony Brook University, USA). The goal of this project is to analyse the price discrimination in e-commerce, and more precisely in the online airline tickets websites. This work (published at HotPETs 2014) has achieved a strong impact on the general public and society at large – its scientific results has been disseminated via the popular science French magazine “Science et vie” No. 1177, in the article called “*Achat sur Internet – Des prix à la tête du client!*”.

### 8.3.2. *WebRobotics*

The WebRobotics initiative aims at developing collaborations with partner academic and industry teams to jointly prototype and experiment end user applications involving assistive robots and sensor devices (depending on the size and number of the embedded components, applications may be either classified as robotic or IoT ones). Each WebRobotics project is structured around partner medical institutions that provide key requirements to specifications and use the actual prototype throughout their daily activity. WebRobotics Applications all use Hop.js as their core framework, natively supporting web protocols for communication and distribution of tasks, and any web enabled device such as a smartphone or tablet to drive the robots and applications. In 2015, The initiative accounted to two full time engineers.

The Top Three Benefits of WebRobotics:

- WebRobotics focuses on key societal issues, developing real applications for demanding users.
- Application developers and users feedback to Hop.js framework developers, helping identify and prioritize key requirements.
- The WebRobotics application portfolio fosters the dissemination and transfer of the Hop.js technology to the Industry.

The WebRobotics initiative now encompasses several prototypes in use by medical foundations and hospitals.

- RAPP. The WebRobotics project is now part of the RAPP FP7 european project, launched in December 2013, where Hop.js technology is used by several academic and SME R&D teams to develop a distributed software platform and applications for assistive robotics. Two prototypes are being developed, the first one is a personal coach robot (a Nao humanoid robot embedding Hop.js distributed applications), and the second one is a smart rollator (a walking aid with additional hardware and software services for rehabilitation, training and activity monitoring. The rollator hardware and robotic components are provided by Inria Hephaistos). Both prototypes are being evaluated by partner medical institutions. Indes contribution to the project is supported by the EC grant and by an Inria self funded ADT (Technology Development Program).
- Hopcare. Indes collaborates with other research teams (Inria STARS, Nice University Cobtek Project) and local institutes and SMEs to foster the development distributed monitoring and supervision applications with the Hop.js technology. An expert engineer is dedicated to this project (grant from UCN@Sophia Labex, since may 2015).
  - ICP (Institut Claude Pompidou Hospital, in Nice) is now using the Alzheimer diagnosis tool developed using Hop.js. User Data generated from Inria/Stars sensors and image analysis software are collected by a Hop.js server and processed before being delivered to the Physician's web tablet, as an editable web report, or paper ready PDF reports.
  - The activity monitoring application enables real-time monitoring of various events generated by hardware/software monitoring tools (such as the video monitoring applications from Inria/Stars) as well as user defined events. Hop.js is the common framework for the whole application (communications with remote information servers, processing of input data, database management, user authentication and authorization, custom views for web clients). The application will soon be deployed at the Nice Valrose EHPAD (a specialized institution for elderly who need medical care), where Inria runs an experimentation lab.
  - A third application has been developed to enable the configuration and use of Inria/Stars video analysis tools through a web interface. The application is used by researchers to tune their data processing algorithms.



## MAESTRO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- A. Dandoush was co-chair of the International Workshop on Physics Inspired Paradigms in Wireless Communications and Networks (Physcomnet 2015, Mumbai, India).
- S. Alouf and A. Jean-Marie are the general chairs of the 13th SIGMETRICS/PERFORMANCE Joint International Conference on Measurement and Modeling of Computer Systems (ACM SIGMETRICS/IFIP PERFORMANCE 2016, Antibes Juan-les-Pins, France).

#### 10.1.1.2. Member of the organizing committees

- E. Altman was in the steering committee and an advisor in the organizing committee of 13th Intl. Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (WiOpt 2015, Mumbai, India).

### 10.1.2. Scientific events selection

#### 10.1.2.1. Member of the conference program committees

MAESTRO members were in the TPC of the following events (in alphabetical order):

- 10th ACM MobiCom Workshop on Challenged Networks (CHANTS 2015, Paris, France) (**G. Neglia**)
- 11th Advanced Intl. Conference on Telecommunications (AICT 2015, Brussels, Belgium) (**K. Avrachenkov**);
- IEEE ICC Workshop on Dynamic Social Networks (DySON 2015, London, UK), (**K. Avrachenkov**).
- 35th IEEE Intl. Conference on Computer Communications (IEEE INFOCOM 2016, San Francisco, USA) (**G. Neglia**)
- 7th IEEE Intl. Workshop on Network Science for Communication Networks (IEEE NetSciCom 2015, Hong Kong, PRC) (**K. Avrachenkov, G. Neglia**);
- 15th Intl. Conference on Next Generation Wired/Wireless Networking (NEW2AN 2015, St. Petersburg, Russia) (**K. Avrachenkov**);
- 9th Intl. Conference on Performance Evaluation Methodologies and Tools (VALUETOOLS 2015, Berlin, Germany) (**K. Avrachenkov, G. Neglia**)
- 30th Intl. Symposium on Computer and Information Sciences (ISCIS 2015, London, UK) (**A. Jean-Marie**);
- 13th Intl. Symposium on Modeling and Optimization in Mobile, Ad Hoc and Wireless Networks (WiOpt 2015, Mumbai, India), (**K. Avrachenkov**);
- 8th Intl. Workshop on Multiple Access Communications (MACOM 2015, Helsinki, Finland) (**K. Avrachenkov**);
- Intl. Workshop on Physics Inspired Paradigms in Wireless Communications and Networks (Physcomnet 2015, Mumbai, India) (**A. Jean-Marie**);
- Musimorphoses (Paris, France)) (**E. Altman**);
- 12th Workshop on Algorithms and Models for the Web Graph (WAW 2015, Eindhoven, The Netherlands) (**K. Avrachenkov**);
- 17th Workshop on Mathematical Performance Modeling and Analysis (MAMA 2015, Portland, Oregon, USA) (**A. Jean-Marie, P. Nain**).

#### 10.1.2.2. Reviewer

The members of the team reviewed numerous papers for numerous international conferences.

### 10.1.3. Journal

#### 10.1.3.1. Member of editorial boards (list in alphabetical order of journal name)

- *Performance Evaluation* (PEVA) (**P. Nain** Editor-in-Chief since 1 January 2008).
- *ACM Transactions on Modeling and Performance Evaluation of Computing Systems* (ToMPECS) (**K. Avrachenkov** since 2015).
- *Dynamic Games and Applications* (DGAA) (**E. Altman** since 2011);
- *Elsevier Computer Communications* (COMCOM) (**G. Neglia** since 2014);
- *IEEE Transactions on Control of Networks* (TCNS) (**E. Altman** since 2013);
- *IEEE/ACM Transactions on Networking* (ToN) (**E. Altman** since 2013);
- *Journal of Economic Dynamics and Control* (JEDC) (**E. Altman** since 2001);
- *Performance Evaluation* (PEVA) (**K. Avrachenkov** since 2008).

#### 10.1.3.2. Reviewer - Reviewing activities (list in alphabetical order of journal name)

- *Computer Communications* (COMCOM) (**S. Alouf**);
- *Computers in Industrial Engineering* (**A. Jean-Marie**);
- *IEEE Trans. on Control of Network Systems* (TCNS) (**A. Reiffers-Masson**);
- *IEEE Trans. on Mobile Computing* (TMC) (**G. Neglia**);
- *Mathematical Problems in Engineering* (**A. Jean-Marie**);
- *Performance Evaluation* (PEVA) (**J. K. Sreedharan**);
- *Social Network Analysis and Mining* (SNAM) (**A. Reiffers-Masson**);

### 10.1.4. Invited talks

MAESTRO members gave the following invited talks (in alphabetical order):

- *A Markovian queueing system for modeling a smart green base station*, in the series “séminaire Fondation HEC”, Gerad, Montréal, Canada, 13 October 2015, (**A. Jean-Marie**);
- *Extremes and Random Walks in Network Sampling Processes*, seminar at Yandex, Russia, 13 May 2015 (**K. Avrachenkov**);
- *Game models in epidemics in networks* seminar at Telecom SudParis on 22 October 2015 (**E. Altman**);
- *Game Theory and Online Social Network* seminar at NYU, New York, USA, August 2015 (**A. Reiffers-Masson**);
- *Graph-based Semi-supervised Learning Methods*, seminar at IIT Mumbai, India, 4 March 2015 (**K. Avrachenkov**);
- *Modeling with Markov chains: the MARMOTE software*, UCN@Sophia Labex seminar, 3 September 2015 (**A. Jean-Marie**);
- *On the convergence of the Rolling Horizon procedure*, 2nd 2015 Meeting of the COS working group of the GdR RO, Paris, 3 December 2015 (**A. Jean-Marie**).

### 10.1.5. Leadership within the scientific community

- E. Altman is a fellow member of IEEE (Class of 2010).
- E. Altman, A. Jean-Marie and P. Nain are (elected) members of IFIP WG7.3 on “Computer System Modeling”.

### 10.1.6. Research administration

E. Altman

- is co-responsible of one of the five themes of the SFR (Structure Fédérative de Recherche) AGORANTIC (in which Inria is a founding member) entitled “Digital Culture and Virtual Societies.”
- is Scientific coordinator of the European project CONGAS.

K. Avrachenkov

- together with Arnaud Legout (DIANA team) and Fabien Gandon (WIMMICS team) is co-responsible of the multi-disciplinary research theme (Action Transversale) “Semantic and Complex Networks” at Inria Sophia Antipolis - Méditerranée.

A. Jean-Marie

- is the scientific coordinator of Inria activities in Montpellier (since 2008); as part of this duty, he represents Inria at the Scientific Council of the Doctoral School “Sciences and Agrosociences” of the Univ. of Avignon, at the Regional Conference of Research Organisms (CODOR), at the Regional Consulting Committee for Research and Technological Development (ARAGO Committee);
- is a member of the Steering Committee of the GDR RO, a national research initiative on Operations Research sponsored by the CNRS;
- is Head of project-team MAESTRO since October 2014;
- was member of the recruitment committee for a *Maître de Conférences* position at Univ. Paris Est Créteil.

P. Nain

- has been Chairman of Inria’s Evaluation Committee from 1 September 2012 to 31 August 2015 (<http://www.inria.fr/en/institute/organisation/committees/evaluation-committee>).

G. Neglia

- is the scientific delegate for European partnerships for Inria Sophia Antipolis – Méditerranée.

MAESTRO members are in the following committees of Inria Sophia Antipolis-Méditerranée

- CC (Comité de Centre): General Information Commission (**G. Neglia** since September 2013);
- CLFP: Training Committee (**S. Alouf**, since November 2014);
- CSD: Doctoral Committee (**S. Alouf**, since February 2006);
- MASTIC: a commission in charge of popularization and regional and internal scientific animation (**S. Alouf**, from November 2011 until December 2015);
- NICE: Invited Researchers Committee (**K. Avrachenkov**, since 2010).

MAESTRO members are in charge of the following tasks for the research center and the project-team:

- Supervision and validation of the project-teams’ yearly activity reports (**K. Avrachenkov**, since 2010);
- Organizing MAESTRO internal meetings (**J. K. Sreedharan**, since November 2013).

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

#### Licence:

S. Alouf, “Probability”, 33H, 1st year Water Engineering degree (L3), Univ. of Nice Sophia Antipolis (UNS), France.

G. Neglia, “Probability”, 18H, 1st year Water Engineering degree (L3), UNS, France.

A. Reiffers-Masson, “Introduction to telecommunications network engineering”, 63H, Computer Science Program (L2), Univ. of Avignon (UAPV), France.

#### Master:

S. Alouf, “Performance Evaluation of Networks”, 31.5H, M2 IFI Ubinet, UNS, France.

A. Jean-Marie, “Foundations of Network Modeling”, 12H, MPRI, Univ. Paris Diderot/ENS Ulm/Univ. Paris Saclay, France.

G. Neglia, “Distributed Optimization and Games”, 31.5H, M2 IFI Ubinet, UNS, France.

G. Neglia, responsible for the “Winter School on Complex Networks”, 29H, M1 Computer Science, UNS, France.

K. Avrachenkov, “Random-walk based algorithms for complex network analysis” at “Winter School on Complex Networks”, 2H, M1 Computer Science, UNS, France.

A. Reiffers-Masson, “Information theory”, 7.5H, Computer Science Program (M1), UAPV, France.

A. Reiffers-Masson, “Radio Interface”, 9H, Computer Science Program (M1), UAPV, France.

A. Reiffers-Masson, “Sentimental Analysis”, 13.5H, Computer Science Program (M2), UAPV, France.

A. Reiffers-Masson, “Cryptography”, 13.5H, Computer Science Program (M2), UAPV, France.

#### Doctorat:

A. Jean-Marie, “Advanced Markov Modeling”, 18H, Univ. of Montpellier 2, France.

G. Neglia, “PhD School on Network Science”, 20H, Univ. of Pisa, Italy.

### 10.2.2. Supervision

#### PhD defended:

Ilaria Brunetti, “New approaches to Evolutionary Games and Decision Dynamics”, UAPV, 8 December 2015, advisor: Eitan Altman.

Julio Cesar Louzada Pinto, “Dissemination of information in opinion dynamics in social networks”, Telecom SudParis, 14 January 2016, advisors: Eitan Altman, Tijani Chahed and Jeremie Jakubowicz.

Alexandre Reiffers-Masson, “Competition over visibility and popularity in on line social networks”, UAPV, 12 January 2016, advisors: Eitan Altman and Yezekael Hayel.

Abdoulaye Tall, “Optimization and Self-Optimization for LTE networks”, UAPV, 17 December 2015, advisors: Eitan Altman and Zwi Altman.

#### PhD in progress:

Alberto Benegiamo, “Mathematical tools for smart grids,” 1 November 2013 interrupted in 31 August 2015, advisors: Patrick Loiseau (Eurecom) and Giovanni Neglia.

Arun Kadavankandy, “Random Matrix Theory and Complex Networks,” 5 March 2014, advisors: Konstantin Avrachenkov and Laura Cottatellucci (Eurecom).

Jithin Kazhuthuveetil Sreedharan, “Diffusion processes in complex networks,” 23 July 2013, advisor: Konstantin Avrachenkov.

Hlib Mykhailenko, “Probabilistic approaches for big data analysis,” 1 May 2014, advisors: Fabrice Huet (SCALE team) and Philippe Nain.

Yonathan Portilla, “Analysis of social networks,” 1 January 2012, advisor: Eitan Altman.

