RESEARCH CENTER

FIELD
Applied Mathematics, Computation and Simulation

Activity Report 2014

Section Dissemination

Edition: 2015-03-24

BACCHUS Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific events organisation

- M. Colin and M. Ricchiuto have co-organized (with P. Lubin, I2M Bordeaux) the event B'Waves 2014, a workshop on breaking waves hosting some of the world's leaders on modelling and simulation of free surface waves. The event hs been hosted by Inria BSO, and a second edition B'Waves 2016 will be held in Norway (host: Bergen University) ;
- M. Ricchiuto has co-roganized (with A. Delis, Technical University of Crete) the mini-symposium 'non-hydrostatic free surface flows: models and methods' and the ECMI 2014 conference (Taormina, June 2014) ;
- Ci˙s member of the board of the GAMNI group of SMAI and she is secretary. She has participated to the organization of the "journées SMAI-MAIRCI-GAMNI sur le Maillage" (Paris, May 2014) ;
- P.M. Congedo has organized a mini-symposium on Uncertainty Quantification Techniques for Fluid-flow Problems at the ECCOMAS 2014 Conference (Barcelona, July 2014) ;
- P.M. Congedo has contributed to the organization of VKI Lecture Series Uncertainty Quantification in Computational Fluid Dynamics - STO-AVT-235 (Brussels, September 2014).

7.1.1.1. Reviewer

We reviewed papers for top international journals and conferences in the main scientific themes of the team : Journal of Computational Physics, Computer Methods in Applied Mechanics and Engineering, Optimization and Engineering, International Journal of Numerical Methods in Fluids, Physics of Fluids, Journal of Marine Science and Technology, Engineering Applications of Computational Fluid Mechanics, Computers and Fluids, International Journal of Modelling and Simulation in Engineering Aircraft Engineering and Aerospace Technology, International Journal of Computational Fluid Dynamics, Applications and applied mathematics : An international journal, Discrete and Continuous Dynamical Systems - Series A, Electronic Journal of Differential Equations, Calculus of Variations and Partial Differential Equations, Nonlinear Analysis: Modelling and Control, Advanced Nonlinear Studies, Communications on Pure and Applied Analysis, Communications in Computational Physics.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

License : Héloïse Beaugendre, Co-Responsable des projets TER de première année, 10h, L3, ENSEIRB-MATMÉCA, FRANCE

License : Héloïse Beaugendre, Encadrement TER, 16h, L3, ENSEIRB-MATMÉCA, FRANCE

Licence : Mathieu Colin, Analyse Fonctionnelle et Intégration, 54 h, L3, ENSEIRB-MATMÉCA, FRANCE

Licence : Mathieu Colin, TER 32h, L3, ENSEIRB-MATMÉCA, FRANCE

Licence, Mathieu Colin, Analyse, L1, Formation alternée INP, FRANCE

Licence : Pietro Marco Congedo, Fundamentals of Numerical Analysis II, 24h, ENSEIRB-MATMÉCA, France.

Licence : Pietro Marco Congedo, Fundamentals of Fluid Mechanics II, 20h, ENSEIRB-MATMÉCA, France.

Licence : Cécile Dobrzynski, Langages en Fortran 90, 54h, L3, ENSEIRB-MATMÉCA, FRANCE

Licence : Cécile Dobrzynski, Analyse numérique, 24h, L3, ENSEIRB-MATMÉCA, FRANCE

Licence : Mario Ricchiuto, Fundamentals of Numerical Analysis, 24h,ENSEIRB-MATMÉCA, France.

Master : Héloïse Beaugendre, Responsable de filiière de 3ème année, 10h, M2, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Approximation numérique et problèmes industriels, 26h, M1, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Outils informatiques pour l'insertion professionnelle, 9h, M2, Université de Bordeaux, France

Master : Héloïse Beaugendre, Calcul Parallèle (OpenMP-MPI), 40h, M1, ENSEIRB-MATMÉCA et Université de Bordeaux, France

Master : Héloïse Beaugendre, Calcul Haute Performance (MPI), 36h, M2, ENSEIRB-MATMÉCA, France

Master : Héloïse Beaugendre, Calcul Haute Performance et décomposition de domaine, 36h, M2, ENSEIRB-MATMÉCA et Université Bordeaux, France

Master : Mathieu Colin, PDE, 30 H, M1, ENSEIRB-MATMÉCA, FRANCE

Master : Mathieu Colin, EDP appronfondies, 36 h, M2, Université de Bordeaux, FRANCE

Master : Mathieu Colin, TER, 12h, M1, ENSEIRB-MATMÉCA, FRANCE

Master : Mathieu Colin, Projet fin d'études, 6h, M2, ENSEIRB-MATMÉCA, FRANCE

Master : Pietro Marco Congedo, Simulation Numérique des écoulements fluides, 20h, M2, ENSEIRB-MATMÉCA, France

Master : Cécile Dobrzynski, Projet fin d'études, 6h, M2, ENSEIRB-MATMÉCA, FRANCE

Master : Cécile Dobrzynski, TER, 16h, M1, ENSEIRB-MATMÉCA, FRANCE

Master : Cécile Dobrzynski, Théorie du maillage, 12h, M2, formation Structures Composites, ENSCBP, FRANCE

Master : Cécile Dobrzynski, Techniques de maillages, 36h, M2, ENSEIRB-MATMÉCA, FRANCE

Master : Mario Ricchiuto, Simulation Numérique des écoulements fluides, 16h, M3, ENSEIRB-MATMÉCA, France

Master : Mario Ricchiuto, Post-graduate course on introduction to CFD, 18h, M2 IAS (Master Spe´cialisé Inge´nierie Ae´ronautique et Spatiale, http://www.ensam.fr/fr/formation_initiale/masteres_specialises/ingenierie_aeronautique_et_spatiale), ENSAM, France

7.2.2. Supervision

PhD in progress : Arpaia Luca, Continuous mesh deformation and coupling with uncertainty quantification for coastal inundation problems, started in March 2014.

PhD in progress : Bellec Stevan, Discrete asymptotic modelling of free surface flows, October 2013.

PhD in progress : Cortesi Andrea, Predictive numerical simulation for rebuilding freestream conditions in atmospheric entry flows, started in October 2014.

PhD in progress : Filippini Andrea, Nonlinear finite element Boussinesq modelling of non-hydrostatic free surface flows, started in February 2014.

PhD in progress: Fusi Francesca, Stochastic robust optimization of a helicopter rotor airfoil, started in October 2013.

PhD in progress: Lin Xi, Asymptotic modelling of incompressible reactive flows in self-healing composites, started in October 2014.

PhD in progress : Nouveau Léo, Adaptation de maillage non structurés anisotropes pour les méthodes de pénalisation en mécanique des fluides compressibles, started in Oct 2013.

PhD in progress: Perrot Gregory, Physico-chemical modelling of self-healing ceramic composites, started in October 2011.

PhD in progress : Peluchon Simon, Approximation numérique et modélisation de l'ablation différentielle de deux matériaux: application à l'ablation liquide. Started in December 2014.

PhD in progress : Viville Quentin, Etude sur les méthodes de pénalisation adaptées aux maillages non-structurés fortement anisotropiques et utilisation de l'adaptation de maillage, started in Oct 2013.

CAGIRE Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. Member of the organizing committee

Member [RM] of the steering committee of the Special Interest Group "Turbulence Modelling" (SIG-15) of ERCOFTAC (European Research COmmittee for Flow, Turbulence and Combustion) that organizes a series of international workshops dedicated to cross-comparisons of the results of turbulence models and experimental/DNS databases.

9.1.2. Scientific events selection

9.1.2.1. Member of the conference program committee

- Co-chair ([RM], with M. Visbal, Air Force Research Laboratory, Ohio, USA) of the symposium on DNS, LES and hybrid RANS/LES within the international conference FEDSM (Fluid Engineering Division Summer Meeting) of the ASME (American Society of Mechanical Engineers), organized in Chicago, in August 2014.
- Member [RM] of the scientific committee of the Intl Symp. Turbulence, Heat and Mass Transfer, Sarajevo, Bosnia and Herzegovina, 2015
- Member [RM] of the scientific committee of the Intl. Symp. Engineering Turbulence Modelling and Measurement, Marbella, Spain, 2014

9.1.2.2. Reviewer

- Turbo Expo ASME Gas Turbines Conference 2015 (Montreal) [PB]

9.1.3. Journal

9.1.3.1. Reviewer

This year, the team members have reviewed 33 papers for the following journals:

- Aerospace Science and Technology [PB]
- Combustion and Flame [PB]
- Computational Thermal Science [PB]
- Computers and Fluids [RM]
- Concurrency and Computation: practice and experience [PB]
- Flow Turbulence and Combustion [RM]
- Heat Transfer Engineering [RM]
- International Journal of Heat and Fluid Flow [RM]
- International Journal of Refrigeration [PB]
- Journal of Computational Physics [VP]
- Journal of Fluid Mechanics [RM]
- Journal of Petroleum Science and Engineering [PB]
- Journal of Propulsion Power [PB]
- Proceedings of the Combustion Institute [PB]

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Master : [RM], Turbulence Modelling, 28h, École centrale de Lille/ENSI Poitiers/ISAE-ENSMA, Poitiers, France.
- Engineering School: [RM] Industrial codes for CFD, 12h, ISAE-ENSMA, Poitiers, France.
- Continuous Training : [RM] Simulation numérique de la turbulence en LES, 3h, EUROSAE, Paris, France.

9.2.2. Supervision

- PhD in progress: Simon Delmas, Simulation d'écoulements pariétaux génériques à bas nombre de Mach pour l'amélioration du refroidissement des chambres de combustion : développement et mise en œuvre de schémas de type Galerkine discontinu adaptés, University of Pau, started January 2013, Dir.:[PB] and Co-dir.: [VP].
- PhD in progress : Nurtoleu Shakhan, Modelling and simulation of supersonic jet in crossflow, University of Almaty (Kazakhstan), started October 2013, Dir.:Altyn Naïmanova and Co-dir.:[PB] (the thesis subject has been modified mid-2014).
- PhD in progress: Jean-François Wald, Modélisation de la turbulence avec traitement adaptatif des parois prenant en compte la thermique active ou passive, started October 2013, Dir.: [RM]

9.2.3. Juries

The participation in the following thesis juries is noted ("referee" in a French doctoral thesis jury is more or less equivalent to an external opponent in an Anglo-Saxon like PhD jury):

- PhD : Guao Wang, « Simulation numérique sur des feux de nappe de kérosène de grande échelle soumis à un vent traversier avec prise en compte d'un aéronef », University of Poitiers, France, 10 January 2014, [PB, referee].
- PhD : Julien Pilet, « Analyse du comportement moteur stabilisé en windmilling par couplage des modèles thermodynamiques et simulations numériques », University of Toulouse, France, 17 January 2014, [PB, referee].

9.3. Popularization

- Opération Forum des Métiers organisée par la Zone d'Activité Pédagogique d'Oloron Sainte Marie (64) , Salle Pierre Scohy, Oloron Sainte Marie (a stand was manned by [PB] during one day with the objective of explaining the activity of researcher to an audience of schoolboys/girls and high school students).

DEFI Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

- H. Haddar organized a minisymposium on "Inverse Scattering" at IPTA 2014 http://ipta2014.iopconfs.org/218704
- H. Haddar co-organized with Marc Bonnet a minisymposium on "Asymptotic Expansions" at IPTA 2014 http://ipta2014.iopconfs.org/218704
- H. Haddar co-organized with Nicolas Chaulet a minisymposium on "Asymptotics, Inverse Problems and Applications" at SIAM Conference on IMAGING SCIENCE http://www.math.hkbu.edu.hk/SIAM-IS14/Minisymposia.html

9.1.1.1. General chair, scientific chair

- G. Allaire is the scientific chair and one of the five organizers of the conference Conca60-BCAM, Bilbao (december 2014).
- G. Allaire is the scientific chair and one of the main organizers of the CEA/GAMNI seminar on computational fluid mechanics, IHP Paris (January 2014).
- O. Pantz is Co-chairman of the symposium *Optimization tools for large scale industrial systems* for COPI'14, École Polytechnique, (October 2014)

9.1.1.2. Member of the conference program committee

- G. Allaire and H. Haddar are members of the scientific committee of PICOF'2014 http://www.lamsin.tn/picof14/

9.1.2. Journal

9.1.2.1. Member of the editorial board

- G. Allaire is member of the editorial borads of
  - Structural and Multidisciplinary Optimization,
  - Discrete and Continuous Dynamical Systems Series B,
  - Computational and Applied Mathematics,
  - Mathematical Models and Methods in Applied Sciences (M3AS),
  - Annali dell'Universita di Ferrara,
  - OGST (Oil and Gas Science and Technology),
  - Journal de l'Ecole Polytechnique - Mathématiques.
- H. Haddar is member of the editorial advisory board of Inverse Problems
- J.-R. Li is an Associate Editor of the SIAM Journal on Scientific Computing.

9.1.2.2. Reviewer

The members of the team reviewed numerous papers for numerous international journals. Too many to make a list.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Licence : Grégoire Allaire, "Numerical Analysis and Optimization", (main instructor) 27 equivalent TD hours, L3, Ecole Polytechnique, Palaiseau, France
- Licence : Olivier Pantz, "Numerical Analysis and Optimization", 72 equivalent TD hours, L3, Ecole Polytechnique, Palaiseau, France
- Licence : Houssem Haddar, "Numerical Analysis and Optimization", 56 equivalent TD hours, L3, Ecole Polytechnique, Palaiseau, France
- Master : Grégoire Allaire, "Optimal design of structures", (main instructor) 13,5 equivalent TD hours, M1, Ecole Polytechnique, Palaiseau, France
- Master : Grégoire Allaire, "Transport et Diffusion", (main instructor) 6,5 equivalent TD hours, M1, Ecole Polytechnique, Palaiseau, France
- Master : Grégoire Allaire, "Functional analysis and applications", (main instructor) 18 equivalent TD hours, M2, University Pierre et Marie Curie, Paris, France
- Master : Houssem Haddar, "Inverse problems", (main instructor) 24 equivalent TD hours, M2, Ecole Polytechnique, Palaiseau, France
- Master : Olivier Pantz, "Optimal design of structures", 14 equivalent TD hours, M1, Ecole Polytechnique, Palaiseau, France
- Master : Olivier Pantz, "Introduction to calculus of variation ans asymptotic analysis", 40 equivalent TD hours, M1, Ecole Polytechnique, Palaiseau, France
- Doctorat : Houssem Haddar, "Introduction to qualitative methods for inverse electromagnetic scattering theory" at CIME summer school, 12 equivalent TD hours, Cetraro, Italy
- Doctorat : Olivier Pantz, "Introduction course" at the 'FreeFem++ days'. University Pierre et Marie Curie, Paris, France

9.2.2. Supervision

- Ph.D. in progress: L. Audibert, Qualitative methods for non destructive testing of concrete like materials, 2012, H. Haddar
- Ph.D. in progress: T. Mercier, Data assimilation for temperature estimates in PWR, 2012, H. Haddar
- Ph.D. in progress: M. Lakhal, Time domain inverse scattering for buried objects, 2014, H. Haddar
- Ph.D. in progress: T.P. Nguyen, Direct and Inverse scattering from locally perturbed layers, 2013, H. Haddar
- Ph.D. in progress: T. Rienmuller, Scattering for inhomogeneous waveguides, 2014, A. Lechleiter and H. Haddar
- Ph.D. in progress: B. Charfi, Identification of the sigular support of a GIBC, 2014, H. Haddar and S. Chaabane
- Ph.D. in progress: G. Fournet, Inclusion of blood flow in micro-vessels in a new dMRI signal model, 2013, J.-R. Li and L. Ciobanu
- Ph.D. in progress: S. Schiavi, Homogenized models for Diffusion MRI, 2013, H. Haddar and J.-R. Li
- Ph.D. in progress: K. Van Nguyen, Modeling, simulation and experimental verification of water diffusion in neuronal network of the Aplysia ganglia, 2014, J.-R. Li and L. Ciobanu
- PhD in progress : A. Maury, shape optimization for non-linear structures, 2013, G. Allaire and F. Jouve
- PhD in progress : J.-L. Vié, optimization algorithms for topology design of structures, 2013, G. Allaire and E. Cancès

- PhD in progress : C. Patricot, coupling algorithms in neutronic/thermal-hydraulic/mechanics for numerical simulation of nuclear reactors, 2013, G. Allaire and E. Hourcade
- PhD in progress : A. Talpaert, the direct numerical simulation of vapor bubbles at low Mach number with adaptative mesh refinement, 2013, G. Allaire and S. Dellacherie
- PhD in progress : A. Bissuel, linearized Navier Stokes equations for optimization, floating and aeroaccoustic, 2014, G. Allaire
- PhD in progress : M. Giacomini, Shape optimization and Applications to aeronautics, 2013, O. Pantz and K. Trabelsi
- PhD in progress : L. Azem, Modeling and simulation of damage and fracture, O. Pantz and H. Zorgati

9.3. Popularization

- H. Haddar gave a lecture at UnithéouCafé on "Décoder les ondes". The video is available at the youtube inriachannel https://www.youtube.com/watch?v=baS8mL66xiE

ECUADOR Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. Member of the organizing committee

- Laurent Hascoët is on the organizing commitee of the EuroAD Workshops on Algorithmic Differentiation. The 15th EuroAD workshop was organized and hosted by the team in Sophia-Antipolis, june 16-17.
- Ecuador was local organizer of the 11th workshop of the Inria-Illinois JLPC in Sophia-Antipolis, june 9-11, and of the PUF summer school on HPC systems, June 12-13.

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 in progress : Gautier Brèthes, “Multigrilles anisotropes adaptatives”, started october 2012, advisor A. Dervieux

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

9.2.3. Juries

- Alain Dervieux, jury, PhD defense of Fernando Grossi, University of Toulouse, february 11.
- Alain Dervieux, jury, HDR defense of Elie Hachem, University of Nice, may 20.
- Laurent Hascoët, opponent, PhD defense of Mikko Auvinen, Aalto University, Finland, october 10.

9.3. Popularization

- Laurent Hascoët made a presentation on “Adjoint Automatic Differentiation for Data Assimilation” at the EGC 2014 conference in Rennes, January 28.
- Laurent Hascoët made a presentation on “Using Algorithmic Differentiation Tools to Compute Derivatives” at the ATOC Adjoint 2014 workshop organized by the British Antarctic Survey, Cambridge, July 1-2.
- Laurent Hascoët was invited to a seminar on adjoint methods http://www.dagstuhl.de/program/calendar/partlist/?semnr=14371&SUOG in Dagstuhl, Germany, september 7-12.

GAMMA3 Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific events selection

7.1.1.1. Member of the conference program committee

AIAA conferences in Meshing, Visualization, and Computational Environments

7.1.2. Journal

7.1.2.1. Reviewer

The members of the team reviewed numerous papers for numerous international conferences and journals: IJNME, EWC, Computers and Structures, IMR, JCP, SICOMP, SINUM, AIAA...

IPSO Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific events organisation

7.1.1.1. Member of the organizing committee

- F. Castella organised, jointly with P. Chartier, a meeting held in Saint-Malo (25 participants) in the framework of the european ANR project Lodiquas.

7.1.2. Scientific events selection

7.1.2.1. Member of the conference program committee

- A. Debussche was member of the scientific committee of the conference *Stochastic Partial Differential Equations and Applications - IX*, Trento, Italy, january 7-11, 2014.

7.1.3. Journal

7.1.3.1. Member of the editorial board

- N. Crouseilles is member of the editorial board of Hindawi review "International Journal of Analysis"
  http://www.hindawi.com/journals/analysis/
- M. Lemou is associate editor in the journal "Annales de la faculté des sciences de Toulouse"
- A. Debussche is editor in Chief of "Stochastic Partial Differential Equations: analysis and computations".
- A. Debussche is member of the editorial board of "Potential Analysis".
- A. Debussche is member of the editorial board of the "Journal of Evolution Equations".
- A. Debussche is member of the editorial board of "Differential and Integral Equations".
- A. Debussche is member of the editorial board of "ESAIM: Proceedings".
- A. Debussche is member of the editorial board of the collection: "Mathématiques et Applications", SMAI, Springer.
- P. Chartier is member of the editorial board of M2AN (Mathematical Modelling and Numerical Analysis).
- P. Chartier is member of the editorial board of ISRN Mathematical Analysis.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Master 2 lectures: N. Crouseilles, Numerical methods for kinetic equations.

Master 1 lectures: M. Lemou, Theory of distributions, University of Rennes 1 and ENS Cachan (Ker Lann), 24 hours.

Master 2: M. Lemou was the manager of Master 2 courses in "Analysis and Applications", university of Rennes 1.

E. Faou gave a series of lectures on *Stochastic methods for PDEs*, Heriot-Watt University, Edinburgh, UK, october 2014.

E. Faou gave a series of lectures on *Geometric Numerical Integration for PDE*, KIT, Karlsruhe, Germany, August 2014.

E. Faou gave a series of lectures on *Stochastic computation* and on *Geometric Numerical Integration for PDE*, Chinese Academy of Sciences, Beijing, May 2014

A. Debussche gave a mini-course on *Introduction aux EDPS* in the school *EDP avec conditions aleatoires*, Toulouse, April 22-25, 2014.

Licence 3: P. Chartier gave a lecture on ODEs at ENS Rennes, september-december, 24 hours.

7.2.2. Supervision

N. Crouseilles and M. Lemou co-advise H. Hivert's PhD (first year in Rennes university), ENS grant.

N. Crouseilles and M. Lemou co-advise (with R. Raghurama and M. Lemou) A. Ruhi's PhD (third year in IISc), Indian grant.

M. Lemou and F. Méhats co-advised P. Carcaud's PhD: University of Rennes 1. Thesis defense on june 2nd 2014.

P. Chartier and F. Méhats co-supervise the PhD thesis of G. Leboucher.

P. Chartier and F. Castella co-supervise the PhD thesis of J. Sauzeau.

A. Debussche and F. Méhats co-supervise the PhD thesis of M. Tusseau.

E. Faou co-supervises the PhD thesis of R. Horsin.

A. Debussche and E. Faou co-supervised the thesis of M. Kopec, ENS Rennes.

7.2.3. Juries

N. Crouseilles: member of the PHD jury of P. Glanc, 20 january 2014 (Strasbourg); co-advising (with M. Mehrenberger) of Pierre Glanc PhD (Strasbourg University), Inria-Cordi grant.

N. Crouseilles: member of the PHD jury of Ch. Steiner, 11 december 2014 (Strasbourg); co-advising (with M. Mehrenberger) of Christophe Steiner PhD (Strasbourg University), ministry grant.

N. Crouseilles: member of the PHD jury of M. Kuhn, 29 september 2014 (Strasbourg); co-advising (with S. Genaud) of Matthieu Kuhn PhD (Strasbourg University and Inria IPSO), ANR "E2T2" grant.

N. Crouseilles: member of the Master 2 jury of P. Pereira, 26 november 2014 (Lisboa, Portugal).

F. Méhats was referee of the thesis of L. Hari (Cergy, supervised by T. Duyckaerts and C. Fermanian).

F. Méhats was referee of the thesis of X. Zhao (Singapore, supervised by W. Bao).

P. Chartier was referee of the PhD thesis of Philipp Bader, University of Valencia, june.

MATHERIALS Team

8. Dissemination

8.1. Promoting Scientific Activities

S. Brisard has co-organized the "Stochastics and Material Mechanics" mini-symposium at the 2014 "European Mechanics of Materials Conference", organized at Gothenburg (Sweden), 27-29 August 2014.

E. Cancès

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

He was an Ordway visiting professor at the University of Minnesota for the academic year 2013-2014.

He has organized or co-organized:

- the 2nd workshop on " Mathematical and numerical analysis of electronic structure models", Berlin, April 2014,
- the workshop " Horizon math 2014 ", Rueil Malmaison, December 2014.

C. Le Bris is editor-in-chief of Applied Mathematics Research Express (2003-). He is a managing editor of Networks and Heterogeneous Media. He is a member of the editorial boards of Annales mathématiques du Québec (2013-), Archive for Rational Mechanics and Analysis (2004-), COCV (Control, Optimization and Calculus of Variations) (2003-), Mathematics in Action (2008-), Nonlinearity (2005-), Journal de Mathématiques Pures et Appliquées (2009-).

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

C. Le Bris is a member of

- the Cabinet of the High Commissioner for Atomic Energy,
- the scientific board of ENPC, 2008- (nominated as representative of the research scholars),
- the "Comité d'experts" for the "Fondation de Recherche pour l'Aéronautique et l'Espace",
- the "Comité d'animation du domaine thématique Mathématiques appliquées, calcul et simulation" at Inria,
- the "International Scientific Advisory Committee" of the Centre de Recherche Mathématique, Université de Montréal,
- the "Advisory Board" of the DFG Cluster of Excellence Engineering of Advanced Materials, Erlangen,
- the "International Scientific Advisory Board" of the DFG research center Matheon, Berlin,
- the "Conseil scientifique de la SMAI" (Scientific Council of the French Applied Maths Society)s,
- the International Mathematical Union Circle,
- the "Conseil de perfectionnement du Master de Mathématiques" of the University Pierre et Marie Curie.

C. Le Bris has held a position of Visiting Professor at the University of Chicago, February-October-November 2014.

He has been a member of the Program Committee of ICM 2014 in Seoul and is a member of

- the scientific committee of the conference Dimension reduction: mathematical methods and Applications, Pennsylvania State University, March 21-24, 2015.

He has co-organized

- with P. Souganidis and S. Weinberger, the conference *Prospects in Applied Mathematics*, Chicago, 19-20 October 2014.

He has been the Göran Gustafsson Lecturer in Mathematics 2014, KTH, Stockholm.

F. Legoll

- is a member of the editorial board of SIAM MMS (2012-) and of ESAIM Proc (2012-),
- is a member of the Scientific Committee of SciCADE 2015.

T. Lelièvre

- is editor-in-chief of ESAIM: Proceedings (with D. Chafai, P. Lafitte and C. Mouhot),
- co-organized the Workshop "Numerical methods for high-dimensional problems" at the Ecole des Ponts, April 14-18th 2014 (with Virginie Ehrlacher, Yvon Maday and Anthony Nouy),
- co-organized the Journées Inverse problems for multiscale and stochastic problems, Ecole des Ponts, October 2-3rd 2014 (with Virginie Ehrlacher, Frédéric Legoll and Karam Sab),
- co-organized the MoMaS'14 conference. CIRM, November 17-20th, 2014 (with Grégoire Allaire, Clément Cancès, Alexandre Ern and Raphaèle Herbin),
- co-organizes the Journées EDP-Probas at Institut Henri Poincaré (with F. Malrieu),
- is the head of the GDR MoMaS, a French research group on the mathematical modeling and the numerical simulations for nuclear waste management problems (Main scientific themes: multiscale models for flows in porous media, molecular simulation of clays, multiphase flows),
- is in charge of the Theme 4 (Stochastic modeling, quantification and uncertainty propagation for multiscale mechanical models of materials) of the Labex MMCD,
- is involved in the organization of the IHP trimester "Numerical Methods for PDEs", Autumn 2016 (with D. A. Di Pietro, A. Ern and L. Formaggia).

G. Stoltz has

- co-organized the workshop "Computational methods for statistical mechanics - at the interface between mathematical statistics and molecular simulation" at ICMS (Edinburgh, UK), June 2-6, 2014 (with G. Pavliotis, Imperial College London, and Ch. Hartmann, FU Berlin)
- has given a public lecture on "Computer Simulations: The third way of doing science", at ICMS (Edinburgh, UK, June 2014)

8.2. Teaching - Supervision - Juries

The members of the team have taught the following courses:

- Licence: Probabilités (18h) et calcul scientifique (18h), Ecole Centrale Paris (S. Boyaval),
- Licence: Analyse, 36h, L3, Ecole des Ponts, France (E. Cancès, D. Gontier, F. Legoll, M. Rousset, W. Minvielle, V. Ehrlacher, S. Lemaire)
- Licence: Remise à niveau en analyse de base et algèbre linéaire, 18h, L3, ESIEE (S. Lemaire)
- Licence: Calcul Scientifique, 30h, L3, Ecole des Ponts ParisTech (G. Stoltz)
- Master: Mathématiques des modèles multiéchelles, 39h, M1, Ecole des Ponts ParisTech (F. Legoll)
- Master: Problèmes multiéchelles, 24h, M2, Université Paris 6 (F. Legoll)
- Master: Coques et Structures avancées, 24h, M1, Ecole des Ponts ParisTech (S. Brisard)
- Master: Conception des Structures, 14h, M1, Ecole des Ponts ParisTech (S. Brisard)

- Master: Images et Mécanique, 6h, M2, Ecole des Ponts ParisTech (S. Brisard),
- Master: Imagerie des Milieux Désordonnés, 9h, M2, Ecole des Ponts ParisTech (S. Brisard)
- Master: Modélisation mathématique des vagues (3h00), M1, Ecole Nationale des Ponts et Chaussées (S. Boyaval),
- Master: Processus Stochastiques, 18h. M1, ESIEA (C.-E. Bréhier),
- Master: Outils Probabilistes pour la Finance, M1, Ecole des Ponts, France (M. Rousset),
- Master: Processus de Markov et temps long, 30h, M2, Université Paris-Est (M. Rousset),
- Master: Analyse spectrale, 39h, M1, Ecole des Ponts, France (G. Stoltz, V. Ehrlacher)
- Master: Modéliser Programmer Simuler, 28 h, M1, Cours Ecole des Ponts ParisTech (T. Lelièvre).
- Master: Méthodes numériques probabilistes, 36 h, M2 Mathématiques et Applications, Université Pierre et Marie Curie (T. Lelièvre).
- Master: Analyse spectrale, 39h, M1, Ecole des Ponts, France (V. Ehrlacher, G. Stoltz)
- Master: Projets de physique, 10h, M1, Ecole des Ponts, France (V. Erhlacher, G. Stoltz)
- Master: Introduction au calcul Scientifique, 13h, M1, Ecole des Mines ParisTech, France (G. Stoltz, F. Madiot)
- Master: théorie spectrale des opérateurs de Schrödinger, 30h, M2, Université de Marne-la-Vallée, France (G. Stoltz)

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

- David Benoit, Méthodes numériques pour la simulation des fluides non-Newtoniens, Université Paris-Est, Université Paris Est, started October 1st, 2010, supervised by C. Le Bris and T. Lelièvre, January 22nd 2014.

