RESEARCH CENTER

FIELD
Digital Health, Biology and Earth

Activity Report 2016

Section Dissemination

Edition: 2017-08-25

ABS Project-Team

8. Dissemination

8.1. Promoting scientific activities

8.1.1. Scientific Events Organisation

8.1.1.1. General Chair, Scientific Chair

Frédéric Cazals, together with C. Robert (IBPC, CNRS Paris) and J. Cortés (LAAS, CNRS Toulouse) organized the *energy landscapes* workshop, an international gathering devoted to all topics revolving around energy landscapes, as encountered in physics, chemistry, biochemistry, biology, applied mathematics, and computer science. See details at https://eland2016.inria.fr/.

8.1.2. Scientific Events Selection

8.1.2.1. Member of the Conference Program Committees

– Frédéric Cazals was member of the following program committees:

- Symposium On Geometry Processing
- Shape Modeling International: 2016
- Symposium on Solid and Physical Modeling
- Intelligent Systems for Molecular Biology (ISMB), PC member of Protein Interactions & Molecular Networks
- International Conference on Pattern Recognition in Bioinformatics

8.1.3. Journal

8.1.3.1. Reviewer - Reviewing Activities

– Frédéric Cazals reviewed papers for the following journals:

- The International Journal of Computational Geometry and Applications
- Bioinformatics
- The Journal of Immunology

8.1.4. Invited Talks and Presentations

– Frédéric Cazals gave the following invited talks:

- *Energy landscapes: sampling, analysis*, Congrès de la Société Française de Biophysique – Structural biology meets biophysics, Obernai. December 2016.
- *Modeling energy landscapes of biomolecular systems*, Ecole Normale Supérieure de Cachan. September 2016.
- *Novel structural parameters of Ig-Ag complexes yield a quantitative description of interaction specificity and binding affinity*, Structural Aspects of Infectious Disease, Cambridge, UK, August 2016.
- *Energy landscapes: sampling, analysis, and comparison*, Energy Landscapes Workshop, Porquerolles. July 2016.
- *Improved understanding of protein dynamics via energy landscape sampling, analysis, and comparison*, TSRC on protein dynamics. Les Houches, March 2016.

– Romain Tetley gave the following invited talk:

- *A bootstrap method for detecting structurally conserved motifs*, Energy Landscapes Workshop, Porquerolles. July 2016.

– Poster presentations:

- Dorian Mazauric presented the following poster:
  Unveiling Contacts within Macro-molecular Assemblies by solving Minimum Weight Connectivity Inference Problems, Congrès de la Société Française de Biophysique – Structural biology meets biophysics, Obernai. December 2016.
- Augustin Chevallier presented the following poster:
  Towards free energy calculations for biomolecules: generic Wang-Landau algorithm with automatic parameters selection, Congrès de la Société Française de Biophysique – Structural biology meets biophysics, Obernai. December 2016.
- Dorian Mazauric presented the following poster:
  Mass Transportation Problems with Connectivity Constraints and Energy Landscape Comparison, Energy Landscapes Workshop, Porquerolles. July 2016.

8.1.5. Leadership within the Scientific Community

– FrédéricCazals:

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

8.1.6. Scientific Expertise

– Frédéric Cazals acted as expert for the *Italian Research and University Evaluation Agency (ANVUR)*.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

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

Master: Frédéric Cazals and Dorian Mazauric (Inria ABS), *Algorithmic problems in computational structural biology*, 24h, Master of Science in Computational Biology from the University of Nice Sophia Antipolis, France, see http://cbb.unice.fr.

8.2.2. Supervision

PhD thesis, defended, December 2016. Simon Marillet, *Modeling the antibody response: from the structure of immunoglobulins - antigen complexes to the clonal complexity of heavy chain repertoires*, University of Nice Sophia Antipolis. The thesis is co-advised by Frédéric Cazals and Pierre Boudinot (INRA Jouy-en-Josas).

PhD thesis, ongoing. Romain Tetley, *Structural alignments: beyond the rigid case*, University of Nice Sophia Antipolis. Under the supervision of Frédéric Cazals.

PhD thesis, ongoing. Augustin Chevallier, *Sampling biomolecular systems*, University of Nice Sophia Antipolis. Under the supervision of Frédéric Cazals.

Postdoctoral research of Rémi Watrigant, 2016 - 2018. Projet de Recherche Exploratoire (Inria). *Improving inference algorithms for macromolecular structure determination*. Under the supervision of Dorian Mazauric and Frédéric Havet (Inria COATI project-team).