### 10.2.3. *Juries*

MAESTRO members participated in the Habilitation (HDR) thesis committees of (in alphabetical order):

- Nidhi Hegde: “Resource Allocation in Wireless Data Networks”, 16 January 2015, UPMC, (**E. Altman** as reviewer);
- Patrick Maillé: “Insights from economic studies of telecommunication networks”, 7 October 2015, Univ. de Rennes, (**E. Altman** as reviewer);

and in the Ph.D. committees of (in alphabetical order):

- Ilaria Brunetti: “New approaches to Evolutionary Games and Decision Dynamics”, UAPV, 8 Dec. 2015, (**E. Altman** as advisor);
- The Dang Huynh: “Extension de PageRank et application aux réseaux sociaux”, Univ. Paris Diderot, 1 June 2015, (**K. Avrachenkov** as reviewer);
- Ovidiu-Constantin Iacoboaiea: “Coordination of self organization (SON) functionalities in future radio access networks”, Telecom ParisTech, 2 Oct. 2015, (**E. Altman** as reviewer);
- Ane Izagirre: “Interpolation approximations for steady-state performance measures”, INSA, Toulouse, 21 September 2015, (**K. Avrachenkov** as reviewer);
- Maialen Larrañaga: “Dynamic control of stochastic and fluid resource-sharing systems”, Univ. of Toulouse, 23 September 2015, (**A. Jean-Marie** as reviewer);
- Julio Cesar Louzada Pinto: “Dissemination of information and opinion dynamics in social networks”, Telecom SudParis, 14 January 2016, (**E. Altman** as advisor);
- Fatima Zahra Moataz, “Towards Efficient and Fault-Tolerant Optical Networks: Complexity and Algorithms”, Univ. of Nice Sophia Antipolis, 30 Oct. 2015, (**A. Jean-Marie** as jury president);
- Alexandre Reiffers-Masson: “Competition over visibility and popularity in on line social networks”, UAPV, 12 January 2016, (**E. Altman** as advisor);
- Abdoulaye Tall: “Optimization and Self-Optimization for LTE networks”, UAPV, 17 Dec. 2015, (**E. Altman** as advisor).

## 10.3. Popularization

Activities are presented in chronological order:

- S. Alouf delivered a conference titled “Comment marche le Web ?” at Lycée General et Technologique du Rempart, Marseille, for two classes of high school students (20 March 2015).
- A. Reiffers-Masson participated to the “Fête de la science” at the UAPV, (8 October 2015). His presentation was about Online Social Networks.

S. Alouf is a member of MASTIC, a commission in charge of popularization and regional and internal scientific animation (from November 2011 until December 2015).

## 10.4. Participation in scientific events

### 10.4.1. *Keynotes, tutorials and invited talks*

MAESTRO members gave the following keynote lectures/plenary speeches (in alphabetical order):

- *Defense strategies against SIS epidemics in networks*, at 6th Conference on Decision and Game Theory for Security (GameSec), London, UK, 4 November 2015 (**E. Altman**);
- *Graph-based semi-supervised learning methods*, at 5th Intl. Conference on Network Analysis (NET), Nizhny Novgorod, Russia, 18 May 2015 (**K. Avrachenkov**);
- *Timelines Analysis and competition over popularity, influence and visibility in social networks*, at IEEE ICC Workshop on Dynamic SOcial Networks (DySON), London, UK, 8 June 2015 (**E. Altman**);

the following tutorials (in alphabetical order):

- *Complex Networks and their Analysis with Random Walks*, at 27th Intl. Teletraffic Congress (ITC 27), Gent, Belgium, 7 September 2015 (**K. Avrachenkov**);

and the following invited talks (in alphabetical order):

- *Competition in social networks*, at “Stochastic networks and stochastic geometry” a conference dedicated to François Baccelli on his 60th birthday, Institut Henri Poincaré, Paris, 12-14 January 2015 (**E. Altman**);
- *Exploration and exploitation in learning in multiobjective MDPs*, at NETLEARN/ORANGE workshop on Learning and Networks, Issy-les-Moulineaux, 9 October 2015 (**E. Altman**);
- *Extremes and Random Walks in Network Sampling Processes*, at EURANDOM workshop on Random Walks on Random Graphs and Applications, Eindhoven, Netherlands, 14-16 April 2015 (**K. Avrachenkov**);
- *Game models in social networks*, at NYU Workshop on Control and Optimization of Network Systems (CONES), New York, USA, 1 May 2015 (**E. Altman**);
- *Performance Evaluation... of a Laser*, at Imperial College, Seminar in the honor of Pr. E. Gelenbe/ISCIS 2015, London, UK, 23 September 2015 (**A. Jean-Marie**);
- *Spectral Properties of Random Matrices for Stochastic Block Model*, at Intl. Workshop on Physics Inspired Paradigms in Wireless Communications and Networks (PHYSCOMNET), IIT Mumbai, India, 29 May 2015 (**A. Kadavankandy**);
- *Whittle index policy for crawling ephemeral content*, at Workshop on Modern trends in controlled stochastic processes, Univ. of Liverpool, UK, 29 June 2015 (**K. Avrachenkov**).

E. Altman was part of a one hour panel on network neutrality which took place as part of the WiOpt conference in IIT Mumbai, India, 25-29 May, 2015.

#### **10.4.2. Conferences and workshops**

MAESTRO members gave presentations at the following scientific events (in alphabetical order):

- Bell Labs Future X days (Openday), Paris, France , 10-11 June 2015 (**J. K. Sreedharan**);
- 12th European Workshop on Performance Engineering (EPEW), Madrid, Spain, 31 August - 1 September 2015 (**A. Jean-Marie**);
- 54th IEEE Conference on Decision and Control (CDC 2015), Osaka, Japan, 15-18 December 2015 (**K. Avrachenkov, G. Neglia**);
- 14th IFIP International conference on networking (Networking 2015), Toulouse, France, 20-22 May 2015 (**G. Neglia**);
- 3rd Intl. workshop on Big Data and Social Networking Management and Security (BDSN), Limassol, Cyprus, 7 December 2015 (**A. Reiffers-Masson**);
- 12th Workshop on Algorithms and Models for the Web-graph (WAW), Eindhoven, Netherlands, 10-11 December 2015 (**A. Kadavankandy**);
- 6th Workshop on Dynamic Games in Management Science, Montreal, Canada, 22-23 October 2015, (**I. Brunetti**).

#### **10.4.3. Schools and doctoral courses**

MAESTRO members have attended the following events (list in alphabetical order):

- COST ACROSS Summer School on “NFV meets Big Data Architecture and Performance Evaluation” (30H), Würzburg, Germany, 8-15 April 2015 (**A. Dandoush**);
- 12th EDBT Summer School on “Graph Data Management” (26H), Palamós, Spain, 31 August - 4 September 2015 (**H. Mykhailenko**);
- WAW 2015 School on complex networks and graph models (16H), Eindhoven, Netherlands, 7-8 December 2015 (**A. Kadavankandy** and **J. K. Sreedharan**).

## SCALE Team

## 9. Dissemination

### 9.1. Promoting Scientific Activities

#### 9.1.1. Scientific events organisation

##### 9.1.1.1. general chair, scientific chair

- Ludovic Henrio, member of the chairing committee of ICE'2016; organisation of a workshop on Active object languages in September 2015.
- Fabien Hermenier co-chaired of the 4th Workshop Energy-Efficiency in Data Centres (E2DC)

#### 9.1.2. Scientific events selection

##### 9.1.2.1. responsable of the conference program committee

- Olivier Dalle, member of the SIMUTools Steering Committee;
- Eric Madelaine, member of the FACS Steering Committee;

##### 9.1.2.2. member of the conference program committee

- Françoise Baude: program committee member of HPCS 2015, Compas2015
- Olivier Dalle: program committee member of DEVS/TMS'15, ACM SIGSIM PADS'15, WSC'15
- Ludovic Henrio: program committee member of ICE'15, PDP4PAD 2016, AGERE!2015
- Fabien Hermenier: program committee member of Compas2015, PDP, VTDC
- Fabrice Huet : program committee member of Europar 2014, IEEE Big Data 2014, BDCloud 2014.

#### 9.1.3. Journal

##### 9.1.3.1. reviewer

- Françoise Baude was a reviewer for International Journal of Computer Mathematics, and TSI special issue of Compas 2014;
- Olivier Dalle was a reviewer for journals ACM TOMACS, SCS SIMULATION, Elsevier SIMPRA;
- Fabien Hermenier was a reviewer for journals of Systems and Software, IEEE Transactions on Cloud Computing, Journal of Grid Computing;
- Ludovic Henrio was reviewer for the journal SCP (Science of Computer Programming);
- Eric Madelaine was reviewer for the journals SCP (Science of Computer Programming) and JLAMP (Journal of Logical and Algebraic Methods in Programming).

#### 9.1.4. Invited talks

- Eric Madelaine presented a talk titled “Semantics and Equivalences for Parameterized Networks of Synchronised Automata (pNets)”, at the “Advanced Software Technology Forum” of the Chinese Academy of Science, Shanghai, July 23rd.

#### 9.1.5. Research administration

- Eric Madelaine is council member of the International Joint Research Laboratory of Trustworthy Software, Ministry of Education, China.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : Françoise Baude, Algorithmique et Programmation en Java, 70 H eqTD, niveau L2, Polytech'Nice Sophia, UNS, France

Licence : Françoise Baude, Introduction au Web, 30 H eqTD, niveau L2, Polytech'Nice Sophia, UNS, France

Licence : Olivier Dalle, Systèmes Informatiques, 72 H eqTD, niveau L1, UFR Sciences, UNS, France

Licence : Olivier Dalle, Outils Formels Informatique, 36 H eqTD, niveau L2, UFR Sciences, UNS, France

Licence : Olivier Dalle, Projet Scientifique Informatique, 33 H eqTD, niveau L2, UFR Sciences, UNS, France

Licence : Olivier Dalle, Systèmes d'Exploitation, 72 H eqTD, niveau L2, UFR Sciences, UNS, France

Licence : Fabien Hermenier, Algorithmique et Programmation en Java, 70 H eqTD, niveau L2, Polytech'Nice Sophia, UNS, France

Licence : Fabien Hermenier, Introduction à Internet, 103 H eqTD, niveau L2, Polytech'Nice Sophia, UNS, France

Licence : Fabien Hermenier, Outils pour le Génie Logiciel 14 H eqTD, niveau L3/SI3, Polytech'Nice Sophia, UNS, France

Licence : Justine Rochas, TP de Programmation Orientée Objet 18 H eqTD, niveau L3, UFR Sciences, UNS, France

Master : Françoise Baude, Applications Réparties, 36 H eqTD, niveau M1/SI4, Polytech'Nice Sophia, UNS, France

Master : Françoise Baude and Ludovic Henrio, Distributed systems: an Algorithmic approach, 17 H + 17 h eqTD, niveau M2, Polytech'Nice Sophia/UFR Sciences, UNS, France

Master : Fabrice Huet, Programmation Parallèle et Distribuée, 63h eqTD, niveau M1, UFR Sciences, UNS, France

Master : Fabrice Huet, Programmation Avancée, 78h eqTD, niveau M1, UFR Sciences, UNS, France

Master : Fabien Hermenier, Software Architecture for Cloud Computing, 17h eqTD, niveau M2, Polytech'Nice Sophia, UNS, France

Master : Fabien Hermenier, Virtualised Architecture for Cloud Computing, 17h eqTD, niveau M2, Polytech'Nice Sophia, UNS, France

Master : Justine Rochas, TP de Systèmes Distribués 24 H eqTD, niveau M1, UFR Sciences, UNS, France

Master : Justine Rochas, TP de Technologies XML 24 H eqTD, niveau M1, UFR Sciences, UNS, France

Summer School : Eric Madelaine, "Designing, programming, and verifying distributed systems", 9 H eqTD, East China Normal University Shanghai, China.

### 9.2.2. Supervision

PhD : Michaël Benguigui, "Valorisation d'options américaines et Value at Risk de portefeuille sur cluster de GPUs/CPU's hétérogène", UNS, 27/8/2015 advisor Françoise Baude.

PhD : Maeva Antoine, "Improving skewed data dissemination in structured overlays", UNS, 23/3/2015, advisors Eric Madelaine and Fabrice Huet

PhD: Damian Vicino, "Improved Time Representation in Discrete-Event Simulation", UNS-Carleton, 23/11/2015, advisors Olivier Dalle, Françoise Baude, Gabriel Wainer (Carleton University, Canada).



PhD in progress: Ge Song, “Publish-Subscribe Models for Large Scale Data Analysis Frameworks”, since Feb. 2013, advisor Fabrice Huet and Frédéric Magoulés (ECP)

PhD in progress : Vincent Kerbache, “Resource Management in a Cloud Supplied with Renewable Energies”, since Sep. 2013, advisors Eric Madelaine and Fabien Hermenier

PhD in progress : Oleksandra Kulankhina, “Model-driven environment for the development of safe component-based distributed applications”, since Oct. 2013, advisor Eric Madelaine

PhD in progress: Justine Rochas, “Programming model and middleware support for distributed and concurrent applications”, since Oct. 2013, advisor Ludovic Henrio

PhD in progress: Hlib Mykhailenko, “Probabilistic Approaches for Big Data Analytics”, since March. 2014, advisors Fabrice Huet, Philippe Nain (Inria)

PhD in progress: Vincenzo Mastandrea, “Deadlock analysis for concurrent and distributed programming”, since Oct. 2014, advisors Ludovic Henrio and Cosimo Laneve.

PhD in progress: Léa El Bèze, “Predictive Big Data Analytics: continuous and dynamically adaptable data request and processing”, since Nov. 2015, advisors Françoise Baude and Didier Parigot (Inria).

### 9.2.3. Juries

- Françoise Baude was jury president for the PhD of Ivan Paez (Université de Rennes 1).
- Ludovic Henrio was reviewer and jury member for the PhD of Sylvain Dailier (Université d’Orléans).
- Fabrice Huet reviewed the PhD thesis of Roelof Kemp (Vrije Universiteit, Amsterdam).

## 9.3. Popularization

- Françoise Baude is in charge since September 2011 of the set up and animation of an educational program *Cordées de la Réussite*, which in 2015 has launched a robotic project around the humanoid robot named Poppy. Since 2013, she is in charge of the AVOSTII-STI2D program implementation for Polytech’Nice Sophia, requiring advertising high-school pupils for engineering studies, in particular in ICT.

As EIT Digital Master School University of Nice Sophia-Antipolis coordinator, she is in charge of publicizing, orchestrating, and reporting about all the EIT Digital master programmes involvement of UNS (Internet and Technology Architecture, and Data Science programmes); and as part of the *Paris Node comité de pilotage*, to follow French activities within EIT Digital, and report about UNS activities within this KIC. Overall this mission required about four full-time months of work in 2015. She presented these two master programs at the Telecom Valley Innovation meeting on March 27th and June 18 2015, and in more details at the Kick-Off meeting of the Master School organized in Eindhoven for master students, on October 23th 2015.

She has been invited at the round table “Mystérieuses Big Data” on november 230th that was organized for the 50th anniversary of UNS.

- Fabrice Huet is in charge, since 2011, of the *Informatiques et Sciences du Numérique* courses for the academia of Nice. These courses are offered to high school teachers who volunteer to offer a Computer Science option to their students. He has also given seminars in high school during the *FÃˆte de la Science*.

## AYIN Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Josiane Zerubia was General Chair with Prof. Konrad Schindler (ETH Zurich) of the EARTHVISION workshop at CVPR'15 [<http://www.pamitc.org/cvpr15/workshops.php>] in Boston, USA, in June.
- Josiane Zerubia was Plenary talks Chair with Prof Sergios Theodoridis (University of Athens) of IEEE/EURASIP EUSIPCO'15 conference [<http://www.eusipco2015.org/content/keynotes>] in Nice, France, in September.
- Josiane Zerubia was Scientific Chair of the workshop on Stochastic Geometry and Big Data [<https://team.inria.fr/ayin/workshop/>] in Sophia Antipolis, France, in November.