The following PhDs are in progress (some of the following students conduct their research on a daily basis in other research groups, co-supervised by members of MATHERIALS) :

- François Madiot, Multiscale finite element methods for advection diffusion problems, Université Paris-Est, Ecole des Ponts ParisTech, started october 1st, 2013, supervised by C. Le Bris and F. Legoll,
- William Minvielle, Méthodes numériques pour les matériaux, Université Paris-Est, Université Paris Est, started october 1st, 2012, supervised by C. Le Bris and F. Legoll,
- David Gontier, Université Paris-Est, started September 1st, 2012, supervised by E. Cancès,
- Ahmed-Amine Homman, Multiscale methods for the simulation of shock and detonation waves, Université Paris-Est, Ecole des Ponts ParisTech and CEA/DAM, started April 1st, 2013, supervised by G. Stoltz and J.-B. Maillet,
- Zofia Trstanova, A mathematical analysis of some importance sampling strategies in molecular dynamics, Université Joseph Fourier and Inria Grenoble, started June 1st 2013, supervised by S. Redon and G. Stoltz,
- Gerome Faure, Multiscale methods for the simulation of shock and detonation waves, Université Paris-Est, Ecole des Ponts ParisTech and CEA/DAM, started November 1st 2014, supervised by G. Stoltz and J.-B. Maillet,
- Boris Nectoux, Métastabilité et distribution quasi-stationnaire, since November 2014, supervised by T. Lelièvre and E. Cancès,
- Houssam Alrachid, Méthodes numériques en dynamique moléculaire, Ecole des Ponts ParisTech, since September 2012, supervised by T. Lelièvre,
- Rémi Sainct, Modèles multi-échelles pour le trafic, IFFSTAR and Ecole des Ponts ParisTech, since September 2013, supervised by T. Lelièvre and X. Louis.

The following HDR was defended:

- Mathias Rousset, Probability in computational physics and biology: some mathematical contributions, Université Paris-Est, 27 nov. 2014.

8.3. Conference participation

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

- S. Boyaval, Séminaire mathématiques appliquées à RWTH, IGPM, 2014,
- S. Boyaval, Groupe de travail mathématiques appliquées à Université de Marne la Vallée, LAMA, 2014,
- C.-E. Bréhier, SPDEs and Applications IX, Trento, Italy, January 2014,
- C.-E. Bréhier, MCQMC 2014, Leuven, Belgium, April 2014,
- C.-E. Bréhier, Journées MAS 2014, Toulouse, August 2014,
- C.-E. Bréhier, Seminar of Numerical Analysis, Geneva, Switzerland, October 2014,
- C.-E. Bréhier, Seminar of Probability and Statistics, Bordeaux, November 2014,
- S. Brisard, Séminaire LabEx MMCD – Industrie, ENPC, July 2014,
- S. Brisard, Journées annuelles NEEDS – Milieux Poreux, Paris, December 2014,
- E. Cancès, CIRM meeting on advanced numerical methods for the simulation of Bose-Einstein condensates, February 2014,
- E. Cancès, Ki-Net Workshop on mathematical and numerical methods for complex quantum systems, Chicago, March 2014,
- E. Cancès, Mathematics colloquium, University of Minnesota, April 2014,
- E. Cancès, Weakly seminar of the chemistry department, University of Minnesota, April 2014,
- E. Cancès, Weakly seminar of the mathematics department, Bonn, May 2014,
- E. Cancès, Weakly seminar of the mathematics department, Amiens, June 2014,
- E. Cancès, IPAM workshop on materials defects, Lake Arrowhead, June 2014,
- E. Cancès, Oberwolfach workshop on computational multiscale methods, June 2014,
- E. Cancès, IPAM summer school on Electronic structure theory of materials and (bio)molecules, Los Angeles, July 2014,
- E. Cancès, International congress of mathematicians (invited lecture), Seoul, August 2014,
- E. Cancès, Workshop on Solution for solvation, on the occasion of Prof. Tomasi's 80th birthday, Pisa, September 2014,
- E. Cancès, Annual meeting of the ANR Becasim, Lille, September 2014,
- E. Cancès, BIRS workshop on multiscale models for crystal defects, Banff, September 2014,
- E. Cancès, ICERM workshop on high-dimensional approximation, integration and optimization, Providence, October 2014,
- E. Cancès, Prospects in applied mathematics, Chicago, October 2014,
- E. Cancès, Workshop on mathematics integrated to industry, Sao Jose dos Campos, November 2014,
- E. Cancès, X-IHES Laurent Schwartz seminar, November 2014,
- E. Cancès, Zurich colloquium on applied and computational mathematics, November 2014,
- E. Cancès, Horizons math 2014, Rueil Malmaison, December 2014,
- V. Ehrlacher, LJLL workshop on "Sparse tensor methods", University Paris 6, France, January 2014,
- V. Ehrlacher, Seminar of the mathematics department of Chemnitz University, Chemnitz, Germany, February 2014,

- V. Ehrlacher, GdR AMORE meeting, ENS Cachan, France, March 2014,
- V. Ehrlacher, Workshop on "Numerical methods for electronic structure calculations", Berlin, Germany, April 2014,
- V. Ehrlacher, IPAM Workshop on Materials Defects: Mathematics, Computation and Engineering, Lake Arrowhead, USA, June 2014,
- V. Ehrlacher, ICOSAHOM conference, Salt Lake City, USA, June 2014,
- V. Ehrlacher, WCCM conference, Barcelona, Spain, July 2014,
- V. Ehrlacher, Banff workshop on "Multiscale models for crystal defects", Banff, Canada, September 2014,
- V. Ehrlacher, Journée Forum CEA Incertitudes, CEA DAM Bruyères-le-Chatel, France, September 2014,
- V. Ehrlacher, LJLL workshop on "Sparse tensor methods", University Paris 6, France, December 2014,
- D. Gontier, Theoretical and numerical aspects of quantum transport, Aalborg, April 2014,
- D. Gontier, Mathematical and numerical analysis of electronic structure models, April 2014,
- D. Gontier, Solid math, Trieste, June 2014,
- C. Le Bris, Workshop 'Multiscale Problems from Physics, Biology and Materials Science', Shanghai Jiao Tong University, May 28-31, 2014,
- C. Le Bris, Workshop at the Mittag-Leffler Institute, September 2014,
- C. Le Bris, Final conference of the SPP 1324, Marburg, November 2014,
- C. Le Bris, Colloquium of the Imperial College, March 2014,
- C. Le Bris, Colloquium of the Eindhoven Multiscale Institute, March 2014,
- C. Le Bris, Outreach Conference of the Series Sciences and Society, Université de Lorraine, Region Lorraine, November 2014,
- F. Legoll, Weekly seminar, Imperial College, London, February 2014,
- F. Legoll, Workshop "From atomistic to continuum models in material science", L'Aquila (Italy), April 2014,
- F. Legoll, Workshop on Computational Aspects of Multiscale Materials Modeling, Evanston (USA), May 2014,
- F. Legoll, Weekly seminar, Augsburg University, May 2014,
- F. Legoll, Reunion Conference of the Materials Defects IPAM program, Los Angeles, June 2014,
- F. Legoll, Oberwolfach workshop "Computational Multiscale Methods", June 2014,
- F. Legoll, 8th International Workshop on Parallel Matrix Algorithms and Applications, Lugano, July 2014,
- F. Legoll, AIMS conference, Madrid, July 2014,
- F. Legoll, WCCM conference, Barcelona, July 2014,
- F. Legoll, Workshop on Multiscale Models of Crystal Defects, Banff, Sept. 2014,
- F. Legoll, MMM conference, Berkeley, October 2014,
- F. Legoll, Journées annuelles NEEDS, Nantes, October 2014,
- F. Legoll, Atelier du GdR ModMat "De l'atome au code industriel", Marseille, December 2014,
- T. Lelièvre, conference MCMSKI, Chamonix, January 2014,
- T. Lelièvre, conference on applied mathematics, MPI Lepipzig, January 2014,
- T. Lelièvre, séminaire K. Schulten group, Urbana Champaign, January 2014,
- T. Lelièvre, CECAM conference, Lugano, March 2014,

- T. Lelièvre, conférence MCQMC, Leuven, April 2014,
- T. Lelièvre, ICMS lecture, "Computational methods for statistical mechanics", Edinburgh, June 2014,
- T. Lelièvre, Numerical Analysis for Partial Differential Equations, Sussex, June 2014,
- T. Lelièvre, ICMS conference, "Multiscale Computational Methods in Materials Modelling Meeting", Edinburgh, June 2014,
- T. Lelièvre, Oberseminar Analysis, Munich, June 2014,
- T. Lelièvre, Inria TOSCA team seminar, July 2014,
- T. Lelièvre, AIMS conference, Madrid, July 2014,
- T. Lelièvre, ENS Cachan, Séminaire pour les nouveaux normaliens, September 2014,
- T. Lelièvre, ANR Stab conference, Lyon, September 2014,
- T. Lelièvre, CECAM conference, Mainz, October 2014,
- T. Lelièvre, Inria POEM team seminar, Paris, October 2014,
- T. Lelièvre, Statistics Colloquium, Chicago, October 2014,
- T. Lelièvre, Séminaire EDP non linéaires, Université Paris 13, December 2014,
- T. Lelièvre, Séminaire ENS Chimie, Paris, December 2014,
- W. Minvielle, Weekly seminar, Creteil University, April 2014,
- W. Minvielle, Summer school on Applied Analysis for Materials, Berlin, September 2014,
- W. Minvielle, Workshop on Multiscale Models of Crystal Defects, Banff, Sept. 2014,
- W. Minvielle, Workshop on "Stochastic and multiscale inverse problems", ENPC, October 2-3, 2014,
- W. Minvielle, MOMAS Conference, Marseille, November 2014,
- M. Rousset, MCQMC 2014, Leuven, Belgium, April 2014.
- M. Rousset, AIMS 2014, Madrid, Spain, July 2014.
- G. Stoltz, workshop “Mathematical and Numerical Analysis of Electronic Structure Models”, Berlin, April 2014,
- G. Stoltz, workshop “Theoretical and Numerical Aspects of Quantum Transport”, Aalborg, Denmark, April 2014,
- G. Stoltz, 10th AIMS conference on Dynamical Systems, Differential Equations and Applications, Madrid, July 2014,
- G. Stoltz, seminar of University of Lille, september 2014,
- G. Stoltz, MOMAS meeting, Marseille, November 2014,

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

- E. Cancès, one month at the University of Minnesota as an Ordway professor.

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

- C. Le Bris, Göran Gustafsson Lecturer in Mathematics 2014, KTH, Stockholm,
- C. Le Bris, Lectures on Numerical stochastic homogenization, 5 hours, RTG Summer School, The University of Chicago, July 2014,
- C. Le Bris, Lectures on Nonperiodic homogenization of elliptic equations, 6 hours, Berlin Mathematical School, TU Berlin, September 2014,
- C. Le Bris, Graduate course on ’Model reduction’, The University of Chicago, 10 hours, Fall 2014,
- T. Lelièvre, 2 hours lecture, ICMS "Computational methods for statistical mechanics", Edinburgh, June 2014,

Members of the team have presented posters in the following events:

- D. Gontier, IPAM summer school on Electronic structure theory of materials and (bio)molecules, Los Angeles, July 2014,
- W. Minvielle, CANUM 2014, Carry le Rouet, April 2014,

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

- S. Brisard, 8th International Workshop on Parallel Matrix Algorithms and Applications, Lugano, July 2014,
- L. Chamoin, séminaire du Collège de France, December 2014,
- S. Brisard, Journées annuelles NEEDS, Nantes, October 2014,
- S. Lemaire, Summer school on Applied Analysis for Materials, Berlin, September 2014,
- F. Madiot, CANUM 2014, Carry-le-Rouet, April 2014,
- F. Madiot, Inaugural Chicago Summer School in Analysis, Chicago, July 2014,
- F. Madiot, Summer school on Applied Analysis for Materials, Berlin, September 2014,
- W. Minvielle, Inaugural Chicago Summer School in Analysis, Chicago, July 2014.

MC2 Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. National structures

- Thierry Colin is elected as a member of the national committee of the French Universities (CNU). It is a national structure that has in charge a peer review of the carriers of mathematicians in France.
- Olivier Saut is the head of the GDR Metice (Mathématiques appliquées aux espéces, tissus et cellules).
- C. Poignard is elected member of the Evaluation Committee of Inria. He is also Principal Investigator of the European Lab EBAM

9.1.2. Scientific events organisation

9.1.2.1. General chair, Scientific chair

- Workshop on Electroporation and Biophysical Therapies. (Organisation : C. Poignard, F. Tregan). Website: http://memove2014.sciencesconf.org/

9.1.2.2. Member of the conference program committee

- S. Benzekry, member of the scientific committee of the MB2 conference (bio-mathematics workshop organized in Besancon, July 7-10, 2015)

9.1.3. Journal

9.1.3.1. Member of the editorial board

Thierry Colin is a a member of the following scientific boards:

- 2001- : "Mathématiques et Applications", Springer-SMAI, 70 livres parus à ce jour.
- 2011- : Revue CPAA.
- 2012- : Revue Computational Surgery (Springer).
- 2012- : Comité éditorial de SIAM NEWS.
- 2014 - : Revue Mathematical Biosciences and Engineering.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

C. Poignard: 80 hours of teaching (Master course and undergraduate)

M. Bergmann: 80 hours of teaching

L. Weynans: teaching in approximation of PDEs and programming (Fortran), exchange operation with high schools, class of mathematics for math minor international engineer students

9.2.2. Supervision

HdR: Clair Poignard, A few advances in biological modeling and asymptotic analysis, Universite de Bordeaux, September 2014

HdR: Michel Bergmann, Contributions à la simulation numérique en mécanique des fluides et à la réduction de modèle, Universite de Bordeaux, June 2014

PhD: Michael Leguebe, Modélisation de l'électroperméabilisation à l'échelle cellulaire, Universite de Bordeaux, September 2014, co-supervised by C. Poignard and T. Colin

PhD: Xin Jin, Une chaine d'outils numériques pour la conception aerodynamique de pales d'eoliennes, Universite de Bordeaux, September 2014, co-supervised by M. Bergmann and A. Iollo

PhD: Yoann Eulalie, Etude aérodynamique et contrôle de la traînée sur un corps de Ahmed culot, Jan 2014, co-supervised by I. Mortazavi and C.H. Bruneau.

PhD in progress: F. Cornelis is a medical doctor of the Institut Bergonie´. He is a radiologist practicing CT-Scans, MRI but also local mini-invasive treatments (interventional radiology). He spends one day a week to prepare a PhD on the modelling aspects of his work. started 2010

PhD in progress: F. Bernard, started October 2011

PhD in progress: Etienne Baratchart, Mathematical modeling of the metastatic initiation biology, started December 2012, cosupervised by S. Benzekry, T. Colin and O. Saut

PhD in progress: G. Lefebvre, Image-based modeling of resistance to targeted therapies for metastases from gastro-intestinal tumors, started October 2012, supervised by T. Colin

PhD in progress: J. Jouganous, Prediction of the spatial growth of lung metastatic nodules, started October 2012, supervised by O. Saut

PhD in progress: T. Michel, Modeling of tumor spheroids growth, started October 2013, co-supervised by T. Colin and C. Poignard

PhD in progress: O. Gallinato, Mathematical modeling of invadopodia, started October 2013, in joint supervision with T. Colin, C.Poignard from MC2 and T. Suzuki from Osaka University

PhD in progress: P. Berment, Modeling of PET-scan imaging data of tumor growth, started October 2013, co-supervised by O. Saut and T. Colin

PhD in progress: A. Peretti, Image-based mathematical modeling of kidney cancer, started 2014, co-supervised by T. Colin and O. Saut

PhD in progress: M. Deville, started 2014, in joint supervision by C. Poignard from MC2 and R. Natalini from the CNR and Sapienza University, Rome, Italy.

PhD in progress: M. Jedouaa, Effets collectifs dans l'interaction plasma/globules rouges et la nage de micro-organismes, started 2013, co-supervised by C.H. Bruneau and E. Maître (Grenoble)

9.2.3. Juries

Angelo Iollo was in the jury of the following PhDs

- Reviewer: Anna Cattani, Politecnico di Torino, « Multispecies Models to Describe Large Neuronal Networks », Torino, Fev 2014.
- Reviewer: Nicolas Dovetta, LadHX, Ecole Polytechnique, « Data-based models for flow control », Paris, June 2014.
- Reviewer: Ali Al Alaouwi, IMATH, Université de Toulon « Reconstruction 3D des vaisseaux sanguins », Dec 2014.
- Jury: Elisa Schenone, LJLL, UPMC, « Reduced Order Models, Forward and Inverse Problems in Cardiac Electrophysiology », Nov 2014.
- Jury: Guillaume Dechristé, IMB, Université de Bordeaux « Méthodes numériques pour la simulation d'écoulements de gaz raréfiés autour d'obstacles mobiles », Dec 2014.

9.3. Popularization

- C. Poignard "Des décharges électriques contre le cancer" (Journée IREM Mai 2014).
- C. Poignard, A. Silve. Différence de potentiel induite par un champ électrique sur la membrane d'une cellule biologique . La Revue 3EI, N°75, Jan 2014.
- O. Saut participates to the "excellence interviews" (http://www.lesentretiens.org)
- Lisl Weynans and Michel Bergmann held a stand at the "Fete de la science".
- Lisl Weynans is "chargee de mission" from the IMB for relations with high schools and gave talks to students and teachers to introduce scientific calculus.

MEPHYSTO Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. General chair, scientific chair

S. De Bièvre is the scientific coordinator of CEMPI

9.1.1.2. Member of the organizing committee

D. Bonheure and A. Gloria organize a PDE and analysis seminar at Brussels (http://homepages.ulb.ac.be/~dbonheur/seminaire-ANEDP.html).

G. Dujardin and I. Lacroix are in charge of the PDE and numerical analysis seminar of the Paul Painlevé mathematics department in Lille (http://math.univ-lille1.fr/d7/sanedp).

G. Francfort (Paris 13), A. Gloria, and M. Kruzik organized a workshop "Relaxation, homogenization and dimensional reduction in hyperelasticity" at Université Paris-Nord, March 25-27, 2014 (http://staff.utia.cas.cz/kruzik/workshop/).

9.1.2. Journal

9.1.2.1. Member of the editorial board

D. Bonheure is associate editor at the Bulletin of the Belgian Mathematical Society - Simon Stevin (http://projecteuclid.org/DPubS?service=UI&version=1.0&verb=Display&handle=euclid.bbms), the Journal of calculus of variations (http://www.hindawi.com/journals/jcv/), and International Scholarly Research Notices (http://www.hindawi.com/journals/isrn/).

C. Chainais and A. Gloria are associate editors at the North-Western European Journal of Mathematics (http://math.univ-lille1.fr/~nwejm/), a new journal launched by the mathematical departments of the French region Nord-Pas-De-Calais.

9.1.2.2. Reviewer

The members of the team reviewed numerous papers for numerous international journals.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

The members of the team are mainly academics. We teach at the licence and master levels at the Université Lille 1 and ULB.

9.2.2. Supervision

PhD in progress: P.-L. Colin, Theoretical and numerical study of some corrosion models, since October 2012, advised by C. Chainais and I. Lacroix-Violet.

PhD in progress: M. Duerinckx, Problems in stochastic homogenization, since October 2014, advised by A. Gloria and S. Serfaty (UPMC).

PhD in progress: E. Soret, Stochastic acceleration and thermalization, since October 2011, advised by S. De Bièvre and T. Simon (Lille 1).

9.3. Popularization

C. Calgaro is the organizer of the action "Mathématiques itinérantes" (http://mathematiques.univ-lille1.fr/Ouvertures/Mathematiques-itinerantes/), which promotes mathematics among young people (conferences in highschools, "journées de la science", etc.). Members of the team regularly participate in these actions.

MOKAPLAN Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. Member of the organizing committee

Guillaume Carlier was organiser of the RICAM special semester on Calculus of Variation http://www.ricam.oeaw.ac.at/specsem/specsem2014/. This was a two weeks event. The first week was devoted to original minicourses on special research topics that are particularly active: Numerical mehods for optimal transport (J.-D. Benamou), Multi-marginal transport problems (L. de Pascale) and Gradient Flows (J.-A. Carrillo). The second week, a workshop was organized. This event gathered more than 50 participants with a majority of young researchers (more than 30).

8.1.2. Scientific events selection

8.1.2.1. Member of the conference program committee

Guillaume carlier is in the scientific committee for SMAI 2015.

8.1.2.2. Reviewer

Vincent Duval has reviewed several contributions for the *Scale Space and Variational Methods* SSVM 2015 conference.

8.1.3. Journal

8.1.3.1. Member of the editorial board

Guillaume carlier is member of the editorial Board of "Journal de l'Ecole Polytechnique" and co-editor of "Mathematics and Financial Economics".

8.1.3.2. Reviewer

Vincent Duval has reviewed several papers for the following jounals:

- SIIMS (SIAM Journal on Imaging Sciences)
- JMAA (Journal of Mathematical Analysis and Applications)
- IPol (Image Processing Online)
- JVCI (Journal of Visual Communication and Image Representation)

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

In 2014, Guillaume Carlier gave an advanced course on Mean-Field Games (M2 EDP-MAD and Masef) and a master course (M1) on dynamic programming at Dauphine

Master : Guillaume Carlier, Mean-Field Games, M2 EDP-MAD , U. Paris- Dauphine.

Master : Guillaume Carlier, Dynamic Programming , M1 , U. Paris- Dauphine.

8.2.2. Supervision

PhD in progress: Quentin Denoyelle, “Analyse théorique et numérique de la super-résolution sans grille”, 2014, Gabriel Peyré and Vincent Duval.

PhD in progress : Roméo Hatchi , "Analyse mathématique de modèles de trafic congestionné", 2012, Guillaume Carlier.

PhD in progress : Maxime Laborde , " Dynamique des systèmes de particules en interaction, approche par flots de gradient et applications", 2013 , Guillaume Carlier

PhD in progress : Luca Nenna , "Méthodes numṕerique pour le transport optimal multimarge" , 2013, Jean-David Benamou et Guillaume Carlier.

PhD in progress: Quentin Denoyelle, “Analyse théorique et numérique de la super-résolution sans grille”, thèse commencée le 1er octobre 2014, supervised by Gabriel Peyré (main supervisor) and Vincent Duval (co-supervisor).

8.2.3. Juries

Guillaume carlier was in the Ph.D. committee of Serena Guarino (Pisa) and Miryana Grigorova (Paris 7).

NACHOS Project-Team

8. Dissemination

8.1. Teaching - Supervision - Juries

8.1.1. Teaching

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 in Numerical Analysis*, 36 h, M1, Mathematics engineering, University of Nice-Sophia Antipolis.

Stéphane Descombes, *Analyse numérique et applications en finances*, M2, 30 h, University of Nice-Sophia Antipolis.

8.1.2. Supervision

PhD defended in December 2014 : Caroline Girard, *Numerical modeling of the electromagnetic susceptibility of innovative planar circuits*, October 2011, Stéphane Lanteri, Ronan Perrussel and Nathalie Raveu (Laplace Laboratory, INP/ENSEEIHT/UPS, Toulouse).

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 : Marie Bonnasse-Gahot, *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 in progress : Jonathan Viquerat, *Discontinuous Galerkin Time-Domain methods for nanophotonics applications*, October 2012, Stéphane Lanteri and Claire Scheid.

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

NANO-D Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific events selection

7.1.1.1. Reviewer

- Leonard Jaillet was reviewer for the International Conference on Intelligent Robots and Systems (IROS).
- Leonard Jaillet was reviewer for the International Conference on Robotics and Automation (ICRA).
- Stephane Redon was reviewer for the Workshop on Virtual Reality Interaction and Physical Simulation (VRIPHYS).

7.1.2. Journal

7.1.2.1. Reviewer

- Sergei Grudinin was reviewer for the FEBS Journal.
- Sergei Grudinin was reviewer for Proteins: Structure, Function, and Bioinformatics.
- Sergei Grudinin was reviewer for the Journal of Bioinformatics (JBI).
- Leonard Jaillet was reviewer for Transaction on Robotics (T-RO).
- Stephane Redon was reviewer for the Journal of Computational Chemistry (JCC).

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Licence : Stephane Redon, “Introduction to C++ Programming”, INF585, 36h, Ecole Polytechnique, Paris, France

Licence : Stephane Redon, “Algorithms and Programming”, INF431, 40h, Ecole Polytechnique, Paris, France

E-learning

Stephane Redon was involved in the creation of a video explaining adaptively restrained particle simulations for Inria’s Mooc Lab (direction Jean-Marc Hasenfratz): https://www.youtube.com/watch?v=RYFSdWy3DcE.

7.2.2. Supervision

- PhD : Georgy Derevyanko, Algorithmes appliqués aux structures pour l’étude des interactions protéines-protéines, defended on October 15, 2014, advised by Valentin Gordeliy and Sergei Grudinin
- PhD : Ivan Gushchin, Etudes structurales des rhodopsines microbiennes et des autres protéines membranaires au moyen de la cristallographie aux rayons X et de la modélisation informatique, defended on September 5, 2014, advised by Valentin Gordeliy and Sergei Grudinin
- PhD in progress : Sémého Edorh, advised by Stephane Redon
- PhD in progress : Alexandre Hoffmann, advised by Valérie Perrier and Sergei Grudinin
- PhD in progress : Khoa Minh Nguyen, advised by Leonard Jaillet and Stephane Redon
- PhD in progress : Petr Popov, advised by Sergei Grudinin, Anatoli Juditsky and Stephane Redon

- PhD in progress : François Rousse, advised by Stephane Redon
- PhD in progress : Krishna Kant Singh, advised by Jean-François Méhaut, Benjamin Bouvier and Stephane Redon
- PhD in progress : Zlatomir Todorov, advised by Michel Vivaudou, Christophe Moreau and Sergei Grudinin
- PhD in progress : Zofia Trstanova, advised by Gabriel Stoltz and Stephane Redon

7.2.3. Juries

- Stephane Redon was in the PhD committee of Didier Devaurs (LAAS)
- Stephane Redon was in the PhD committee of Aude Giard (Montpellier University)

OPALE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. Member of the organizing committee

- P. Goatin was member of the Scientific Committee of *"CANUM 2014 - 42e Congrès National d'Analyse Numérique"*, Carry-le-Rouet (France). April 2014. http://smai.emath.fr/canum2014/
- P. Goatin was member of the Scientific Committee of *"PED2014 - Conference on Pedestrian and Evacuation Dynamics"*, Delft (The Nederlands). October 2014. http://www.ped2014.nl/

8.1.2. Scientific events selection

8.1.2.1. Member of the conference program committee

- T. Nguyen is member of the Advisory Board and of the Program Committee of the 9th Intl. Conf. on Networking and Services (ICNS2014). Chamonix (Fr), April 2014. http://www.iaria.org/conferences2014/ICNS14.html
- T. Nguyen is member of the Program Committee of the 2nd Intl. Conf. on Smart Grids and Green IT Systems (SMARTGREENS2014). Lisbon (Portugal), May 2014. http://www.smartgreens.org/
- T. Nguyen is member of the Program Committee of the 12th Intl. Conf. on Cooperative Design, Visualization and Engineering (CDVE2014), Seatle (USA), September 2014. http://www.cdve.org/cdve2014/pc.html
- T. Nguyen is member of the Technical Program Committee and Advisory Chair on Virtualization for the 4th Intl. Conf. on Cloud Computing, GRIDs and Virtualization, Venice (Italy), May 2014. http://www.iaria.org/conferences2014/CLOUDCOMPUTING14.html
- T. Nguyen is member of the Program Committee of BDCloud2014, Sydney (Australia), December 2014. http://www.swinflow.org/confs/bdcloud2014/pc.htm

8.1.3. Journal

8.1.3.1. Reviewer

- R. Duvigneau is reviewers for the following international journals : Comp. & Fluids, Int. J. Num. Fluids, Comp. Meth. Appl. Mech. Eng., Comp. Aided Geom. Design, Appl. Math. & Mech., Eng. Opt.
- 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 Structural and Multidisciplinary Optimization

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: Introduction to Numerical Analysis, 19.5hrs, Ecole Polytechnique Universitaire (EPU), Water Engineering, Nice Sophia Antipolis (J.-A. Désidéri).

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 : Maria Laura Delle Monache, *Traffic flow modeling by conservation laws*, University of Nice Sophia Antipolis, September 2014. Supervisor: P. Goatin.

PhD : Jérémie Labroquère, *Optimization of active devices for turbulent separated flow control*, University of Nice Sophia Antipolis, November 2014. Supervisors: Régis Duvigneau and Jean-Antoine Désidéri.

PhD : Maxime Nguyen Dinh, *Qualification of numerical simulations by anisotropic mesh adaptation*, University of Nice Sophia Antipolis, March 2014. Supervisors: Jean-Antoine Désidéri and Jacques Peter (ONERA).

PhD : Enric Roca León, *Aero-mechanical simulations for rotor blade optimization of helicopter in forward motion*, University of Nice Sophia Antipolis, October 2014. Supervisors: Jean-Antoine Désidéri and Arnaud Le Pape (ONERA).

PhD : Aalae Benki, *Méthodes efficaces de capture de front de Pareto en conception mécanique multicritère. Applications industrielles.*, Jan 2014, Supervisor: A. Habbal.

PhD : Fatima Zahra Oujebbour, *Méthodes et applications industrielles en optimisation multicritère de paramètres de processus et de forme en emboutissage*, March 2014, Supervisor : A. Habbal.

PhD : Mohamed Kaicer, *Group lending : analysis of asymmetric information using game theory. Analysis design and implementation of a simulator adapted to micro-finance market*, July 2014, Supervisors: R. Aboulaich (Rabat) and A. Habbal.

PhD in progress : Matthias Mimault, *crowd motion modeling by conservation laws* , Oct. 2012. Supervisor: P. Goatin.

PhD in progress : Sébastien Bourasseau, *Méthode de raffinement de maillages non structurés basées sur le vecteur adjoint pour le calcul de coefficients aérodynamiques*, October 2010. Supervisors: J.-A. Désidéri and J. Peter (ONERA).

PhD in progress : Cédric Durantin, *Métamodélisation et optimisation pour les dispositifs nanophotoniques*, October 2014. Supervisors: J.-A. Désidéri and A. Glière (CEA LETI, Grenoble).

PhD in progress : Boutheina Yahyaoui, *Modélisation de la dynamique des cellules : Des équations de Fisher-KPP aux systèmes mécano-bio-chimiques*, January 2013. Supervisors: A. Habbal and M. Ayadi (Tunis).

PhD in progress : Maroua Mokni, *Développement, analyse et évaluation numérique d'un algorithme à multiples gradients (MGDA) pour l'optimisation multicritère*, April 2014. Supervisors: J.-A. Désidéri and M. Ayadi (Tunis).

PhD in progress : Asma Gdhami, *Isogeometric methods for hyperbolic systems*, April 2014. Supervisors: R. Duvigneau and M. Moakher (ENIT).

PhD in progress : Matthieu Sacher, *Performance Optimization of Racing Yacht Sails*, October 2014. Supervisors: O. Lemaitre (CNRS LIMSI), R. Duvigneau and F. Hauville (Ecole Navale, Brest).

8.2.3. Juries

P. Goatin was member of the selection (Inria Sophia Antipolis) and admission (national) committees for the competitive selection of young graduate scientists (CR2).

8.3. Popularization

P. Goatin authored a short contribution to the book *"Brèves de Maths - Mathématiques de la planète Terre"*, Nouveau Monde ed., 2014.

J.-A. Désidéri is a consultant at ONERA (*The French Aerospace Lab*) and participates in the scientific activities of DSNA (Department of Numerical Simulation and Aeroacoustics, Châtillon) and DAAP (Department of Applied Aerodynamics, Meudon).