#### 10.1.1.2. Member of the organizing committees

- Josiane Zerubia was part of the organizing committee of IEEE/EURASIP EUSIPCO'15 conference [<http://www.eusipco2015.org/content/organising-committee>] in Nice, looking for the sponsoring of Inria (Bronze sponsor + Best Student Award sponsor).
- Josiane Zerubia also organized the workshop on Stochastic Geometry and Big Data [<https://team.inria.fr/ayin/workshop/>] in Sophia-Antipolis, financially supported by Airbus D&S, CNRS (GdR GeoStoch) and Inria.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Member of the conference program committees

- Josiane Zerubia was part of the conference program committee of EMMCVPR'15 [<http://blog.ust.hk/emmcvpr/people/>] in Hong Kong, China, in January.
- Josiane Zerubia was part of the conference program committee of ISPRS/SPIE Remote Sensing'15 [<http://spie.org/spieremotesensing>] and [<http://eventegg.com/spie-2015-toulouse/>] in Toulouse, France, in September.

#### 10.1.2.2. Reviewer

- Nazre Batool was a reviewer for the conference IEEE ICIP'15
- Josiane Zerubia was a reviewer for the conferences EMMCVPR'15, IEEE ICASSP'15, IEEE ICIP'15, IEEE EMBS'15, IEEE-EURASIP EUSIPCO'15, ISPRS-SPIE Remote Sensing'15, TAIMA'15 and GRETSI'15.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Josiane Zerubia is an Associate Editor of the collection "Foundation and Trends in Signal Processing" [<http://www.nowpublishers.com/>].
- Josiane Zerubia is a member of the Editorial Board of the "Revue Française de Photogrammétrie et de Télédétection of SFPT" [<http://www.sfpt.fr/rfpt/>].
- Josiane Zerubia is an Associate Editor of the electronic journal Earthzine [<http://www.earthzine.org/>].

#### 10.1.3.2. Reviewer - Reviewing activities

- Seong-Gyun Jeong was a reviewer for the journals APSIPA TSIP, IEEE TCSVT and ELS JVCIR.
- Paula Craciun was a reviewer for IEEE JSTARS journal.
- Ihsen Hedhli was a reviewer for IEEE TGRS, TGRL and TIP journals.
- Nazre Batool was a reviewer for IEEE TIP and JSTARS, and Elsevier Expert Systems with Applications journals.
- Josiane Zerubia was part of SFPT/RFPT Best Paper Award committee in 2015 to evaluate the papers from the year 2014 [<http://www.sfpt.fr/revue/prix-etudiant-sfpt/>].

#### 10.1.4. Invited talks

- Paula Craciun gave a seminar at the Center for Vision, Cognition, Learning and Autonomy, at University of California Los Angeles, USA (invited by Prof. Song-Chun Zhu [<http://vcla.stat.ucla.edu/people.html>]) and the Computer Vision Group, University of California Berkeley, USA (invited by Prof. Jitendra Malik [<http://www.eecs.berkeley.edu/Research/Projects/CS/vision/>]) in January 2015 on joint detection and tracking of moving objects using spatio-temporal marked point processes. Paula Craciun also gave a seminar at the University of Lille 1, France (invited by Dr. Radu Stoica [<http://math.univ-lille1.fr/~stoica/>]) in September 2015 on a similar topic.
- Nazre Batool gave a seminar on modeling and analysis of wrinkles on aging human faces at the Computer Vision Lab, at ETH Zurich, Switzerland (invited by Dr. Orcun Goksel [<http://www.vision.ee.ethz.ch/~ogoksel/>]), in June 2015. Nazre Batool also gave a seminar on modeling of facial wrinkles in aging human faces, at the Multimedia and Visual Computing Lab, at New York University in Abu Dhabi (NYUAD), UAE (invited by Dr. Yi Fang [<http://nyuad.nyu.edu/en/academics/faculty/yi-fang.html>]), in April 2015.
- Josiane Zerubia gave a seminar on marked point processes for object detection in high resolution images at the School of Computer Science and Statistics, at Trinity College Dublin, Ireland (invited by Prof. Rozenn Dahyot [<https://www.cs.tcd.ie/Rozenn.Dahyot/>]), in April 2015. She also gave a seminar on assessing skin lesion evolution from multispectral image sequences at ONERA/DOTA in Toulouse, France (invited by Dr Xavier Briottet [<http://www.onera.fr/dota/>]), in January 2015.

#### 10.1.5. Leadership within the scientific community

- Josiane Zerubia is IEEE Fellow since 2003 and IEEE SPS Distinguished Lecturer since November 2015. ([[http://www.ieee.org/membership\\_services/membership/fellows/index.html](http://www.ieee.org/membership_services/membership/fellows/index.html)], [<http://www.signalprocessingsociety.org/community/lectures/>]).

#### 10.1.6. Scientific expertise

- Nazre Batool was a reviewer for the Austrian Science Fund, FWF, Austria in 2015 [<https://www.fwf.ac.at/en/research-funding/fwf-programmes/>]
- Josiane Zerubia was a reviewer for the Natural Sciences and Engineering Research Council of Canada, NSERC, Canada in 2015 [<http://www.nserc-crsng.gc.ca>].
- Josiane Zerubia also worked as a remote sensing expert for the preparation of the Thales Alenia Space/Inria Chile Symposium in collaboration with Claude Puech and Hervé Coulomb (see [<http://inria.cl/>] and [<http://www.inria.fr/actualite/actualites-inria/inria-chile-acteur-de-l-innovation>]), and prepared in collaboration with Vladimir Krylov a presentation entitled "the Use of Remotely Sensed Optical Imagery for Civil Applications at Inria" given at this symposium on April 29, 2015, in Chile.
- Josiane Zerubia was a reviewer for the IRD Post-Doctoral Fellowship Program, France, in 2015 [<https://www.ird.fr/nous-rejoindre/l-ird-recrute/accueil-de-post-doctorants-campagne-2015-resultats-disponibles>].
- Josiane Zerubia is part of the Scientific Council of Academy 3 of UCA-Jedi [<http://univ-cotedazur.fr/english>] dedicated to "Space, Environment, Risks and Resilience".
- Josiane Zerubia was member of the working group for the creation of the GraphDeco team [<https://team.inria.fr/graphdeco/>] at Inria-SAM.

### 10.1.7. Research administration

- Josiane Zerubia is part of the Board of Directors of the French Photogrammetry and Remote Sensing Society [<http://www.sfpt.fr/sfpt/bureau/>].

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

- Masters: Ihsen Hedhli, Introduction to Image Processing, TP & TD in Matlab, 10h eq. TD, M2 SVS ISAB, Université de Nice Sophia-Antipolis, France.
- Masters: Josiane Zerubia, Advanced Techniques in Signal and Image Processing, 30h eq. TD (20h of lectures), ISAE/SUPAERO, France. Josiane Zerubia is also director of this course (total: 30h of lectures and 10h of TD). This course was given to third-year students at ISAE/SUPAERO and was also validated by the M2 of Applied Mathematics at the University Toulouse III Paul Sabatier, France.
- Masters: Josiane Zerubia, Deconvolution and Denoising in Confocal Microscopy, 18h eq. TD (12h of lectures), M2 BCC, Université de Nice Sophia-Antipolis, France. Josiane Zerubia is also director of this course (total: 24h of lectures).
- Masters: Josiane Zerubia, Introduction to Image Processing, 4.5h eq. TD (3h of lectures), M2 SVS ISAB, Université de Nice Sophia-Antipolis, France. Josiane Zerubia is also director of the course “Digital imaging” at UNS, Master 2 SVS ISAB, UE3 (total: 25h of lectures and 25h of TD).
- Doctoral School (PhD level): Josiane Zerubia, Hierarchical Markovian Models and MCMC Optimisation Techniques, 9h eq. TD (6h of lectures), SUPCOM Tunis Doctoral School, Tunisia. This course was also validated by ENSI Tunis and EP Tunis Doctoral Schools, Tunisia.
- Summer Shool (PhD and Post-doc level): Josiane Zerubia, Image Deconvolution and Denoising for Confocal Microscopy, 6h eq. TD (4h of lectures) at SSMIA’15, Sinaia, Romania. The courses of SSMIA’15 were validated by University Politehnica of Bucharest and Titu Maiorescu University, Bucharest, Romania, and by Technion-Israel Institute of Technology, Israel. See [[http://imag.pub.ro/ssima/?page\\_id=44](http://imag.pub.ro/ssima/?page_id=44)] and [<https://www.youtube.com/watch?v=1wnmL8P8arQ>].

### 10.2.2. Supervision

PhD (defended): Paula Craciun, Stochastic geometry for automatic object detection and tracking in remotely sensed image sequences, University of Nice-Sophia Antipolis, started in December 2012, defended in November 2015, Josiane Zerubia.

PhD (defended): Seong-Gyun Jeong, Curvilinear structure modeling and its applications in computer vision, University of Nice-Sophia Antipolis, started in December 2012, defended in November 2015, Josiane Zerubia and Yuliya Tarabalka.

PhD (in progress): Ihsen Hedhli, Change detection methods for multisensor and multiresolution remote sensing images for applications to environmental disaster management, University of Genoa and University of Nice-Sophia Antipolis, started in January 2013, Gabriele Moser and Josiane Zerubia.

### 10.2.3. Juries

- Josiane Zerubia was a member of the Jury for the Masters BioComp defenses at University of Nice Sophia-Antipolis in August 2015.
- Josiane Zerubia was a reviewer of a PhD thesis at SUPCOM Tunis, Tunisia, and a member of the PhD defense committee in Tunis, in April 2015.
- Josiane Zerubia was a member of a PhD defense committee (joint PhD thesis between Paris-Saclay University, CentraleSupélec and ENSEEIHT) in Toulouse, in October 2015.

- Josiane Zerubia was a member of two PhD defense committees at University of Nice Sophia-Antipolis/Inria, in Sophia-Antipolis, in November 2015.
- Josiane Zerubia was a reviewer of a joint PhD thesis (cotutelle) between University of Bordeaux, France, and University of Rabat, Morocco, and a member of the PhD defense committee in Bordeaux, in December 2015.

### **10.3. Popularization**

- Paula Craciun and Josiane Zerubia wrote a brief scientific popularization article entitled "high resolution satellite imaging" for the book "Mathematics of Planet Earth" published by SIAM in 2015.
- Ihsen Hedhli and Josiane Zerubia hosted in AYIN team during one full day, a schoolboy from "Collège l'Archet", Nice, and a schoolgirl from "collège l'Eganaude", Biot, France. Furthermore, Josiane Zerubia was in charge of the schoolboy internship at Inria-SAM during one week in December 2015.
- Josiane Zerubia provided Hachette publisher with a land cover classification image obtained by an energy minimization based method to make the front cover of a text book of Physics in Ivory Coast.
- Josiane Zerubia participated in the Women in Computer Vision workshop at CVPR'15 in Boston, in June [<https://sites.google.com/site/wicv2015/home>]. She was the mentor of 4 female PhD students from USA, Taiwan, PR China and Sri Lanka, during the dinner organized afterwards.
- Josiane Zerubia presented Inria and Inria-SAM to interested PhD and post-doc students at both SUPCOM Tunis in Tunisia and Trinity College Dublin, Ireland.
- Josiane Zerubia is organizing a monthly scientific seminar at Inria-SAM with national and international speakers (see [<https://team.inria.fr/ayin/ayinseminars/>]).

## GRAPHDECO Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events selection

#### 10.1.1.1. Member of the conference program committees

A. Bousseau served on the Eurographics 2015 international program committee and on the SIGGRAPH 2015 program committee. G. Drettakis served on the SIGGRAPH 2015, Eurographics Symposium on Rendering and Eurographics 2015 program committees.

### 10.1.2. Journal

#### 10.1.2.1. Member of the editorial boards

G. Drettakis is an associate editor of the ACM Transactions on Graphics and the Computational Visual Media journal.

### 10.1.3. Invited talks

K. Vanhoey gave invited talks at Technische Universität Darmstadt (Darmstadt, Germany), Karlsruhe Institut für Technologie (Karlsruhe, Germany), laboratoire LIRIS (Lyon, France), and laboratoire I3S (Sophia-Antipolis, France). K. Vanhoey presented the project “Unifying Color and Texture Transfer for Predictive Appearance Manipulation” at the French workshop on Rendering (GT Rendu) in Paris.

### 10.1.4. Leadership within the scientific community

G. Drettakis chairs the Eurographics working group on Rendering and chairs the local “Jacques Morgenstern” Colloquium organizing committee.

### 10.1.5. Research administration

#### 10.1.5.1. Reviewer - Reviewing activities

A. Bousseau and G. Drettakis were reviewers for several major conferences (Eurographics, SIGGRAPH Asia etc.). K. Vanhoey is a regular reviewer for the Computer and Graphics Journal.

#### 10.1.5.2. Research Evaluation

G. Drettakis served as an evaluator for the KAUST Visual Computing Center and the EC Fet Open Call in November-December.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Masters II: G. Drettakis, A. Bousseau: Foundations of Image Synthesis, CentralSupélec, Paris, 28h.

Masters I: A. Bousseau, G. Drettakis: Image Synthesis International Masters I, University of Nice Sophia-Antipolis, 12h.

Masters I: G. Drettakis, A. Bousseau: Image Synthesis, Masters MAPI Cannes, University of Nice Sophia-Antipolis, 12h.

Bachelors (Licence): A. Djelouah; Teaching assistant for the course of computer science at the university of Nice.

Bachelors (Licence): J. Delanoy; Teaching assistant for the course of databases and supervisor of student projects at IUT - University Nice Sophia-Antipolis.

Bachelors (Licence) K. Vanhoey teaches the Programming course (C language) in 3rd year of the “Electronics” department of Polytech Nice Sophia-Antipolis (32h).

### **10.2.2. Supervision**

- PhD defended: Sylvain Duchêne, Computer Drawing Tools for Assisting Learners, Hobbyists, and Professionals , University Nice Sophia Antipolis, since October 2012 (defended May 2015), Advisor: George Drettakis, Co-advisor: A. Bousseau.
- PhD defended: Emmanuel Iarussi, Computer Drawing Tools for Assisting Learners, Hobbyists, and Professionals , University Nice Sophia Antipolis, since October 2012 (defended September 2015), Advisor: George Drettakis, Co-advisor: A. Bousseau
- PhD in progress: Rodrigo Ortiz-Cayon, Advisor: G. Drettakis. Started December 2013 (CR-PLAY)
- PhD in progress: Johanna Delanoy, Advisor: A. Bousseau. Started October 2015 (Inria)
- PhD in progress: Théo Thonat, Advisor: G. Drettakis. Started October 2015 (Region and SEMAPO-LIS)
- HDR defended: Adrien Bousseau, Depicting shape, materials and lighting: observation, formulation and implementation of artistic principles , University Nice Sophia Antipolis, defended September 2015

### **10.2.3. Juries**

G. Drettakis was a member of the thesis committee for A. Djelouah (Inria Grenoble) in March, for S. Pujades (Inria Grenoble) in September, and external examiner for the Ph.D. of J. Imber (Surrey) in November.

## **10.3. Popularization**

Adrien Bousseau presented his work on sketch-based modeling as an invited seminar in the course of Marie-Paule Cani at Collège de France. Our work with the Institut Claude Pompidou was featured in a news article in the eldiario.es online magazine. GRAPHDECO was presented in the Inria Sophia-Antipolis internal letter in November.

## GRAPHIK Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

Madalina Croitoru co-organized the workshop GKR@IJCAI (international workshop on graph structures for knowledge representation and reasoning) co-located with IJCAI 2015. This is the 4th edition of this workshop series, that she initiated for IJCAI 2011. <https://www.lirmm.fr/~croitoru/GKR/>

Marie-Laure Mugnier co-organized the workshop “Ontologies and logic programming for query answering” co-located with IJCAI 2015. <http://iaoa.org/jowo/calls/>

### 10.1.2. Scientific events selection

We are regularly members of the program committees of the main generalist conferences in AI (i.e., IJCAI, AAAI, ECAI) and more specialized conferences and workshops (KR, the main conference in knowledge representation and reasoning, RR —Web reasoning and Rule Systems, SUM — International Conference on Scalable Uncertainty Management, COMMA — International Conference on Computational Models of Argument, Metadata and Semantics Research Conference, etc.)

In 2015, those conferences were:

- AAAI 2015: 1 senior PC member (Marie-Laure Mugnier) and 2 PC members (Federico Ulliana, Jean-François Baget)
- IJCAI 2015: 4 PC members (Jean-François Baget, Madalina Croitoru, Marie-Laure Mugnier, Federico Ulliana)
- KR 2016 (Marie-Laure Mugnier)
- RR 2015: 1 PC member (Marie-Laure Mugnier)
- SUM 2015 (Madalina Croitoru)
- MTSR 2015, special track on Metadata and Semantics for Agriculture, Food & Environment [AgroSEM'15] (Patrice Buche)
- PRIMA 2015 (Pierre Bisquert)

### 10.1.3. Journal

Madalina Croitoru is member of the editorial board of the International Journal of Conceptual Structures and Smart Applications (IJCSSA).

### 10.1.4. Invited talks

- 8th International colloquium GeCSO Gestion des connaissances dans la société et les organisations (GECSO 2015), Bordeaux, June 2015, ‘Intégration de modèles en ingénierie des connaissances aide à la décision pour le choix d’emballages alimentaires’, Patrice Buche
- Seminar INRA DID’IT (Diet impact and determinants), May 2015, Intégration de modèles en ingénierie des connaissances aide à la décision pour le choix d’emballages alimentaires, Patrice Buche
- Building the next generation of sustainable food packaging from the conversion of food wastes: Decision Support System. Milano Expo 2015 – October 2015, Patrice Buche
- Environmental Life Cycle Analysis using knowledge engineering based approach for assessing sustainability of biorefinery systems, GDR CNRS-INRA Symbiose, November 2015, Patrice Buche



- Open data: éléments de contexte, enjeux, initiatives, Séminaire d'automne du département INRA CEPIA, October 2015, Patrice Buche

### 10.1.5. Leadership within the scientific community

- **Scientific animation at INRA:** Patrice Buche co-animates the national network INRA IN-OVIVE, devoted to methods and tools for big data management in life sciences, agronomy and food processing <http://www6.inra.fr/reseau-in-ovive>  
In particular, he co-organized three editions of the IN-OVIVE workshop dedicated to heterogeneous data sources integration in life sciences during the French conference IC (ingénierie des connaissances) in 2013, 2014 and 2015 [https://colloque.inra.fr/in\\_ovive\\_2015](https://colloque.inra.fr/in_ovive_2015)  
Patrice Buche is also co-animator (2012-2016) at the national level of the INRA CATI ICAT “Ingénierie des connaissances et analyse textuelle” <http://www6.inra.fr/cati-icat/Presentation>. Moreover, he co-animates the regional seminar MIAD (Mathematical models for decision making in environment, agronomy and processing of agricultural resources) <http://umr-iate.cirad.fr/seminaires/aide-a-la-decision>
- **Scientific animation at the national level:** Marie-Laure Mugnier is member of the organizing committee of the workshop “Journées d’Intelligence Artificielle Fondamentale” (JIAF, the annual meeting of the French community on the foundations of AI) [http://icube-web.unistra.fr/gdri3/index.php/Th%C3%A8me\\_1:\\_Intelligence\\_Artificielle\\_Fondamentale](http://icube-web.unistra.fr/gdri3/index.php/Th%C3%A8me_1:_Intelligence_Artificielle_Fondamentale)  
We will locally organize the next JIAF, which will be held in Montpellier in June 2016, in conjunction with the JFPC, the Journées de Programmation par Contraintes (JFPC), the annual workshop of French researchers on constraint programming. [https://www.supagro.fr/jfpc\\_jiaf\\_2016/](https://www.supagro.fr/jfpc_jiaf_2016/)

### 10.1.6. Scientific expertise

Rallou Thomopoulos and Madalina Croitoru are members of the management committee of the European cooperation network (COST) "Mathematical and Computer Science Methods for Food Science and Industry", accepted in Nov. 2105. [http://www.cost.eu/COST\\_Actions/ca/CA15118](http://www.cost.eu/COST_Actions/ca/CA15118)[http://www.cost.eu/COST\\_Actions/ca/CA15118?management](http://www.cost.eu/COST_Actions/ca/CA15118?management)

Scientific advisory board of the Food and Bioproducts department (CEPIA) at INRA (Marie-Laure Mugnier, since 2011).

Scientific advisory board of **ABES** (National Bibliographic Agency for Universities), Michel Chein (since 2010)

Participation to the Wheat Data initiative of Research Data Alliance (Patrice Buche from June 2015), whose objective is to propose recommendations for wheat and other cereals data  
<http://ist.blogs.inra.fr/wdi/>

Punctual expertise tasks: Experts for ANR, INRA and Inria.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

The next table details the number of lecture hours as well as the number of module responsibilities for each team member.

Name	Position	2014/15	Cursus (*)	Module Resp. (per year)
J.-F. Baget	Research Scientist	40	M (UM2)	1
M. Croitoru	Assistant Prof.	198	L2	2
M. Bienvenu	Research Scientist	15	M(UM2)	no
J. Fortin	Assistant Prof	230	Polytech	2
M. Leclère	Assistant Prof.	196	L and M (UM2)	2
M. -L. Mugnier	Professor	192	L and M (UM2)	3
A. Arioua	PhD	12	L (UM2)	no
F. Ulliana	Assistant Prof.	192	L and M (UM2)	3
N. Patel	PhD	64	L(UM2)	no

(\*) L =Licence, M = Master (M1 = first year, M2 = second year), UM2 = Univ. Montpellier 2 (Sciences), IUT = Institute of Technology of UM2 (Licence Cursus), Polytech = Engineering School of UM2, UM3 = Univ. Montpellier 3 (Art and Humanities)

The courses organized by team members are mainly in Logics (in Licence), Artificial Intelligence, Knowledge Representation, Knowledge Engineering, Social and Semantic Web. We are also responsible of modules in Web Technologies (Professional L at IUT).

We have some specific responsibilities in the Computer Science Licence and Master:

- Michel Leclère (Faculty): since Sept. 2015, he is deputy manager of the Computer Science teaching Department from the Science Faculty. Moreover, since 2011, he manages the program “Data, Knowledge and Natural Language Processing” (DECOL), part of the Master of Computer Science (about 30 students).
- Marie-Laure Mugnier (Faculty): since 2011, she is (co)-director of the Master in Computer Science, which gathers 6 programs. She also led the Master project for the next four years (LMD4, from 2015/16 to 2018/2019).
- Madalina Croitoru (IUT): since Sept. 2014, she manages the “année spéciale” (about 25 students).

### 10.2.2. Supervision

The PhDs in progress are:

*Fabien Garreau* (ANR ASPIQ grant), Algorithms for stable model semantics and existential rules (ANR ASPIQ, with Univ. of Angers), started Sept. 2012, supervised by Igor Stephan, Jean-François Baget and Laurent Garcia.

*Swan Rocher* (ANR Qualinca grant), Reasoning with inconsistent knowledge bases in presence of existential rules (ANR Qualinca), started Sept. 2013, supervised by Marie-Laure Mugnier and Jean-François Baget.

*Namrata Patel* (Univ. Montpellier grant), Preference Handling in Decision Problems (ministry grant), started Oct. 2013, supervised by Souhila Kaci and Roland Ducournau.

*Abdallah Arioua* (ANR Dur-Dur& INRA Grant), Argumentation Theory and its Application to Knowledge-based Systems, started Nov. 2013, supervised by Patrice Buche, Madalina Croitoru and Jérôme Fortin.

*Stathis Delivorias* (Univ. Montpellier grant), Module extraction in existential rule knowledge bases, started Oct. 2015, supervised by Federico Ulliana, Michel Leclère and Marie-Laure Mugnier.

*Abdelraouf Hecham* (Averroes grant), Cognitive biases in argumentation, started Oct. 2015, supervised by Madalina Croitoru.

### 10.2.3. Juries

HDR reviewer - Freddy Lécué - Scalable Machine Reasoning in the Web of Data - Nov. 2015 - University of Nice (Marie-Laure Mugnier)

PhD jury co-director - Lilia Berrahou - Extraction d'arguments de relations n-aires dans les textes guidée par une Ressource Termino-Ontologique de domaine, application aux domaines de la bioraffinerie des ligno-celluloses et des emballages alimentaires - Sept. 2015 - University of Montpellier (Patrice Buche).

PhD jury member - Zied Bouraroui - Inconsistency and uncertainty handling in lightweight description logics - June 2015 - University of Lens (Marie-Laure Mugnier)

President of a recruitment jury (comité de sélection) for a professorship position at the University of Montpellier - Spring 2015 (Marie-Laure Mugnier)

President of an evaluation jury for INRA IT project managers, Oct. 2015, Patrice Buche.

## HEPHAISTOS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- J-P. Merlet is a member of the scientific committee of the European Conference on Mechanism Science (EUCOMES), chairman of the scientific Committee of the Computational Kinematics workshop, a member of the steering Committee of IROS
- Y. Papegay is a permanent member of the International Steering Committee of the International Mathematica Symposium conferences series, and member of the Program Committee of the edition 2015 held in Prague in January.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Reviewer

- J-P. Merlet has been reviewing Editor for IROS 2015.
- The members of the team reviewed numerous papers for numerous international conferences.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- J-P. Merlet is board member of the Journal of Behavioral Robotics

#### 10.1.3.2. Reviewer - Reviewing activities

- The members of the team reviewed numerous papers for numerous international journals .

### 10.1.4. Invited talks

- J-P. Merlet has given a talk on assistance robotics at the MESROB, a talk on cable-driven parallel robots in the workshop *robotics and biology*. He was invited to give a talk at Berkeley for the workshop *Algorithmic Human-Computer Interaction*.

### 10.1.5. Leadership within the scientific community

- J-P. Merlet is Inria representative to PPP Eurobotics aisbl. He is a member of the IFToMM (International Federation for the Promotion of Mechanism and Machine Science) Technical Committees on History and on Computational Kinematics and has been re-elected as one of the 10 members of IFToMM Executive Council, the board of this federation. He has candidated as President of the Federation. He is a member of the scientific committee of the CNRS GDR robotique and of the CAC of UCA COMUE.
- O. Pourtallier is a board member of SeaTech, an Engineering School of University of Toulon.

### 10.1.6. Scientific expertise

- J-P. Merlet was an HCERES expert for Institut Pascal. He has initiated, together with Nathalie Nevejans from University of Douai, a meeting with the OPECST at the French. He was involved in project evaluations for several foreign funding agencies (Israel, Austria, Finland). He was also appointed as *Nominator* for the Japan's Prize and interviewed for challenge prizes for the European Commission's Horizon 2020 framework. National Assembly to discuss legal and ethical aspects of robotics. He was a member of the jury of the PhD Award of GDR robotique

- B. Senach participated to the Innovative City Convention (June 2015, Nice) and the 1st EIT Health Summer school (Dublin and Barcelona, July 2015)

### 10.1.7. Research administration

- J-P. Merlet is an elected member of Inria Scientific Council.
- Y. Papegay is a member of the Inria CUMIR and of the ADT committee
- O. Pourtallier is a member of the Inria CSD (doctoral students monitoring), and is responsible of the Inria NICE committee (long term invited scientists and post-doctoral student selection).
- B. Senach participated in the Inria communication action "Graine d'entrepreneur"

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master: J-P. Merlet lectured 8 hours on robotics and connected objects to Master NeuroMoteur (M2) at University Paris Est

Master : O. Pourtallier lectured 6 hours on game theory to Master OSE (M2), at École des Mines de Paris, Sophia Antipolis, France.

### 10.2.2. Supervision

PhD: A. Berti, Forward kinematics of cable driven parallel robots, supervisors: M. Carricato, J-P. Merlet [21]

PhD: L. Blanchet, Contribution to modeling of cable-driven parallel robots for command and design, University Nice Sophia Antipolis, supervisor: J-P. Merlet

PhD in Progress : A. Masseur, Design of Smart Environment for Human Behaviour Recognition, 2013-2016, supervisors: D.Daney, Y.Papegay

PhD in Progress : K. Bakal, Biomechanics of the upper limb, 2013-2016, supervisors: D. Daney, J-P. Merlet, P. Gorce

PhD in Progress :M. Beninati, Legal aspect of assistance robotics, 2015-2018, supervisor: J-P. Merlet

### 10.2.3. Juries

J-P. Merlet has been the member of the jury of 4 PhD defense and of one HdR

## 10.3. Popularization

- M. Gautier has introduced robotics in a lycée in Aix
- J-P. Merlet has presented robotics assistance during an associations meeting organized by the Conseil Général. He has introduced modern robotics to 100 students of preparatory school in Cannes.
- Y.Papegay is actively participating to the Math.en.Jeans initiative for Mathematics teaching for undergraduate students. He organized and animated a summer school in experimental mathematics and computer sciences. Two one week sessions have been held in Oxford in June gathering 30 high-school students - most of them were awardees in Mathematics Olympiad
- O. Pourtallier has presented our activity to Laurence ROSSIGNOL, Secrétaire d'Etat chargée de la famille, de l'enfance, des personnes âgées et de l'autonomie
- the team has exhibited its experimental flat to about 100 visitors
- the team has organized a 5 days workshop *Computer science for artists*. Fours artists have been submitted to a crash course on the use of sensors and actuation and have proposed a musical/dancing show the last day, based on the use of numerous motors and sensors

## LAGADIC Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

- Patrick Rives was the co-organizer and the scientific chair of the Journées Nationales de la Recherche en Robotique (JNRR'15) held in October at Cap Hornu.