POEMS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Advisory and management activities

- A. S. Bonnet-Ben Dhia was the chair of the scientific council of the CNRS Institute for Engineering and Systems Sciences (INSIS) until September 2014.
- P. Joly is a member of the scientific committee of CEA-DAM.
- E. Lunéville is the Head of UMA (Unité de Mathématiques Appliquées) at ENSTA ParisTech.

9.1.2. Scientific events organisation end selection

- M. Bonnet was a member of the program committee of the 5th International Workshop on New Computational Methods for Inverse Problems(ENS Cachan, May 2014).
- E. Bécache, A. S. Bonnet-Ben Dhia, M. Bonnet, C. Hazard, P. Joly and E. Lunéville are members of the scientific committee for the 12th international conference on mathematical and numerical aspects of wave propagation, which will be held in Karlsruhe in July 2015.
- A. S. Bonnet-Ben Dhia is a member of the organizing committee of the workshop Waveguides: Asymptotic Methods and Numerical Analysis which will be held in Napoli in May 2015.

9.1.3. Journal

- A. S. Bonnet-Ben Dhia is associate editor of SINUM (SIAM Journal of Numerical Analysis).
- M. Bonnet is associate editor of Engineering Analyses with Boundary Elements
- M. Bonnet is in the editorial board of Inverse Problems.
- M. Bonnet is in the editorial board of Computational Mechanics.
- M. Bonnet is in the editorial board of Journal of Optimization Theory and Application.
- P. Ciarlet is an editor of DEA (Differential Equations and Applications)
- P. Ciarlet is an editor of CAMWA (Computers & Mathematics with Applications).
- P. Ciarlet is an editor of ESAIM:M2AN (Mathematical Modeling and Numerical Analysis).
- P. Joly is an editor of ESAIM:M2AN (Mathematical Modeling and Numerical Analysis).
- P. Joly is a member of the editorial board of AAMM (Advances in Applied Mathematics and Mechanics).
- P. Joly is a member of the Book Series Scientific Computing of Springer Verlag.
- The team members regularly review papers for many international journals.

9.2. Teaching - Supervision

9.2.1. Teaching

Eliane Bécache

- *Méthode des éléments finis*, ENSTA ParisTech (2nd year)
- *Compléments sur la méthode des éléments finis*, ENSTA ParisTech, (2nd year)

Marc Bonnet

- *Problèmes inverses*, Master DSMSC (Centrale Paris)
- *Méthodes intégrales*, Master TACS (ENS Cachan)

- *Equations intégrales et multipôles rapides*, Ecole doctorale MODES (Univ. Paris Est, Marne la Vallée)
- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA ParisTech (1st year)

Anne-Sophie Bonnet-Ben Dhia

- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA ParisTech (1st year).
- *Propagation dans les guides d'ondes*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Etude mathématique de quelques problèmes de transmission avec coefficients changeant de signe*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Théorie spectrale des opérateurs autoadjoints et applications aux guides optiques*, ENSTA ParisTech (2nd year).
- *Propagation d'ondes*, Ecole Centrale de Paris (3rd year) and master DSMSC.

Laurent Bourgeois

- *Outils élémentaires pour l'analyse des équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Inverse problems: mathematical analysis and numerical algorithms*, (Master AN& EDP, Paris 6 and Ecole Polytechnique)

Stéphanie Chaillat

- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Fonctions d'une variable complexe*, ENSTA ParisTech (2nd year)

Colin Chambeyron

- *Analyse réelle: optimisation libre et sous contraintes*, Dauphine University (1st year)
- *Outils mathématiques*, Dauphine University (1st year)
- *Algèbre linéaire*, Dauphine University (2nd year)

Patrick Ciarlet

- *Compléments sur la méthode des éléments finis*, ENSTA ParisTech (2nd year)
- *Theory and algorithms for distributed computing*, ENSTA ParisTech (3rd year), and Master "Modeling and Simulation" (M2)
- *Maxwell's equations and their discretization*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Etude mathématique de quelques problèmes de transmission avec coefficients changeant de signe*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Gary Cohen

- Gary Cohen is writing a book entitled "High Order Finite Element Methods for Wave Equations" in collaboration with Sébastien Pernet (DTIM-ONERA). This book addresses construction and analysis of a large class of finite element methods and discontinuous Galerkin methods for wave equations and should be published by Springer-Verlag in Sept. 2015.

Sonia Fliss

- *Méthode des éléments finis*, ENSTA ParisTech (2nd year)
- *Programmation scientifique et simulation numérique*, ENSTA ParisTech (2nd year)

- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA ParisTech (1st year).
- *Propagation des ondes dans les milieux périodiques*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Christophe Hazard

- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Théorie spectrale des opérateurs autoadjoints et applications aux guides optiques*, ENSTA ParisTech (2nd year)

Patrick Joly

- *Introduction à la discrétisation des équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Propagation des ondes dans les milieux périodiques*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Nicolas Kielbasiewicz

- *Programmation scientifique et simulation numérique*, ENSTA ParisTech (2nd year)
- *Parallélisme et calcul réparti*, ENSTA ParisTech (Master 2)

Marc Lenoir

- *Fonctions d'une variable complexe*, ENSTA ParisTech (2nd year)
- *Equations intégrales*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)
- *Méthodes asymptotiques hautes fréquences pour les équations d'ondes - course notes*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Eric Lunéville

- *Introduction au Calcul Scientifique*, ENSTA ParisTech (2nd year).
- *SIMNUM : Simulation numérique*, ENSTA ParisTech (2nd year).
- *Propagation dans les guides d'ondes*, ENSTA ParisTech (3rd year) and Master "Modeling and Simulation" (M2)

Jean-François Mercier

- *Outils élémentaires d'analyse pour les équations aux dérivées partielles*, ENSTA ParisTech (1st year)
- *Fonctions d'une variable complexe*, ENSTA ParisTech, ENSTA ParisTech (2nd year)
- *Théorie spectrale des opérateurs autoadjoints et application aux guides optiques*, ENSTA ParisTech (2nd year)

9.2.2. Supervision

PhD : Aliénor Burel, " Contributions à la simulation numérique en élastodynamique : découplage des ondes P et S, modèles asymptotiques pour la traversée de couches minces", July 2014, Patrick Joly and Marc Bonnet

PhD : Maxence Cassier, "Etude de deux problèmes de propagation d'ondes transitoires : 1) Focalisation spatio-temporelle en acoustique ; 2) Transmission entre un diélectrique et un métamatériau", Juin 2014, Christophe Hazard and Patrick Joly

PhD : Audrey Vigneron, "Formulations intégrales pour la simulation du contrôle non destructif par courants de Foucault", January 2015, Marc Bonnet

PhD in progress : Zouhair Adnani , "Modélisation numérique tridimensionnelle des effets de site en interaction sol-structure par une méthode adaptée aux problèmes sismiques de très grande taille", October 2014, Marc Bonnet and Stéphanie Chaillat
PhD in progress : Marc Bakry, "Estimateurs a posteriori pour la résolution des problèmes de diffraction par équations intégrales", October 2013, Marc Lenoir and Sébastien Pernet.
PhD in progress : Geoffrey Beck, "Modélisation de la propagation d'ondes électromagnétiques dans des câbles co-axiaux", October 2012, Patrick Joly
PhD in progress : Antoine Bensalah, "Une approche nouvelle de la modélisation mathématique et numérique en aéroacoustique par les équations de Goldstein et applications en aéronautique", October 2014, Patrick Joly and Jean-François Mercier
PhD in progress : Camille Carvalho, "Étude théorique et numérique de guides d'ondes plasmoniques", October 2012, Anne-Sophie Bonnet-Ben Dhia and Patrick Ciarlet
PhD in progress : Matthieu Chamaillard, "Conditions aux limites effectives pour des revêtements minces périodiques", October 2011, Patrick Joly and Houssem Haddar
PhD in progress : Rémi Cornaggia, "Asymptotique petit-défaut de fonctions-coût et son application en identification: justifications théorique et expérimentale, extensions", October 2012, Marc Bonnet and Bojan Guzina
PhD in progress : Luca Desiderio, "Efficient visco-eleastic wave propagation in 3D for high contrast media", October 2013, Stéphanie Chaillat and Patrick Ciarlet
PhD in progress : Léandre Giret, "Development of a domain decomposition method on non-conforming meshes: application to the modeling of a Reactivity-Initiated Accident (RIA) in a Pressurized Water Reactor (PWR)", October 2014, Patrick Ciarlet
PhD in progress : Matthieu Lecouvez, "Méthodes de décomposition de domaine optimisées pour la propagation d'ondes en régime harmonique", March 2012, Patrick Joly
PhD in progress : Simon Marmorat, "Etude d'un modèle asymptotique et de son couplage avec une approche par éléments finis pour simuler la propagation d'ondes ultrasonores dans un milieu complexe perturbé par de petites inclusions", Mars 2012, Patrick Joly
PhD in progress : Laure Pesudo , "Modélisation de la réponse ultrasonore de défauts de type fissure par méthode BEM et couplage à un modèle de propagation - Application à la simulation des contrôle non destructifs", October 2014, Marc Bonnet and Stéphanie Chaillat
PhD in progress : Arnaud Recocquillay, "Identification de défauts dans un guide d'ondes en régime temporel", October 2014, Laurent Bourgeois
PhD in progress : Antoine Tonnoir, "Simulation numérique de la diffraction d'ondes ultrasonores par un défaut localisé dans une plaque élastique anisotrope", October 2011, Anne-Sophie Bonnet-Ben Dhia and Sonia Fliss
PhD in progress : Elizaveta Vasilevskaia, "Modes localisés dans les guides d'onde quantiques", November 2012, Patrick Joly
PhD in progress : Valentin Vinoles, "Analyse asymptotique des équations de Maxwell en présence de métamatériaux", October 2012, Sonia Fliss and Patrick Joly
PhD in progress : Emmanuel Zerbib , "Eléments finis spectraux sur maillages décalés en électromagnétisme pour la simulation de grands modèles", October 2014, Gary Cohen

9.3. Popularization

- Publication in the journal Interstices of Inria: *Le piano rêvé des mathématiciens* Juliette Chabassier, Antoine Chaigne, Marc Duruflé and Patrick Joly.
- Conference of Patrick Joly to high school teachers:*Modélisation d'instruments de musique par ordinateur*, Journées ISN pour l'académie de Versailles, Inria Rocquencourt, April 2014.
- Conference of Patrick Joly to high school students during the TFJM (Tournoi Français des Jeunes Mathématiciens et Mathématiciennes) at ENSTA, June 2014.

APICS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

- L. Baratchart was a plenary speaker at Constructive Functions 2014 (June 2014) in Nashville, USA (TN). He was an invited speaker at the Complex Analysis Meeting of the Russian Academy of Sciences (April 2014) in Saint Petersburg, Russia, at the International Conference on Orthogonal Polynomials, Integrable Systems and their Applications (October 2014) in Shanghai, China, and at the conference Foundations of Constructive Mathematics (December 2014) in Montevideo. He was a visitor at Vanderbilt university, at MIT, at the University of Macao and at the University of Cyprus. He was a speaker at the seminar of Université de Bordeaux.
- M. Caenepeel gave a talk at the 33th Benelux Meeting on Systems and Control (The Netherlands) at the 18th IEEE Workshop on Signal and Power Integrity in Ghent (Belgium) and he presented a poster at the ERNSI meeting in Ostende (Belgium).
- S. Chevillard gave a talk at PICOF 2014 (May 2014) in Hammamet, Tunisia, at Constructive Functions 2014 (June 2014) in Nashville, USA (TN). He was an invited speaker at "Journée scientifique SMAI-SIGMA 2014" (November 2014) in Paris.
- J. Leblond organized an invited session at PICOF 2014 [0] (May 2014). A poster about joint work on source estimation in EEG was presented at OHBM 2014 [0] [28].
- S. Lefteriu was an invited speaker at the Max Planck Institute and presented a poster at the meeting of the working group GT Identification.
- M. Olivi gave a talk at the MTNS 2014 conference in Groningen (The Netherlands) [18].
- D. Ponomarev gave a talk at the 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications (July 2014) , in Madrid, Spain, at the seminar of the team Analyse, Géométrie, Topologie (AGT), Institut de Mathématiques de Marseille, Aix-Marseille Université (May 2014), and at the seminar of the team Defi, Inria Saclay - Ecole Polytechnique (Nov. 2014).
- F. Seyfert gave a talk at the MTNS 2014 in Groeningen, at the IMS 2014 in Tampa and was invited to give a plenary lecture at the Ernsi meeting in Ostende.

9.1.1. Scientific events selection

9.1.1.1. member of the conference program committee

L. Baratchart was a member of the program committee of MTNS (Mathematical Theory of Networks and Systems) 2014, Groningen, The Netherlands.

9.1.2. Journal

9.1.2.1. member of the editorial board

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

[0] http://www.lamsin.tn/picof14/
[0] http://www.humanbrainmapping.org/i4a/pages/index.cfm?pageID=3565

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).

9.2.3. Juries

- M. Olivi was a referee of the PhD manuscript of P. Vuillemin (Univ. Toulouse) and of the PhD manuscript of F. Cheng (Univ. Lorraine).
- J. Leblond was a member of the PhD defense committee of L. Jassionnesse (Univ. Dijon, Nov 2014).
- F. Seyfert was a member of the PhD defense committee of Le Ha Vy Nguyen (Univ. Paris Sud, Inria project DISCO)

9.3. Popularization

- L. Baratchart was a speaker at "Café in" (Oct. 2014, Inria Sophia-Antipolis-Méditerranée).
- J. Leblond is a member of the Committee MASTIC. She was an invited speaker at the seminar associated with the lecture by G. Berry at the Collège de France (Jan. 2014).
- 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.

9.4. Community services

- 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 one of the two researchers in charge of the mission "Conseil et soutien aux chercheurs" within the Research Center.
- M. Olivi is responsible for scientific mediation and co-president of the committee MASTIC.

BIPOP Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events selection

9.1.1.1. member of the conference program committee

- Florence Bertails-Descoubes: Siggraph 2014 IPC and Eurographics 2014 IPC.
- Pierre-Brice Wieber: 2014 IEEE-RAS International Conference on Humanoid Robots

9.1.1.2. reviewer

- Bernard Brogliato: IEEE Conference on Decision and Control 2014, Euromech ENOC 2014.
- Pierre-Brice Wieber: IEEE International Conference on Robotics and Automation, IEEE/RSJ International Conference on Intelligent Robots and Systems, IEEE-RAS International Conference on Humanoid Robots

9.1.2. Journal

9.1.2.1. member of the editorial board

- Pierre-Brice Wieber: associate editor IEEE Transactions on Robotics.
- Jérôme Malick: associate editor Journal of Global Optimization.

9.1.2.2. reviewer

- Bernard Brogliato: Automatica, Systems and Control Letters, IEEE Transactions on Automatic Control, SIAM J. Control Optimization, Multibody System Dynamics, ASME J. Applied Mechanics, Nonlinear Dynamics.
- Florence Bertails-Descoubes: Siggraph, Siggraph Asia, TOG, Eurographics.
- Pierre-Brice Wieber: International Journal of Robotics Research, Autonomous Robots, Automatica, IEEE Transactions on Control Systems Technology
- Vincent Acary: Automatica, Systems and Control Letters, IEEE Transactions on Automatic Control, Journal Sound and Vibrations, International Journal for Numerical Methods in Engineering, Nonlinear Analysis: Hybrid systems and project calls Fondecyt and NSERC

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence :

Master : Bernard Brogliato, Hybrid Dynamical Systems, 30 h., M2, Grenoble INP.

Master : Pierre-Brice Wieber, Autonomous Robotics, 9 h., M2, Grenoble INP.

Master : Florence Bertails-Descoubes, Numerical Optimization, 10.5 h., M1, ENSIMAG (Grenoble INP)

Master : Jérôme Malick, Numerical Optimization, 50 h., M1, ENSIMAG (Grenoble INP)

Master : Jérôme Malick, Mathematical Programming, 16 h., M2, UJF

Master : Vincent Acary, Nonsmooth Dynamical Systems, 9 h., M2, Université de Limoges

9.2.2. Supervision

- PhD in progress : Mounia Haddouni, 01 mai 2012, Vincent Acary and Bernard Brogliato

- PhD in progress : Olivier Huber, 01 octobre 2011, Vincent Acary and Bernard Brogliato
- PhD in progress : Narendra Akahdkar, 01 décembre 2012, Vincent Acary and Bernard Brogliato
- PhD : Sofia Zaourar, 04 November 2014, Jérôme Malick and Bernard Brogliato
- PhD in progress : Romain Casati, 01 octobre 2011, Florence Bertails-Descoubes and Bernard Brogliato
- PhD in progress : Alejandro Blumentals, 01 octobre 2013, Florence Bertails-Descoubes and Bernard Brogliato
- PhD in progress : Gilles Daviet, 01 octobre 2013, Florence Bertails-Descoubes and Bruno Raffin (LIG)
- PhD in progress : Federico Pierucci, 01 octobre 2012, Jérôme Malick and Zaid Harchaoui and Anatoli Ioudilski
- PhD in progress : Saed al Homsi, 01 octobre 2012, Pierre-Brice Wieber and Bernard Brogliato
- PhD in progress : Jory Lafaye, 01 octobre 2012, Pierre-Brice Wieber and Bernard Brogliato
- PhD in progress : Alexander Sherikov, 01 décembre 2012, Pierre-Brice Wieber and Bernard Brogliato
- PhD in progress : Nicolas Cazy, 01 octobre 2013, Pierre-Brice Wieber and François Chaumette
- PhD in progress : Jose Eduardo Morales Morales, *Travelling pulses in spatially discrete excitable media*, 15 november, 2013, Arnaud Tonnelier and Guillaume James

9.2.3. Juries

- Bernard Brogliato: Saed Aoues (04 décembre 2014), Laboratoire Ampère, INSA de Lyon (directeur de thèse D. Eberard). *Schémas d'intégration dédiés à l'étude, l'analyse et la synthèse dans le formalisme hamiltonien à ports*, Jury: D. Eberard, B. Maschke, T. Helie, E. Busvelle, A. Seuret, W. Marquis-Favre, B. Brogliato (Rapporteur).

COMMANDS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

- A. Kröner: Local organizer of the Workshop “Geometric control and related fields” within the Special Semester on New Trends in Calculus of Variations, Linz, Austria, 17.11.-21.11.2014.

9.1.1.1. general chair, scientific chair

- H. Zidani: NETCO’2014, June 23-27, 2014, Tours.

9.1.1.2. member of the organizing committee

- F. Bonnans: PGMO-COPI’14 conf., October 28-31, 2014, Ecole Polytechnique, Palaiseau.

9.1.2. Scientific events selection

9.1.2.1. member of the conference program committee

- F. Bonnans: EUROPT Workshop on Advances in Continuous Optimization, 10-12 July, 2014, Perpignan.

9.1.3. Journal

9.1.3.1. Participation to editorial boards

- F. Bonnans is Corresponding Editor of “ESAIM:COCV” (Control, Optimization and Calculus of Variations), and Associate Editor of “Applied Mathematics and Optimization”, “Optimization, Methods and Software”, and “Series on Mathematics and its Applications, Annals of The Academy of Romanian Scientists”.
- H. Zidani is Associate Editor of “Set-Valued and Variational Analysis”, and "Communication of Pure and Applied Analysis".

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master

F. Bonnans: Numerical analysis of partial differential equations arising in finance and stochastic control, 24h, M2, Ecole Polytechnique and U. Paris 6, France.
F. Bonnans: Optimal control, 10h, M2, Ensta, France.
H. Zidani: Optimal control, 10h, M2, Ensta, France.

E-learning

F. Bonnans, several lecture notes on the page
http://www.cmap.polytechnique.fr/~bonnans/notes.html

9.2.2. Supervision

- PhD in progress : Florine Bleuse, Optimal control and robustness for rechargeable hybrid vehicles. Started October 2013, F. Bonnans and P. Martinon, IFPEN fellowship.
- PhD in progress : Benjamin Heymann, Dynamic optimization with uncertainty; application to energy production. Started October 2013, F. Bonnans, Polytechnique fellowship.
- PhD in progress : Nicolas Grébille, Numerical methods for solving stochastic equilibrium problems; application to energy markets. Started January 2013, F. Bonnans, CIFRE fellowship (EDF R & D).

- PhD in progress: Athena Picarelli, First and Second Order Hamilton-Jacobi equations for State-Constrained Control Problems. Started November 2011, O. Bokanowski and H. Zidani, SADCO fellowship.
- PhD in progress: Cristopher Hermosilla, Feedback controls and optimal trajectories. Started November 2011, H. Zidani, SADCO fellowship.
- PhD in progress: Mohamed Assellaou, Reachability analysis for stochastic controlled systems. Started October 2011, O. Bokanowski and H. Zidani.

9.3. Popularization

The paper [10] about running strategies was reported in several media in 2014, especially by Figaro (May 29), Usine Nouvelle (May 18), Science Daily (May 15), MedicalXPress (May 15), Ipodiatry (May 21) and French Huffington Post in 2013.

CORIDA Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. Organizing committee membership

In April 2014, CORIDA organized in Nancy a workshop on “Observers for finite and infinite dimensional systems” gathering people working in the field of control theory for finite and infinite dimensional systems.

Takéo Takahashi and Marius Tucsnak organized a workshop “Workshop in Mathematical Fluid Dynamics", in Nancy from November 26th-28th, 2014. There were 10 invited speakers from France, India, Portugal and Germany.

Marius Tucnsak is a member of the organizing Committee of SIAM Conference on Control, Paris 2015.

8.1.1.2. Conference program committee membership

Xavier Antoine was a member of the program committee for The Ninth International Conference on Engineering Computational Technology (ECT2014), Naples, Italy, 2-5 September 2014.

8.1.2. Journal

8.1.2.1. Editorial board membership

Jean-Claude Vivalda is an associate editor of the *Journal of Dynamical and Control Systems*.

Xavier Antoine is a member of the editorial board of the collection *Mathématiques Appliquées pour le Master* for SMAI/DUNOD Ed.

Marius Tucsnak is a member of the editorial board of *MCSS*, *Journal of Mathematical Fluid Mechanics*, *ESAIM COCV*, *Mathematical Reports* and *Revue Roumaine de Mathématiques Pures et Appliquées*

8.1.2.2. Reviewing activities

Most members of the team are reviewers for major journals in the field, including *Automatica*, *IEEE Transactions on Automatic Control*, *ESAIM Contrôle optimal et calcul des variations*, *SIAM Journal of Control*, *Journal of Functional Analysis*.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Most of the members of the team have a teaching position (192 hours a year) in Université de Lorraine.

- Fatiha Alabau has a full time full professor position;
- Xavier Antoine has a full time full professor position at ENSEM;
- Thomas Chambrion has a full time associate professor position at ESSTIN;
- Antoine Henrot has a full time full professor position at ENSEM-Mines Nancy;
- Bruno Pinçon has a full time associate professor position at Telecom Nancy;
- Lionel Rosier has a full time full professor position at ESSTIN;
- Jean-François Scheid has a full time associate professor position at Telecom Nancy;
- Marius Tucsnak has a full time full professor position;
- Julie Valein has a full time associate professor position at ESSTIN.

We only detail below the teaching activities of the Inria researchers:

Master : Takahashi, *Résolution numérique des EDP*, 21 hours, Mines Nancy, France

Master : Takahashi, *Analyse numérique*, 18 hours, Mines Nancy, France

Master : Ramdani, *Analyse numérique*, 18 hours, Mines Nancy, France

8.2.2. Supervision

HdR : Thomas Chambrion, *Méthodes mathématiques pour la commande de systèmes mécaniques de dimension infinie*, Université de Lorraine, May 29 2014.

HdR: Jean-François Scheid, , Université de Lorraine, December 11 2014.

PhD : Tatiana Manrique, *Optimisation de stratégie de conduite d'un véhicule à basse consomatio,n sous contraintes temps réel*, Université de Lorraine, December 9 2014, supervisors: T. Chambrion and G. Millerioux.

PhD: Jérémy Dalphin, "Etude de fonctionnelles géométriques dépendant de la courbure par des méthodes d'optimisation de formes", Universite´ de Lorraine, December 5th, 2014. Supervisors: Antoine Henrot and Takéo Takahashi.

PhD in progress : Chi-Ting WU, since 2013. Supervisors: Marius Tucsnak and Julie Valein.

8.2.3. Juries

X. Antoine has been a member of the committee for A. Vion (PhD thesis, Univ. de Liège, Décember 2014) and M. Darbas (HDR thesis, Amiens, Décember 2014).

DISCO Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

With E. Zerz (RWTH Aachen University), Alban Quadrat co-organized two invited invited sessions at the *21th International Symposium on Mathematical Theory of Networks and Systems* (MTNS), Groningen (The Netherlands), 07-11/07/2014. The contributions of these invited sessions will appear as extended chapters of the book *Algebraic and Symbolic Computation Methods in Dynamical Systems*, Springer series ADD@S, Springer, 2015 (A. Quadrat, G. Regensburger, E. Zerz eds.).

With E. Zerz (RWTH Aachen University), Alban Quadrat co-organized a special issue for the international journal *Multidimensional Systems and Signal Processing* (Springer), entitled *Symbolic Methods in Multidimensional Systems Theory*. This issue will appear at the beginning of 2015.

9.1.1.1. General chair, Scientific chair

Catherine Bonnet is co-chair of the Organizing Committee of SIAM CT15 which will held 8-10 July in Paris. She is also with Maurice Robin (DIGITEO) the Local Conference Organizer.

Catherine Bonnet is co-organizer with Alexandre Chapoutot and Paolo Mason of the Working Group Shy of DigiCosme on the Plateau de Saclay.

Alban Quadrat is a scientific committee member of the *Journées Nationales de Calcul Formel* (JNCF), http://www.lifl.fr/jncf2014/index.html.

9.1.1.2. Member of the organizing committee

Catherine Bonnet was a member of the organizing committee of the *Symposium in honor of Professor Abdelhaq El Jai* 29-30 May 2014 in Ifrane, Marocco.

Frédéric Mazenc was a member of the organizing committee of the *2014 European Control Conference*, July, Strasbourg, France.

9.1.2. Scientific events selection

Catherine Bonnet is in the board of directors of Cap'maths.

Sorin Olaru wax the Scientific organizer of the Workshop "Interpolation-based techniques for constrained control: from improved vertex control to robust model predictive control alternatives." at ECC 2014.

Alban Quadrat was an inviter speaker at the conference *Homological Perturbation Lemma*, Galway (Ireland), 01-05/12, and at the conference *DelSys' 2014*, Grenoble (France), 12-14/11, and gave a talk at the department of mathematics, SUNY Cortland, New York (USA), 16/09, and at the seminar of the University of Versailles, 17/12. He also attended the *Journées Nationales de Calcul Formel*, CIRM, Luminy (France), 03-07/11.

9.1.2.1. Member of the conference program committee

Catherine Bonnet was a member of the scientific committee of the *Symposium in honor of Professor Abdelhaq El Jai* 29-30 May 2014 in Ifrane, Marocco.

Sorin Olaru was a member of the program committees of the European Control Conference 2014, 18th International Conference on System Theory, Control and Computing - ICSTCC 2014.

Guillaume Sandou was a member of the Programm Committee of the 2014 IEEE Symposium on Computational Intelligence in Production and Logistics Systems (CIPLS'14), Orlando, USA, December 2014.

9.1.3. Journal

9.1.3.1. Member of the editorial board

Frédéric Mazenc is Member of the *Mathematical Control and Related Fields* editorial board.

Frédéric Mazenc is Member of the *European Journal of Control* editorial board.

Frédéric Mazenc is Associate Editor for the *Asian Journal of control*.

Frédéric Mazenc is Associate Editor for the *Journal of Control and Decision*.

Frédéric Mazenc is Associate Editor for *IEEE Transactions on Automatic Control*.

Frédéric Mazenc was Associate Editor for the conferences *2015 American Control Conference*, Chicago, USA and the *53th IEEE Conference on Decision and Control*, Los Angeles, USA, (2014).

Sorin Olaru is a memeber of the editorial board of *IMA Journal of Mathematical Control and Information*.

Alban Quadrat is an associate editor of the journal *Multidimensional Systems and Signal Processing*, Springer.

9.1.3.2. Reviewer

The team reviewed many papers for international journals (European Journal of Control, Automatica, IEEE Trans. Aut Contr, IEEE Trans. on Control Systems Technology, IMA Journal of Mathematical Control and Information, Information Sciences, IEEE Symposium Series on Computational Intelligence, SICON, Journal of Process Control, Journal of Franklin Institute, Transactions on Cybernetics, Asian Journal of Control) and conferences (IEEE Conference on Decision and Control, American Control Conference, European Control Conference, IFAC World Congress 2014) and for a book for Springer.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Le Ha Vy Nguyen, Signals and Systems, 28h, L3, Paris-Sud University

Master : Le Ha Vy Nguyen, Information Processing and Source Coding, 12h, M1, Paris-Sud University

Master : Le Ha Vy Nguyen, Numerical Methods for Physics, 12h, M1, Paris-Sud University

Licence : Guillaume Sandou, Signals and Systems, 87h, L3, Supélec

Licence : Guillaume Sandou, Mathematics and programming, 18h, L3, Supélec

Master : Guillaume Sandou, Automatic Control, 8h, M1, Supélec

Master : Guillaume Sandou, Numerical methods and optimization, 28h, M1 and M2, Supélec

Master : Guillaume Sandou, Modelling and system stability analysis, 21h, M2, Suplec

Master : Guillaume Sandou, Control of energy systems, 22h, M2, Suplec

Master : Guillaume Sandou, Robust control and mu-analysis, 9h, M2, Suplec

Master : Guillaume Sandou, Systems identification, 32h, M2, ENSTA

Master : Guillaume Sandou, Embedded Systems, 18h, M2, Ecole Centrale Paris

Master : Guillaume Sandou, Automatic control, 23h, M2, Ecole Centrale Paris

Master : Guillaume Sandou, System Analysis, 22h, M2, Ecole des Mines de Nantes

Licence : Sorin Olaru, Numerical methods and Optimization, 24h, niveau M1, SUPELEC, France

Licence : Sorin Olaru, Hybrid systems, 16h, niveau M2, SUPELEC, France

Licence : Sorin Olaru, Automatic Control, 8h , niveau M1, SUPELEC, France

Licence : Sorin Olaru, Signals and systems, 8h , niveau L3, SUPELEC, France

Licence : Sorin Olaru, Embedded systems, 8h , niveau M1, Centrale Paris, France

9.2.2. Supervision

- Postdoc: Y. Bouzidi, *Constructive study of analysis and synthesis problems of multidimensional systems*, Inria Saclay - Île-de-France, ANR MSDOS, 2014-2015, A. Quadrat.
- PhD : Thach Ngoc Dinh, Interval Observers and Delay Systems, University Paris-Sud, December 2011. Date of the defence: 24 Nov., 2014. Supervisor: Frédéric Mazenc. Co-Supervisor: Silviu I. Niculescu, Silvère Bonnabel.
- PhD José Luis Avila Alonso, Leucémie Aigue Myéloblastique : Modélisation et Analyse de Stabilité, Defended July 2nd 2014. University Paris-Sud, STITS. Supervisor : Catherine Bonnet. Co-supervisors : Jean Clairambault and Silviu I. Niculescu.
- PhD in progress Walid Djema, Analysis of an AML model enabling evaluation of polychemiotherapies delivered in the case of AML which have a high level of Flt-3 duplication (Flt-3-ITD). Supervisor : Catherine Bonnet. Co-supervisors : Jean Clairambault and Frédéric Mazenc.
- PhD Le Ha Vy Nguyen, H_∞ Stabilité et Stabilisation de diverses classes de systèmes fractionnaires et à retards, Defended December 9th 2014. University Paris-Sud, STITS. Supervisor: Catherine Bonnet.

9.2.3. Juries

- Catherine Bonnet was a rewiever of the Habilitation thesis of Lucie Beaudoin entitled 'Problèmes inverses et commande robuste de quelques équations aux dérivées partielles, Université Toulouse 3 Paul Sabatier, France, June 20th 2014.
- Frédéric Mazenc was a reviewer of the PhD thesis of Houda Thabet, entitled "Détection de défauts des systèmes non linéaires à incertitudes bornées continus", (Univerté de Bordeaux, December 2014).
- Frédéric Mazenc was a reviewer of the PhD thesis of Hassan Omran, entitled "Contribution à la commande de systèmes non linéaires sous échantillonnage apériodique", (Ecole Centrale de Lille, March 2014).
- Frédéric Mazenc was an invited member of the PhD thesis of José Avial, entitled "Leucémie Aigue Myéoblastique : Modélisation et Analyse de Stabilité", (université Paris-Sud soutenue au L2S, CNRS, July 2014).
- Sorin Olaru was a reviewer for John Anderson Sandoval Moreno's PhD thesis. The thesis was defended in November 2014, Gipsa-Lab, Univ. Joseph Fourier Grenoble.

9.3. Popularization

Catherine Bonnet has been a portrait in the exhibition *'Infinités Plurielles', Marie-Hélène Le Ny*

Alban Quadrat gave a scientific popularization talk entitled *Une sience du contrôle ou Qu'appelle-t-on théorie du contrôle en science ?* at the conference *Contrôle et Contrainte en Science-Fiction*, University of Picardie Jules Verne, Beauvais (France), organized by the department of Lettres, Langues, Arts et Sciences Humaines (FLASH), 23-25/04/2014.

GECO Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

- Davide Barilari, Ugo Boscain and Mario Sigalotti were organizers of the IHP trimester “Geometry, Analysis and Dynamics on Sub-Riemannian Manifolds”, Fall 2014, Institut Henri Poincaré, Paris.
- Ugo Boscain and Mario Sigalotti were organizers of the CIRM School (Marseille) “Sub-Riemannian manifolds: from geodesics to hypoelliptic diffusion”, September 2014.

8.1.1.1. Member of editorial boards

- Ugo Boscain is Associate Editor of SIAM Journal of Control and Optimization
- Ugo Boscain is Managing Editor of Journal of Dynamical and Control Systems
- Mario Sigalotti is Associate Editor of Journal of Dynamical and Control Systems
- Ugo Boscain is Associate Editor of ESAIM Control, Optimisation and Calculus of Variations
- Ugo Boscain is Associate Editor of Mathematical Control and Related Fields
- Ugo Boscain is Associate editor of Analysis and Geometry in Metric Spaces

8.2. Teaching - Supervision - Juries

8.2.1. Supervision

- PhD: Moussa Gaye, “Some problems of geometric analysis in almost-Riemannian geometry and of stability of switching systems", supervisors: Ugo Boscain, Yacine Chitour, Paolo Mason, defended in November 2014.
- PhD in progress: Guiherme Mazanti, “Stabilité et taux de convergence pour les systèmes à excitation persistante", started in 1/9/2013, supervisors: Yacine Chitour, Mario Sigalotti.

8.2.2. Juries

- Ugo Boscain was referee for the PhD thesis of Sylvain Arguillere, Paris 6, July 2014.
- Ugo Boscain was member of the commission for the PhD defense of Laurent Sifre, Ecole Polytechnique, October 2014.
- Mario Sigalotti was member of the commission for the PhD defense of Dolly Tatiana Manrique Espindola, Université de Lorraine, December 2014.
- Ugo Boscain was member of the commission for the HDR of Gregoire Charlot, Universite de Grenoble, September 2014.
- Mario Sigalotti was member of the commission for a MCF position at INPT ENSEEIHT, Toulouse.
- Ugo Boscain was member of the jury for positions of CR at INSMI.

I4S Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. general chair, scientific chair

V. Le Cam was general chair of the 7th European Workshop on Structural Health Monitoring in Nantes, from 8 to 11, July 2014.

L. Mevel was scientific chair of the 7th European Workshop on Structural Health Monitoring in Nantes, from 8 to 11, July 2014.

9.1.1.2. member of the organizing committee

M. Doehler was member of the organizing committee of 7th European Workshop on Structural Health Monitoring in Nantes, from 8 to 11, July 2014.

M. Le Pen was member of the organizing committee of 7th European Workshop on Structural Health Monitoring in Nantes, from 8 to 11, July 2014.

Q. Zhang is member of the national organization committee of the IFAC Symposium SAFEPROCESS 2015 (http://safeprocess15.sciencesconf.org/).

9.1.2. Scientific events selection

9.1.2.1. responsable of the conference program committee

V. Le Cam has been nominated head of the EWSHM scientific committee in 2014 (http://ewshm2014.com).

9.1.2.2. member of the conference program committee

L. Mevel

- has been nominated as member of the EWSHM scientific committee in 2014 (http://ewshm2014.com).
- has organized with M. Doehler one invited session at EWSHM 2014 (http://ewshm2014.com)
- is member of the IOMAC scientific committee (http://www.iomac.dk)

J.Dumoulin is

- member of the scientific committee of the GI Division (Geosciences Instrumentation and Data Systems) of EGU for infrastructure instrumentation and monitoring since April 2013.
- member of the committee of QIRT (quantitative Infrared Thermography) since February 2014 (http://qirt2014.scientific-event.com)
- organizer of invited sessions at EWSHM 2014 (http://ewshm2014.com) and TRA 2014 (http://www.traconference.eu).
- organizer of some invited sessions at EGU 2014 (http://www.egu2014.eu).

Q. Zhang is

- member of IFAC Technical Committee on Modelling, Identification and Signal Processing (TC 1.1, http://tc.ifac-control.org/6/4/).
- Member of IFAC Technical Committee on Fault Detection, Supervision and Safety of Technical Processes (TC 6.4, http://tc.ifac-control.org/6/4/).
- Member of the international program committee of the IFAC Symposium SYSID 2015 (http://sysid2015.info/).
- Member of the international program committee of the IFAC Symposium SAFEPROCESS 2015 (http://safeprocess15.sciencesconf.org/).

9.1.2.3. reviewer

L. Mevel, M. Doehler were reviewers for many conferences in 2014 (IFAC WC, CDC, EWSHM, ...).

J. Dumoulin was reviewer for EWSHM 2014 (http://ewshm2014.com) and for the European Signal Processing Conference (EUSIPCO - http://www.eusipco2014.org/).

9.1.3. Journal

9.1.3.1. member of the editorial board

L. Mevel is member of the editorial board of journal of Simulation in Engineering.

L. Mevel is member of the editorial board of journal of Shock and Vibration.

Q. Zhang is member of the editorial board of the journal of Intelligent Industrial Systems.

9.1.3.2. reviewer

L. Mevel was reviewer for Mechanical Systems and Signal Processing, journal of Sound And Vibration, Applied Maths and Computation, Operational Research, journal of CSNDT.

M. Doehler was reviewer for Journal of Electrical Power and Energy Systems and Mechanical Systems and Signal Processing.

L. Mevel and M. Doehler were reviewers for the journal of Smart Materials and Structures.

J. Dumoulin was reviewer for IEEE Transactions on Instrumentation and Measurement, Quantitative Infrared Thermography Journal, Optics and Lasers in Engineering journal , Journal Cultural Heritage, International Journal of Architectural Heritage, Journal of Geophysics and Engineering, Research in Nondestructive Evaluation

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence Professionnelle TAM : J. Dumoulin, thermographie infrarouge active, 8h, Université Paris-Est, France

Master 2 MMMRI, (Maintenance et Maîtrise des Risques Industriels) , J. Dumoulin, contrôle non destructif par thermographie infrarouge active, 12h, Université Paris-Est, France

Master Système Communicant Mobile, V. Le Cam, embedded systems under Linux Operating System, 12h, Polytech Nantes, France

Master Civil engineering, V. Le Cam, Structural Monitoring, 4h, Université de Nantes, France

Licence 3 SEICOM, V. Le Cam, 3h, SHM and smart grids, Université de Nantes, France

Licence 3 SEICOM, V. Le Cam, 8h, TP, SHM and smart grids, Université de Nantes, France

ESEO, V. Le Cam, 8h, TP, embedded systems under Linux Operating System, France

9.2.2. Supervision

PhD : Jordans, Broons, *Développement d'outils numériques pour l'audit énergétique des bâtiments*, Université Paris-Est, A. Nassiopoulos, Frédéric Bourquin (IFSTTAR) and Karim Limam (Université de La Rochelle), Ecole doctorale Science Ingénierie et Environnement (SIE), 01/12/14.

PhD : Ahmed Jhinaoui, *Subspace-based identification and vibration monitoring algorithms for rotating systems*, Université de Rennes 1, L.Mevel and J. Morlier (ISAE), Ecole doctorale MATISSE, defended on May 28th, 2014

PhD : Philippe Mellinger, *Estimation des incertitudes en identification modale avec et sans entrées connues : Théorie, validation et application*, Université de Rennes 1, L. Mevel and C. Meyer (Dassault Aviation), Ecole doctorale MATISSE, defended on December 16th, 2014

PhD : Nassif Berrabah, *Electrical cable aging monitoring*, Q. Zhang, Ecole doctorale MATISSE, Université de Rennes 1, since November 2014

PhD : Delwar Hossain Bhuyan, *Damage localisation on offshore platforms*, L. Mevel and M. Doehler, Ecole doctorale MATISSE, Université de Rennes 1, since November 2014

PhD : Mohamed Oumri, *Diagnostic of defaults in electric networks*, Q. Zhang, Université de PARIS-SUD, 2014. Thesis happened jointly with SISYPHE project at Inria Rocquencourt

Liangquan Zhang's post-doctoral project on hybrid system monitoring, Q. Zhang, 2014-2015.

9.2.3. Juries

J. Dumoulin was part of the jury of A. Crinière at Ecole Centrale de Nantes.

L. Mevel was member of Julie Bessac's PhD defense committee at IRMAR, University of Rennes 1, October 20th, 2014.

L. Mevel was member of Fabien Menant's PhD defense committee at IFSTTAR, Nantes, Ecole Centrale de Nantes, November 4th, 2014.

Q. Zhang was member of Mariem Sahnoun's PhD defense committee at Université de Lyon 1, December 4th, 2014

9.3. Popularization

Qinghua Zhang has published the following work:
Q. Zhang: Encyclopedia article *'Nonlinear system identification – an overview'*, in Encyclopedia of Systems and Control, Springer, 2014, (http://www.springerreference.com/docs/html/chapterdbid/364854.html) [57].

Maxplus Project-Team

9. Dissemination

9.1. Animation de la communauté scientifique/Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. Member of the organizing committee

- X. Allamigeon: co-organisateur avec F. Meunier (ENPC, CERMICS) de sessions invitées "Complexity of Linear Programming and Games" à la conférence "Conference on Optimization & Practices in Industry" du Programme Gaspard Monge pour l'Optimisation, Palaiseau, Octobre 2014.
- X. Allamigeon, co-organisateur des journées du Programme Gaspard Monge pour l'Optimisation, jointes avec la conférence COPI, Palaiseau, Octobre 2014.
- M. Akian, organisatrice de la session " Max-plus methods for optimal control and zero-sum games", à la "53rd IEEE Conference on Decision and Control", Los Angeles, USA, Dec. 2014.
- S. Gaubert, co-organisateur des journées annuelles du Programme Gaspard Monge d'Optimisation (PGMO), associées à la "Conference on Optimization & Practices in Industry" (COPI), Palaiseau, Octobre 2014, http://www.fondation-hadamard.fr/fr/pgmo-copi-14.
- S. Gaubert, co-organisateur du Séminaire Parisien d'Optimisation.
- S. Gaubert, co-organisateur (avec William McEneaney, San Diego) de deux sessions "Max-Plus Methods in Optimal Control and Game Theory" au "21st International Symposium on Mathematical Theory of Networks and Systems" (MTNS 2014), Groningen, Pays-Bas, Juillet 2014.

9.1.2. Scientific events selection

9.1.2.1. Member of the conference program committee

- S. Gaubert, membre du comité scientifique de "Conference on Optimization & Practices in Industry" (COPI), Palaiseau, Octobre 2014.
- S. Gaubert, membre du comité scientifique de SIAM CT'15 qui se tiendra à Paris en Juillet 2015.

9.1.3. Journal

9.1.3.1. Member of the editorial board

- S. Gaubert est membre du comité éditorial de la collection Mathématiques et Applications, SMAI et Springer.
- S. Gaubert est membre du comité éditorial du journal RAIRO Operations research.

9.1.4. Other

- M. Akian :
  - Membre élue du conseil du laboratoire du CMAP.
- S. Gaubert :
  - Directeur du PGMO (Programme Gaspard Monge d'optimisation, programme de mécénat d'EDF administré par la FMJH).
  - Vice-président du comité des projets du Centre de Recherche Inria de Saclay – Île-de-France depuis Janvier 2008, et membre nommé de la commission d'évaluation de l'Inria.
  - Membre du conseil scientifique du CMAP.
  - Membre du CNU en 26ième section.

9.2. Enseignement - Encadrement - Jurys /Teaching - Supervision - Juries

9.2.1. Enseignement/Teaching

- X. Allamigeon
  - Petites classes et encadrement d'enseignements d'approfondissement de Recherche Opérationnelle en troisième année à l'École Polytechnique (programme d'approndissement de Mathématiques Appliquées) (niveau M1).
- S. Gaubert
  - Cours "Systèmes à Événements Discrets", option MAREVA, ENSMP.
  - Cours "Algèbre max-plus pour le contrôle optimal et les jeux" du Parcours Optimisation et Théorie des Jeux - Modélisation en Économie (OJME) du M2 Mathématiques et Applications de l'Université de Paris 6 et de l'École Polytechnique.
  - Cours magistral, petites classes et organisation des enseignements d'approfondissement de Recherche Opérationnelle en troisième année à l'École Polytechnique (programme d'approndissement de Mathématiques Appliquées), avec polycopié [85].
- A. Hochart
  - Cours niveau L1 à l'Univ. Paris Diderot (Paris VII), 18h, dans le cadre d'un monitorat.

9.2.2. Encadrement/Supervision

- PhD : Pascal Benchimol, inscrit à l'École Polytechnique à partir de septembre 2011, directeur de thèse: S. Gaubert, coencadrement: X. Allamigeon, avec une participation à l'encadrement de M. Joswig (TU Berlin) dans le cadre du programme bourse Monge (bourses données pour des doctorants avec un partenaire étranger), soutenue le 2 décembre 2014.
- PhD in progress : Andrea Marchesini, inscrit à l'École Polytechnique, depuis septembre 2012, directeur de thèse: Marianne Akian, codirection: S. Gaubert, avec une participation à l'encadrement de Françoise Tisseur (U. Manchester).
- PhD in progress : Antoine Hochart, inscrit à l'École Polytechnique, depuis octobre 2013, directeur de thèse: Stéphane Gaubert, codirection: Marianne Akian.
- PhD in progress : Eric Fodjo, inscrit à l'École Polytechnique, depuis octobre 2013, directeur de thèse: Marianne Akian.
- PhD in progress : Nikolas Stott, inscrit à l'École Polytechnique, depuis octobre 2014, directeur de thèse: Stéphane Gaubert, codirection: Xavier Allamigeon et Éric Goubault.
- PhD in progress : Vianney Boeuf, inscrit à l'École Polytechnique, depuis octobre 2014, directeur de thèse: Stéphane Gaubert, codirection: Stéphane Raclot (BSPP), Marianne Akian, Xavier Allamigeon.
- M2 internship: Nikolas Stott, Mines Paristech, option MAREVA, avril–juillet 2014. Sujet : "Invariants semi-algébriques pour la vérification". Directeurs: Stéphane Gaubert, codirection: Xavier Allamigeon et Éric Goubault.
- Enseignement d'approndissement de l'École Polytechnique (élèves de troisième année) d'Alexandre Hannebelle, Armelle Patault, Pierre-Yves Queault et Jean-Nicolas Roussel, cosupervisé avec le Cdt Stéphane Raclot (BSPP), Régis Reboul (Préfecture de Police) et Philippe Robert (projet Inria RAP), avec le concours de Marianne Akian, Xavier Allamigeon, et Vianney Boeuf. Étude préliminaire d'évaluation de performance de l'évolution projetée de la chaîne de réponse aux appels d'urgence.

9.2.3. Jurys/Committees

- X. Allamigeon
  - Examinateur dans le jury de soutenance de thèse de Pascal Benchimol (Décembre 2014).
- S. Gaubert

- Membre de la commission de recrutement en informatique à l'École Polytechnique.
- Membre du jury de concours Inria CR2 de l'Inria Rhône-Alpes.
- Membre du jury de concours Inria CR2 de l'Inria Saclay – Île-de-France.
- Jury de thèse de Thomas Nowak (président), École Polytechnique, 5 Septembre 2014.
- Jury de thèse de Pablo Maldonado, UPMC, 4 Novembre 2014.
- Jury de thèse de Vinicus Mariano Goncalvez, Mina Gerais, Rapporteur, 28 Novembre 2014.
- Jury de thèse de Pascal Benchimol, École Polytechnique, 2 Décembre 2014.

9.3. Popularization

J.P. Quadrat : administre le site d'intérêt général http://www.maxplus.org, dédié à l'algèbre max-plus.

9.4. Participation à des colloques, séminaires/Conférences, Seminars

- M. Akian
  - Séminaire Parisien d'Optimisation, IHP, 7 avril 2014. Titre de l'exposé: "Complexité de l'itération sur les politiques pour les jeux à somme nulle".
  - Structured Matrix Days, Limoges, May 2014. Invited talk: "Log-majorization of eigenvalues of matrix polynomials and tropical scaling".
  - Conference on "New trends in optimal control" (NETCO), Tours, June 2014. Titre de l'exposé: "Policy iteration for stochastic zero-sum games".
  - 19th Conference of the International Linear Algebra Society (ILAS), August 2014, Seoul. Titre de l'exposé: "Tropical bounds for eigenvalues of matrices using Hungarian dual variables".
  - Conference on Optimization & Practices in Industry, session invitée "Complexity of Linear Programming and Games", Palaiseau, Octobre 2014. Titre de l'exposé: "Complexity of policy iteration for stochastic zero-sum games".
  - 53nd IEEE Conference on Decision and Control, Los Angeles, décembre 2014, session invitée "Max-plus methods for optimal control and zero-sum games". Titre de l'exposé: "Generic uniqueness of the bias vector of mean payoff zero-sum games".
- X. Allamigeon
  - Séminaire donné dans le cadre du Research Training Group "Methods for Discrete Structures", TU Berlin, Avril 2014. Titre de l'exposé : "Tropicalizing semialgebraic pivoting rules".
  - Séminaire SIESTE, ENS Lyon, Mai 2014. Titre de l'exposé : "Relations entre la complexité de la programmation linéaire et celle des jeux à paiement moyen".
  - 41st International Colloquium on Automata, Languages, and Programming (ICALP), Copenhagen, Juillet 2014. Titre de l'exposé : "The Tropical Shadow-Vertex Algorithm Solves Mean Payoff Games in Polynomial Time On Average".
  - Conférence "Recent Advances in Linear Optimization", Paris, Juillet 2014. Titre de l'exposé : "The Tropical Shadow-Vertex Algorithm Solves Mean Payoff Games in Polynomial Time On Average".
  - Conference on Optimization & Practices in Industry, session invitée "Complexity of Linear Programming and Games", Palaiseau, Octobre 2014. Titre de l'exposé : "The Tropical Shadow-Vertex Algorithm Solves Mean Payoff Games in Polynomial Time On Average".
- P. Benchimol

  - Séminaire au laboratoire CERMICS (Ecole Nationale des Ponts et Chaussées), Champs sur Marne, France, Février 2014. Titre de l'exposé : "La méthode du simplexe tropical".
  - ROADEF - 15ème congrès annuel de la Société française de recherche opérationnelle et d'aide à la décision, Bordeaux, Février 2014. Titre de l'exposé : "La méthode du simplexe tropical".
  - 21st International Symposium on Mathematical Theory of Networks and Systems (MTNS 2014), Groningen, Pays-Bas, Juillet 2014, session invitée "Max-Plus Methods in Optimal Control and Game Theory". Titre de l'exposé : "Combinatorial Simplex Algorithms Can Solve Mean Payoff Games".
  - 20th Conference of the International Federation of Operational Research Societies (IFORS 2014), Barcelone, Espagne, Juillet 2014. Titre de l'exposé : "Combinatorial Simplex Algorithms Can Solve Mean Payoff Games".
  - Conférence "Recent Advances in Linear Optimization", Paris, Juillet 2014. Titre de l'exposé : "Long and winding central paths".
  - Conference on Optimization & Practices in Industry, session invitée "Complexity of Linear Programming and Games", Palaiseau, Octobre 2014. Titre de l'exposé : "Long and winding central paths".

- S. Gaubert
  - Séminaire Université de Metz, Département de Matheématiques, Janvier 2014: "Tropical convexity applied to dynamic programming: a guided tour".
  - Séminaire ENS Ulm, Département d'informatique, Janvier 2014: "De la convexité tropicale aux jeux répétés".
  - Séminaire donné dans le cadre du Research Training Group "Methods for Discrete Structures", TU Berlin, Avril 2014. Titre de l'exposé : "Non-linear Perron-Frobenius theory applied to zero-sum games".
  - Séminaire au département de Mathématiques de Chambery, Mai 2015: "The central path can be tortuous".
  - Séminaire au CIFASIS, Rosario, Argentina, June 2015: "The central path can be tortuous".
  - Workshop Mathematical Aspects of Game Theory and Applications (MAGTA 2014), Roscoff, June 2014. Titre de l'exposé : "Solving mean payoff games by tropical linear programming".
  - MTNS conference, Groningen, July 2013, session invitée "Max-Plus Methods in Optimal Control and Game Theory": "Bundle-based pruning in the max-plus curse of dimensionality free method".
  - ILAS conference (Satellite of ICM), Seoul, August 2014. Invited plenary talk: "From tropical linear algebra to zero-sum games".
  - Séminaire SIESTE, ENS Lyon, Décembre 2014, "Non-linear Perron-Frobenius theory applied to zero-sum games".
  - 53nd IEEE Conference on Decision and Control, Los Angeles, décembre 2014, session invitée "Max-plus methods for optimal control and zero-sum games". Titre de l'exposé: "Non-linear eigenvalue problems arising from growth maximization of positive linear dynamical systems".

- A. Hochart
  - Conference MODE 2014 (Mathématiques de l'Optimisation et de la décision), Rennes, , Mars 2014. Titre de l'exposé : "Points fixes d'opérateur de Shapley sans paiement et propriétés structurelles des jeux à paiement moyen".

  - Conference on “New trends in optimal control” (NETCO), Tours, June 2014. Poster: “Fixed point of payment-free Shapley operators and structural properties of mean payoff games”.
  - Workshop Mathematical Aspects of Game Theory and Applications (MAGTA 2014), Roscoff, June 2014. Poster: “Fixed point of payment-free Shapley operators and structural properties of mean payoff games”.
  - MTNS conference, Groningen, July 2013, session invitée “Max-Plus Methods in Optimal Control and Game Theory”: “Fixed Point Sets of Payment-Free Shapley Operators and Structural Properties of Mean Payoff Games”.
  - Conference on Optimization & Practices in Industry, Palaiseau, Octobre 2014. Titre de l’exposé : “Generic uniqueness of the bias vector of mean-payoff zero-sum games”.
- A. Marchesini
  - 19th Conference of the International Linear Algebra Society (ILAS), August 2014, Seoul. Titre de l’exposé: “Asymptotic eigenvalue problems”.
  - Séminaire des doctorants (CMAP), 12 décembre 2014. Titre de l’exposé: “Valeurs propres tropicales”.
- C. Walsh
  - Séminaire, Titre de l’exposé: “The Tropical Martin boundary”, 16 avril 2014, Séminaire de Géométrie Tropicale, Ecole Polytechnique.
  - Conférence, Titre de l’exposé: “Hilbert isometries”, 16–20 juin 2014, Géométrie et dynamiques des espaces de Finsler, CIRM, Marseille.

MCTAO Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

Ludovic Rifford was in the scientific comitee of the "Conference of Calculus of Variations: Geometry, Inequalities, and Design" within the Thematic Program on Variational Problems in Physics, Economics and Geometry, Fields INstitute, Toronto.

9.1.2. Journals

9.1.2.1. Member of the editorial board

L. Rifford is a member of the editorial board of *Discrete and Continuous Dynamical Systems - Series A* (AIMS Journal).

9.1.2.2. Reviewer

The members of the team reviewed numerous papers for international journals including: SIAM J. on Control and Optimisation, International J. of Control, IEEE Trans. Automatic Control, Acta Applicandae Mathematicae, Journal of Dynamical and Control Systems.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

B. Bonnard and L. Rifford did their teaching duty at Univ. Nice and Univ. Bourgogne (Esirem).

9.2.2. Supervision

Ph: Ayadi Lazrag, *Théorie de contrôle et systèmes dynamiques* (Control theory and dynamical systems), defended September 25, 2014, University of Nice, advisor: Ludovic Rifford.

Ph: Lionel Jassionnesse, *Contrôle optimal et métriques de Clairaut-Liouville avec applications*, Université de Bourgogne, started october, 2010, advisor: Bernard Bonnard.

PhD in progress: Helen Heninger, subject: *Étude des solutions du transfert orbital avec poussée faible dans le probleme des deux ou trois corps*, Université de Nice Sophia Antipolis, started october, 2012, 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.

NECS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. International activities

C. Canudas de Wit, leader of the team, is member of the Board of Governors (BoG) of the IEEE Control System Society (CSS), and president of the European Control Association EUCA. He is IEEE CSS distinguished lecturer (2013-2015).

9.1.2. Scientific events organisation

9.1.2.1. general chair, scientific chair

C. Canudas de Wit serves as General Chair for the Europeen Control Conference (ECC'14), Strasbourg, France, July 2014 (http://www.ecc14.eu/).

9.1.2.2. member of the organizing committee

F. Garin was a student activities chair at the Europeen Control Conference (ECC'14). A. Kibangou is the co-animator of the research action PCS (Pervasive Computing Systems) of the Labex Persyval-Lab (https://persyval-lab.org/research/action/pcs) and the organizer of seminars for the Control Department of Gipsa-Lab.

9.1.3. Scientific events selection

9.1.3.1. member of the conference program committee

H. Fourati serves as international advisory member for the international conference on Sciences and Techniques of Automatic control and computer engineering STA'14 (http://www.sta-tn.com/STA.htm) and the international Conference on Systems and Control ICSC'15 (http://lias.labo.univ-poitiers.fr/icsc/icsc2015/index.php).

9.1.3.2. reviewer

All the members of the permanent staff serve as peer-reviewers for the main conferences in 2014 and 2015 (CDC, ECC, ACC, ICRA, IROS, STA, IFAC World Congress, EUSIPCO, ICASSP, MTNS).

9.1.4. Journal

9.1.4.1. member of the editorial board

C. Canudas de Wit serves as Associate Editor of IEEE Transactions on Control System Technology (since January 2013) and of IEEE Transactions on Control of Network Systems (since June 2013), and Editor of the Asian Journal of Control (since 2010).

9.1.4.2. reviewer

All the members of the permanent staff serve as peer-reviewers for the main international journals of the community (IEEE Trans. on Automatic Control, Automatica, System and Control Letters, IEEE Trans. on Control Systems and Technology, IEEE Trans. on Signal Processing, Signal Processing (Elsevier), IET Signal Processing, IET Communications, Int. J. of Adaptive control and Signal Processing, Journal of the Franklin Institute, Control Engineering Practice, IEEE Trans. on on Industrial Electronics, IEEE Trans. in Industrial Informatics, Discrete Event Dynamic Systems, European Journal of Control, IEEE Sensors Journal, IEEE Trans. on Instrumentation and Measurement, IEEE/ASME Trans. on Mechatronics, Micromachines, Sensors).

9.1.5. Book

H. Fourati started the process of editing a book on "Multisensor data fusion: from algorithm and architecture design to applications" in collaboration with Kris Iniewski (Redlen Technologies, Canada). The book will be published by CRC Press, Taylor & Francis by Jun. 2015.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: H. Fourati, Informatique Industrielle, 105h, L1, IUT 1 (GEII2), University Joseph Fourier, France;

Licence: H. Fourati, Réseaux locaux industriels, 62h, L1 et L2, IUT1 (GEII2), University Joseph Fourier, France.

Licence: H. Fourati, Automatique, 45h, L3, UFR physique, University Joseph Fourier, France

Master: F. Garin, Distributed Algorithms and Network Systems, 19.5h, M2, University Joseph Fourier, France.

Licence: A. Kibangou, Automatique, 52h, L2, IUT1(GEII1), University Joseph Fourier, France.

Licence: A.Kibangou, Mathématiques, 33h, L2, IUT1 (GEII1), University Joseph Fourier, France.

Licence: A.Kibangou, Mathématiques, 44h, L1, IUT1 (GEII1), University Joseph Fourier, France.

E-learning

Pedagogical resources (Victory, Pedagotice) : H. Fourati, Systèmes d'Informations Numériques, video, L1, http://chamilo1.grenet.fr/ujf/courses/IUT1GEIIM1102/?id_session=0.

9.2.2. Supervision

PhD: Abir Ben Khaled, Distributed real time simulation of numerical models: application to powertrain, Grenoble INP, May. 27th, 2014, co-advised by D. Simon and M. Ben Gaid (IFPEN).

PhD: Luis R. Leon Ojeda, Short-term multi-step ahead traffic forecasting, Grenoble University, Jul. 3th, 2014, Co-advised by C. Canudas de Wit and A. Kibangou.

PhD: Dominik Pisarski, Collaborative Ramp Metering Control: Application to Grenoble South Ring, Grenoble University, Sep. 16, 2014, Advised by C. Canudas de Wit.

PhD: Zarina Samigulina, Development of an intelligent complex objects management system, KazNTU University, May. 30, 2014, Advised by O. Shiryayeva and H. Fourati.

PhD in progress: Ruggero Fabbiano, Distributed source seeking control, Grenoble University, Dec. 2011 - in progress, co-advised by C. Canudas de Wit and F. Garin.