#### 10.1.1.2. Member of the organizing committees

- Paolo Robuffo Giordano co-organized the 7-th International Workshop on Human-Friendly Robotics, Pontedera, Italy

### 10.1.2. Scientific events selection

#### 10.1.2.1. Member of the conference program committees

- François Chaumette: ICRA'2015, RSS'2015, ICRA'2016
- Eric Marchand: Orasis'15, IROS'2015, ICRA'2016
- Patrick Rives: ICRA'2016, RFIA'2016
- Paolo Robuffo Giordano: ICRA'2015, ICRA'2016

#### 10.1.2.2. Reviewer

- Marie Babel: ICRA 2016 (2), IROS 2015 (1)
- François Chaumette: IROS'2015 (3), Humanoids'2015 (1)
- Vincent Drevelle: IROS'2015 (4)
- Alexandre Krupa: IROS'2015 (2), ISBI'2015 (1), ICRA'2016 (4)
- Eric Marchand: Orasis'15 (3), ICRA'2015 (3), IROS'2015 (2), ICRA'2016 (2)
- Patrick Rives: ICCV'2015 (2), ICRA'2015 (3), IROS'2015 (3), IV'2015 (1), MVIGRO'2015 (1)
- Paolo Robuffo Giordano: ICRA'15, IROS'15, IROS'15, MED'15

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- François Chaumette: Editorial Board of the Int. Journal of Robotics Research, Senior Editor of the IEEE Robotics and Automation Letters
- Alexandre Krupa: Associate Editor of the IEEE Robotics and Automation Letters
- Eric Marchand: Associate Editor of the IEEE Robotics and Automation Letter, Guest Editor (with Peter Corke and Jana Kosecka) of a Special Issue of the Int. Journal of Robotics Research on Robot Vision.
- Paolo Robuffo Giordano: Associate Editor of IEEE Trans. on Robotics, Area Chair of RSS 2015

#### 10.1.3.2. Reviewer - Reviewing activities

- Marie Babel: Autonomous Robots (1)
- François Chaumette: IEEE Trans. on Robotics (4), Robotics and Autonomous Systems (1)
- Patrick Rives: IEEE Trans. on Robotics (1), Robotics and Autonomous Systems (1), TSI (2)
- Paolo Robuffo Giordano: IEEE Trans. on Robotics (2)

#### **10.1.4. Invited talks**

- Marie Babel and François Pasteau were invited to give a talk during the final workshop of the Interreg 4A France Channel COALAS project at Kent University, UK, in May 2015.
- François Chaumette: Plenary talk at DICTA'2015, Adelaide, Australia [58]; Tutorial at SIDRA'2015 (Ph.D. Summer School on Robot Control), Bertinoro, Italy
- Eric Marchand: Plenary talk at Orasis'2015, Amiens, France.
- Paolo Robuffo Giordano. Invited Talk: Control of Quadrotors in Unstructured Environments. RSS 2015 Symposium: Frontiers of Robotics, April 2015
- Fabien Spindler: Plenary talk and visual servoing atelier at RPRA'2015 summer school (Recent Progress in Robotics Applications), Alicante, Spain

#### **10.1.5. Leadership within the scientific community**

- François Chaumette and Patrick Rives are members of the scientific council of the “GdR Robotique” and JNRR.
- François Chaumette has been elected to serve in the Administrative Committee of the IEEE Robotics and Automation Society (RAS). He chaired the 2015 IEEE RAS Chapter of the year Award Committee and served in the 2015 IEEE RAS Fellow Nomination Committee. He also served in the Advisory Board of the Peraspera project. This project funded by the EC is in charge of drafting the roadmap of the EC Strategic Research Cluster on Space Robotics.
- Alexandre Krupa is a member of the GestChir project at the IRT b<>com in Rennes.
- Eric Marchand is in the board of the “Images et réseaux” competitiveness cluster. He is also a member of the scientific council of the “École supérieure d'ingénieurs de Rennes” (ESIR).
- Patrick Rives has represented Inria's robotic community at European Robotics Forum 2015 for the election of the Board of Directors of euRobotics AISBL.

#### **10.1.6. Scientific expertise**

- François Chaumette and Patrick Rives served in the jury to select the best French Ph.D. thesis in robotics.
- François Chaumette served as a Panel member for the ERC PE7 consolidator grants. He also served as evaluator of the FP7 Euroc project and reviewed a set of ANR proposals.
- Eric Marchand served in the jury to select the best French Ph.D. thesis in image processing and computer vision.
- Patrick Rives served as a member of the Inria evaluation committee until July 2015. He also served in the local CR2 (Rocquencourt) and national DR2 recruitment juries.
- Paolo Robuffo Giordano served as External Reviewer for the EU FP7 Sherpa Project.

#### **10.1.7. Research administration**

- Marie Babel is a member of the “Comité de Centre” of Inria Rennes-Bretagne Atlantique.
- François Chaumette serves as the president of the committee in charge of all the temporary recruitments (“Commission Personnel”) at Inria Rennes-Bretagne Atlantique and Irisa. He is also a member of the Head team of Inria Rennes-Bretagne Atlantique.
- Eric Marchand served as secretary in the board of the “Association Française pour la Reconnaissance et l'Interprétation des Formes (AFRIF)”. He is also in charge of the Irisa Ph.D. students in the committee in charge of all the temporary recruitments (“Commission Personnel”) at Inria Rennes-Bretagne Atlantique and Irisa.
- Alexandre Krupa is a member of the CUMIR (“Commission des Utilisateurs des Moyens Informatiques pour la Recherche”) of Inria Rennes-Bretagne Atlantique.

### 10.1.8. Patents

- François Pasteau and Marie Babel are the main authors of a patent (No FR 3 021 400) entitled “Méthode de correction d’une trajectoire dans un dispositif d’aide au déplacement de personnes”.
- Lucas Royer, Alexandre Krupa and Maud Marchal (Hybrid group at Inria Rennes-Bretagne Atlantique and Irisa) submitted a patent application (No. FR15/60541) to INPI entitled “Process for tracking a clinical target in medical images”.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Marie Babel:

Master INSA3: “Statistical Signal Processing”, 24 hours, M2, INSA Rennes

Master INSA1: “Architecture”, 30 hours, L3, INSA Rennes

Master INSA2: “Computer science project”, 30 hours, M1, INSA Rennes

Master INSA2: “Image analysis”, 18 hours, M1, INSA Rennes

Master INSA1: “Remedial math courses”, 50 hours, L3, INSA Rennes

François Chaumette:

Master ESIR3: “Visual servoing”, 8 hours, M2, Ecole supérieure d’ingénieurs de Rennes

Vincent Drevelle:

Master CTS: “Instrumentation, localization, GPS“, 6 hours, M2, Université de Rennes 1

Master Info: “Mobile robotics“, 38 hours, M2, Université de Rennes 1

Master GLA: “Terrain information systems“, 16 hours, M2, Université de Rennes 1

Master Info: “Artificial intelligence“, 12 hours, M1, Université de Rennes 1

Alexandre Krupa:

Master SIBM (Signals and Images in Biology and Medicine): “Medical robotics guided from images”, 4.5 hours, M2, Université de Rennes 1, Brest and Angers

Master FIP TIC-Santé: “Ultrasound visual servoing”, 6 hours, M2, Télécom Physique Strasbourg

Master INSA3: “Modeling and engineering for Biology and Health applications”, 12 hours, M2, INSA Rennes

Master ESIR3: “Ultrasound visual servoing”, 9 hours, M2, Esir Rennes

Eric Marchand:

Master Esir2: “Colorimetry”, 24 hours, M1, Esir Rennes

Master Esir2: “Computer vision: geometry”, 24 hours, M1, Esir Rennes

Master Esir3: “Special effects”, 24 hours, M2, Esir Rennes

Master Esir3: “Computer vision: tracking and recognition”, 24 hours, M2, Esir Rennes

Master MRI: “Computer vision”, 24 hours, M2, Université de Rennes 1

Master MIA: “Augmented reality”, 4 hours, M2, Université de Rennes 1

Paolo Robuffo Giordano:

Master in Robotics: “Analysis and Control of Multi-Robot Systems”, 16 hours, M2, Department of Computer and System Sciences, University of Rome “La Sapienza”



### 10.2.2. Supervision

Ph.D.: Manikandan Bakthavatchalam, “Utilisation des moments photométriques en asservissement visuel”, defended on March 2015, supervised by François Chaumette [8]

Ph.D.: Tawsif Gokhool, “Représentations valides à long terme pour la navigation et l’apprentissage des modèles 3D”, defended on June 2015, supervised by Patrick Rives [10]

Ph.D.: Romain Drouilly, “Représentation hybride métrique, topologique et sémantique d’environnement 3D pour la localisation temps réel”, defended on June 2015, supervised by Patrick Rives [9]

Ph.D.: Riccardo Spica, “Contributions to Active Visual Estimation and Control of Robotic Systems”, defended on December 2015, supervised by Paolo Robuffo Giordano and François Chaumette [11]

Ph.D. in progress: Le Cui, “Nano-manipulation by visual servoing”, started in October 2012, supervised by Eric Marchand

Ph.D. in progress: Lucas Royer, “Visual tool for percutaneous procedures in interventional radiology”, started in September 2013, supervised by Alexandre Krupa, Maud Marchal (Hybrid group at Inria Rennes-Bretagne Atlantique and Irisa) and Guillaume Dardenne (IRT b<>com)

Ph.D. in progress: Pierre Chatelain, “Multi-modal visual servoing for intra-operative imaging”, started in September 2013, supervised by Alexandre Krupa and Nassir Navab (Technische Universität München)

Ph.D. in progress: Vishnu Karakkat Narayanan, “Semi-autonomous navigation of a wheelchair by visual servoing and user intention analysis”, started in September 2013, supervised by Marie Babel and Anne Spalanzani (e-Motion group at Inria Rhône-Alpes)

Ph.D. in progress: Suman Raj Bista, “Visual navigation of a humanoid robot”, started in October 2013, supervised by Paolo Robuffo Giordano and François Chaumette

Ph.D. in progress: Nicolas Cazy, “Model predictive visual servoing of a humanoid robot”, started in October 2013, supervised by Paolo Robuffo Giordano, François Chaumette and Pierre-Brice Wieber (Bipop group at Inria Rhône-Alpes)

Ph.D. in progress: Renato José Martins, “Robust navigation and control of an autonomous vehicle”, started in November 2013, supervised by Patrick Rives and Samuel Siqueira Bueno (CTI)

Ph.D. in progress: Aly Magassouba, “Audio-based control”, started in December 2013, supervised by François Chaumette and Nancy Bertin (Panama group at Inria Rennes-Bretagne Atlantique and Irisa)

Ph.D. in progress: Jason Chevie, “Control of a flexible needle by visual servoing using B-mode ultrasound images”, started in September 2014, supervised by Alexandre Krupa and Marie Babel

Ph.D. in progress: Quentin Bateux, “Visual servoing from global descriptors”, started in October 2014, supervised by Eric Marchand

Ph.D. in progress: Fabrizio Schiano, “Collective control with onboard sensors for multiple quadrotor UAVs”, started in October 2014, supervised by Paolo Robuffo Giordano

Ph.D. in progress: Pedro Patlan-Rosales, “Robotic insertion of a biopsy needle by visual servoing using elastography images”, started in October 2014, supervised by Alexandre Krupa

Ph.D. in progress: Noël Mériaux, “Landing by visual servoing”, started in October 2014, supervised by François Chaumette, Eric Marchand and Patrick Rives

Ph.D. in progress: Lesley-Ann Dufлот, “Soft tissue deformation tracking using optical coherence tomography (OCT) and ultrasound imaging”, started in November 2014, supervised by Alexandre Krupa and Brahim Tamadazte (Minarob group at FEMTO-ST, Besançon)

Ph.D. in progress: Firas Abi Farraj, “Shared Control Architectures for Visual Servoing Tasks”, started in October 2015, supervised by Paolo Robuffo Giordano

Ph.D. in progress: Salma Jiddi, “Analyses géométrique et photométrique pour des applications de réalité mixte”, started in October 2015, supervised by Eric Marchand and Philippe Robert (Technicolor)

Ph.D. in progress: Ide Flore Kenmogne Fokam, “Cooperative localization in multi-robot fleets using interval analysis”, started in October 2015, supervised Vincent Drevelle and Eric Marchand

Ph.D. in progress: Bryan Penin “Model predictive visual servoing for UAVS”, started in October 2015, supervised by Paolo Robuffo Giordano and François Chaumette

Ph.D. in progress: Muhammad Usman, “Robust Vision-Based Navigation for Quadrotor UAVs”, started in October 2015, supervised by Paolo Robuffo Giordano

Ph.D. in progress: Louise Devigne, “Contribution d’une aide technique robotique à l’évaluation de pathologies neurologiques : Application à la navigation d’un fauteuil roulant”, started in November 2015, supervised by Marie Babel and Philippe Gallien (Pôle Saint Hélier)

Master internship: Marwan Osman from Master Erasmus Mundus Vibot, Le Creusot, “Visual servoing using the trifocal tensor”, supervised by François Chaumette

Master 1 internship: Pierre Le Bihan from Insa Rennes, “Camera-laser triangulation”, supervised by François Pasteau and Marie Babel

Bachelor internship: Grégoire Bonin from Université de Rennes 1, “Rigidity-based Formation Control for the case of Distance and Bearing Constraints”, supervised by Paolo Robuffo Giordano

### 10.2.3. Juries

- François Chaumette: Cédric Pradalier (HdR, reviewer, Laas, Toulouse), Julien Pettré (HdR, president, IriSa, Rennes), Augustin Manecy (Ph.D., reviewer, ISM, Marseille), Victor Rosenzveig (Ph.D., president, Ircyn, Nantes), Nathan Crombez (Ph.D., reviewer, Mis, Amiens), Don Joven Agravante (Ph.D., president, Lirimm, Montpellier)
- Alexandre Krupa: Ederson Antonio Gomes Dorileo (Ph.D., reviewer, Lirimm, Montpellier)
- Eric Marchand: François Chadebecq (Ph.D., reviewer, Institut Pascal, Clermont-Ferrand), Xialu Sun (Ph.D., reviewer, CVLAB EPFL, Lausanne), Datta Ramadasan (Ph.D., reviewer, Institut Pascal, Clermont-Ferrand), Zaynab Habibi (Ph.D., reviewer, MIS, Amiens), Manikandan Bakthavatchalam (Ph.D., president, Inria, Rennes)
- Patrick Rives: Francisco Moreno Dueñas (Ph.D, reviewer, Malaga, Spain), Danilo Alves de Lima (Ph.D, reviewer, Heudiasyc, Compiègne), Emilie Wirbel (Ph.D, president, Mines-Paritech, Paris), Guillaume Duceux (Ph.D, examiner, ENSTA, Paris)

## 10.3. Popularization

- Due to the visibility of our experimental platforms, the team is often asked to present its research activities to students, researchers or industry. Our panel of demonstrations allows us to highlight recent results concerning the positioning of an ultrasound probe by visual servoing, the construction of a tower by combining 3D model-based visual tracking and visual servoing techniques to pick up cubes that are assembled, vision-based detection and tracking for space navigation in a rendezvous context, the semi-autonomous navigation of a wheelchair, and augmented reality applications.
- Marie Babel, François Chaumette and Fabien Spindler participated to a “Café des Sciences” in Rennes in November 2015: <http://www.espace-sciences.org/conferences/cafes-de-l-espace-des-sciences/les-robots-sont-partout>
- Marie Babel and François Pasteau participated as exhibitors to the robotics exhibition “Innorobo” in Lyon in July 2015: <http://innorobo.com/en/home/> and to the “Autonomic” exhibition dedicated to the handicap and the autonomy in Rennes in October 2015: <http://www.autonomic-expo.com/>
- Fabien Spindler is a member of the editorial board of “Ouest Inria”, the internal journal at Inria Rennes-Bretagne Atlantique.