PhD in progress: Thi-Minh Dung Tran, Consensus en temps fini et ses applications en estimation distribuée pour les systèmes de transport intelligents, Grenoble University, Jan. 2012 - Mar. 2015, co-advised by A. Kibangou and C. Canudas de Wit.

PhD in progress: Giovanni de Nunzio, Control of communicating vehicles in urban environnement, Grenoble University, Sep. 2012 - Aug. 2015, co-advised by C. Canudas de Wit and P. Moulin (IFPEN).

PhD in progress: Aida Makni, Estimation multi-capteurs et commande temps-réel tolérante aux fautes d'un drone aérien, Grenoble INP, Oct. 2012 - Sep. 2015, co-advised by H. Fourati, A. Kibangou and C. Canudas de Wit.

PhD in progress: Pietro Grandinetti, Control of large-scale traffic networks, CNRS, Apr. 2014 - Mar. 2017, co-advised by C. Canudas de Wit and F. Garin.

PhD in progress: Andrés Alberto Ladino Lopez, Robust estimation and prediction in large scale traffic networks, CNRS, Oct. 2014 - Sep. 2017, co-advised by C. Canudas de Wit, A. Kibangou and H. Fourati.

PhD in progress: Simon Gerwig, Collaborative, reconfigurable and resilient control for hydro-electric power-plants, Alstom, Oct. 2014 - Sep. 2017, co-advised by C. Canudas de Wit, F. Garin and B. Sari (Alstom).

PhD in progress: Thibaud Michel, Mobile Augmented Reality Applications for Smart Cities, Persyval, Nov. 2014 - Oct. 2017, co-advised by N. Layaïda, H. Fourati and P. Geneves.

9.2.3. Juries

H. Fourati participated in the jury of recruitment of students within the department of Electrical Engineering, IUT Grenoble, France.

9.3. Popularization

- The team published a flyer entitled "City Labs for Intelligent Road Transportation Systems" in the report "Impact of Control Technology", http://ieeecss.org/sites/ieeecss.org/files/CSSIoCT2Update/IoCT2-RC-CanudasdeWit-1.pdf.
- The team has organized the Hycon2 Show day in May 2014 with technical presentations and posters on traffic modeling, estimation and control. We got more than 40 registered peoples from different universities and compagnies, http://www.inria.fr/en/centre/grenoble/calendar/hycon2-show-day-traffic-modeling-estimation-and-control.
- The team has organized the 1st technical SPEEDD meeting in May 2014 with a specific visit organized to the traffic center (DIR-CE, Grenoble).

NON-A Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. member of the organizing committee

- J.-P. Richard, a member of NOC of 20th IFAC World Congress, Toulouse, France, 10-14 July 2017
- W. Perruquetti, National Projects Vice-Chair at ECC 2014, Strasbourg, France, 24-25 June 2014

9.1.2. Scientific events selection

9.1.2.1. responsable of the conference program committee

- J.-P. Richard, Associate Editor, EUCA-IEEE ECC'15, Linz, Austria (14th European Control Conference) June 15-17, 2015, http://www.ecc15.at
- J.-P. Richard, Associate Editor, IEEE MED'2015, Torremolinos, Spain (23rd IEEE Mediterranean Conference on Control and Automation) June 16-19, 2015, http://med2015.uma.es
- J.-P. Richard, Associate Editor, IFAC TDS'2015, Ann Arbor, MI, USA (12th IFAC Workshop on Time Delay Systems), Univ. of Michigan, 28-30 juin 2015, http://me.engin.umich.edu/dirifac/
- J.-P. Richard, Associate Editor, EUCA-IEEE ECC'14, Strasbourg, France (13th European Control Conference) June 24-27, 2014, http://www.ecc14.eu
- J.-P. Barbot, IPC-Chair, 13th International Workshop on Variable Structure Systems, Nantes, France, 29 June-2 July 2014

9.1.2.2. member of the conference program committee

- J.-P. Richard, IEEE ICCVE 2014, Vienna, Austria (3rd Int. Conference on Connected Vehicles & Expo), Nov. 3-7, 2014, http://www.iccve.org/
- J.-P. Richard, IOV 2014, Beijing, China (International Conference on Internet of Vehicles), Sept. 1-3, 2014, http://www.bjiov.org/
- J.-P. Richard, SC2 2014, Beijing, China (4th Internat. Symposium on Cloud and Service Computing, co-conf. within IOV2014), Sept. 1-2, 2014, http://www.bjiov.org/
- J.-P. Richard, IFIP WWIC 2014, Paris, France (12th IFIP Int. Conf. on Wired & Wireless Internet Communications), May 26-28, 2014, http://www.lissi.fr/wwic2014/
- J.-P. Richard, EuroHaptics'14, Versailles, France (14th EHS European conference on Haptic Systems), June 24-27, 2014, http://www.eurohaptics.org/
- J.-P. Richard, IEEE SaCoNeT 2014, Vilanova i la Geltrú, Spain (5th IEEE Int. Conference on SmArt COmmunications in NEtwork Technologies), June 18-20, 2014, http://www.craax.upc.edu/saconet2014/
- W. Perruquetti and D. Efimov, IFAC World Congress 2014, Cape Town, South Africa
- A. Polyakov, 13th International Workshop on Variable Structure Systems, Nantes, France

9.1.2.3. reviewer

Members of the team have been involved in the evaluation process of many papers submitted to many international conferences: IEEE Conference on Decision and Control, IFAC World Congress 2014, European Control Conference, American Control Conference, ICRA, ...

9.1.3. Journal

9.1.3.1. member of the editorial board

- T. Floquet, Member of Editorial Board, Mathematical Problems in Engineering (Impact Factor: 1.082)
- A. Polyakov, Member of Editorial Board, Journal of Optimization Theory and Applications (Impact Factor: 1.406)
- A. Polyakov, Associate Editor, Journal of the Franklin Institute (Impact Factor: 2.260)
- A. Polyakov, Editor, International Journal of Robust and Nonlinear Control (Impact Factor: 2.652)

9.1.3.2. reviewer

The members of Non-A are reviewers for most of the journals of the control and signal communities: IEEE Transactions on Automatic Control, IEEE Transactions on Systems and Control Technologies, IEEE Transactions on Industrial Electronics, IEEE Transactions on Signal Processing, Automatica, SIAM Journal on Control and Optimization, Journal of Computation and Applied Mathematics, Systems & Control Letters, International Journal of Control, International Journal of Robust and Nonlinear Control, International Journal of Systems Science, IET Control Theory & Applications, Automation and Remote Control, Journal of Optimization Theory and Applications, Fuzzy Sets and Systems, Mathematics and Computers in Simulation, International Journal of Modeling and Simulation, Journal of the Franklin Institute, ...

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Licence : Lotfi Belkoura; Automatique (systèmes linéaires monovariables)(75h), Introduction à la Robotique (25h), L3; Lille 1; France
- Licence : Gang Zheng; TP Automatic control (16h), L2; EC Lille; France
- Licence : Samer Raichy; Systèmes linéaires, Asservissements, Conversion d'énergie, Echantillonnages et systèmes discrets (192h), L3; ENSEA; France
- Licence : Rosane Ushirobira; TP Automatic control (16h), L2; TP Numerical Analysis (20h), L1; EC-Lille and Polytech Lille; France
- Master : Jean-Pierre Richard; Systèmes dynamiques (30h), Métiers de la recherche (4h), Modélisation des systèmes complexes(12h), Commande et observation (12h), Séminaire episteme (24h); EC-Lille; France
- Master : Wilfrid Perruquetti; Systèmes dynamiques non linéaires et à retards (30h), M2; Lille 1 – EC-Lille, France
- Master : Lotfi Belkoura; Représentation d'état (55h), M1; Projets (10h), M1; Introduction aux distributions (10h), M2; Lille 1; France
- Master : Rosane Ushirobira; Probability and Statistics (20h); M2; EC-Lille; France
- Master : Denis Efimov; TD Automatic control (12h), M1; Analysis of Nonlinear Systems (28h), M2, Lille 1; France

9.2.2. Supervision

- PhD: Omran Hassan, "Commande et observation des systèmes de contrôle en réseau", 2011–2014, supervisors are J.-P. Richard, F. Lamnabhi-Lagarrigue and L. Hetel
- PhD: Maalej Sonia, "Algebraic estimation for robust control", 2011–2014, supervisors are L. Belkoura and A. Kruszewski
- PhD in progress : Matteo Guerra, "Supervisory control of collective motion of mobile robots", 2012–..., supervisors are W. Perruquetti, D. Efimov and G. Zheng

- PhD in progress : Zilong Shao, "Oscilatory control of robot manipulator", 2013–..., supervisors are W. Perruquetti, D. Efimov and G. Zheng
- PhD in progress : Hafiz Ahmed, "Identification and modeling of circadian rhythms for oysters", 2013–..., supervisors are D. Efimov, R. Ushirobira and D. Tran
- PhD in progress : Essaid Edjekouane, "Cyber-physical systems", 2012–..., supervisors are J.P. Barbot, S. Riachy and M. Ghanes
- PhD in progress: Guo Qi, "Estimation dynamique des paramèters de robots manipulateur", 2012-..., supervisors are W. Perruquetti and M. Gautier
- PhD in progress: Zohra Kader, "Observation et commande des systèmes affines à commutation", 2014-..., supervisors are L. Belkoura, C. Fiter, L. Hetel
- PhD in progress: Maxime Feingesicht, "Dynamic Observers for Control of Separeted Flows", 2015-..., supervisors are J.-P. Richard, F. Kerherve, A. Polyakov

9.2.3. Juries

The team members are also involved in various examination committees of Theses and Habilitations, recruitment committees, in France and abroad (more than 10).

9.3. Popularization

- Non-A team particiaped in Innorobo 2014 at Lyon, which is the only European event on robotics (https://team.inria.fr/non-a/2014/12/15/innorobo-2014/).
- The new platform for mobile robot demonstration in Euratechnologie Inria Lille in December 2014 is provided by using the result of ADT SLIM (http://www.inria.fr/en/centre/lille/news/robots-superheroes-of-cooperation-and-surveillance).
- The invited paper [84] is published in the journal ERCIM News. It presents the main goals and the results of the Inria team-project NON-A in the context of Cyber-Physical Systems.

QUANTIC Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific events selection

7.1.1.1. member of the conference program committee

M. Mirrahimi was a member of the international conference program committee for the PRACQSYS (The Principles and Applications of Control in Quantum Systems) 2014, held at Isaac Newton Institute, Cambridge University, UK.

7.1.2. Journal

7.1.2.1. member of the editorial board

M. Mirrahimi is an associate editor of System and Control Letters.

7.1.2.2. reviewer

A. Sarlette has been a reviewer for several automatic control and dynamical systems journals or conferences.

M. Mirrahimi has been a reviewer for several automatic control and physics journals or conferences.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

M. Mirrahimi and P. Rouchon gave an introductif 3-hours mini-course on quantum systems at MTNS (Mathematical Theory of Networks and Systems) 2014, Groningen.

M. Mirrahimi gave a 8-hours mini-course on the “Stability and stabilization of partial differential equations” at the Institute for Research in Fundamental Sciences, Tehran, Iran.

7.2.2. Supervision

A. Sarlette is co-supervising 3 PhD students with his former institution UGent. One of them is working on (quantum) network algorithms accelerations and intends to address other quantum control questions in parallel, possibly joining Inria next year.

PhD in progress: Joachim Cohen, “Towards fault-tolerant quantum computation adapted to circuit QED experiments”, Sept 2013-August 2016, Advisor: Mazyar Mirrahimi.

Visiting PhD student: Ananda Roy, “Towards a robust source of Schrödinger cat states”, Feb 2014-July 2014, Advisor: Mazyar Mirrahimi.

7.3. Popularization

The high profile publications in Nature and Science are popularizing the new field of quantum engineering.

A. Sarlette has been giving talks on "reservoir engineering" to the (non-quantum) control community during several seminars.

M. Mirrahimi was an invited plenary speaker at CANUM (Congrès National d’Analyse Numérique) 2014, where he gave a public presentation on quantum feedback and quantum reservoir engineering.

CLASSIC Project-Team

6. Dissemination

6.1. Teaching - Supervision - Juries

6.1.1. Teaching

E-learning

Visio-conferencing at IFCAM (Indo-French Centre for Applied Mathematics), Summer School on Applied Mathematics, Indian Institute of Science, Bangalore (July 2014). Olivier Catoni gave a three hour presentation on PAC-Bayes bounds applied to statistical learning. The conference is still available on the author's web page.

6.1.2. Supervision

- PhD : Thomas Mainguy, Markov Substitute Processes, a statistical model for linguistics, Université Pierre et Marie Curie, supervised by par Olivier Catoni, (defended on December 11, 2014).
- PhD in progress : Ilaria Giulini, data analysis in high dimension, started in September 2012, Olivier Catoni.

DOLPHIN Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. General chair, Scientific chair

- E-G. Talbi: META'2014 Int. Conf. on Metaheuristics and Nature Inspired Computing, Marrakech, Morocco, Oct 2014.
- E-G. Talbi: IEEE NIDISC'2015 Workshop on Nature Inspired distributed Computing, Phoenix, USA, May 2014.
- L. Brotcorne, Stream Chair IFORS 2014, Revenue Management and Pricing, Barcelona, Spain, July 2014.

9.1.1.2. Member of the organizing committee

- L. Jourdan: META'2014 Int. Conf. on Metaheuristics and Nature Inspired Computing, Marrakech, Morocco, Oct 2014.
- N. Melab: Organization of Grid'5000 training at Inria Lille, November 20th, 2014
- N. Melab: Organization of 5 seminars on high performance computing (Idris, UMONS, Nvidia, EDF R&D and Laboratoire d'Infochimie, Univ. of Strasbourg).
- L. Brotcorne, Chair of the "Prix Jeune Chercheur de la ROADEF", Bordeaux, Feb 2014.
- L. Brotcorne, Vice-President of the Euro Working Group on Pricing and Revenue Management.
- L. Brotcorne, Board Member of the ROADEF Society.
- Vice-President of the Euro Working Group on Pricing and Revenue Management.

9.1.2. Scientific events selection

9.1.2.1. Responsable of the conference program committee

- D. Brockhoff: ACM GECCO'2014 track chair EMO (Evolutionary Multi-objective Optimization) track.

9.1.2.2. Member of the conference program committee

- ECAI 2014, 21st European Conference on Artificial Intelligence (Prague, Czech Republic, 2014)
- GECCO 2014, Genetic and Evolutionary Computation Conference, Evolutionary Combinatorial Optimization and Metaheuristics (ECOM) track (Vancouver, Canada, 2014)
- EvoCOP 2014: 14th European Conference on Evolutionary Computation in Combinatorial Optimisation (Granada, Spain, 2014)
- LION 2015: 9th Learning and Intelligent OptimizatioN Conference (Lille, France, 2015)
- EMO 2015: 8th International Conference on Evolutionary Multi-criterion Optimization (Guimarães, Portugal, 2015)

9.1.3. Journal

9.1.3.1. Member of the editorial board

- Guest editors of a special issue on Evolutionary Multiobjective Optimization, European Journal of Operational Research, co-edited by Dimo Brockhoff, Bilel Derbel, Arnaud Liefooghe and Sébastien Verel.

- Guest editors of a special issue on Computational intelligence for Cloud computing, IEEE Computational Intelligence Magazine, co-edited by El-ghazali Talbi, Pascal Bouvry.

9.1.3.2. Reviewer

- A Quarterly Journal of Operations Research (4OR, Springer)
- Discrete Applied Mathematics (DAM, Elsevier)
- European Journal of Operational Research (EJOR, Elsevier)
- Journal of Heuristics (HEUR, Springer)
- Soft Computing (SOCO, Springer)
- IEEE Transactions on Evolutionary Computation
- Applied Soft Computing
- Journal of Supercomputing
- International Transactions in Operational Research
- EEE/ACM Transactions on Computational Biology and Bioinformatics
- Evolving Systems Journal
- Evolutionary Computation
- Computers and Operations Research
- IEEE Transactions on Cybernetics
- ACM Computing Surveys
- Computation and Concurrency: Practice and Experience
- International Journal of Parallel, Emergent and Distributed Systems

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Licence: A. Liefooghe, Algorithmic and Data structure, 36h ETD, L2, Université de Lille 1, France
- Licence: A. Liefooghe, Algorithmic for Operations Research, 36h ETD, L3, Université de Lille 1, France
- Master: A. Liefooghe, Databases, 30h ETD, M1, Université de Lille 1, France
- Master: A. Liefooghe, Advanced Object-oriented Programming, 53h ETD, M2, Université de Lille 1, France
- Master: A. Liefooghe, Combinatorial Optimization, 10h ETD, M2, Université de Lille 1, France
- B. Derbel is the co-supervising the Master 2 MOCAD (Complex Models, Algorithms, Data)
- Master : Bilel Derbel, Combinatorial Optimization, 35h, M2, University Lille 1, France
- Master : Bilel Derbel, Grid Computing, 16h, M2, University Lille 1, France
- Master : Bilel Derbel, Parallel and Distributed Programming, 35h, M1, University Lille 1, France
- Master : Bilel Derbel, Advanced Object Programming, 132h, M1, University Lille 1, France
- Master : Bilel Derbel, Algorithms and Applications, 28h, M1, University Lille 1, France
- Laetitia Jourdan: Master in Computer Sciences and Master MIAGE of University of Lille 1: Business Intelligence (30h), Datamining (60h), Datawarehouse (30h)
- Laetitia Jourdan : Informatique L1 University of Lille 1 48h
- Laetitia Jourdan: Responsible of sandwich courses in Master Lille 1
- Laetitia Jourdan: Co-responsible of Licence 1 Computer Science
- Master: D. Brockhoff, Advanced Control, 18.25h, M2, Ecole Centrale Paris, Chatenay-Malabry, France

- Master : N. Melab, Supercomputing, 33h, M2, Université Lille 1, France
- Master : N. Melab, Operations Research, 82h, M1, Université Lille 1, France
- Master leading: N. Melab, Co-head (with C. Chainais) of the master 2 of advanced scientific computing, U. Lille 1
- Master creation: N. Melab, Participation to the proposition of a new master of engineering at Lille 1
- Engineering school : Clarisse Dhaenens, Graphs and Combinatorics, 80 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school : Clarisse Dhaenens, Operations Research, 70 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school : Clarisse Dhaenens, Algorithmics and programming, 45 HeqTD, Polytech Lille, University Lille 1, France
- Engineering school : Luce Brotcorne, Optimisation, 17h ETD, IMA4, Polytech Lille, France
- Engineering school : Luce Brotcorne, Recherche Opérationnelle, 24 h ETD, IEESP2, Polytech Lille, France
- Engineering school : Luce Brotcorne, Analyse Numérique et Optimisation, 18h ETD, Ecole Centrale de Lille, France
- Engineering school : Luce Brotcorne, Modèles d'affectation du traffic, 6hETD, Ecole Centrale de Lille, France
- Engineering school : El-Ghazali Talbi, Advanced optimization, 36h, Polytech'Lille, University Lille 1, France
- Engineering school : El-Ghazali Talbi, Data mining, 36h, Polytech'Lille, University Lille 1, France
- Engineering school : El-Ghazali Talbi, Operations research, 60h, Polytech'Lille, University Lille 1, France
- Engineering school : El-Ghazali Talbi, Graphs, 25h, Polytech'Lille, University Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Database, 67h ETD, 1st year, Université Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Algorithm and Programming, 45h ETD, 1st year, Université Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Graph, 10h ETD, 1st year, Université Lille 1, France
- Polytech Lille : Marie-Eléonore Marmion, Data Mining, 10h ETD, 3rd year, Université Lille 1, France

E-learning

Lecture in a E-learning master degree at the University of Lille 1 : Bilel Derbel, Cluster et Grille de Calcul, 2 days on-site, and 3 distance courses, COROLIA Training - Digital Learning Pole, Lille TELECOM , Master 2 TIIR E-learning, continuing education, ten students enrolled.

9.2.2. Supervision

PhD : Nadia Dahmani, Multi-objective packing problems, 02/2014, El-Ghazali Talbi and François Clautiaux

PhD : A. Stathakis, Satellite payload reconfiguration optimization, 10/2014, El-Ghazali Talbi and Pascal Bouvry

PhD in progress : : Sophie Jacquin, Combining exact method and metaheuristics for production problems, début : 1/10/2012, Co-direction : El-Ghazali Talbi et Laetitia Jourdan

PhD in progress: Datamining et optimisation combinatoire adaptés à la prévention et à l'orientation de patients, Maxence Vandromme début : 1/06/2014, CIFRE with Alicante Co-direction : Clarisse Dhaenens and Laetitia Jourdan

PhD in progress: Gauvain Marquet, Mono-objective decomposiiton for multi-objective optimization, University Lille 1, Sep. 2014, Bilel Derbel and El-Ghazali Talbi

PhD : Trong-Tuan Vu, Heterogenity and locality-aware work stealing for large scale branch-and-bound irregular algorithms, Inria University Lille 1, 12 Dec 2014, Bilel Derbel and Nouredine Melab

PhD in progress : Thanh-Do Tran, Benchmarking Continuous Multiobjective Optimization Algorithms, since 12/2011, Dimo Brockhoff and El-Ghazali Talbi

PhD defended: Trong Tuan VU, Heterogeneity and Locality-aware Work Stealing for Large Scale Brand-and-Bound Irregular Algorithms, Nouredine Melab and Bilel Derbel, December 12th, 2014

New PhD: Jan GMYS, Optimization and simulation of electrical networks using massively parallel heterogeneous computing, Nouredine Melab and Daniel Tuyttens (UMONS, Belgium), since October 2014.

PhD in progress : Rudi LEROY, Massively parallel tree-based exact algorithms for hybrid clusters, 11/05/2012, Nouredine Melab

PhD in progress : Francois LEGILLON, Static and Dynamic Resource Brokering on multi-clouds, 09/01/2010, Nouredine Melab and El-Ghazali Talbi

PhD in progress : Sylvain Dufourny, Optimisation de décisions économiques concurrentielles dans un simulateur de gestion d'entreprise, Novembre 2012, Clarisse Dhaenens

PhD in progress : Sezin Afsar, Bilevel models for energy pricing problems , 09/2011, L. Brotcorne

PhD in progress : Martin Bue, Optimisation d'un service de réservation hôtellière, 09/2011, L. Brotcorne, F. Clautiaux.

PhD in progress : Bayrem Tounsi, Optimisation conjointe des opérations de transport et préparation dans le cadre du E-commerce, 09/2011, L. Brotcorne.

PhD in progress : A. Q. Nguyen, Green scheduling on cloud computing systems, 11/2012, El-Ghazali Talbi and Pascal Bouvry

PhD in progress : Oumayma Bahri, Fuzzy multi-objective optimization, 11/2013, El-Ghazali Talbi and Nayla Ben-Omar

PhD in progress : Asma Gannouni, Stochastic multi-objective optimization using metaheuristics , 11/2013, El-Ghazali Talbi and Rachid Ellaia

9.2.3. Juries

- D. Brockhoff: external reviewer for the Luxembourg National Research Fund (FNR).
- N. Melab: HDR Matthieu Basseur, Université d'Angers, December 3rd, 2014.
- C. Dhaenens: President of the recruiting committee for associate professorship in computer science (COS McF 27 - Univ. Lille 1 - 2014) - 3 positions.
- C. Dhaenens: Problème de caractérisation multiple - Application à la détection de souches bactériennes phytopathogènes de Fabien Chhel, Université d'Angers, encadrants : Frédéric Lardeux, Frédéric Saubion, Octobre 2014, (Présidente)
- C. Dhaenens: Modèles d'abstraction pour la résolution de problèmes combinatoires, HDR de Adrien Goeffon, Université d'Angers, garant : Frédéric Saubion, Novembre 2014, (Rapporteur)
- L. Brotcorne, Member of the commission for the Concours CR Inria 2014.
- L. Brotcorne, Member of the COST GTRI Inria.
- Luce Brotcorne : Planification des opérations de cross-docking, de Anne-Laure Ladier, University of Grenoble, Encadrants : G. Alpan november 2014 (Rapporteur).

9.3. Popularization

- Bioinspired computing - talk in undergraduate and graduate schools
- Inaugural conference of Math en Jean - Bioinspired computing (see http://lille1tv.univ-lille1.fr/videos/video.aspx?id=6b894d87-bcd3-4ee5-a69c-7af3a2b6446f
- Operational research - for 2nde during integration week (June 2015)
- E-learning in algorithmics http://ressources.unisciel.fr/progcartes/co/_web.html
- Optimisation des données, Interstice
- Invited GECCO'2013 tutorial on Evolutionary Multiobjective Optimization
- Invited tutorial on Evolutionary Multiobjective Optimization (Reseau Mexico meeting, November 2014 in La Rochelle, France)
- Invited talk at PGMO-COPI conference on Multiobjective CMA-ES (November 2014 in Palaiseau, France)

GEOSTAT Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. General chair, scientific chair

H. Yahia and K. Daoudi are members of the scientific committee of the ISIVC 2014 conference.

8.1.1.2. Reviewer

K. Daoudi has been reviewer for INTERSPEECH, ICASSP and for the "The Icelandic Research Fund" project.

8.1.2. Journal

8.1.2.1. Member of the editorial board

- H. Yahia is a member of the editorial board of the open access journal *Frontiers in Fractal Physiology*.
- H. Yahia has been a member of Elsevier's *Digital Signal Processing* from 2011 until mid 2014.
- H. Yahia is the editor in chief of the *Frontiers Research Topic* "theoretical physics and signal processing", to be organized in 2015 with P. Ivanov (Boston University) and A. Turiel (ICM-CSIC).

8.1.3. Conseil National des Universités

H. Yahia, member, section 61.

8.2. Teaching - Supervision - Juries

8.2.1. Seminars, presentations

- H. Yahia has given a presentation at the **Séminaire Cristolien d'Analyse Multifractale** (SCAM), headed by S. Jaffard: *Exposants de singularité en formalisme microcanonique et analyse multirésolutions quasi-optimale*, Jan 16, 2014.
- H. Yahia was invited to make a presentation: *Edges, transitions, criticality: novel nonlinear characterizations of low-level transition features in signal processing and applications to cross-scale inference in complex signals* at the ISIVC 2014 conference http://www.i3e.ma/isivc2014/keynote.php.
- O. Pont was invited to make a presentation: *Cardiodynamic Complexity: Electrocardiographic Characterization of Arrhythmic Foci*, [22].
- K. Daoudi was invited by Dr. Jon Gudnason to give a lecture on nonlinear speech analysis at Reykjavik university, Iceland.
- H. Badri has made a presentation at *Journées de l'EDMI* (Bordeaux - France), November 2014.
- H. Badri has made a presentation in the MANAO team: *Recovering Gradient Fields with Multi-Sparse Priors* March 26, 2014.
- H. Badri has made presentation at the "Signal-Image" seminar, co-organized by IMS-IMB-LaBRI in the framework of Labex CPU, May 15, 2014.
- GEOSTAT has invited A. Bijaoui, astronomer Emeritus to give a seminar for the Inria BSO centre, June 3rd, 2014.

8.2.2. Courses, summer schools

1. Mediterranean School of Complex Networks - (Salina, Sicily), June 9-13, attended by H. Badri.

2. WIPO intellectual property certificate attended by H. Badri.
3. University Teaching 101 - Johns Hopkins University certificate attended by H. Badri.

8.2.3. Teaching

Licence : H. Badri, C2I course, 32 hours, L1 level, Bordeaux I University, France.

Master : K. Daoudi was invited by the Moroccan CNRST within the FINCOME'2014 program (http://www.fincome.cnrst.ma/) to give a 20 hours lecture on speech processing at the Master2 InfoTelecom of the faculty of science of Rabat (http://www.fsr.ac.ma/MIT/).

8.2.4. Juries

H. Yahia was a member of the PhD Jury of S. Chef (Le2I, UMR CNRS 6306, Laboratoire Electronique, Informatique et Image), defended November 25, 2014. Title: *Contribution à l'analyse de signaux acquis par émission de photons. Dynamique pour l'étude de circuits à très haute intégration*. Jury:

- S. Binczak, professeur université de Bourgogne (directeur de thèse),
- S. Jacquir, maitre de conférence université de Bourgogne (co-encadrant),
- F. Morain-Nicolier, IUT de Troyes, (rapporteur),
- K. Sanchez, docteur ingénieur CNES, (examinateur),
- L. Torres, professeur LIRMM, (rapporteur),
- H. Yahia, chargé de recherche Inria Bordeaux (examinateur).

MISTIS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. general chair, scientific chair

- F. Forbes co-organized the workshop *Statistical Challenges in Neuroscience* in Warwick, UK in Sept. 2014, http://www2.warwick.ac.uk/fac/sci/statistics/crism/workshops/neuroscience/.
- F. Forbes co-organized the workshop on *Probabilisitic graphical models and structured data on graphs* in Grenoble, in July 2014.
- Stéphane Girard co-organized the workshop "Extreme Value Theory, Spatial and Temporal Aspects", Besançon, https://trimestres-lmb.univ-fcomte.fr/Workshop-on-Extreme-Value-Theory
- Stéphane Girard co-organized the "Rencontres d'Astrostatistique", Grenoble, http://astrostat2014.sciencesconf.org
- "Extremes and Copulas", Grenoble, http://mistis.inrialpes.fr/workshop-copulas-extremes.
- Stéphane Girard organized the workshop "*Copulas and extremes*", Grenoble, http://mistis.inrialpes.fr//workshop-copulas-extremes.html.
- Marie José Martinez, Jean Baptiste Durand, Florence Forbes in collaboration with Iragael Joly (Grenoble Applied Economics Laboratory) organized the workshop "Statistics, Activities and Transportation" in Grenoble http://mistis.inrialpes.fr/workshop-statistique-transport.html as part of the MOTU project (2013-14).

9.1.1.2. member of the organizing committee

- F. Forbes is a member of the committee for the 2nd SFRMBM (Société Francaise de Résonance Magnétique en Biologie et Médecine) conference in Grenoble in 2015, http://sfrmbm2015.sciencesconf.org/

9.1.1.3. member of the conference program committee

- Stéphane Girard organized an invited session "Regression extremes" at the *7th international conference ERCIM*, Pisa, Italy, december 2014.

9.1.1.4. member of the editorial board

- Florence Forbes is Associate Editor of the journal *Frontiers in ICT: Computer Image Analysis* since its creation in Sept. 2014. Computer Image Analysis is a new specialty section in the community-run openaccess journal Frontiers in ICT. This section is led by Specialty Chief Editors Drs Christian Barillot and Patrick Bouthemy.
- Stéphane Girard is Associate Editor of the *Statistics and Computing* journal since 2012. He is also member of the Advisory Board of the *Dependence Modelling* journal since decembre 2014.

9.1.1.5. reviewer

- In 2014, Florence Forbes has been a reviewer for the *NIPS* and *ICASSP* conferences and for the *Statistics and Computing* journal.
- In 2014, Stéphane Girard has been a reviewer for *Annals of Statistics, Journal of Statistical Software, Metrika, Lecture Notes in Statistics, RevStat, ESAIM Probability & Statistics, Journal de la Société Française de Statistique.*

9.1.2. Societies and Networks

- F. Forbes and J.-B. Durand are part of an INRA (French National Institute for Agricultural Research) Network (AIGM, http://carlit.toulouse.inra.fr/AIGM) on Algorithmic issues for inference in graphical models.
- F. Forbes and S. Girard were elected as members of the bureau of the “Analyse d’images, quantification, et statistique” group in the Société Française de Statistique (SFdS).
- F. Forbes and M-J. Martinez are members of the ERCIM working group on Mixture models.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence (IUT): Marie-José Martinez , *Statistics*, 192 ETD, L1 to L3 levels, université Grenoble 2, France.

Master: Jean-Baptiste Durand, *Statistics and probabilty*, 192 ETD, M1 and M2 levels, Ensimag Grenoble INP, France.

Licence (IUT) : Gildas Mazo, Mathematics and C language, 128h, L1 level, université Grenoble 1, France.

Master: Farida Enikeeva, *Statistics*, 96 ETD, M1 level, Ensimag Grenoble INP, France.

Master : Stéphane Girard, *Statistique Inférentielle Avancée*, 45 ETD, M1 level, Ensimag Grenoble-INP, France and *Introduction à la statistique des valeurs extrêmes*, 12 ETD, M2 level, université Grenoble 2, France.

Master : Florence Forbes, Mixture models and EM algorithm, 12h, M2 level, UFR IM2A, université Grenoble 1, France.

M.-J. Martinez is faculty members at Univ. Pierre Mendès France, Grenoble II.

J.-B. Durand is a faculty member at Ensimag, Grenoble INP.

F. Enikeeva was on a half-time ATER position at Ensimag, Grenoble INP.

9.2.2. Supervision

- PhD : Pierre Fernique, *"A statistical modeling framework for analyzing tree-indexed data"*, Montpellier 2 University. 10 Dec. 2014, Y. Guédon, J.-B. Durand.
- PhD : Gildas Mazo, *"Construction et estimation de copules en grande dimension"*, Universite Grenoble 1, 17 nov 2014, S. Girard, F. Forbes.

9.2.3. Juries

Stéphane Girard has been involved in the following PhD commitees:

- Blandine Fillon "Développement d’un outil statistique pour évaluer les charges maximales subies par l’isolation d’une cuve de méthanier au cours de sa période d’exploitation", Univ. Poitiers, December 2014.
- Tom Rohmer "Deux tests de détection de rupture dans la copule d’observations multivariées", Univ. Pau et des Pays de l’Adour, October 2014.
- Anthony Zullo "Functional analysis of high dimensional remote sensing images : application to the charaterization of semi-natural objects in landscape ecology", Univ. Toulouse, July 2014.

Florence Forbes has been involved in the PhD committees of:

- Haithem Boussaid, "Efficient Inference and learning in Graphical models for multi-organ shape segmentation", Ecole Centrale Paris, January 8, 2015 (President).
- Zacharie Irace, "Modelisation statistique et segmentation d’images TEP. Application à l’hétérogénéité et au suivi de tumeurs", INP Toulouse, Oct 8, 2014 (Reviewer).
- Vincent Brault, "Estimation et selection de modèle pour le modèle des blocs latents" , Paris-Sud University, Sept 9, 2014 (Reviewer).

Florence Forbes has been reviewer for the HDR committee of:

- Stéphane Chrétien, "Contribution à l'analyse et à l'amélioration de certaines méthodes pour l'inférence statistique par vraisemblance pénalisée", from Univeristy of Besancon, in Dec. 2014.

From Sept. 2009 to Sept. 2014, F. Forbes was head of the committee in charge of examining post-doctoral candidates at Inria Grenoble Rhône-Alpes ("Comité des Emplois Scientifiques").

Florence Forbes is a member of the INRA committee (CSS MBIA) in charge of evaluating INRA researchers once a year in the MBIA dept of INRA.

Florence Forbes was a member of the committee for research scientist candidate (CR) selection at Inria Lille and at Inria Grenoble in 2014.

MODAL Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. general chair, scientific chair

Alain Celisse, Julien Jacques and Guillemette Marot organized and were the scientific chairs of the workshop Kernel Methods for Big data, 31 March - 2 April 2014 http://math.univ-lille1.fr/~jacques/KernelMethod-Lille-2014.html

Guillemette Marot was the general chair and the scientific chair of the first session of the scientific day organized by Bilille platform about bioinformatics around integrative biology, Dec 17, 2014 http://www.lifl.fr/~touzet/PPF/integrative.html

Cristian Preda was member of the Scientific Committee of the 7-th international Workshop on Applied Probability (Antalya, 16-19 June, 2014).

9.1.1.2. member of the organizing committee

Since 12, C. Biernacki is the president of the data mining and learning group of the French statistical association (SFdS) http://www.sfds.asso.fr/.

Sophie Dabo-Niang co-organized the session "Functional Statistics and Hydrology" of the international conference "Statistics and Hydrology",in november 2014, Masdar Institute, Abu-Dhabi.

Alain Celisse belongs to the “Mathematical statistics” board of The French Statistical Association (SFDS)

Julien Jacques belongs to the “Statistics and Image” board of The French Statistical Association (SFDS) and animated the probability and statistics seminar of the Laboratory of mathematics “Painlevé” of U. Lille 1.

Guillemette Marot is a member of the organizing committee of seminars from Bilille platform. More information about all seminars of the year is available on https://wikis.univ-lille1.fr/bilille/animation.

9.1.2. Journal

9.1.2.1. member of the editorial board

Christophe Biernacki is an associate editor, since 10, of the journal Case Studies in Business, Industry and Government Statistics (CSBIGS) http://www.bentley.edu/centers/csbigs.

Cristian Preda is an associate editor (since 2013) of the Journals : Methodology and Computing in Applied Probability (http://www.springer.com/statistics/journal/11009) and Romanian Journal of Mathematics and Computer Science (http://www.rjm-cs.ro)

9.1.2.2. reviewer

Alain Celisse is reviewer for numerous top-level statistical journals: Annals of Statistics, Electronic journal of Statistics, Biometrika,JSPI...

Julien Jacques has reviewed papers for Statistics and Computing, Journal of Applied Statistics, Computational Statistics and Data Analysis, Communications in Statistics, European Journal of Operational Research.

Guillemette Marot has reviewed papers for Statistical Applications in Genetics and Molecular Biology, BMC Bioinformatics and Journal of Bioinformatics Research Studies

Vincent Vandewalle has reviewed papers for Pattern Recognition, Advances in Data Analysis and Classification and International journal of computer mathematics

9.1.3. Invited Talks

Christophe Biernacki gave two invited talks of two hours each to the "Journées d'Etudes en Statistique" in October 2014 at Frejus (http://www.sfds.asso.fr/23-Les_Journees_dtudes_en_Statistique_JES). Subjects were "mixture models" and "high dimensional clustering", both from the general topic model choice and agregation.

Cristian Preda was invited as speaker in the special session on Statistics in functional and Hilbert spaces, ERCIM 2014, 7th International Conference of the ERCIM working group on Computational and Methodological Statistics, Pisa, Italy, December 2014.

The other invited talks are included into the bibliography.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Christophe Biernacki is head of the M2 Ingénierie Statistique et Numérique http://mathematiques.univ-lille1.fr/Formation/

Vincent Vandewalle is head of the DUT Statistique et Informatique Décisionnelle, http://iut.univ-lille2.fr/fr/statistique-et-informatique-decisionnelle.html

Licence: A. Celisse, Mathematics for computer science, 48h, L1, U. Lille 1, France

Licence : S. Iovleff, Analysis and numerical methods, 28h, L1, U. Lille 1, France.

Licence : S. Iovleff, Linear Algebra, 74h, L1, U. Lille 1, France

Licence : S. Iovleff, Discrete mathematics, 42h, L1, U. Lille 1, France

Licence : G. Marot, Biostatistics, 9h, L1, U. Lille 2, France

Licence: C. Preda, Probability, 40h, L1, U. Lille 1, France

Licence: C. Preda, Inferential Statistics, 50h, L1, U. Lille 1, France

Licence : V. Vandewalle, Simulation Techniques, 16h, L1 , U. Lille 2, France

Licence : V. Vandewalle, Descriptive statistics, 62h, L1 , U. Lille 2, France

Licence : V. Vandewalle, Probabilities, 80h, L1 , U. Lille 2, France

Licence: A. Celisse, Mathematics for computer science, 48h, L2, U. Lille 1, France

Licence: S. Iovleff, Mathematics, 28h, L2, U. Lille 1, France

Licence: S. Iovleff, Operational research, 28h, L2, U. Lille 1,France

Licence : V. Vandewalle, Analysis, 24h, L2, U. Lille 2, France

Licence : V. Vandewalle, Project management, 9h, L2, U. Lille 2, France

Licence : S. Iovleff, Probability and Statistics, 32h, L3, U. Lille 1, France.

Licence : J. Jacques, Inferential Statistics, 50h, L3, U. Lille 1,France

Licence : V. Vandewalle, Data analysis, 30h, L3, U. Lille 2, France

Licence : Q. Grimonprez, Probability, 4h, L3, U. Lille 1, France.

Master : C. Biernacki, Mathematical statistics, 60h, M1, U. Lille 1, France

Master : C. Biernacki, coaching project, 10h, M1, U. Lille 1, France

Master : Q. Grimonprez, Data Analysis, 36h, M1, U. Lille 1, France

Master : Q. Grimonprez, Classification, 8h, M1, U. Lille 1, France

Master: S. Iovleff, Monte Carlo method, 30h, M1, U. Lille 1, France

Master: J. Jacques, Data Analysis, 40h, M1, U. Lille 1,France

Master: J. Jacques, Statistical Modelling, 30h, M1, U. Lille 1,France

Master: M. Marbac-Lourdelle, Data Analysis, 48h, M1, U. Lille 1, France

Master: G. Marot, Biostatistics, 49h, M1, U. Lille 2, France

Master: G. Marot, Coaching project, 10h, M1, U. Lille 2, France

Master: C. Preda, Data Analysis, 40h, M1, U. Lille 1, France

Master: C. Thery, Linear Models, 12h, M1, U. Lille 1, France

Master : C. Biernacki, Data analysis, 97.5h, M2, U. Lille 1, France

Master : C. Biernacki, Analysis of variance and experimental design, 22.5h, M2, U. Lille 1, France

Master : C. Biernacki, coaching internship, 20h, M2, U. Lille 1, France

Master: A. Celisse, Statistical theory, 30h, M2, U. Lille 1, France

Master: B. Guedj, Statistical Learning and Data Mining, 8h, M2, ENSAE ParisTech, France

Master: J. Jacques, Time Series, 25h, M2, U. Lille 1, France.

Master: C. Preda, Biostatistics, 12h, M2, U. Lille 1, France

Master: C. Preda, Functional data analysis, 12h, M2, U. Lille 1, France

Doctorat: G. Marot, Data Analysis with R, 18h, U. Lille 2, France

9.2.2. Supervision

PhD : Loïc Yengo, Contribution to variable clustering in high dimensional linear regression models, Univ. Lille 1, May 28th, 2014, J. Jacques, C. Biernacki

PhD : Alexandru Amarioarei, Approximations for Multidimensional Discrete Scan Statistics, Univ. Lille 1, September 15th, 2014, C. Preda (https://ori-nuxeo.univ-lille1.fr)

PhD : Matthieu Marbac-Lourdelle, Model-based clustering for categorical and mixed data sets, Univ. Lille 1, September 23rd, 2014, C. Biernacki, V. Vandewalle

PhD in progress : Clément Thery, Classification in high dimension, from 2011, C. Biernacki

PhD in progress : Florence Longeville, Analysis of variance with nested factors for counting data - Application to control quality, from Dec 1st, 2012, J. Jacques, C. Preda

PhD in progress : Quentin Grimonprez, Detection of change points and peaks in high dimension, from Oct 1st, 2013, A. Celisse, G. Marot, J. Jacques

PhD in progress : Jérémie Kellner, Generative models and kernel methods Jeremie, from Oct 1st, 2013, A. Celisse, C. Biernacki

PhD in progress : Maxime Brunin, The computation time/accuracy trade-off in statistical learning, from Oct 1st, 2014, A. Celisse, C. Biernacki

9.2.3. Juries

Alain Celisse was a jury member for one associate professor competition.

Sophie Dabo-Niang was a referee and member of the jury of

- Mohamed Badaoui thesis's, March, 2014, Oujda, Maroc
- Tamaro Johng-Ay thesis's, April, 2014, Pau, France
- Abdourahmane Diallo thesis's, December 2014, Marseille, France

Julien Jacques was reviewer of the Ph.D. of Damien McPartland (University College Dublin) and Anastasios Bellas (University Paris 1) and a jury member for one associate professor competition.

Guillemette Marot was a jury member for two associate professor competitions.

9.3. Popularization

- **Fête de la Science**

  Participant: Vincent Kubicki
  Fête de la Science is a series of presentations in high schools. The objective is to meet the students and expose them to the research environment and the applications of the work done by the team.

- **XPérium Lille 1**

  Participants: Quentin Grimonprez, Vincent Kubicki, Samuel Blanck, Maxime Brunin, Christophe Biernacki, Serge Iovleff, Julien Jacques, Vincent Vandewalle
  Vulgarization of MODAL's research to sensitize high school students and members of Lille 1 university: https://modal.lille.inria.fr/xperium/

REALOPT Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. General chair, scientific chair

Our team's organized the annual meeting of the French Operations Research Society (ROADEF) in February 2014. http://roadef2014.sciencesconf.orgRoadef 2014 gathered more than 400 attendees, with plenary talks by Pierre Bonami (IBM ILOG CPLEX), Michel Balinski (Ecole polytechnique - CNRS), Andrea Lodi (University of Bologna), Pascal Van Hentenryck (NICTA), and Jean-Francois Cordeau (HEC Montréal); and 12 clusters having each organized a one-hour tutorial.

9.1.1.2. Chair of conference program committee

Arnaud Pêcher is co-chair of the programm committee of the international conference BGW2014.

9.1.1.3. Member of the conference program committee

- Arnaud Pêcher is member of the program committee of ICGT2014
- Arnaud Pêcher is member of the program committee of Journées Graphes et Algorithmes 2014
- Pierre Pesneau is member of the program committee of INOC 2015, International Network Optimization Conference, May 18-20, 2015

9.1.2. Journal

9.1.2.1. Member of the editorial board

- O. Beaumont is editor for IEEE Transactions on Parallel and Distributed Systems (TPDS)
- F. Vanderbeck is Associate Editor for the EURO Journal on Computational Optimization

9.1.2.2. Reviewer

The team members are regular referees for the best journals of the field.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Arnaud Pêcher, Programmation objet et impérative, 200h, DUT, Université de Bordeaux, France

Licence : Arnaud Pêcher, Théorie des graphes, 16h, DUT, Université de Bordeaux, France

Licence : Pierre Pesneau, Système et Programmation, 59h, L2, Université de Bordeaux, France

Master : Olivier Beaumont, Optimisation en Cloud Computing & Big Data, 15h Cours, M2, Université de Bordeaux, France

Master : Olivier Beaumont, Fouille de données, 3h TD, M2, Institut Polytechnique de Bordeaux, France

Master : Olivier Beaumont, Fonctionnement des moteurs de recherche, 4h TD, M1, Institut Polytechnique de Bordeaux, France

Master : François Clautiaux, Programmation linéaire 1, 15h TD, M1, Université Bordeaux 1, France

Master : François Clautiaux, Introduction à l'optimisation en nombres entiers, 30h TD, M1, Université Bordeaux 1, France

Master : François Clautiaux, Gestion des opérations et planification de production, 60h TD, M2, Université Bordeaux 1, France

Master : François Clautiaux, Combinatoire et routage, 30h TD, M2, Institut Polytechnique de Bordeaux, France

Master : Boris Detienne, Optimisation stochastique, 60h cours/TD, M2, Université de Bordeaux, France

Master : Boris Detienne, Recherche opérationnelle, 16h TD, M1, Institut Polytechnique de Bordeaux, France

Master : Lionel Eyraud-Dubois, Optimisation en Cloud Computing & Big Data, 15h Cours, M2, Université de Bordeaux, France

Master : Pierre Pesneau, Programmation Linéaire 2, 14h, M1, Université de Bordeaux, France

Master : Pierre Pesneau, Modèles de flot, 22h Cours, M1, Université de Bordeaux, France

Master : Pierre Pesneau, Algorithmique et Programmation Objet (C++), 30h Cours Intégré, M1, Université de Bordeaux, France

Master : Ruslan Sadykov, Introduction à la Programmation par Contraintes, 30 HETD, M2, Université de Bordeaux, France

Master : Ruslan Sadykov, Modélisation, Optimisation, Complexité et Algorithmes, 50 HETD, M2, CNAM Aquitaine, France

Master : François Vanderbeck, Recherche opérationnelle, 15h cours, M1, Institut Polytechnique de Bordeaux, France

Master : François Vanderbeck, Programmation entière, 50h cours/TD, M2, Université de Bordeaux, France

9.2.2. Supervision

PhD : Nastaran Rahmani, Planning and routing via decomposition approaches [11], Université de Bordeaux, june 26th 2014, François Vanderbeck, Ruslan Sadykov, Boris Detienne

PhD : Sagnik Sen, A contribution to the theory of graph homomorphisms and colorings, Université de Bordeaux, february 3rd 2014, Arnaud Pêcher, E. Sopena, A. Raspaud

PhD in progress : Martin Bué, Gestion du revenu dans le cadre du voyage professionnel, 01/09/2012, François Clautiaux, Luce Brotcorne

PhD in progress : Matthieu Gérard, Résolution de problèmes d'optimisation dans le commerce de détail, 01/09/2012, François Clautiaux

PhD in progress : Jérémy Guillot, Optimisation de problèmes de partionnement, 01/09/2014, François Clautiaux, Pierre Pesneau

PhD in progress : Suraj Kumar (Runtime project team), 01/11/2013, Emmanuel Agullo, Lionel Eyraud-Dubois, Samuel Thibault, Oliver Beaumont

PhD in progress : Thomas Lambert, 01/09/2014, Lionel Eyraud-Dubois, Abdou Guermouche, Olivier Beaumont

PhD in progress : Philippe Moustrou, Le codage aléatoire de réseau, 01/09/2014, Arnaud Pêcher, Pr. Bachoc

9.2.3. Juries

- Olivier Beaumont : Inria CR2 recruitment, Inria Bordeaux-Sud Ouest
- Olivier Beaumont : Inria CR1 recruitment, national
- Olivier Beaumont : Evaluation (rapporteur) of the PhD thesis of Dounia Zaidouni (ENS Lyon)
- François Clautiaux : Evaluation (examinateur) of the Habilitation à Diriger des Recherches d'Alice Yalaoui (Université de Technologie de Troyes)

- François Clautiaux : Evaluation (rapporteur) of the PhD thesis of Michaël Gabay (Université de Grenoble)
- François Clautiaux : Evaluation (examinateur) of the PhD thesis of Mohand Lounes Bentaha (Ecole Nationale des Mines de Saint-Etienne)
- François Clautiaux : Evaluation (examinateur) of the PhD thesis of Nastaran Rahmani (Université de Bordeaux)
- François Clautiaux : Evaluation (examinateur) of the PhD thesis of Rodrigue Tchapnga (Université de Bordeaux)
- Arnaud Pêcher : Evaluation (rapporteur) of the PhD thesis of Djelloul Mameri (Université de Clermont-Ferrand 2)
- Arnaud Pêcher : Evaluation (examinateur) of the PhD thesis of Clément Charpentier (Université de Bordeaux)
- Francois Vanderbeck : Evaluation (rapporteur) of the PhD thesis of Sofia Zaourar (U Grenoble, 11/2014).
- Francois Vanderbeck : Evaluation (rapporteur) of the PhD thesis of Stephen J Maher (University of New South Wales, Sydney, Australia, 01/2014).

SELECT Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

Gilles Celeux is one of the co-organizers of the international Working Group on Model-Based Clustering. This year this workshop took place in Dublin (Ireland).

Jean-Michel Poggi was Guest Editor (with R. Kenett, A. Pasanisi) of the special issue on Special Issue on Graphical causality models: Trees, Bayesian Networks and Big Data, in Quality Technology and Quantitative Management (QTQM).

Jean-Michel Poggi was Editor (with A. Antoniadis, X. Brossat) of a Lecture Notes in Statistics: Modeling and Stochastic Learning for Forecasting in High Dimension, Springer.

Jean-Michel Poggi was Organizer and President of the Scientific committee (with R. Kenett, A. Pasanisi) of the ENBIS-SFdS 2014 Spring Meeting on Graphical causality models: Trees, Bayesian Networks and Big Data, IHP, Paris, 9-11 April 2014.

Jean-Michel Poggi was Organizer of the meeting Horizons de la Statistique, Paris, IHP, 21 January 2014.

Jean-Michel Poggi was organizer of the ERCIM 2014 Session ElectricityLoad Forecsting, Pisa, 6-8 December 2014.

Yves Rozenholc was the scientific coordinator and organizer of the third edition of the school “Tumoral Genome Analysis”, 12-19 Mai 2014.

9.1.2. Journal

9.1.2.1. Member of the editorial board

Gilles Celeux is Editor-in-Chief of *Journal de la SFdS*. He is Associate Editor of *Statistics and Computing*, *CSBIGS*.

Pascal Massart is Associate Editor of *Annals of Statistics*, *Confluentes Mathematici*, and *Foundations and Trends in Machine Learning*.

Jean-Michel Poggi is Associate Editor of *Journal of Statistical Software*, *Journal de la SFdS* and *CSBIGS*.

9.1.2.2. Reviewer

The members of the team reviewed numerous papers for numerous international journals.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

All the SELECT members are teaching in various courses of different universities and in particular in the Master 2 “Modélisation stochastique et statistique” of University Paris-Sud.

9.2.2. Supervision

PhD: Vincent Brault, Estimation et sélection de modèle pour le modèle des blocs latents, Université Paris-Sud, September 2014, Gilles Celeux and Christine Keribin

PhD: Rémi Fouchereau, Modélisation probabiliste des courbes S-N, Université Paris-Sud, March 2014, Gilles Celeux and Patrick Pamphile

PhD: Lucie Montuelle, Inégalités d'oracle et mélanges, Université Paris-Sud, December 2014, Erwan Le Pennec

PhD: Clément Levrard, Quantification vectorielle en grande dimension : vitesses de convergence et sélection de variables, Université Paris-Sud, September 2014, Pascal Massart and Gérard Biau (UPMC)

PhD in progress: Émilie Devivjer, 2012, Pascal Massart and Jean-Michel Poggi

PhD in progress: Jana Kalawoun, 2012, Gilles Celeux et Patrick Pamphile

PhD in progress: Nelo Molter Magalães, 2011, Pascal Massart

PhD in progress: Solenne Thivin, 2012, Erwan Le Pennec

PhD in progress: Valérie Robert, 2013, Gilles Celeux et Christine Keribin

PhD in progress: Yann Vasseur, 2013, Gilles Celeux et Marie-Laure Martin-Magniette (URGV)

PhD in progress: Neska El Haouij, 2014, Jean-Michel Poggi and Meriem Jaïdane, Raja Ghozi (ENIT Tunisie) and Sylvie Sevestre-Ghalila (CEA LinkLab), Thesis ENITUPS

PhD in progress: Vincent Thouvenot, 2012, Jean-Michel Poggi and Anestis Antoniadis (Univ. Joseph Fourier, Grenoble)

9.3. Popularization

Gilles Celeux and Valérie Robert have written an article on statistics in basket-ball to appear in the Journal of the SFdS, special issue 'sport and statistics'.

SEQUEL Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. general chair, scientific chair

- P. Chainais has co-organized with Z. Harchaoui the GDR ISIS 1 day workshop on "Learning adapted representations for signal and image processing" in Paris on Feb. 4th, 2014, see http://www.gdr-isis.fr/index.php?page=reunion&idreunion=234.
- P. Chainais has led the application of Lille to the organization of the french national Signal Processing conference (GRETSI 2017) : Marrakech won, but we had a good feedback in view of 2019.

9.1.1.2. member of the conference program committee

- AAAI Conference on Artificial Intelligence (AAAI 2014)
- IEEE Approximate Dynamic Programming and Reinforcement Learning (ADPRL 2014)
- French Conference on Planning, Decision-making, and Learning in Control Systems (JFPDA 2014)
- Conférence Apprentissage Automatique (CAP)
- Extraction et Gestion des Connaissances (EGC)

9.1.1.3. reviewer

- International Conference on Pattern Recognition Applications and Methods (ICPRAM 2014)
- Algorithmic Learning Theory (ALT 2014)
- AAAI Conference on Artificial Intelligence (AAAI 2014)
- Conference on Learning Theory (COLT 2014)
- European Workshop on Reinforcement Learning (EWRL 2014)
- Annual Conference on Neural Information Processing Systems (NIPS 2014)
- International Conference on Artificial Intelligence and Statistics (AISTATS 2014)
- European Conference on Machine Learning (ECML 2014)
- International Conference on Machine Learning (ICML 2014)
- International Conference on Uncertainty in Artificial Intelligence (UAI 2014)
- IEEE Congress on Evolutionary Computation (CEC)
- French Conference on Planning, Decision-making, and Learning in Control Systems (JFPDA 2014)
- IEEE FUSION 2014
- IEEE Approximate Dynamic Programming and Reinforcement Learning (ADPRL 2014)

9.1.2. Journal

9.1.2.1. reviewer

- IEEE Transactions on Image Processing
- Journal of Statistical Physics
- Digital Signal Processing
- IEEE Transactions on Information Theory
- IEEE Statistical Signal Processing SSP'2013

- European Signal Processing Conference EUSIPCO 2013
- 10th International Conference on Sampling Theory and Applications (SampTA 2013)
- IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2013 & 2014)
- Annual Conference on Neural Information Processing Systems (NIPS 2013)
- International Conference on Machine Learning (ICML 2013)
- European Conference on Machine Learning (ECML 2013)
- Uncertainty in Artificial Intelligence (UAI 2013)
- Machine Learning Journal (MLJ)
- Journal of Machine Learning Research (JMLR)
- Journal of Artificial Intelligence Research (JAIR)
- IEEE Transactions on Automatic Control (TAC)
- IEEE Transactions of Signal Processing
- Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)
- Mathematics of Operations Research (MOR)

9.1.3. Invited Talks

- Alessandro Lazaric gave an invited talk on "Approximate Dynamic Programming meets Statistical Learning Theory" at CNRS Journée Des D''ecollements in Orsay (November 2014)
- Alessandro Lazaric gave a talk on "Transfer in Reinforcement Learning" at the "30 minutes of sciences" seminars at Inria Lille (December 2014)
- Michal Valko gave a talk "Bandits on Graphs" at CMLA group at ENS Cachan (December 2014)
- Michal Valko gave a talk "Optimistic Optimization" at CMLA group and at MIST conference, Slovakia (January 2014)
- Ph. Preux gave a talk "décision adaptative face au Big Data", colloque AAFD, Institut Galilée (April 2014).

9.1.4. Evaluation activities, expertise

- *P. Chainais* is a grant proposal reviewer for the ANR.
- *M. Ghavamzadeh* is in the Editorial Board Member of Machine Learning Journal (MLJ, 2011-present).
- *M. Ghavamzadeh* is in the Steering Committee Member of the European Workshop on Reinforcement Learning (EWRL, 2011-present).
- *P. Preux* and *J. Mary* are experts for *Crédit Impôt Recherche* (CIR).
- *P. Preux* is expert for ANR, ANRT, AERES, FNRS. He was member on the visitng committee of the Laboratoire d'Informatique de Grenoble (LIG)
- *E. Duflos* is a project proposal reviewer for ANR.
- *A. Lazaric* is a project proposal reviewer for ANR.
- *A. Lazaric* is a the main organizer of the European Workshop in Reinforcement Learning in 2015.
- *A. Lazaric, J. Mary, R. Munos, O. Pietquin, and M. Valko* are members of the Belgium Commission Evaluation F.R.S-FNRS, 2014.
- *M. Valko* is an elected member of the evaluation committee and participates in the hiring, promotion, and evaluation juries of Inria.

9.1.5. Other Scientific Activities

- *D. Ryabko* is a member of COST-GTRI committee at Inria.
- *D. Ryabko* is a general advisor at Inria Lille.

- *E. Duflos* is Director of Research of Ecole Centrale de Lille since September 2011.
- *E. Duflos* is the Head of the Signal and Image Team of LAGIS (UMR CNRS 8219).
- *R. Gaudel* is board member of LIFL.
- *A. Lazaric* is a member of the committee for research evaluation (CER) at Inria Lille.
- *R. Gaudel* manages the proml mailing list. This mailing list gathers French-speaking researchers from Machine Learning community.
- *P. Chainais* is a member of the administration council of GRETSI, the French association of researchers in signal and image processing.
- *P. Chainais* is co-responsible for the action "Machine Learning" of the GDR ISIS which gathers french researchers in signal and image processing at the national level.
- *Ph. Preux* is Head of the LIFL/CRIStAL lab at the Université de Lille 3; he is head of the data intelligence (DatInG) thematic group of CRIStAL; he is on the scientific committee of CRIStAL. He is local organization chair for ICML 2015.

9.2. Teaching - Supervision - Juries

9.2.1. Awards

- D. Calandriello won the best master thesis award from the Italian Association for Artificial Intelligence for his thesis "Sparse Multi-Task Reinforcement Learning". The association awards the prize to the best master thesis focused on AI in Italy in 2014. The thesis was written under the co-supervision of A. Lazaric during a year spent in SequeL
- F. Guillou won the ACM RecSys challenge (on recommendation systems)
- P. Chainais won an IBM Faculty Award for the creation of the option DAD (Data Analysis and Decision making) at Ecole Centrale Lille (10000$ have been given to EC Lille). The partnership with IBM about Big Data is getting stronger and new perspectives are coming.