## STARS Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

François Brémond was organizer of a PANORAMA (see section 9.2.1.2 ) workshop, part of SPIE Electronic Imaging (EI) event (8-12 February 2015, San Francisco).

François Brémond was editor of a PANORAMA (see section 9.2.1.2 ) special issue of Journal of Electronic Imaging Letters (JEI): Ultra Wide Context and Content Aware Imaging.

#### 10.1.1.2. Member of the organizing committee

François Brémond was a member of the Management Committee and COST Action IC1307 in 2015.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Member of the conference program committees

François Brémond was program committee member of the conferences and workshops: AAAI-15, GROW2015, ICDP2015, KSE 2015, PETS2015, PR4MCA and ICVS15.

François Brémond was publication chair and session chair of AVSS-15.

Jean-Paul Rigault is a member of the *Association Internationale pour les Technologies à Objets* (AITO) which organizes international conferences such as ECOOP.

#### 10.1.2.2. Reviewer

François Brémond was reviewer for the conferences : CVPR2015-6, ECCV2015, VOT2015, Gretsi2015, ICIP2015, MSF2015, ChaLearn2015, ICCV2015, WACV 2016.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

François Brémond was handling editor of the international journal "Machine Vision and Application".

#### 10.1.3.2. Reviewer - Reviewing activities

François Brémond was reviewer for the journal *Frontiers in Human Neuroscience*.

### 10.1.4. Invited talks

François Brémond was invited to give a talk at Bristol University, SPHERE Seminar, 25 June 2015.

François Brémond was invited to give a tutorial at Leuven University at the 1st iV&L Net Training School, 3 June 2015.

François Brémond has participated to the Workshop Innovation Alzheimer, 12 November, 2015.

Antitza Dantcheva gave an invited talk at SBA, Vienna, Austria, July 2015.

Antitza Dantcheva gave an invited talk at the University of Cyprus, Nicosia, Cyprus, April 2015.

Antitza Dantcheva presented a demo at the Workshop Innovation Alzheimer (IA 2015), November 2015.

### 10.1.5. Scientific expertise

François Brémont was expert for EU European Reference Network for Critical Infrastructure Protection (ERNICIP) - Video Analytics and surveillance Group, at European Commission's Joint Research Centre in Brussels in 15 September 2015.

François Brémont was expert for the Foundation Médéric Alzheimer, for the doctoral fellowship selection, October 2015.

François Brémont was expert for the Sophia Labex Network, for the doctoral fellowship selection, October 2015.

François Brémont was expert for Inria Sophia Working Group, for Inria Team Proposals.

François Brémont was expert for reviewing Computer Science Discovery Grant application for the Natural Sciences and Engineering Research Council of Canada (NSERC).

François Brémont was expert for reviewing Consolidator Grant proposal for European Research Council (ERC).

François Brémont was expert for the Foundation Médéric Alzheimer, for the Alzheimer's Outlook, Paris, 11 December 2015.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Master : Annie Ressousche, Safety in Middleware for Internet of Things, 10h, niveau (M2), Polytech Nice School of Nice University.

Jean-Paul Rigault is Full Professor of Computer Science at Polytech'Nice (University of Nice): courses on C++ (beginners and advanced), C, System Programming, Software Modeling.

### 10.2.2. Supervision

PhD : Julien Badie, Optimizing process for tracking people in video-camera network, 17-11-2015, François Brémont.

PhD in progress : Auriane Gros, Evaluation and Specific Management of Emotionnal Disturbances with Activity Recognition Systems for Alzheimer patient, Sept 2014, François Brémont.

PhD in progress : Minh Khue Phan Tran, Man-machine interaction for older adults with dementia, May 2013, François Brémont.

PhD in progress : Michal Koperski, Detecting critical human activities using RGB/RGBD cameras in home environment, François Brémont.

PhD in progress : Thi Lan Anh Nguyen, Complex Activity Recognition from 3D sensors, Dec 2014, François Brémont.

PhD in progress : Ines Sarray, Activity Recognition System Design, Oct 2014, Sabine Moisan.

PhD in progress : Farood Negin, People detection for activity recognition using RGB-Depth sensors, Jan 2015, François Brémont.

### 10.2.3. Juries

François Brémont was jury member of the following PhD theses:

PhD, Dana Codreanu, Toulouse University, 21 May 2015.

PhD, Matthieu Rogez, Lyon University, LIRIS, Foxstream, 9 June 2015.

PhD, Cédric Le Barz, Pierre and Marie Curie University, Thales, 30 June 2015.

PhD, Owais Mehmood, School of centrale de Lille, IFSTTAR, 28th September 2015.

PhD, Geoffroy Cormier, Rennes University, ECAM Rennes Louis de Broglie, NeoTec-Vision, 10 Novembre 2014.

PhD Thi Khanh Hong Nguyen, Nice University - LEAT, 18 November 2015.

PhD Cyrille Beaudry, La Rochelle University, MIA, 26 November 2015.

PhD Arsène Fansi Tchango, Lorraine University, 4 December 2015.

PhD, Andrei Stoian, CNAM, Paris, 15 January 2016.

### **10.3. Popularization**

François Brémond was invited to give a talk at Conférence des métiers at International Lycée (CIV) in Sophia 28 January 2015.

François Brémond was invited to give a talk at Nice University Conférence, La sSnté du Futur, 5 November 2015.

François Brémond was invited to give a talk at Aditel, Bank Forum, La Baule, Palais des congrès 1 and 2 October 2015.

François Brémond was interviewed by Industry Magazine, 1 October 2015.

## TITANE Project-Team

# 10. Dissemination

## 10.1. Promoting Scientific Activities

### 10.1.1. Scientific events organisation

#### 10.1.1.1. General chair, scientific chair

Pierre Alliez was co-chair of the French JGA 2015 (Journées de Géométrie Algorithmique), organized in Cargèse, October 2015.

Florent Lafarge was co-chair of the ISPRS working group on point cloud processing.

#### 10.1.1.2. Member of the organizing committees

Pierre Alliez is a member of the Steering Board of the EUROGRAPHICS Workshop on Graphics and Cultural Heritage. He is also a member of the steering committee of the French chapter of EUROGRAPHICS since 2013.

Yuliya Tarabalka chaired 5 sessions at IEEE IGARSS 2015.

### 10.1.2. Scientific events selection

#### 10.1.2.1. Member of the conference program committees

Pierre Alliez: EUROGRAPHICS Symposium on Geometry Processing (Graz, Austria) and Digital Heritage 2015.

Florent Lafarge: Laser Scanning 2015 and Digital Heritage 2015.

#### 10.1.2.2. Reviewer

Pierre Alliez was a reviewer for ACM SIGGRAPH, ACM SIGGRAPH Asia, EUROGRAPHICS.

Florent Lafarge was a reviewer for CVPR, ICCV, SIGGRAPH, SIGGRAPH Asia, EUROGRAPHICS, IJCV and JPRS.

Yuliya Tarabalka was a reviewer for the conferences IEEE ICIP 2015, IEEE IGARSS 2015, ICCV 2015, BMVC 2015.

### 10.1.3. Journal

#### 10.1.3.1. Member of the editorial boards

- Pierre Alliez: associate editor of ACM Transactions on Graphics since 2009, Elsevier Graphical Models since 2010, Computer Aided Geometric Design since 2013, and the CGAL library since 2008.
- Florent Lafarge: associate editor of The Visual Computer since 2015.
- Yuliya Tarabalka was a co-editor of the special issue "Hyperspectral Imaging and Image Processing" of the Springer journal Sensing and Imaging.

#### 10.1.4. Invited talks

Florent Lafarge was a keynote speaker at JURSE 2015, Lausanne, Switzerland on March 31 (talk:"Urban reconstruction from airborne data: how to combine semantics and geometry?"), and at Laser Scanning 2015, La grande Motte, France (talk:"Extracting and exploiting planar primitives from Laser scans").

### 10.1.5. Scientific expertise

Pierre Alliez was a member of the Horizon 2020 Advisory Group for Societal Challenge 6 ‘Europe in a changing world – Inclusive, Innovative and Reflective Societies. He was also an evaluator and reviewer for the H2020 and EuroSTARS programmes from the European commission. He is since October 2015 a member of the panel GEV 01 (mathematics and computer science) of ANVUR (Italian research evaluation agency). We are evaluating the period 2011-2014 through bibliometry and peer-review.

### 10.1.6. Research administration

Pierre Alliez: member of the BCP (bureau du CP) since 2015, comité MASTIC (popularization), and comité espace immersif.

Florent Lafarge: elected member of the CC “Comité de Centre” since 2013, and a member of the CSD “Commission de Suivi Doctoral” since 2011.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Masters: Pierre Alliez and Florent Lafarge, Ingénierie 3D, 24h, M2, University Nice Sophia Antipolis, France.

Masters: Pierre Alliez and Florent Lafarge, 3D Meshes and Applications, 32h, M2, Ecole des Ponts ParisTech, France.

Masters: Pierre Alliez, Mathématiques pour la géométrie, 24h, M2, EFREI, France.

Masters: Pierre Alliez, Modélisation géométrique, 16h, M2, Télécom SudParis, France.

Masters: Florent Lafarge, Traitement d’images numériques, 9h, M2, University Nice Sophia Antipolis, France.

Masters: Florent Lafarge, Imagerie numérique, 10h, M2, University Nice Sophia Antipolis, France.

L2: Yuliya Tarabalka, Advanced algorithms, 27.75h eq. TD (3h of lectures + 3h of TD + 27h of TP + 1h30 of exam), L2 Networks and Telecoms, IUT Nice Côte d’Azur, Sophia Antipolis, France.

Masters: Yuliya Tarabalka, Digital imaging, 7h eq. TD (2h of lectures + 4h of TD), M2 SVS ISAB, University Nice Sophia Antipolis, France.

### 10.2.2. Supervision

PhD: Simon Giraudot, Robust surface reconstruction, defended on May 22, Pierre Alliez.

PhD: Sven Oesau, Reconstruction of indoor scenes, defended on June 24, Florent Lafarge and Pierre Alliez.

PhD: Seong-Gyun Jeong, Curvilinear Structure Modeling and its Applications in Computer Vision, University Nice Sophia Antipolis, defended on November 2015, Yuliya Tarabalka and Josiane Zerubia.

PhD in progress: Manish Mandad, Shape approximation with guarantees, since October 2012, Pierre Alliez and David Cohen-Steiner from GEOMETRICA.

PhD in progress: Liuyun Duan, Semantized Elevation Maps, since October 2013, Florent Lafarge.

PhD in progress: Jean-Dominique Favreau, Sketch-based modeling in multi-view context, since October 2014, Florent Lafarge.

PhD in progress: Emmanuel Maggiori, Representation and Analysis of Multisensor Remote Sensing Images with Partition Trees, University Nice Sophia Antipolis, started in January 2015, Yuliya Tarabalka and Pierre Alliez.

### 10.2.3. Juries

Pierre Alliez:

- Paper and software award committees, EUROGRAPHICS Symposium on Geometry Processing.
- Inria CR2 recruitment committee, Inria Sophia Antipolis.
- PhD Thesis reviewer: Jérémy Levallois (LIRIS).
- PhD Thesis committee: Rodolphe Vaillant (Université Paul Sabatier / University of Victoria).
- PhD Thesis reviewer: Gilles-Philippe Paillé (Université de Montréal).
- PhD Thesis mid-term committee: Ana Vintescu (Télécom ParisTech).

Florent Lafarge:

- Thesis reviewer: Abdoulaye Abou Diakité (Université Lyon1).

Yuliya Tarabalka:

- Expert evaluator for an ANR project submission in May 2015.
- Monitoring committee for the thesis of Amine Bohi, Southern University of Toulon-Var in October 2015.

### **10.3. Popularization**

Pierre Alliez: two seminars in highschools, participation to the “fête de la science” in Antibes, workshop on 3D reconstruction with Nicolas Douillet and cafe-in (Robust Shape Reconstruction) at Inria Sophia Antipolis.



## WIMMICS Project-Team

# 9. Dissemination

## 9.1. Promoting Scientific Activities

### 9.1.1. Scientific events organisation

#### 9.1.1.1. General chair, scientific chair

**Elena Cabrio:** Area chair (Semantics). CLIC-it 2015 (Italian Conf. on Computational Linguistics). Challenge co-chair, Extended Semantic Web Conference (ESWC 2015)

**Catherine Faron-Zucker:** Workshops co-chair at ESWC 2015, co-chair of SW4SH 2015 workshop.

**Fabien Gandon:** General chair of ESWC 2015, European Semantic Web Conference, Portoroz, Slovenia

**Alexandre Monnin:** co-chair of SW4SH 2015 workshop.

#### 9.1.1.2. Member of the organizing committees

**Alain Giboin:** co-organizer of JMIC 2015 Talence et JMIC 2015 Nantes.

### 9.1.2. Scientific events selection

#### 9.1.2.1. Chair of conference program committees

**Alain Giboin:** Associate Chair of CSCW 2015.

#### 9.1.2.2. Member of the conference program committees

**Fabien Gandon:** IJCAI, ISWC, WWW, WI, ESWC, Hypertext, WebSci, ICWSM, SEMANTiCS, SAC, RFIA, EGC, IC.

**Michel Buffa:** Web Audio Conference.

**Elena Cabrio:** Association for Computational Linguistics conference (ACL 2015), Extended Semantic Web Conference (ESWC 2015), Language Resources and Evaluation Conference (LREC).

**Olivier Corby:** IC, GKR Workshop @ IJCAI, MOREBI

**Catherine Faron-Zucker:** i-KNOW, PRIMA, KEOD, LinkED, SW4SH, GKR, IC, EIAH

**Alain Giboin:** member of the steering committee of the COOP conference series (International Conferences on the Design of Cooperative Systems). Member of the program committee of: SEMANTICS 2015 - Research & Innovation Track; SEMANTICS 2015 - Posters and Demos; IC 2015; EPIQUE 2015.

**Isabelle Mirbel:**

26th International Conference on Advanced Information Systems Engineering (CAISE 2015), First International Workshop on Semantic Web for Cultural Heritage to be held in conjunction with the 19th East-European Conference on Advances in Databases and Information Systems (ADBIS 2015).

**Alexandre Monnin:** IC, ESWC, WWW, PhiloWeb, SW4SH.

**Andrea Tettamanzi:** FLAIR 2015 and 2016, EvoApps 2015, IC 2015, WIRN 2015, PRIMA 2015, PPSN 2016, GECCO 2016, and LREC 2016 conferences, as well as for the SW4SH workshop of ESWC and the MOD workshop.

**Serena Villata:** IJCAI, AAI, JURIX.

#### 9.1.2.3. Reviewer

**Michel Buffa:** ESWC, WWW Demo Track, SWCS, Web Audio Conference 2016.

**Olivier Corby:** ESWC, GraphQ, SIIM, TTCS.

**Alain Giboin:** CHI 2015, OZCHI 2015, ESWC 2015, IHM 2015, WWW 2016.

**Alexandre Monnin:** IC, ESWC, WWW Webscience track, TICE.

### 9.1.3. Journal

#### 9.1.3.1. Member of the editorial boards

**Nhan Le Thanh:** Journal of Science and Technology, Danang University- Issue on Information and Communications Technology<sup>0</sup>.

#### 9.1.3.2. Reviewer - Reviewing activities

**Elena Cabrio:** Journal of Web Semantics, and for the Computational Linguistics journal

**Olivier Corby:** Journal of Computer and System Sciences, Semantic Web Journal

**Catherine Faron-Zucker:** Int. Journal of Artificial Intelligence in Education (IJAIED), Int. Journal of Human Computer Studies (IJHCS)

**Fabien Gandon:** Intellectica

**Isabelle Mirbel:** Artificial Intelligence Review Journal (Springer), Neurocomputing (Elsevier), International Journal of Information System Modeling and Design (IGI Global).

**Andrea Tettamanzi:** Genetic Programming and Evolvable Machines

**Nhan Le Thanh:** Journal of Science and Technology, Danang University.

**Serena Villata:** Journal of Logic and Computation, Argument & Computation, ACM Transactions on Intelligent Systems and Technology.

### 9.1.4. Invited talks

**Michel Buffa:** Web Audio track at WWW2015, presentation of MT5, a HTML5 multitrack player for musicians, May, Florence, Italy.

**Fabien Gandon<sup>0</sup>:**

- Invited research Talk, Dassault Systèmes, “Relier trois des toiles du Web : ou comment tisser des liens entre le Web de données, le Web sémantique et le Web social”, 28/01/2015
- LIG Keynote Speech, “Bridging formal semantics and social semantics on the Web” 8/01/2015

**Olivier Corby:**

- *SPARQL Template Transformation Language* at ESIRIOI, University of La Réunion, April 16th.
- FunSPARQL: a Function Language on top of SPARQL, December 15th, Web/reactive programming seminar at Inria Sophia Antipolis organized by Indes team.

**Alexandre Monnin:**

- Participate in a closed seminar hosted by Peter Norvig at Google’s headquarter in Mountain View on the Philosophy of the Web (other invitees included such renown figures as David Bates, Warren Sack, Andy Clark, Henry S. Thompson, Brian Cantwell Smith, Alison Gopnik, Daniel Russell, Hubert L. Dreyfus, Geoffrey Hinton, Ramanathan Guha, Sam Goto, Erin Siegal, Alva Noe, Tania Lombrozo, Terry Winograd, David Kirsh, Fernando Flores, John Searle).
- In April, was invited to participate in a seminar at Paris 10 Nanterre organized by Louise Merzeau, on DBpedia, and controversy analysis.
- The same day, did a presentation at La Sorbonne, at the Obvil Labex seminar, on the ontology of the Web.

<sup>0</sup><http://jst.udn.vn/ict>

<sup>0</sup>see <http://www-sop.inria.fr/members/Fabien.Gandon/talks.html>

- In April, presentation along with philosopher Pierre Livet (Aix-Marseille University) at MSHS: "Séminaire invité, axe 2 "TICs, Usages et Communautés"", on "Architecture du Web et ontologie des opérations".
- In May, invited by the Digital Cultures Research Center (DCRL) of Leuphana University in Lüneburg (Germany) to participate in an international symposium: "Technological Conditions of Interventions. History, Epistemology, Dramaturgy". A book will be edited out of it ( chapter "Making and caring: Philosophical engineering and the philosophy of the Web").
- In June, presentation during a two-day seminar at Mines ParisTech. A book will be published from the texts gathered there.
- In July, one-week long international conference at Cerisy-la-Salle on Scientific Philosophy, to celebrate the famous 1935 conferences on logical positivism that took place in Paris. He delivered a talk on the philosophical roots of the Semantic Web, in particular by insisting on the importance of two philosophers, Rudolf Carnap and Otto Neurath (logic and data visualization). The proceedings of this week will be published in 2016 by the Editions Matériologiques.
- In October, participate in the Heritage and Anthropocene conference in Dijon (Centre Georges Chevrier, CNRS, UMR 7366) where he presented a paper with Diego Landivar (Origen MediaLab). A publication venue for the papers presented there is now actively sought.
- La Sorbonne, in Paris, at the annual "Numérique et Société" seminar organized by the CRI (Centre de Recherche en Informatique, Paris 1 Panthéon-Sorbonne University) to deliver a presentation the 19th of November on "What the Web is not and what it is" with Aurélien Bénel (UTT). A publication of all the presentations delivered at this seminar since its inception will be published next year by the Publications de la Sorbonne (including our paper with A. Bénel).
- The 20th of November, presentation of an ongoing project with Lise Arena (UNS, Gredeg) and Bernard Conein (UNS, Gredeg) between Inria and UNS on "Digital artifacts and materialities". This was part of an event organized by Sylvie Mellet, vice president of the university for research, where the various interdisciplinary axes of UNS were introduced to an audience of peers.
- Presentation at the Institut für Transportation Design (ITD) of the Hochschule für Bildende Künste Braunschweig, on the 23rd of November (on digital design and sustain-ability: "Caring for all objects, caring for some of them: instauration (destauration)/disclosing (forclosing)/futuraing (defuturaing)").
- Lille, in December 2015, at the Espace Culture of the University, discussion on the "mappability of the Web". A short paper (3 pages long) was published by the Lettre d'Archimède journal of the University as a teaser for my presentation.
- 1st of December, Time and Temporality on the Web (TToW) international conference, celebrating the Web's 25th anniversary at ISCC (CNRS, Paris) with Fabien Gandon (Inria, Wimmics). Our presentation is dedicated to the history of the architecture of the Web.

### 9.1.5. Scientific expertise

Alexandre Monnin worked for *Foundation des Galeries Lafayette for Contemporary Art* on their digital platform, of which he is the architect. He worked on the project with Mnemotix, the startup that grew out of Wimmics, and with Telecom ParisTech (official partnership) through Jérôme Denis, who is a sociologist there. This project is very much a research project which aims to capture the practices involved in producing and judging contemporary artworks. Publications are expected to follow from it.

### 9.1.6. Research administration

Catherine Faron-Zucker coordinates the Web option of the 5th year of Polytech Nice Sophia engineering school and is in charge of continuous training for the computer science department of Polytech Nice Sophia Antipolis.

Fabien Gandon is the W3C Advisory committee representative for Inria.

Alain Giboin serves as scientific correspondent for Inria Sophia of COERLE (Inria Comité Opérationnel d'Evaluation des Risques Légaux et Ethiques), in tandem with the legal correspondent Sabine Landivier.

Isabelle Mirbel is Vice-dean of Science Department at University Nice-Sophia Antipolis.

Andrea Tettamanzi has coordinated the 3rd year of the *Licence* in Business Informatics (MIAGE) at the UFR Science of the Université Nice Sophia Antipolis (UNS)

Nhan Le Thanh is animator of a multidisciplinary cooperation working group (eHealth) and coordinator of the bilateral scientific cooperation program (NiceCampus) between Nice-Sophia Antipolis University and Danang University. He is Director of the computer science department, IUT, Nice-Sophia Antipolis University.

## 9.2. Teaching - Supervision - Juries

### 9.2.1. Teaching

Licence : Amel Ben Othmane, Oracle, 64h, L1, IUT UNS.

Licence : Elena Cabrio, Algorithms, Object-oriented programming (labs), 18h, Licence 2, UNS.

Licence : Elena Cabrio, Introduction to the Web (labs), 12h, Licence 1, UNS.

Licence : Elena Cabrio, Web Server Programming (labs), 18h, Licence 1 UNS.

Licence : Olivier Corby, Semantic Web, 2h, L3, UTT.

Licence : Isabelle Mirbel, Databases, 58h, L3 MIAGE, UNS.

Licence : Isabelle Mirbel, Web programming (Persistence), 54h L3 MIAGE, UNS.

Licence : Alexandre Monnin, Analyse des controverses, 7h30, L1, Telecom ParisTech.

Licence : Alexandre Monnin, Philosophie du Web et controverses, 12h, L3, Université Paris 10.

Licence : Andrea Tettamanzi, Algorithmique – Programmation Objet – Python, 50 h, Licence 2, UNS.

Licence : Andrea Tettamanzi, Programmation Web Avancée (côté client), 39 h, Licence 2, UNS.

Licence : Andrea Tettamanzi, Web, 18h, L3 MIAGE, UNS.

Licence : Nhan Le Thanh, Databases, 150h, DUT S2, IUT UNS.

Licence : Nhan Le Thanh, Advanced Databases, 105h, DUT S3, IUT, UNS.

Licence: Nhan Le Thanh, Logical Data Models and Languages, 24h, L3, UNS.

Licence: Nhan Le Thanh, Design and Development of DBMS services, 24h, L3, UNS.

Licence : Serena Villata, Conception orientée objets, 6h, Licence Miage, UNS.

Master : Michel Buffa, Distributed Web Development, 40h, M2, UNS.

Master : Michel Buffa, Plasticity of User Interfaces, HTML5 8h, M2, Polytech UNS.

Master : Michel Buffa, New Interaction Means, HTML5, 8h, M2, Polytech UNS.

Master : Michel Buffa, Web 2.0, Web Services, HTML5, 40h, M2 MIAGE, UNS.

Master : Elena Cabrio, Knowledge Engineering, 7h, Master 2 KIS, UNS.

Master : Elena Cabrio, Web Science, 3h, Master 2 IFI, UNS.

Master : Olivier Corby, Catherine Faron-Zucker, Fabien Gandon, Semantic Web, 45h, M2, UNS.

Fabien Gandon, *Web Sémantique ou comment se déploient sur le Web les données liées et la sémantique de leurs schémas*, 2H/year, M2, Ecole Centrale Paris.

Master: Amosse Edouard, Development on the Android platform, 24h, M2, UNS, France

Master: Amosse Edouard, Web Services, 22h, M2, UNS, France

Master: Amosse Edouard, Web Architecture & Web Services, 25h, M2, University State of Haiti, Haiti

Master: Amosse Edouard, Mobile Development, 30h, M2, University State of Haiti, Haiti

- Master: Amosse Edouard, Introduction to Near Field Communication, 15h, M2, EMSI, Maroc
- Master: Amosse Edouard, Administration of Oracle Database, 16h, M1, UNS, France
- Master: Alain Giboin, Human-Computer-Interaction Design and Evaluation, 54h, M2, UNS.
- Master: Alain Giboin, Interaction Techniques and Mutlimodality, 8h, M2, UNS.
- Master: Alain Giboin, Task and Activity Analysis for HCI design and evaluation, 6h, M2 Sociology and Ergonomics of Digital Technologies, UNS.
- Master: Alain Giboin, HCI Design and Evaluation, 10h, M2 Sociology and Ergonomics of Digital Technologies, UNS
- Master : Alain Giboin, Economics and ICT: Ergonomics, 15h, M2 Economics and ICT, ISEM, UNS.
- Master : Isabelle Mirbel, Advanced databases, 48h, MASTER MIAGE 1, UNS.
- Master : Isabelle Mirbel, Requirement Engineering, 42h, MASTER MIAGE 1, UNS.
- Master : Isabelle Mirbel, Project Management, 20h, MASTER MIAGE 2, UNS.
- Master : Alexandre Monnin, Style d'architecture REST et prise en main de Wikipédia/DBpedia, 5h, M2, Université de Technologie de Troyes (UTT).
- Master : Alexandre Monnin, Ingénierie des connaissances : Wikipedia, DBpedia et Wikidata, 3h, M2 Miage, UNS.
- Master : Andrea Tettamanzi, Systèmes Distribués, 18h, Master MIAGE 1, UNS.
- Master : Andrea Tettamanzi, Concurrency and Parallelism, 18h, Master International 1, UNS.
- “Fuzzy Description Logics” and “Ontology Learning”, within the module *Ingénierie des connaissances*, Master 2 Web, Polytech'Nice, 10 h ETD.
- Master : Serena Villata, Knowledge Engineering & Argumentation Theory, 3h, M2 KIS, UNS.
- Master : Serena Villata, Web Science, 5h, Master Miage, UNS.

### E-learning

- Mooc: Fabien Gandon, Olivier Corby & Catherine Faron-Zucker, Semantic Web, 7 weeks, <http://www.france-universite-numerique.fr/>, Inria, France Université Numérique, Education for Adults, 4000 registered.
- Mooc: Michel Buffa, HTML 5 Part 1: HTML5 Coding Essentials and Best Practices, 6 weeks, <https://www.edx.org/course/html5-part-1-html5-coding-essentials-w3cx-html5-1x>, EDx, W3C, for all international public, 88K + 67K registered (2 sessions).
- Mooc: Michel Buffa, HTML 5 Part 2: Advanced Techniques for Designing HTML5 Apps, 4 weeks, <https://www.edx.org/course/html5-part-2-advanced-techniques-w3cx-html5-2x>, EDx, W3C, for all international public, 20K registered.

### 9.2.2. Supervision

- PhD : **Thi Hoa Hue Nguyen**, *La vérification de patrons de workflow métier basés sur les flux de contrôle : Une approche utilisant les systèmes à base de connaissances*, U. Nice-Sophia Antipolis & U. Danang, June 16th, Nhan Le Thanh
- PhD in progress : **Amel Ben Othmane**, *Temporal and Semantic Analysis of Information Retrieved from Short and Spatio-Temporal Messages in Social Networks*, UNS, Nhan Le Than.
- PhD in progress : **Papa Fary Diallo**, *Co-Construction of Community Ontologies and Corpus in a Limited Technological Environment*, Inria, UNS, UGB, Isabelle Mirbel, Olivier Corby, Moussa Lo.
- PhD in progress : **Amosse Edouard**, *Studies of Spatial Semantic Aspect, Real Time Filtering Mechanisms and Semantic Enrichment of Short Messages on Dynamic Spatio-Temporal Social Networks*, UNS, Nhan Le Thanh.
- PhD in progress : **Zide Meng**, *Temporal and Semantic Analysis of Richly Typed Social Networks from User-Generated-Content Sites on the Web*, UNS, Fabien Gandon, Catherine Faron-Zucker.

PhD in progress : **Franck Michel**, *Heterogeneous databases federation in distributed environment*, UNS, Johan Montagnat, Catherine Faron-Zucker.

PhD in progress : **Tran Duc Minh**, *Learning Ontologies from Linked Open Data*, Andrea Tettamanzi, UNS and Nguyen Thanh Binh, University of Danang.

PhD in progress : **Emilie Palagi**, *Design of a Model-based Method for Evaluating Exploratory Search Systems*, UNS, Labex UCN@Sophia, Alain Giboin, Fabien Gandon with Raphael Troncy (Eurecom).

PhD in progress : **Tuan Anh Pham**, *Study and integration of the mechanism of workflow control in MVC (Model View Controller) architecture: design and implementation of an APM (Activity Process Management) platform for dynamic information systems on the networks*, UNS, Nhan Le Thanh.

### 9.2.3. Juries

**Olivier Corby** was reviewer, together with Fabien Gandon, of the PhD thesis of Nicola Guido *On the Static Analysis for SPARQL Queries using Modal Logic* at Univ. Grenoble on December 3rd 2015.

**Catherine Faron-Zucker** was member of the jury of:

Pierre-Yves Buard, *Modélisation de sources anciennes et édition numérique*, Université de Caen, May 2015;  
Xuan Truong Vu, *User-centered and group-based approach for social data filtering and sharing*, Université de Technologie de Compiègne, April 2015;

Farouz Soualah-Alila, *CAMLearn : une architecture de système de recommandation sémantique sensible au contexte: application au domaine du m-learning*, Université de Dijon-Auxerre, March 2015.