9.2.2. Teaching

Licence: R. Gaudel, programmation R pour statistiques et sociologie quantitative, 28h eqTD, L1, université Lille 3, France

Licence: R. Gaudel, projet informatique de traitement des données en SHS, 20h eqTD, L2, université Lille 3, France

Licence: R. Gaudel, préparation au C2i niveau 1, 24h eqTD, L1-3, université Lille 3, France

Master: R. Gaudel, fouille du web, 32h eqTD, M2, université Lille 3, France

Master: R. Gaudel, fouille de donées, 30h eqTD, M2, université Lille 3, France

Master: A. Lazaric, Reinforcement Learning, 25h eqTD, M2, ENS Cachan, France

Master: A. Lazaric, Reinforcement Learning, 25h eqTD, M2, Ecole Centrale Lille, France

Master: Ph. Preux, “Modeling, Computer Science, Mathematics”, 72h eqTD, M1 pshychology/cognitive science, université Lille 3, France

Master: Ph. Preux, “Formal neural netwokrs”, 30h eqTD, M1 cognitive science, université Lille 3, France

Licence: Ph. Preux, “Supervised Learning”, 30h eqTD, L3 MIASHS, université Lille 3, France

EC Lille (3rd y.): P. Chainais, “Machine learning”, 34h eqTD, Ecole Centrale Lille, France

EC Lille (3rd y.): P. Chainais, “Matlab”, 16h eqTD, Ecole Centrale Lille, France

EC Lille (3rd y.): P. Chainais, “Image processing”, 16h eqTD, Ecole Centrale Lille, France

EC Lille (3rd y.): P. Chainais, “Representation and data compression”, 8h eqTD, Ecole Centrale Lille, France

EC Lille (1st y.): P. Chainais, “Signal processing”, 22h eqTD, Ecole Centrale Lille, France

EC Lille (2nd y.): P. Chainais, “Wavelets and applications”, 24h eqTD, Ecole Centrale Lille, France

EC Lille: J. Mary, Machine Learning with R , 20h eqTD

Master: J. Mary, M2 ID - Univ Lille, Programmation web avancée et design pattern, 64h eqTD

Master: J. Mary, M1 ID - Univ Lille, Programmation web , 32h eqTD

Master: J. Mary, M1 ID - Univ Lille, Algorithmique avancée , 32h eqTD

Master: J. Mary, M1 IIES - Univ Lille, Analyse de données avec R, 32h eqTD

Master: J. Mary, C2i - Univ Lille, 24h eqTD

E-learning

SPOC : R. Gaudel, Marc Tommasi and Alain Preux, culture numérique S2, 8 semaines, Moodle, université Lille 3, licence (L1), formation initiale, tous les étudiants (> 7 000).

9.2.3. Supervision

HDR defended: *Mohammad Ghavamzadeh* defended his “Habilitation à diriger les recherches” on June 12th.

PhD defended: *Boris Baldassari* defended his PhD thesis *Apprentissage automatique et développement logiciel*, on July 1st, advisor: Ph. Preux.

PhD defended: *Gabriel Dulac-Arnold* defended his PhD thesis *A General Sequential Model for Constrained Classification*, on Feb. 7th, advisor: Ph. Preux, L. Denoyer (Paris 6), P. Gallinari (Paris 6).

PhD defended: *Victor Gabillon* defended his PhD thesis “Active Learning in Classification-based Policy Iteration”, on June 12th, advisor: M. Ghavamzadeh.

PhD defended: *Olivier Nicol* defended his PhD thesis “Data-driven evaluation of Contextual Bandit algorithms and applications to Dynamic Recommendation”, on Dec. 18th, advisor: Ph. Preux, J. Mary.

PhD defended: *Emilie Kaufmann* defended her PhD thesis, “Bayesian Bandits”, advisor: R. Munos, O. Cappé, A. Garivier.

PhD in progress: *Frédéric Guillou*, “Sequential Recommender System”, since Oct. 2013, advisor: Ph. Preux, J. Mary, R. Gaudel.

PhD in progress: *Vicenzo Musco*, “Topology and evolution of software graphs”, since Oct. 2013, advisor: P. Preux, M. Monperrus

PhD in progress: *Adrien Hoarau*, “Multi-arm Bandit Theory”, since Oct. 2012, advisor: R. Munos.

PhD in progress: *Tomáš Kocák*, “Sequential Learning with Similarities”, since Oct. 2013, advisor: R. Munos, M. Valko

PhD in progress: *Amir Sani*, “Learning under uncertainty”, Oct. 2011, since advisor: R. Munos, A. Lazaric.

PhD in progress: *Marta Soare*, “Pure Exploration in Multi-arm Bandit”, since Oct. 2012, advisor: R. Munos, A. Lazaric.

PhD in progress: *Hong Phuong Dang*, *Bayesian non parametric methods for dictionary learning and inverse problems*, since Oct. 2013, advisor: P. Chainais.

PhD in progress: *Linh Van Nguyen*, *High resolution reconstruction from low resolution measurements of velocity fields in turbulent flows*, since Oct. 2013, advisor: P. Chainais & J.P. Laval (Laboratoire de Mécanique de Lille).

PhD in progress: *Clément Elvira*, “Bayesian non parametric approaches for blind hyperspectral images unmixing.", since Oct. 2014, advisor: P. Chainais & N. Dobigeon (IRIT, Toulouse).

PhD started: *Daniele Calandriello*, *Efficient Sequential Learning in Structured and Constrained Environments*, since Oct. 2014, advisor: M. Valko & A. Lazaric & P. Preux.

PhD started: *Jean-Bastien Grill*, *Développement et analyse de mé thodes numé riques efficaces pour de l'optimisation lorsque la régularité de la fonction sous-jacente n'est pas connue à priori.*, since Oct. 2014, advisor: M. Valko & R. Munos

PhD started: *Pratik Gajane*, "Sequential Learning and Decision Making under Partial Monitoring", since Oct. 2014, advisor: Philippe Preux, Tanguy Urvoy (Orange Labs)

9.2.4. Juries

A. Lazaric was part of the jury of the PhD of Mahdi Milani Fard at McGill Univiersity (supervised by J. Pineau).

Ph. Preux was part of the PhD defense jury of W. Wang (Université Paris-Sud, M. Martinez (Université de Lille), G. Dulac-Arnold (Université Paris 6), V. Gabillon, Boris Baldassari, and O. Nicol (all 3 from Université de Lille).

Ph. Preux was part of the HdR defense jury of M. Ghavamzadeh.

P. Chainais was part of the PhD defense jury of Raja Suleiman (supervied by David Mary) at University of Nice, dec. 2014.

9.3. Popularization

- M. Valko gave an Interview on "Face Recognition" at Sciences et Avenir (July 2014)
- M. Valko gave an Interview on "Biometric applications will soon be part of our daily life" at ARTE Future (November 2014)
- Article on research of M. Valko's collaboration with INTEL - Ford and Intel Mobii project using Face Recognition, at engadget.com (June 2014) http://www.engadget.com/2014/06/25/ford-and-intel-project-mobii-connected-car-cameras/
- Article on research of M. Valko's collaboration with INTEL - Ford prototype using Face Recognition at intel.com (June 2014) http://www.intel.com/content/www/us/en/automotive/ford-mobii-prototype-video.html
- as part of the Inria mediation program, Ph. Preux met high schools pupils to explain what research is.

SIERRA Project-Team

8. Dissemination

8.1. Scientific Animations

8.1.1. Editorial boards

A. d'Aspremont, Associate Editor, Optimization Methods & Software (2010-2014)

A. d'Aspremont, Associate Editor, SIAM Journal on Optimization (2013-...)

F. Bach, Journal of Machine Learning Research, Action Editor.

F. Bach, IEEE Transactions on Pattern Analysis and Machine Intelligence, Associate Editor.

F. Bach, Information and Inference, Associate Editor.

F. Bach, SIAM Journal on Imaging Sciences, Associate Editor.

F. Bach, International Journal of Computer Vision, Associate Editor

8.1.2. Area chair

F. Bach, International Conference on Machine Learning, 2013

8.1.3. Workshop and conference organization

A. d'Aspremont, Workshop preparation for les Houches in Jan 2015: Optimization and Statistical Learning, with Zaid Harchaoui, LEAR, Inria and LJK, Anatoli Juditsky, LJK, Université Joseph Fourier, Jérôme Malick, CNRS and LJK et Philippe Rigollet, ORFE, Princeton University, USA.

A. d'Aspremont, session organized at SIOPT 2014 in San Diego.

F. Bach, Workshop co-chair for NIPS 2014.

V.Perchet, Organizer, summer school "Ecole d'été pluridisciplinaire de Théorie des Jeux", Aussois (7-13 September 2014).

8.1.4. Awards

F. Bach, 10-year best paper award, ICML 2014.

S. Lacoste-Julien, MCMCSKi IV Honorable Mention Poster Prize (January 2014).

8.1.5. Other

A. d'Aspremont, Scientific committee, programme Gaspard Monge pour l'Optimisation.

8.1.6. Invited presentations

S. Arlot, "Kernel change-point detection", Workshop "Kernel methods for big data" (Université Lille 1, March 31 - April 2, 2014)

S. Arlot, "Optimal model selection with V-fold cross-validation: how should V be chosen?", Seventh International Conference on High Dimensional Probability (Institut d'Études Scientifiques de Cargèse, May 26-31, 2014).

A. d'Aspremont, "Spectral Ranking using Seriation." Journée big data, SPOC seminar, LIP6, Université de Paris VI.

A. d'Aspremont, "Spectral Ranking using Seriation." Workshop on Semidefinite Optimization, Approximation and Applications, Simons Institute, Berkeley, Sept. 2014.

A. d'Aspremont, "Spectral Ranking using Seriation." Cambridge statistics seminar, November 2014.

A. d'Aspremont, "Convex Relaxations for Permutation Problems." Oxford robotics seminar, March 2014

A. d'Aspremont, "Convex Relaxations for Permutation Problems." Department of Mathematical Engineering seminar, UCL, Louvain-la-Neuve, February 2014.

A. d'Aspremont, "Convex Relaxations for Permutation Problems." Colloque CNRS MASTODONS, January 2014.

A. d'Aspremont, "Convex Relaxations for Permutation Problems." Lunteren Conference on the Mathematics of Operations Research, January 2014.

A. d'Aspremont, "An Optimal Affine Invariant Smooth Minimization Algorithm." Lunteren Conference on the Mathematics of Operations Research, January 2014.

A. d'Aspremont, "Phase Recovery, MaxCut and Complex Semidefinite Programming." SLAC Photon Science Seminar, Stanford, March 2014.

A. d'Aspremont, "Optimisation et apprentissage." Colloquium Jacques Morgenstern, Inria Sophia-Antipolis, Avril 2014.

F. Bach, Invited talk at workshop on stochastic gradient methods, IPAM, Los Angeles (February 2014).

F. Bach, Seminar at University of Logano (March 2014).

F. Bach, Invited tutorial at Eurandom Workshop, Eindhoven (March 2014).

F. Bach, Invited talk at the Centre de Recerca Matemàtica (CRM), Barcelona (April 2014).

F. Bach, Seminars at Oxford University (May 2014).

F. Bach, Invited talk at "Journées de la SFDS", Rennes (June 2014).

F. Bach, Invited talk at the conference CAP, Saint-Etienne (July 2014).

F. Bach, Invited tutorial at the IFCAM Summer school, Bangalore, India (July 2014).

F. Bach, Invited talk at the Duke/UCL workshop, London (September 2014).

F. Bach, Keynote talk at the conference ECML, Nancy (September 2014).

F. Bach, Seminar at the University of Vienna, Austria (November 2014).

F. Bach, Invited talk at the Swiss Statistics Seminar, Berne (November 2014).

F. Bach, Invited talk at the CIFAR meeting on Neural Computation & Adaptive Perception, Montreal, Canada (December 2014).

N. Boumal, Journée conjointe des GDR, ISIS and MIA: optimisation géométrique sur les variétés, Nov. 21, Paris.

N. Boumal, Bordeaux University GIO 2014 international workshop, on the Geometry of Information and Optimization, Dec. 4 & 5, Bordeaux.

F. Fogel, “Convex Relaxations for Permutation Problems”, Journées MAS de Toulouse, August.

F. Fogel, workshop “Algorithm and Data Science” at Microsoft Research Cambridge, May 15.

S. Lacoste-Julien, "Frank-Wolfe optimization insights in machine learning", Tsinghua University, Beijing, China, June.

S. Lacoste-Julien, "Sequential Kernel Herding: Frank-Wolfe Optimization for Particle Filtering", invited talk at Journées MAS 2014, Institut de Mathématiques de Toulouse, Toulouse, France, August.

S. Lacoste-Julien, "Recent Advances in Frank-Wolfe Optimization", invited talk at the 4th IMA Conference on Numerical Linear Algebra and Optimisation, Birmingham, UK, September.

S. Lacoste-Julien, "Sequential Kernel Herding: Frank-Wolfe Optimization for Particle Filtering", McGill University, Montreal, Canada, December.

R. Lajugie, invitation at the workshop "Kernel methods for big data" in Lille (March, 31st -April, 2nd).

V. Perchet, Workshop "Optimal Cooperation, Communication, and Learning in Decentralized Systems", Banff, Canada (October 16, 2014). Blackwell Approachability in Absorbing Games.

V. Perchet, Conference "PGMO-COPI", Paris (October 28, 2014). Online multiclass classification via Blackwell approachability.

V. Perchet, Conference "PGMO-COPI", Paris (October 30, 2014). New results in bandits problems with applications.

V. Perchet, Séminaire probas/stats, Orsay (December 4, 2014). From Bandits to Ethical Clinical Trials. Optimal Sample Size for Multi-Stage Problems.

V. Perchet, Conference "New Procedures for New Data", CIRM, Marseille (December 15, 2014). From Bandits to Ethical Clinical Trials. Optimal Sample Size for Multi-Stage Problems.

N. Shervashidze, "Representing graphs for machine learning", Séminaire de Statistiques, Institut Henri Poincaré, Paris, June.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

A. d'Aspremont, Creation of a Master's program MASH (Mathématiques, Apprentissage et Sciences Humaines), with ENS - Paris Dauphine. Started September 2014.

Licence : A. d'Aspremont, L3 course on Optimization: ENSAE, 24h

Mastère: A. d'Aspremont, course on Optimization: MVA, ENS Cachan, 18h. item Mastère (M2) : F. Bach, G. Obozinski, Introduction aux modèles graphiques (30h), Master MVA (ENS Cachan).

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

Mastère (M1): S. Lacoste-Julien, F. Bach, R. Lajugie: "Apprentissage statistique", 35h, Ecole Normale Supérieure, Filière "Math-Info", deuxieme année.

8.2.2. Supervision

PhD in progress: Vincent Roulet, October 2014, A. d'Aspremont.

PhD in progress: Nicolas Flammarion, September 2014, A. d'Aspremont and F. Bach.

PhD in progress: Fajwel Fogel, September 2012, A. d'Aspremont and F. Bach.

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

PhD in progress: Damien Garreau, September 2014, S. Arlot (co-advised with G. Biau).

PhD in progress: Anastasia Podosinnikova, December 2013, F. Bach and S. Lacoste-Julien.

PhD in progress: Jean-Baptiste Alayrac, September 2014, S. Lacoste-Julien, Josef Sivic and Ivan Laptev.

PhD in progress: Aymeric Dieuleveut, September 2014, F. Bach.

PhD in progress: Christophe Dupuy, January 2014, F. Bach, co-advised with Christophe Diot (Technicolor).

PhD in progress: Sesh Kumar, September 2013, F. Bach.

PhD in progress: Fabian Pedregosa, September 2012, F. Bach, co-advised with Alexandre Gramfort (Telecom).

PhD in progress: Rafael Rezende, September 2013, F. Bach, co-advised with Jean Ponce.

PhD in progress: Thomas Schatz, September 2012, F. Bach, co-advised with Emmanuel Dupoux (ENS, cognitive sciences).

8.2.3. Juries

A. d'Aspremont, member of the PhD Committee for Pierre-André Savalle at Ecole Central de Paris on Oct. 21 2014.

A. d'Aspremont, member of the PhD Committee for Nicolas Boumal at université Catholique de Louvain, Belgium on Feb. 14 2014.

F. Bach, member of the PhD committee of Samuel Vaiter (Dauphine), Rajen Shah (Cambridge), Anthony Bourrier (Rennes)

F. Bach, member of the HDR committee of Josef Sivic and Sylvain Arlot.

8.3. Popularization

S. Lacoste-Julien, Lecture "Apprentissage statistique et big data", Colloque Algorithmique et Programmation, CIRM, Luminy, France, April.

S. Lacoste-Julien, General public talk to high school students having participated in the mathematics olympiad of académie de Versailles "Apprentissage statistique et big data" at Inria-Rocquencourt, Rocquencourt, France, June.

S. Lacoste-Julien, Demi-heure de la science "Apprentissage automatique et big data", at Inria-Rocquencourt, Rocquencourt, France, November.

S. Lacoste-Julien, July-Dec: helped Sydo for making a popularization video for Inria on the theme of "Simulation and machine learning".

TAO Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Management positions in scientific organisations

9.1.1.1. international

- THRaSH, Theory of Randomized Search Heuristics workshop: Anne Auger, member of Steering Committee
- ACM SIGEVO (Special Interest Group on Evolutionary Computation), Marc Schoenauer, member of Executive Board since 2000, officer (Secretary) since 2012; member of Business Committe (2011-2013). Anne Auger, member of Executive Board since 2011.
- Parallel Problem Solving from Nature: Marc Schoenauer, Member of Steering Committee, (since 1998).
- PASCAL NoE (Pattern Analysis, Statistical modelling, Computational Learning), Michèle Sebag, member of the Steering Committee (PASCAL 2004-2008; PASCAL2, 2009-2013).
- European Machine Learning and Knowledge Discovery from Databases Steering Committee, Michèle Sebag, member since 2010;
- ECCAI Fellow, Michèle Sebag, since 2011;
- LION (Learning and Intelligent OptimizatioN), Marc Schoenauer, member of the Steering Committee since 2012,
- Marc Schoenauer, Honorary Adjunct Professor, School of Computer Science, University of Adelaide, Australia (2009-2015).

9.1.1.2. national

- Michèle Sebag, member of the CoNRS; Senior Advisory Board CHIST-ERA; member of the CSFRS (Conseil Supérieur de la Formation et Recherche Stratégique);
- EA – Association Evolution Artificielle: Marc Schoenauer, founding president, now member of Advisory Committee. Anne Auger, member of Executive Commitee since 2008.

9.1.1.3. Université Paris-Sud

- Jamal Atif, "Directeur d'études" at Computer Science department of IUT d'Orsay ; membre de la CCSU 27 (membre du Bureau) since 2012; membre élu au conseil d'Institut, IUT d'Orsay ; membre du Bureau du département Informatique de l'IUT d'Orsay since 2011.
- Anne Auger, membre du Conseil du Laboratoire de Recherche en Informatique since 2012;
- Philippe Caillou, membre élu du Conseil Scientifique et au Conseil Académique de l'université since 2013, directeur des études à l'IUT de Sceaux since 2009
- Cécile Germain-Renaud, elected memeber of the Scientific Council and of its board. University officer for scientific computing. Deputy head of the computer science departement, in charge of research.
- Michèle Sebag, membre élu du Conseil du Laboratoire de Recherche en Informatique et membre de la CCSU 27 since 2004.

9.1.1.4. Université Paris-Saclay

- Michèle Sebag, member of the Senate at Université Paris-Saclay; Member of the Executive committee and responsible for the DataSense axis, DigiCosme Labex;

- Marc Schoenauer, Member of the Executive committee and chair of the Research Committee, DigiCosme Labex;

9.1.1.5. Inria Saclay

- Anne Auger, membre de la Commission de Suivi Doctoral ; représentante du centre de Saclay à la Commission des Jeunes Chercheurs.
- Marc Schoenauer, *Délégué Scientifique* (VP for Research).

9.1.2. Scientific events organisation

9.1.2.1. general chair, scientific chair

- Anne Auger: ES/EP GECCO 2014 track chair

9.1.2.2. Member of the organizing committee

- HEPML workshop at NIPS 2014: Cecile Germain-Renaud and Balázs Kégl.
- Michèle Sebag, Senior Program Committee, ECAI 2014; Area Chair, IJCAI 2015.

9.1.2.3. Others

- Anne Auger: Organization of an invited mini-symposium on Function-Value-Free Optimization, SIAM Conference on Optimization, San Diego, USA.
- Anne Auger: Organization of invited session on Recent Advances on Continuous Randomized black-box optimization, PGMO-COPI'14 conference, Paris.
- Anne Auger, Nikolaus Hansen: Organization of workshops BBOB, IEEE Conference on Evolutionary Computation 2015, Sendai, Japan and GECCO 2015 Conference Madrid, Spain.
- Anne Auger: Women@GECCO workshop 2014, Vancouver Canada

9.1.3. Scientific events selection

9.1.3.1. Member of the conference Program Committee

All TAO members are reviewers for the main conferences in Machine Learning (IJCAI, ICML, ECAI, ECML-PKDD, ...) and Evolutionary Computation (ACM GECCO, PPSN, IEEE CEC, EvoStar, ...).

9.1.4. Journal

9.1.4.1. Member of the Editorial Board

- Anne Auger: Evolutionary Computation, MIT Press.
- Nikolaus Hansen: Evolutionary Computation, MIT Press.
- Marc Schoenauer: Evolutionary Computation, MIT Press, Advisory Board; Kluwer Genetic Programming and Evolvable Machines, Editorial Board; JMLR, Area Editor.
- Michèle Sebag: Machine Learning, Springer Verlag.

9.1.4.2. Reviewer

Similarly, all TAO members do occasional reviews for the main journals in ML and EC.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: Jamal Atif, Computer Science, approx. 192h, L1, IUT Orsay, Univ. Paris-Sud.

Licence: Anne Auger, Stochastic Optimization, 20h, L1-3, Ecole Centrale Paris.

Licence: Philippe Caillou, Computer science for Managers, approx. 192h, L1, IUT Sceaux, Univ. Paris-Sud.

Licence: Aurélien Decelle, Computer Architecture, 30h, L3, Univ. Paris-Sud

Licence: Aurélien Decelle, Machine Learning and Artificial Life, 41h, L2, Univ. Paris-Sud

Licence: Cécile Germain-Renaud, Computer Architecture (head of Licence), approx. 120h, L2-L3, Polytech, Univ. Paris-Sud.

Licence: Michèle Sebag, Artificial Life, 10h, L2, Univ Paris-Sud.

Licence: Michèle Sebag, Introduction to Machine Learning, approx. 24h, L3, ENS-Cachan.

Master : Cécile Germain-Renaud, Parallelisme, approx. 50h, M1, U. Paris-Sud.

Master : Michèle Sebag, Machine Learning, 25h, M1, MPRI.

Master : Anne Auger, Optimisation, 12h, M2 Recherche, U. Paris-sud.

Master : Michèle Sebag, Machine Learning, 24h, M2 Recherche, U. Paris-sud.

Master : Michèle Sebag, Evolutionary Robotics, 15h, M2 Recherche, U. Paris-sud.

Master : Philippe Caillou, Multi-Agents Systems, 27h, M2 Recherche, U. Paris-sud.

Master : Philippe Caillou, Multi-Agent Based Simulation, 3h, M2 Recherche, U. Paris-Dauphine.

Master : Yann Ollivier, Deep learning, 4h, M2 Recherche, Telecom/Polytech.

9.2.2. Supervision

PhD: Dawei Feng, *Efficient End-to-End Monitoring for Fault Management in Distributed Systems*, 27/03/2014, Germain-Renaud [3].

PhD: Weijia Wang, *Multi-objective sequential decision making*, 11/07/2014, Michèle Sebag [5].

PhD: Gaetan Marceau Caron, *Optimization and Uncertainty Handling in Air Traffic Management*, 22/09/2014, Marc Schoenauer [4].

PhD: Jérémie Decock, *Hybridization of dynamic optimization methodologies*, 26/11/2014, Olivier Teytaud [2].

PhD: Riad Akrour, *Robust Preference-based Reinforcement Learning*, 30/09/2014, Marc Schoenauer and Michèle Sebag [1].

PhD in progress: Ouasssim Ait Elhara, *Stochastic Black-Box Optimization and Benchmarking in Large Dimension*, 1/10/2012, Anne Auger and Nikolaus Hansen

Sandra Cecilia Astete Morales, *Random Processes for Optimization with Risk*, 1/9/2013, Olivier Teytaud

PhD in progress: Asma Atamna, *Analysis, Improvement and Benchmarking of Constraint Handling for Stochastic Blackbox Continuous Optimization*, 1/11/2013, Anne Auger and Nikolaus Hansen

PhD in progress: Jérémy Bensadon, *Information theory for learning and optimization*, 1/10/2012, Yann Ollivier

PhD in progress: Vincent Berthier, *Large-scale black-box optimization*, 1/10/2013, Olivier Teytaud

PhD in progress: Marie-Liesse Cauwet, *Noisy Optimization for Artificial Intelligence*, 1/9/2013, Olivier Teytaud

PhD in progress: Alexandre Chotard, *Enhancement and Analysis of Evolution Strategies*, 01.10.2011, Anne Auger and Nikolaus Hansen

PhD in progress: Nicolas Galichet, *Risk-Aware Reinforcement Learning*, 1/10/2011, Michl`e Sebag

PhD in progress: Yoann Isaac, *Une approche non-supervisée pour la passage à l'échelle des interfaces cerveau-machine*, 1/10/2011, Jamal Atif and Michèle Sebag

PhD in progress: Jialin Liu, *Portfolios of Noisy Optimization Algorithms*, 14/03/2013, Marc Schoenauer and Olivier Teytaud

PhD in progress: Pierre-Yves Massé, *Gradient methods in statistical learning*, 1/10/2014, Yann Ollivier

PhD in progress: Guohua Zhang, *Curiosity-Driven Navigation in Evolutionary Robotics*, 1/9/2011, Michèle Sebag

PhD in progress: Nacim Belkhir, *Ajustement automatique de paramètres pour les métaheuristiques*, 1/05/2014, Marc Schoenauer

Basile Mayeur, *Direct Value Learning*, 1/10/2014, Michèle Sebag

Antoine Bureau, *Programming by Feedback*, 1/10/2014, Michèle Sebag and Marc Schoenauer

Thomas Schmitt, *A Collaborative Filtering Approach to Matching Job Openings and Job Seekers*, 1/11/2014, Michèle Sebag

Sourava Mishra, *AutoML: an empirical approach to Machine Learning*, 1/10/2014, Balázs Kégl and Michèle Sebag

François Gonard, *Sélection d'algorithmes pour la conception de structures*, 1/11/2014, Marc Schoenauer

9.2.3. Tutorials and Summer Schools

- Anne Auger and Nikolaus Hansen: *Evolution Strategies and CMA-ES* at the ACM GECCO, July 2014.
- Nikolaus Hansen: *Introduction to Information Geometry: Stochastic Optimization* at the Information Geometry in Learning and Optimization summer school, September 2014, Copenhagen.

9.2.4. Juries

- Marc Schoenauer, Reviewer for Adrien Goeffon's HDR, Université d'Angers, Oct. 2014 ; Richard Alligier's PhD, Institut National Polytechnique de Toulouse, Oct. 2014 ; Salwa Belaqziz, Université de Marrakech, May 2014. Jury member for Steve Oudot's HDR, Université Paris-Sud, ; Jérémie Garcia's PhD, Université Paris-Sud, June 2014 (pdt of the jury) ; Mickael Buchet's PhD, Université Paris-Sud, Nov. 2014 (pdt of the jury).
- Michele Sebag, Reviewer for Jonathan Grizou, U. Bordeaux; Gwenael Bothorel, U. Toulouse. Jury member for Bilal Piot, U. Lorraine (pdt of the jury).
- Olivier Teytaud, Reviewer for Manel Tagorti's ph.D. (to be defended early 2015, Loria) and Sothea Hong (Irstea Montpellier).

9.3. Popularization

Yann Ollivier, co-organizes the European Union Contest for Young Scientists (science fair for high school students from 30+ countries organized by the European Commission).

ASPI Project-Team

8. Dissemination

8.1. Promoting scientific activities

8.1.1. Scientific events organisation

Valérie Monbet has co–organized the worshop on *Stochastic Weather Generators*, held in Avignon in September 2014.

François Le Gland has been a member of the organizing committee of the *46èmes Journées de Statistique*, held in Bruz in June 2014.

8.2. Teaching, supervision, thesis committees

8.2.1. Teaching

François Le Gland gives

- a course on Kalman filtering and hidden Markov models, at université de Rennes 1, within the SISEA (signal, image, systèmes embarqués, automatique, école doctorale MATISSE) track of the master in electronical engineering and telecommunications,
- a 3rd year course on Bayesian filtering and particle approximation, at ENSTA (école nationale supérieure de techniques avancées), Paris, within the systems and control module,
- a 3rd year course on linear and nonlinear filtering, at ENSAI (école nationale de la statistique et de l'analyse de l'information), Ker Lann, within the statistical engineering track,
- and a 3rd year course on hidden Markov models, at Télécom Bretagne, Brest.

He has also animated a set of training sessions on particle filtering, with an application to video multi–object tracking, to engineers from Canon Research France.

Patrick Héas gives a course on statistical image analysis at université de Rennes 1, within the SISEA (signal, image, systèmes embarqués, automatique, école doctorale MATISSE) track of the master in electronical engineering and telecommunications.

Valérie Monbet gives several courses on data analysis, on time series, and on mathematical statistics, all at université de Rennes 1 within the master on statistics and econometrics. She is also the director of the master on statistics and econometry at université de Rennes 1.

8.2.2. Supervision

François Le Gland has been supervising one PhD student

- Damien–Barthélémy Jacquemart, title: *Contributions to multilevel splitting for rare events, and applications to air traffic*, université de Rennes 1, started in October 2011, defense in December 2014, funding: DGA / ONERA grant, co–direction: Jérôme Morio (ONERA, Palaiseau).

and he is currently supervising two PhD students

- Alexandre Lepoutre, provisional title: *Detection issues in track–before–detect*, université de Rennes 1, started in October 2010, expected defense in 2015, funding: ONERA grant, co–direction: Olivier Rabaste (ONERA, Palaiseau),
- Kersane Zoubert–Ousseni, provisional title: *Particle filters for hybrid indoor navigation with smartphones*, université de Rennes 1, started in December 2014, expected defense in 2017, funding: CEA grant, co–direction: Christophe Villien (CEA LETI, Grenoble).

Valérie Monbet has been supervising one PhD student

- Julie Bessac, title: *On the construction of stochastic wind data generators off–shore Brittany*, université de Rennes 1, started in October 2011, defense in October 2014, co–direction : Pierre Ailliot (université de Bretagne Occidentale).

8.2.3. Thesis committees

François Le Gland has been a reviewer for the PhD theses of Paul Lemaître (université de Bordeaux 1, advisors: Pierre Del Moral and Bertrand Iooss), Achille Murangira (université de technologie de Troyes, advisors: Igor Nikoforov and Karim Dahia) and El houcine Bergou (université de Toulouse, advisor: Serge Gratton).

Valérie Monbet has been a member of the committee for the PhD thesis of Emmanuelle Autret (IFREMER).

8.3. Participation in workshops, seminars, lectures, etc.

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

Frédéric Cérou has given a talk on rare event simulation for molecular dynamics, at the ICMS workshop on Computational Methods for Statistical Mechanics — at the Interface between Mathematical Statistics and Molecular Simulation, held in Edinburgh in June 2014, and a talk on a central limit theorem for adaptive splitting, at the 10th International Workshop on Rare Event Simulation (RESIM'14), held in Amsterdam in August 2014. He has been invited to give two seminar talks on rare event simulation with multilevel splitting, in Marseilles in May 2014.

François Le Gland has given a talk on a two–step multilevel splitting algorithm for rare event simulation, at the 10th International Workshop on Rare Event Simulation (RESIM'14), held in Amsterdam in August 2014, and a talk on simulation–based algorithms for the optimization of sensor deployment, at the Conference on Optimization and Practices in Industry (COPI), held in Palaiseau in October 2014.

8.4. Collective responsibilities

François Le Gland is a member of the "conseil d'UFR" of the department of mathematics of université de Rennes 1.