**Fabien Gandon** was president of the jury of Freddy Lecue Habilitation *Semantics for Scalable Machine Reasoning in the Web of Data*, University Nice-Sophia Antipolis, November 6th 2015.

**Alain Giboin** was jury member of the PhD thesis of Aurore Defays: "Influence des communications multimodales sur le processus de grounding. Proposition d'une méthodologie d'analyse, appliquée dans le domaine de la conception architecturale", Université de Liège, Belgique, July 2015.

**Isabelle Mirbel** was jury member: Myriam FAKHRI, PAX : une vision des processus métier basée sur la co-ingénierie de compositions de services, Aix Marseille Université, December 2015.

**Andrea Tettamanzi** was jury member:

Seif-Eddine Kramdi, *A Modal Approach to Model Computational Trust*, Université Paul Sabatier, Toulouse, October 5, 2015;

María Martínez Rojas, *Tratamiento inteligente de datos en proyectos de edificación*, University of Granada, Spain, November 25, 2015.

## 9.3. Popularization

**Fabien Gandon's general talks**<sup>0</sup>:

- Invited general Talk, Agora des Savoir, Montpellier, "Les (r)évolutions de la planète Web" 29/4/2015
- Invited general Talk, DataLift Day, "Quand le Web fait sens" 9/04/2015

**Catherine Faron-Zucker's general talks:**

- Invited talk at the MOOC Lab Inria workshop in January 2015 on the Linked Data in e-Education

<sup>0</sup>see <http://www-sop.inria.fr/members/Fabien.Gandon/talks.html>

## ZENITH Project-Team

# 10. Dissemination

## 10.1. Scientific Animation

Participation in the editorial board of scientific journals:

- VLDB Journal: P. Valduriez.
- Journal of Transactions on Large Scale Data and Knowledge Centered Systems, R. Akbarinia.
- Distributed and Parallel Databases, Kluwer Academic Publishers: E. Pacitti, P. Valduriez.
- Internet and Databases: Web Information Systems, Kluwer Academic Publishers: P. Valduriez.
- Journal of Information and Data Management, Brazilian Computer Society Special Interest Group on Databases: P. Valduriez.
- Book series "Data Centric Systems and Applications" (Springer): P. Valduriez.
- Ingénierie des Systèmes d'Information, Hermès : P. Valduriez.
- Journal of Data Semantics (Springer): S. Cohen-Boulakia
- Multimedia Tools and Applications: A. Joly

Participation to the organization of conferences and workshops:

- Alexis Joly was the main chair of the LifeCLEF 2015 international workshop<sup>0</sup> dedicated to multimedia biodiversity data management (Toulouse, September 8-10, part of CLEF 2015 conference)
- Alexis Joly was in the organizing committee of the 2nd International Workshop on Environmental Multimedia Retrieval<sup>0</sup>, in conjunction with ICMR 2015, 23 June, Shanghai
- Alexis Joly was in the organizing committee of the Floris'tic national workshop hold during the "salon de l'écologie"<sup>0</sup>, Montpellier, France, 5-7 November

Participation in conference program committees :

- ACM SIGMOD Conf. 2015: R. Akbarinia, S. Cohen-Boulakia, 2016: R. Akbarinia, S. Cohen-Boulakia
- IEEE Int. Conf. on Data Engineering (ICDE) 2015: S. Cohen-Boulakia, 2016: R. Akbarinia, E. Pacitti, P. Valduriez (area chair)
- ADBIS 2015 - East-European Conference on Advances in Databases and Information Systems: R. Akbarinia, P. Valduriez (PC chair)
- VLDB 2015 : P. Valduriez (sponsor co-chair, and best paper award committee)
- Int. Conf. on Extending DataBase Technologies (EDBT), 2015: E. Pacitti
- BPM 2015 (Business Process Management (BPM) 2015: S. Cohen-Boulakia
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015: A. Joly
- ACM Multimedia conference (ACMMM), 2015: A. Joly
- International Conference and Labs of the Evaluation Forum (CLEF), 2015: A. Joly
- IEEE International Conference on Image Processing (ICIP), 2015: A. Joly
- ACM International Conference on Multimedia Retrieval (ICMR), 2015: A. Joly
- IEEE Int. Workshop on Environmental Acoustic Data Mining (EADM), 2015: A. Joly

<sup>0</sup><http://www.imageclef.org/lifeclef/2015>

<sup>0</sup><http://mklab.itl.gr/emr2015/>

<sup>0</sup><http://www.salon-ecologie.com/congres-ecolotech-montpellier/programme-du-congres/>

- Workshop on Theory and Practice of Provenance (TAPP) 2014 et 2015: S. Cohen-Boulakia
- ICDT workshop on Algorithms and Systems for MapReduce and Beyond (BeyondMR) 2015: S. Cohen-Boulakia
- IEEE Int. Conf. on Data Mining, 2015: F. Massegli (area chair)
- ACM Symposium on Applied Computing, 2015: F. Massegli
- Int. Conf. on Data Management Technologies and Applications, 2015: F. Massegli
- Pacific-Asia Conf. on Knowledge Discovery and Data Mining, 2015: F. Massegli
- European Conf. on Machine Learning and Principles and Practice of Knowledge Discovery in Databases, 2015: F. Massegli
- IEEE Int. Conf. on Data Science and Advanced Analytics, 2015: F. Massegli
- Workshop on Big Data and Data Mining Challenges on IoT and Pervasive Systems, 2015: E. Pacitti
- 9th BRESKI - Brazilian e-Science Workshop, 2015: E. Pacitti

Reviewing in international journals :

- Distributed and Parallel Databases: R. Akbarinia
- ACM Transactions on Database Systems (TODS): A. Joly
- IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI): A. Joly
- IEEE Transactions on Knowledge and Data Engineering: R. Akbarinia
- Information Sciences: A. Joly
- Ecological Informatics: A. Joly
- Multimedia Tools and Applications Journal (MTAP): A. Joly
- Multimedia Systems: A. Joly
- Transactions on Information Forensics & Security: A. Joly
- International Journal of Computer Vision: A. Joly
- Transactions on Image Processing: A. Joly
- ACM Trans. on Database Systems: E. Pacitti
- Knowledge and Information Systems (KAIS): F. Massegli
- Int. Journal of Uncertainty, Fuzziness and Knowledge-Based Systems (IJUFKS): F. Massegli
- IEEE Transactions on Knowledge and Data Engineering (TKDE): F. Massegli

Other activities (national):

- Zenith participated in the Hemera and Grid'5000 communities by: contributing to the definition of "Storage 5000" (we help defining the financial model for teams to have their data in Grid5000) ; participating to Hemera meetings (Florent Massegli gave a talk on "Pattern Mining from Big Data, meeting of Sept. 18, Nantes); and contributing to the prospective document of Grid5000.
- P. Valduriez is the scientific manager for the Latin America zone at Inria Direction des Relations Internationales (DRI), Member of the Scientific Committee at Agence Nationale de la Recherche (ANR) - Défi 7 Information and communication society and Member of the Scientific Committee of the BDA conference.
- A. Joly gave several invited talks in national events: *industrial computer vision days 2015*<sup>0</sup>, Montpellier, 15 October, *ICAR-AMAP images days 2015*<sup>0</sup>, September 17 He defended his « Habilitation à Diriger les Recherches (HDR) » entitled *Large-scale Content-based Information Retrieval* in June.
- F. Massegli gave an invited talk at the CNRS national seminar on IST about "Publication Data Analytics" (Meudon, 10 November), and an invited talk to the DSI service of IRD on "Scientific Data Mining" (Montpellier, 18 September). Florent also participates in the Class'Code PIA project dedicated to teaching computational thinking for professionals of education (head of the working group on the definition of fundamental notions).
- S. Cohen-Boulakia gave invited tutorials at the DigiCosme Spring School 2015 on Data Management (Saclay, May 2015) and at the summer school Cumulo-Numbio : Cloud computing for the life sciences (Aussois, June 2015).

<sup>0</sup><http://www.captronic.fr/Image-vision-industrielle.html>

<sup>0</sup>[http://amap-collaboratif.cirad.fr/ecipp/?page\\_id=901](http://amap-collaboratif.cirad.fr/ecipp/?page_id=901)



Other activities (international):

- P. Valduriez gave several invited talks in international events: “Data-intensive HPC: opportunities and challenges”, Workshop on Big Data and Extreme-scale Computing (BDEC), Barcelona, January 2015; “Cloud & big data: opportunities and risks for developing countries” at AFRICOMM 2015, Cotonou (Bénin), December 2015; “Big Data Management in Zenith” at Fundação Getulio Vargas, Rio de Janeiro, December 2015.
- A. Joly gave an invited talk at the ERMITES 2015 international summer school <sup>0</sup>, 21-22 April 2015. He is the main chair of the LifeCLEF research platform and was the co-organizer of two of the challenges run within the lab in 2015 (the plant identification challenge and the bird identification challenge).
- S. Cohen-Boulakia gave invited talks at Universities of Pennsylvania, April, and Humboldt, Berlin, December.

## 10.2. Teaching - Supervision - Juries

### 10.2.1. Teaching

Most permanent members of Zenith teach at the Licence and Master degree levels at UM2.

Reza Akbarinia:

Master Research: New approaches for data storage, 9h, level M2, Faculty of Science, UM

Licence: Computing Tools, 36h, Level L3, Faculty of Science, UM

Florent Masegla:

Science Popularization: 4 Ph.D students, from 3 different doctoral schools are having a 30h doctoral module under Florent Masegla’s supervision.

Esther Pacitti:

IG3: Database design, physical organization, 54h, level L3, Polytech’ Montpellier, UM2

IG4: Networks, 42h, level M1, Polytech’ Montpellier, UM2

IG4: Object-relational databases, 32h, level M1, Polytech’ Montpellier, UM2

IG5: Distributed systems, virtualization, 27h, level M2, Polytech’ Montpellier, UM2

Industry internship committee, 50h, level M2, Polytech’ Montpellier

Master Research: Large scale data management, 4,5h, level M2, Faculty of Science, UM2

Didier Parigot:

Master Research: Large scale data management, 6h, level M2, Faculty of Science, UM2

Patrick Valduriez:

Master Research: Large scale data management, 12h, level M2, Faculty of Science, UM2

Professional: Distributed Information Systems, 50h, level M2, Capgemini Institut

Professional: XML, 30h, level M2, Orsys Formation

Alexis Joly:

Master Research: Large-scale Content-based Visual Information Retrieval, 3h, level M2, Faculty of Science, UM2

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<sup>0</sup><http://glotin.univ-tln.fr/ERMITES15/>

### 10.2.2. Supervision

- PhD in progress: Mehdi Zitouni Closed Pattern Mining in a Massively Distributed Environment started Sept. 2014, Univ. Tunis, Advisor: Florent Massegli, co-advisor: Reza Akbarinia
- PhD in progress : Ji Liu, Scientific Workflows in Multisite Cloud, started oct. 2013, Univ. Montpellier, Advisors: Esther Pacitti and Patrick Valduriez
- PhD in progress : Saber Salah, Optimizing a Cloud for Data Mining Primitives, started nov. 2012, Univ. Montpellier, Advisor: Florent Massegli, co-advisor: Reza Akbarinia
- PhD in progress : Valentin Leveau, Supervised content-based information retrieval in big multimedia data, started April 2013, Univ. Montpellier, Advisor: Patrick Valduriez, co-advisor: Alexis Joly and Olivier Buisson
- PhD in progress : Djamel-Edine Yagoubi, Indexing Time Series in a Massively Distributed Environment, started October 2014, Univ. Montpellier, Advisors: Florent Massegli and Patrick Valduriez, co-advisor: Reza Akbarinia
- PhD in progress : Sakina Mahboubi, Privacy Preserving Query Processing in Clouds, started October 2015, Univ. Montpellier, Advisor: Patrick Valduriez, co-advisor: Reza Akbarinia

### 10.2.3. Juries

Members of the team participated to the following Ph.D. committees:

- E. Pacitti: Sébastien Monnet (HDR, Univ. Paris 6), Luis Daniel Ibanez (Univ. Nantes), Maeva Antoine (Univ. Nice), Julien Lacroix (Univ. Aix-Marseille).
- P. Valduriez: Gerson Sunyé (HDR, Univ. Nantes, chair), Amin Mesmoudi (Univ. Lyon 1) Stamatis Zampetakis (Univ. Paris Sud).

## 10.3. Popularization

Today, one of the main questions in science popularization and computer science teaching at school in France is: "how to scale?". Some of our recent actions in the domaine are mainly oriented towards this goal of scaling, in particular with the Class'Code PIA project ([https://pixees.fr/?page\\_id=1980](https://pixees.fr/?page_id=1980), F. Massegli is member of the project).

F. Massegli has coordinated a national network of colleagues for promoting code learning. After several training sessions given to professionals of education F. Massegli has written a complete guide for setting up a similar training session (<https://pixees.fr/?p=5713>).

"La main à la pâte" is leading the writing of a school book on computer science teaching involving Inria (Gilles Dowek, Pierre-Yves Oudeyer, Florent Massegli and Didier Roy), "France-IOI" and the University of Lorraine. Florent Massegli has tested the pedagogical sequences of the book in a classroom near Montpellier.

Zenith participated to the following events in Montpellier:

- F. Massegli co-organized and co-animated the Inria's stand at "La fête de la science" (Montpellier), held by Genopolys (a science village).
- F. Massegli organized and animated several "Kid&Code" studios in the greater metropolitan area of Montpellier, involving the network of media libraries and the network of extracurricular activities. He also has proposed a two sessions training to activity leaders of "Les petits débrouillards". The goal is to accompany the activity leaders and help them until they are autonomous
- F. Massegli is member of the project selection committee for "La fête de la science" in Montpellier
- F. Massegli is co-author of a paper in the Scratch conference on code learning for kids [50]
- M. Servajean and A. Joly co-animated a stand at "La fête de la science" (Montpellier), held by the LIRMM laboratory
- M. Servajean, A. Joly and J. Champ collaborated to a participatory workshop at "Le salon de l'écologie", Montpellier

F. Masegla is scientific vice-editor of *interstices* ( <https://interstices.info>), and a member of the scientific committee for the edition of “Datagramme”, the game from Inria on science popularization. He has participated to the two days training sessions on "science popularization" given by Claude Vadel in Paris, on Dec. 4 and 5, 2014.

A. Joly and J. Champ participated to the set-up of a Pl@ntNet demo within the French pavillon at the Universal Exposition hold in Milan (about 2M visitors on the French pavillon).

As a member of the organizing committee of the Floris'tic project, A. Joly participated to several popularization and educational actions in collaboration with Tela Botanica NGO (cities, parks, schools, etc.)

F. Masegla is a member of the management board of "Les Petits Débrouillards" in Languedoc-Roussillon. He also is the scientific responsible for schools visits in the Lirmm Laboratory.

D. Shasha gave several talks: “the changing nature of invention in computer science” (Morgenstern seminar) and “Group Testing to Describe Causality in Gene Networks” at Inria Sophia-Antipolis in april, and “Statistics is easy” at IBC, Montpellier in march.

P. Valduriez gave a talk on “Integrating Big Data and Relational Data with CloudMdsQL” at the DGA seminar “Traitement de l’information multimodale et Big Data”, Arcueil, in october.