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

CQFD Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events selection

9.1.1.1. Member of the conference program committee

Jonatha Anselmi has been member of the conference program committee of the 8th International Conference on Performance Evaluation Methodologies and Tools (VALUETOOLS) and of the 21st International Conference on Analytical and Stochastic Modelling Techniques and Applications (ASMTA).

Pierrick Legrand has been member of the conference program committee of the EVOLVE 2015 International Conference and of the Genetic and Evolutionary Computation Conference (GECCO 2014).

9.1.1.2. Reviewer

All the members of the team are regular reviewers for several conferences in applied probability and statistics.

9.1.2. Journal

9.1.2.1. Member of the editorial board

F. Dufour is associate editor of the journal: SIAM Journal of Control and Optimization since 2009.

J. Saracco is an associate editor of the journal Case Studies in Business, Industry and Government Statistics (CSBIGS) since 2006.

9.1.2.2. Reviewer

All the members of the team are regular reviewers for several journals in applied probability and statistics.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : F. Dufour, Probabilités et statistiques, 16 heures, niveau L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.

Master : F. Dufour, Méthodes numériques pour la fiabilité, 24 heures, niveau M1, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.

Master : F. Dufour, Probabilités, 20 heures, niveau M1, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.

Licence : J. Anselmi, Probabilités 16 heures, niveau L3, Institut Polytechnique de Bordeaux, école ENSEIRB-MATMECA, France.

Licence : M. Chavent, Statistique descriptive, 36 ETD ,L1, Bordeaux university, France

License : M. Chavent, Modélisation statistique, 18 ETD, niveau L3, Bordeaux university, France

Master : M. Chavent, Analyse des données 2, 25 ETD, niveau M2, Bordeaux university, France

Master : M. Chavent, Scoring, 21 ETD, niveau M2, Bordeaux university, France

Licence: J. Saracco, Descriptive statistics, 10.5h, L3, First year of ENSC, France

Licence: J. Saracco, Mathematical statistics, 20h, L3, First year of ENSC, France

Licence:J. Saracco, Data analysis (multidimensional statistics), 20h, L3, First year of ENSC, France

Licence: J. Saracco, Mathematics (complement of linear algebra), 20h, L3, First year of ENSC, France

Master: J. Saracco, Statistical modeling, 20h, M1, Second year of ENSC, France

Master: J. Saracco, training project, 20h, M1, Second year of ENSC, France

Licence : B. de Saporta, Logiciels scientifiques 15h ETD, M1, université Montpellier 2, France

Master : B. de Saporta, Processus de Markov, 31,5h ETD, M2, université Montpellier 2, France

P. Legrand, Mathématiques générales (responsable de l'UE), Licence 1 SCIMS (138 heures)

P. Legrand, Informatique pour les mathématiques (responsable de l'UE), Licence 1 SCIMS (36 heures)

P. Legrand, Complément d'Algèbre/Espaces Eucl. (responsable de l'UE), Licence 2 SCIMS (54 heures)

9.2.2. Supervision

PhD completed : Karim Claudio, Un outil d'aide à la maîtrise des pertes dans les réseaux d'eau potable : mise en place d'un modèle de fuite multi-état en secteur hydraulique instrumenté , supervised by J. Saracco and V. Couallier.

PhD in progress : Amaury Labenne, Approche Statistique du diagnostic territorial par la notion de qualité de vie, supervised by M. Chavent, J. Saracco and V. Kuentz.

PhD in progress : Adrien Todeschini, Elaboration et validation d'un système de recommandation bayésien, supervised by F. Caron and M. Chavent.

PhD in progress : Isabelle Charlier, Optimal quantization applied to conditional quantile estimation, University of Bordeaux and Université Libre de Bruxelle, supervised by J. Saracco and D. Paindaveine.

PhD in progress : Christophe Nivot, Optimisation de la chaîne de montage du futur lanceur européen, September 2013, B. supervised by B. de Saporta and F. Dufour

PhD in progress : Alizé Geeraert, Contrôle optimal des processus Markoviens déterministes par morceaux et application à la maintenance, University of Bordeaux, September 2014, supervised by B. de Saporta and F. Dufour.

Nicolas Antunes: Application d'algorithmes prédictifs à l'identification de niches ecoculturelles des population du passé: approche ethnoarcheologique. Financement ERC F. D'Errico. Co-encadrement : D'Errico, Del Moral, Legrand. Cette thèse consiste à utiliser des algorithmes de type GARP pour prédire l'existence de niches écologiques à partir de données climatologiques. 2011-2014.

Emigdio Z. Flores Lopez, "Classification of mental states with genetic programming", PhD in engineering sciences. Financement Conacyt (Consejo Nacional de Ciencia y Tecnologia) national cholarships for PNPC programs (Programa Nacional de Posgrados Calidad), Mexico. Co-encadrement : L. Trujillo (50%), P. Legrand (50%). 2013-2016.

9.2.3. Juries

B. de Saporta was a member of the PhD defense jury of Coralie Fritsch, université Montpellier 2, France.

M. Chavent was a member of the CR2 concour of Inria Bordeaux-Sud-Ouest.

J. Saracco was a member of the PhD defense jury of Hussein Hashem, Brunel University, UK.

J. Saracco was a member of the PhD defense jury of Karim Caludio, Bordeaux University, France.

J. Saracco was member of various juries for positions in french universities (Bordeaux, professor; Poitiers, assistant professor; Orléans, professor) in april-may 2014.

9.3. Popularization

M Chavent and J. Saracco are elected members of CNU 26.

B. de Saporta was an elected member of CNU 26 until sept. 2014.

J. Saracco is vice president of the french statistical society (SFdS).

MATHRISK Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

- R. Dumitrescu: Co-organizer of the young researchers in Mathematics Seminar of Université Paris Dauphine.

- A. Alfonsi: Co-organizer of the working group seminar of MathRisk “Méthodes stochastiques et finance”. http://cermics.enpc.fr/~alfonsi/GTMSF.html

9.1.2. Administrative and scientific responsabilites

- A. Alfonsi: In charge of the Master “Finance and Application” at the Ecole des Ponts.
- B. Jourdain: Head of the doctoral school MSTIC, University Paris-Est
- D. Lamberton: Vice-president for research at Université Paris-Est Marne-la-Vallée
- A. Sulem, Scientific Coordinator for the evaluation of the Inria theme *Stochastic Approaches*, Paris, March 2014.

9.1.3. Scientific events selection

- A. Alfonsi:
  - "Pathwise optimal transport bounds between a one-dimensional diffusion and its Euler scheme", Oberwolfach and Paris 13 seminar in May.
  - "Stochastic Local Intensity Loss Models with Interacting Particle Systems", Bachelier conference in June, Bruxelles.
  - "Dynamic optimal execution in a mixed-market-impact Hawkes price model", SIAM-SMAI Conference on Financial Mathematics: Advanced Modeling and Numerical Methods (June), Workshop "Stochastic analysis for risk modeling", CIRM (September) and Finance and Stochastics seminar, Imperial College.
  - Invitation Imperial College, Antoine Jacquier (19- 20 November)
- V. Bally

  - Statistics, jump processes and Malliavin calculus: recent applications, Barcelona June 2014

  - SPA - 2014, 37th conference on Stochastic Processes and their applications, Buenos Aires, July 2014.

  - invited lecture "Convergence in total variation distance using an interpolation method", Colloquium of the Mathematics department, Ritsumeikan University, Japan, December.
- R. Dumitrescu

  - Inria Junior Seminar, 13 February
  - Séminaire Jeunes Chercheurs, Université Paris Dauphine, 7 March
  - Colloque Mathématiques en Mouvement, Fondation des Sciences Mathématiques de Paris, 28 May
  - Conference Cycle Thématique en Mathématiques Financières, Paris, 20 June
  - Premier Séminaire Bachelier Paris-Londres, Paris, 25-26 September

- R. Elie

  Colloquium Bachelier, Metabief, January 2014

  Seminar Ecole Polytechnique, February 2014

  Seminar Marne la Vallée, March 2014

  Seminar ETH, Zurich, July 2014

  Seminar University of Santa Barbara (UCSB), September 2014

  Seminar University of Southern California, Los Angeles, September 2014

  Seminar of Risk analysis, Stanford University, October 2014

  Seminar on stochastics, Humboldt & TU, Berlin, December 2014

  - 2 weeks visit ETH Zurich, July 2014

  - 2 weeks visit, University of Santa Barbara (UCSB), September 2014

- B. Jourdain:

  Bachelier seminar, IHP, Paris, 4 April 2014 : Capital distribution and portfolio in the mean-field Atlas model

  Paris 13 university seminar, 21 May 2014: Estimation of the Wasserstein distance between the marginals of a diffusion and its Euler scheme

  Workshop Computational methods for statistical mechanics, ICMS Edimbourg 2-6 June 2014 : Optimal scaling of the transient phase of Metropolis Hastings algorithms

  Special session on Stochastic processes and spectral theory for partial differential equations and boundary value problems, AIMS 2014 Madrid, 7-11 July 2014 : A trajectorial interpretation of the dissipations of entropy and Fisher information for stochastic differential equations

  Workshop Advances in stochastic analysis for risk modeling, CIRM 8-12 September 2014 : Long-time behavior of the mean-field Atlas model

  London-Paris Bachelier workshop 25-26 september 2014 Paris : Long-time behavior of the mean-field Atlas model

  Seminar ENSTA-CMAP, 6 October 2014 : Capital distribution and portfolio performance in the mean-field Atlas model

  Seminar of the chair “Financial risks”, 21 november 2014 : Estimation of the Wasserstein distance between the marginals of a diffusion and its Euler scheme

- D. Lamberton

  Invited to give some lectures in the framework of the workshop in Quantitative Finance at the University of Bologna in May 2014. Title: "A short course on American options".

- A. Sulem

  - Plenary speaker, Mathematics of Systemic Risk, Pacific Institute for the Mathematical Sciences, University of British Columbia, Vancouver, Canada, July 27-31 2014, Title: "Control of interbank contagion under partial information"

  - Plenary speaker at Stochastics in Environmental and Financial Economics, Centre of Advanced Studies CAS of the Norwegian Academy of Sciences and Letters, Oslo, September 2014

  - Workshop "Stochastic analysis for risk modeling", CIRM, Lumigny, 8-12 September 2014. http://www.cirm.univ-mrs.fr/, Title: “Dynamic Programming Principle for Combined Optimal Stopping and Stochastic Control with f-conditional Expectation”

  - Bachelier seminar, IHP, Paris, November 7 2014. Title: " Optimal control of interbank contagion under partial information", https://sites.google.com/site/seminairebachelierparis/

- Seminar on stochastic methods and Finance, Inria Paris, October 6th, "Control of interbank contagion under partial information", http://cermics.enpc.fr/~alfonsi/GTMSF.html

9.1.4. Journal

9.1.4.1. Member of the editorial board

- R. Elie

  Associate editor of *SIAM Journal on Financial Mathematics (SIFIN)* (since November 2014)

- D. Lamberton

  Associate editor of:

  - Mathematical Finance,

  - ESAIM Probability & Statistics

- A. Sulem

  Associate editor of

  – 2011- Present: *Journal of Mathematical Analysis and Applications (JMAA)*

  – 2009- Present: *International Journal of Stochastic Analysis (IJSA)*

  – 2008- Present: *SIAM Journal on Financial Mathematics (SIFIN)*

9.1.4.2. Reviewer

The members of the team reviewed numerous papers for various journals.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

License

A. Alfonsi, “Modéliser, Programmer et Simuler”, second year course at the Ecole des Ponts.

R. Dumitrescu, Applied courses (Travaux Dirigés) in Linear Algebra, 35h, L2, Université Paris Dauphine

R. Elie, Algebra (UPEMLV, L2), Probability (UPEMLV, L3)

B. Jourdain, "Probability theory and statistics", first year, ENPC, France

B. Jourdain, Introduction to probability theory", first year, Ecole Polytechnique, France

Master

- A. Alfonsi , “Calibration, Volatilité Locale et Stochastique”, third-year course at ENSTA (Master with Paris I).

- A. Alfonsi , "Traitement des données de marché : aspects statistiques et calibration”, lecture for the Master at UPEMLV.

- A. Alfonsi , “Mesures de risque”, Master course of UPEMLV and Paris VI.

- V. Bally, "The Malliavin calculus and applications in finance", 30h, Master 2 Finance, Université Marne la Vallée

- V. Bally, " Interest Rates", 20h, Master 2 Finance, Université Marne la Vallée

- V. Bally, " Risk methodes in actuarial science", 36h, Master IMIS, Université Marne la Vallée

- R. Dumitrescu, Applied courses (Travaux Dirigés) Asset pricing by absence of arbitrage opportunities (Master 2 MASEF) , 35h, Université Paris Dauphine

- R. Elie : Imperfect markets modeling M2 Master MASEF (Paris-Dauphine), Stochastic calculus (UPEMLV, ENSAE); Introduction to mathematical finance (UPEMLV), Statistics for big data and applications (ENPC)

- B. Jourdain, B. Lapeyre , "Monte-Carlo methods in finance", 3rd year ENPC and Master Recherche Mathématiques et Application, University Paris- Est Marne-la-Vallée ;

- J.-F. Delmas, B.Jourdain, "Jump processes with applications to energy markets", 3rd year ENPC and Master Recherche Mathématiques et Application, University Paris- Est Marne-la-Vallée

- B. Jourdain, Stochastic numerical methods", 3rd year, Ecole Polytechnique, France

- B. Jourdain, projects in finance and numerical methods, 3rd year, Ecole Polytechnique, France

- A. Sulem, "Finite difference for PDEs in Finance", Master 2 MASEF, Université Paris IX-Dauphine, Département Mathématiques et Informatique de la Décision et des Organisations (MIDO), 18h.

- A. Sulem , Master of Mathematics, University of Luxemburg, 22 h lectures and responsible of the module "Numerical Methods in Finance".

9.2.2. Supervision

PhD

- J. Mint Moustapha : "Modelling and simulation of vehicle traffic : statistical analysis of insertion models and probabilistic simulation of a kinetic model, Université Paris Est, November 13 2014, Adviser: B. Jourdain [73].

- J. Reygner : "Longtime behaviour of particle systems : applications in physics, finance and PDEs" , Université Pierre et Marie Curie, November 24 2014, advisers: B. Jourdain and L. Zambotti [81]

PhD in progress :

- Anis Al Gerbi, "Discretization of stochastic differential equations and systemic risk modeling", Paris-Est Cermics, Adviser: B. Jourdain

- Pierre Blanc, "Price impact on marker orders and limit order books (from Nov. 2012), Ecole des Ponts, Adviser : A. Alfonsi

- Rui Chen, "Stochastic Control of mean field systems and applications to systemic risk, from September 2014, Université Paris-Dauphine, Adviser A. Sulem

- Roxana Dumitrescu, "Stochastic control with nonlinear expectation, stochastic targets and applications to risk optimization", from September 2012, Université Paris-Dauphine, Adviser A. Sulem and R. Elie.

- Paulo Pigato, "Lower bounds for the density of the solution of SDE's under the weak Hörmander condition, and applications in finance", Advisers: V. Bally and A. Dai Pra, University of Padova.

- Victor Rabiet : "On a class of jump type stochastic equations", Université Paris-Est Marne la Vallée, Advisers: V. Bally (75 %) and E. Locherbach

- Clément Rey (from Oct. 2012), " High order discretization schemes for singular diffusions", Ecole des Ponts, Advisers : A. Alfonsi and Vlad Bally.

- Benjamin Schannes, 2014, "Statistical learning and actuarial applications", Adviser: R. Elie.

9.2.3. Juries

R. Elie: Report on the PhD thesis of Christoph Mainberger, "Essays on Supersolutions of BSDEs and Equilibrium Pricing in Generalized Capital Asset Pricing Models", Humboldt, Berlin
R. Elie: Report on the PhD thesis of Xuzhe Zhao, Multi-modes switching problems via BSDEs, Université du Mans
R. Elie: PhD thesis of Adrian Iuga, "Analyse et modélisation du processus de formation de prix à travers les échelles. Market Impact", Université Paris-Est
R. Elie: HDR: Idris Kharroubi, Représentations et approximations probabilistes en contrôle stochastique et finance mathématique, Université Paris-Dauphine

B. Jourdain: Report on the Habilitation thesis “Contributions à l’étude du comportement en temps long de processus stochastiques”, of Fabien Panloup, Institut de Mathématiques de Toulouse, Université Paul Sabatier, December 4th 2014
B. Jourdain: Report on the Habilitation thesis "Contributions aux méthodes numériques pour le filtrage et l’optimisation stochastique" of Nadia Oudjane, University Paris 7, Defense on 22 January 2015.

A. Sulem : Committee for the recrutment of an Assistant Professor ("Maitre de conférences") in Financial Mathematics and numerical probability, Laboratoire de probabilités (LPMA), Université Paris-Diderot, May 2014.

9.3. Popularization

- A. Sulem, "Nouvelles directions de recherche en Mathématiques financières, Inria Alumni, jam session on Risk, November 25th, Inria, Paris.

REGULARITY Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. General chair, scientific chair

Regularity has organized and hosted a conference in honour of Pr. K. Falconer's 60th birthday in May 2014.

9.1.2. Journal

9.1.2.1. Member of the editorial board

Jacques Lévy Véhel is associate editor of the journal *Fractals*.

9.1.2.2. Reviewer

Xiequan Fan is a reviewer for Mathematical Reviews (AMS). Jacques Lévy Véhel reviewed papers for many journals and conferences.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: Jacques Lévy Véhel, Wavelets and Fractals, M2, 8h, Ecole Centrale Nantes.

Master: Jacques Lévy Véhel, Wavelets and Fractals, M2, 18h, ESIEA.

9.2.2. Supervision

PhD : Benjamin Arras, Around some selfsimilar processes with stationary increments, Ecole Centrale Paris, December 2014, advisor : J. Lévy Véhel

PhD : Alexandre Richard, Local regularity of some fractional Brownian fields, Ecole Centrale Paris, September 2014, advisor : E. Merzbach

9.2.3. Juries

J. Lévy Véhel has been a member of the juries for recruiting two AER, one AS and one AF at Inria Saclay.

9.3. Institutional commitment

J. Lévy Véhel is a member of the Bureau du Comité des Projets, of the Commission Scientifique, and of the Comité de Centre at Inria Saclay. He is the animator of the Commission de Suivi Doctoral also at Inria Saclay. Finally, he was the head of the jury for the 2014 CR2 positions contest for Inria Saclay.

TOSCA Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

- E. Tanré animates with H. Delingette (EPI ASCLEPIOS) a transverse working group on "Uncertainties in mathematical and numerical models". In 2014, a three days lectures given by O. Le Maître was organized with around 50 participants issued from 10 teams.

9.1.2. Scientific events selection

9.1.2.1. member of the conference program committee

- A. Lejay served as member of the conference program committee of the *CANUM 2014* (Carry-le-Rouêt, May 2014) and the *Journées de Probabilités 2014* (Marseille, May 2014).

9.1.3. Journal

9.1.3.1. member of the editorial board

- M. Bossy serves as an Associate Editor of *Annals of Applied Probability*.
- N. Champagnat serves as an Associate Editor of *Stochastic Models*.
- Together with T. Lelièvre (Ecole des Ponts-ParisTech) and A. Nouy (Ecole Centrale Nantes), N. Champagnat served as co-editor in chief of the special issue of *ESAIM:ProcS* devoted to the CEMRACS 2013.
- A. Lejay serves as co-Editor of the *Séminaire de Probabilités*.
- 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*, *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*.
- D. Talay is serving as a member of the Advisory Board of the Centro de Mathematica da Universidade do Porto (Portugal).
- D. Talay participated in Professor position recruitment committees at Paris 6 University.

9.1.3.2. reviewer

- M. Bossy wrote reviews for manuscripts submitted to *ESAIM:ProcS*, *Progress in Energy and Combustion Science*, *Bernoulli Journal*.
- N. Champagnat wrote reviews for manuscripts submitted to *ESAIM:ProcS*, *Stochastic Processes and their Applications* (twice), *New Phytologist*, *Bernoulli Journal*, *Electronic Journal of Probabiliy*, *The Annals of Applied Probability*, *Applied Mathematics and optimization*.
- M. Deaconu wrote reviews for manuscripts submitted to *Potential Analysis*, *M2AN*, *Journal of Computational and Applied Mathematics*, *Mathematics and Computers in Simulation* and *Statistics and Computing*.
- B. Henry wrote a review for a manuscript submitted to *Stochastic Models*.
- J. Inglis wrote reviews for manuscripts submitted to the *Annales de l'Institut Henri Poincaré* and the *Journal of Mathematical Neuroscience*.

- A. Lejay wrote reviews for manuscripts submitted to *Mathematical finance*, *Séminaire de Probabilités*, *Journal of Computational and Applied Mathematics*, *Electronic Journal of Probability*, *Electronic Communication of Probability*, *Journal of Scientific Computing*, *International Journal of Stochastic Analysis*, *SIAM Journal on Control and Optimization*, ...
- E. Tanré wrote reviews for manuscripts submitted to *Journal of Theoretical Biology*, *Journal of Scientific Computing*, *Annales de l'Institut Henri Poincaré* and *The Journal of Mathematical Neuroscience*.
- D. Villemonais wrote reviews for manuscripts submitted to *The Annals of Applied Probability*, *Applied Mathematics and Optimization*, *Applied Probability Trust*, *Electronic Communications in Probability* and *Electronic Journal of Probability*.

9.1.4. Reviewing for fundings

- M. Bossy wrote reports about research projects submitted to the PACA Region council.
- N. Champagnat wrote reports about research projects submitted to ANR, the Leverhulme trust (UK) and FONDECYT (Chile).
- D. Talay reported on applications to Research Grants Council (RGC) of Hong Kong and grants of the Chilean National Science and Technology Commission.

9.1.5. Institutional commitments

- M. Bossy is a elected member of the Inria Evaluation Board.
- M. Bossy is a member of the Scientific Committee of the *École Doctorale "Sciences Fondamentales et Appliquées"* of the Université de Nice - Sophia Antipolis.
- M. Bossy participated to the junior position recruitment committee at the UPMC.
- M. Bossy has been a member of the Committee for junior permanent research positions of Inria Paris-Rocquencourt.
- 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* of Inria Nancy - Grand Est, a subsitute member of the *Comité de Centre* of Inria Nancy - Grand Est and a member of the *Commission bibliothèque* of IECL. He is also local correspondent of the COERLE (*Comité Opérationel d'Évaluation des Risques Légaux et Éthiques*) for the Inria Research Center of Nancy - Grand Est.
- M. Deaconu is member of *Comité des Projets* and *Bureau du Comité des Projets* at Inria Nancy - Grand Est.
- M. Deaconu has been a member of the Committee for junior permanent research positions of Inria Nancy - Grand Est.
- A. Lejay has been General Secretary of Société des Mathématiques Appliquées et Industrielles (SMAI) up to July 2014, and is a member of the Administration Council of the SMAI.
- A. Lejay is the member of the COMIPERS of Inria Nancy Grand-Est.
- A. Lejay has been a member of the hiring committee for a position of Professor in Dijon (2014).
- D. Talay continued to serve as the Head of Science and Chair of the Project-Teams Committee of Inria Sophia Antipolis - Méditerrannée up to the end of August 2014.

9.2. Teaching - Supervision - Juries

9.2.1. 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: 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.

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

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

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

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

Master: A. Lejay, *Simulation des marchés financiers*, 23h, M2, Université de Lorraine (Metz), France.

Master: A. Lejay, *Probabilités Appliquées*, 15h, M2, Université de Lorraine (Nancy), France.

Master: D. Talay *Stochastic Methods for PDEs with Boundary Conditions*, 18h, M2 Probabilité et Applications, Université Paris 6, France.

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

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

9.2.2. Supervision

- PhD: Julien Claisse, *Dynamique des populations : contrôle stochastique et modélisation hybride du cancer*, Université de Nice Sophia Antipolis, 4 July 2014, N. Champagnat, D. Talay.
- PhD in progress: Maxime Bonelli, *Behavioral finance approach to risk assessment in quantitative portfolio management*, September 2013, M. Bossy.
- PhD in progress: Paul Charton, *Hedging strategies for wind energy prices*, September 2010, M. Deaconu and A. Lejay.
- PhD in progress: Baldwin Dumortier, *Contrôle acoustique des éoliennes*, October 2014, M. Deaconu and E. Vincent (EPI PAROLE).
- PhD in progress: Benoît Henry, *Modeling Evolutionary Relationships Between Three-Dimensional Protein Structures*, October 2013, N. Champagnat, D. Ritchie (EPI ORPAILLEUR).
- PhD in progress: Lionel Lenôtre, *Monte Carlo Simulation in fissured and porous media*, September 2012, J. Erhel (Irisa), A. Lejay, G. Pichot (Irisa). L. Lenôtre has a grant from the MESR and stays at Rennes.
- PhD in progress: Radu Maftei, *A stochastic approach to colloidal particle agglomeration in turbulent flows*, November 2014, M. Bossy.

- PhD in progress: Hernán Mardones, *Numerical Solution of Stochastic Differential Equations with Multiplicative Noise*, 2009, A. Lejay, C. Mora (Universidad de Concepción, Chile). H. Mardones has a CONYCIT grant and spent 7 months (Nov. 2013-June 2014) in Nancy with a grand Becas Chile.
- PhD in progress: Sebastian Niklitschek-Soto, *Discretized stochastic differential equations related to one-dimensional partial differential equations of parabolic type involving a discontinuous drift coefficient*, September 2010, D. Talay.
- PhD in progress: Khaled Salhi, *Estimation of Risk in Finance*, October 2013, M. Deaconu and A. Lejay.

9.2.3. Juries

- M. Bossy served as a referee for the HDR thesis of Mathias Rousset, *Probability in computational physics and biology: some mathematical contributions*, Université Paris Est, November 27, 2014.
- N. Champagnat served as an examiner for the Ph.D. theses of Julien Claisse, *Dynamique des populations : contrôle stochastique et modélisation hybride du cancer*, Université de Nice Sophia Antipolis, July 4, 2014; of Julien Sainte-Marie, *Contribution à l'intégration des cycles biogéochimiques dans les modèles de croissance forestier à base phénoménologique. Dynamique saisonnière du couvert forestier et décomposition de la matière organique du sol*, Université de Lorraine, September 9, 2014; of Claire Christophe, *Modélisation aléatoire de l'activité des Lymphocites T Cytotoxiques*, Université Paul Sabatier (Toulouse III), December 2, 2014; of Coralie Fritsch, *Approches probabilistes et numériques de modèles individus-centrés du chemostat*, Université Montpellier II, December 8, 2014.
- A. Lejay served as a referee for the Ph.D. thesis of H.T. Nguyen, *Numerical investigations of some mathematical models of the diffusion MRI signal*, Université d'Orsay, January 29, 2014; of M. Ba, *Homogénéisation des diffusions en milieux périodiques*, Université de Provence, July 8, 2014; of W. Sabbagh, *Some contributions on Probabilistic Intepretation for Nonlinear Stochastic PDEs*, Université du Maine, December 8, 2014.
- D. Talay served as a referee for the HDR theses of J-F. Chassagneux, *Quelques contributions à la Finance mathématique et l'Analyse théorique et numérique des équations différentielles stochastiques rétrogrades*, Université Paris Dauphine, November 26, 2014; of F. Panloup, *Contributions à l'étude en temps long de processus stochastiques*, Université Paul Sabatier, Toulouse, December 4, 2014; of J. Guilleminot, *Modélisations stochastiques en Mécanique multi-échelle des matériaux hétérogènes*, Université Paris–Est, December 12, 2014.
- D. Talay served as a referee for the Ph.D. thesis of K. Hajji, *Accélération de la méthode de Monte–Carlo pour des processus de diffusions et applications en Finance*, December 12, 2014.

9.3. Popularization

M. Bossy published in the *Brèves de maths* book [25].

9.4. Participation in congresses, conferences, invitations...

- M. Bossy gave talks at the *Energy Workshop* at Inria Chile and an invited talk at the *10th AIMS Conference on Dynamical Systems, Differential Equations and Applications* in Madrid in July.
- M. Bossy gave seminar talks at CINFAV University of Valparaíso and at the *Séminaire du Mésocentre de Calcul* at Centrale Paris.
- N. Champagnat gave talks at the *Schlumberger workshop on Topics in Applied Probability*, at IHES (Bures-sur-Yvette) in March, at the *10th AIMS Conference on Dynamical Systems, Differential Equations and Applications* in Madrid in July, at the workshop *Population Dynamics and Statistical Physics in Synergy* in Eindhoven (Netherlands) in August, and at the workshop on *Discrete, explicit simulations versus continuous, aggregated models* in Lausanne in October.

- N. Champagnat gave seminar talks at the *Séminaire Modèles Probabilistes pour la Biologie* in Montpellier in January, at the *Séminaire PEIPS (Evolution de Populations et Systèmes de Particules en Interaction)* at École Polytechnique, Palaiseau in November, and at the *Séminaire de Statistique et Probabilités Appliquées* in Grenoble in November.
- B. Henry participated in the *École de Printemps de l'ANR MANEGE* in Aussois in April.
- K. Salhi participated in the *Journées de Probabilités* at Marseille, France in May and presented poster at the *Journées MAS* at Toulouse, France in July.
- J. Inglis gave invited talks at the *Mathemacs European Project Meeting*, Max Planck Institute, Leipzig, Germany, at the *Stochastic Analysis Seminar*, Oxford-Man Institute of Quantitative Finance, Oxford, UK, and at the *ALEA seminar*, École Polytechnique, Paris, France, at the *Workshop in Probability and its Applications*, University of Oxford, Oxford, UK.
- J. Inglis participated in the workshop *Inhomogeneous Random Systems*, Institut Henri Poincaré, Paris, France.
- A. Lejay gave a mini-course on rough paths (8 hours) at Université du Maine (Le Mans) in October.
- A. Lejay gave a conference at the *PDE and rough paths* conference in Toulouse in February.
- O. Lupascu gave talks at the *Colloque Franco-Roumain de Mathematiques Appliquees* in Lyon in August and at the *Journées de Probabilités* in Marseille in May. She also presented a poster at the *Journées Modélisation Aléatoire Statistique* in Toulouse in August 2014.
- O. Lupascu gave a seminar talk at the *Seminar of the Partial Derivative Equations* in Chambery in April.
- D. Talay was an invited section speaker at the International Congress of Mathematicians (ICM 2014), Seoul, Korea, in August.
- D. Talay gave a plenary conference at the Colloque Franco-roumain de Mathématiques Appliquées, Lyon, in August.
- D. Talay was an invited speaker at the NASPDE2014 workshop at EPFL, Lausanne, Switzerland, in September; at the 7th symposium on backward stochastic differential equations, Weihai, China, in June; at the Opening workshop 'Advances in stochastic analysis' of the Laboratory of Stochastic Analysis and its Applications at the Higher School of Economics, Moscow, Russia, in September.
- D. Talay gave a seminar at the Mathematics department of the university of Oxford in November.
- E. Tanré gave a talk at the HBP-Brainscales Meeting *Missing interactions in spike-based computation* in October.