8.2.3. Juries

– Frédéric Cazals:

- Huaxiong Ding, University of Lyon, December 2016. Committee member. *Combining 2D facial Texture and 3D face morphology for estimating people soft biometrics: gender, facial expression.* Advisors: Liming Chen and Jean-Marie Morvan.

8.3. Popularization

8.3.1. Dissemination of scientific culture

Participant: Dorian Mazauric, member of the group of Médiation et Animation des MAthématiques, des Sciences et Techniques Informatiques et des Communications (MASTIC), Inria Sophia Antipolis - Méditerranée.

8.3.1.1. Publications and ressources.

- 2016. *Graphes et Algorithmes – Jeux grandeur nature*. Dorian Mazauric, en collaboration avec Laurent Giauffret, Direction des Services Départementaux de l'Éducation Nationale (DSDEN) des Alpes-Maritimes. [https://hal.inria.fr/hal-01366804]
- 2016. *Graphes et Algorithmes - Diffusion de l'information scientifique.* Dorian Mazauric. [https://hal.inria.fr/hal-01383665]
- 2016. *Information et communication : la Théorie des Graphes*. Jean-Claude Bermond et Dorian Mazauric. Fondation la main à la pâte. To appear.

8.3.1.2. Fête de la Science en PACA.

- 22-23/10/2016. Village des sciences et de l'innovation au Palais des Congrès d'Antibes Juan-les-Pins. Fête de la Science 2016. *a) La magie des graphes et du binaire. b) Algorithmes grandeur nature. c) Pas besoin de réfléchir, les ordinateurs calculent tellement vite ? Théorie des graphes et algorithmique pour les réseaux.* [https://www.inria.fr/centre/sophia/agenda/fete-de-la-science-2016]
- 10-12/10/2016. Fête de la Science au collège Yves Montand, Vinon-sur-Verdon. Institut Esope 21. *a) La magie des graphes et du binaire. b) Algorithmes grandeur nature. c) Pas besoin de réfléchir, les ordinateurs calculent tellement vite ? Théorie des graphes et algorithmique pour les réseaux.* [https://www.inria.fr/centre/sophia/agenda/fete-de-la-science-2016]

8.3.1.3. Stage MathC2+ à Inria Sophia Antipolis - Méditerranée.

- 15-16/06/2016. Activité pour une quarantaine de lycéens des Alpes-Maritimes (accueillis à Inria Sophia Antipolis - Méditerranée durant 4 jours). *Algorithmes grandeur nature pour le calcul d'un arbre couvrant de poids minimum (application pour la conception d'un réseau électrique).* Présentation aux lycéens du stage. *Pas besoin de réfléchir, les ordinateurs calculent tellement vite ? Théorie des graphes et algorithmique pour les réseaux.* [http://www.inria.fr/centre/sophia/actualites/mathc2-40-lyceens-des-alpes-maritimes-en-immersion-au-coeur-d-un-centre-de-recherche] [https://youtu.be/rLj5I1Gu1uI]

8.3.1.4. Interventions à l'ÉSPÉ de l'Académie de Nice.

- 8-15/03/2016. Organisation d'un atelier à l'École Supérieure du Professorat et de l'Éducation (ÉSPÉ) de l'Académie de Nice (site de Stéphen Liégeard) en collaboration avec l'Inspection Académique (avec Laurent Giauffret). Animation, avec des étudiants de l'ÉSPÉ, pour 360 élèves de CM1 et de CM2. *La magie des graphes et du binaire, algorithmes et jeux (réseaux de tri).* [http://www.inria.fr/actualite/agenda/semaine-des-mathematiques-au-mois-de-mars?utm_content=buffer4b539&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer] [http://www2.ac-nice.fr/DSDEN06/cid101665/des-chercheurs-de-retour-a-l-ecole.html]

8.3.1.5. Formations pour les enseignants en collaboration avec la DSDEN des Alpes-Maritimes.

- 15-19/09/2016. Préparation avec Laurent Giauffret d'une formation pour 17 enseignants de cycle 3 (cours moyen d'enseignement élémentaire). *a) Présentation d'Inria et du dispositif ASTEP.b) Graphes et Algorithmes : théorie et mise en pratique avec des jeux.c) Présentation de Thymio et mise en avant des possibilités offertes.d) Présentation du logiciel Scratch par le Maître Assistant Informatique de circonscription.*

8.3.1.6. Conférences dans des lycées dans le cadre du dispositif régional "Science Culture".

- 26/01/2016. Conférence au lycée Amiral de Grasse (classes de seconde). *a) Pas besoin de réfléchir, les ordinateurs calculent tellement vite ? Théorie des graphes et algorithmique pour les réseaux. b) La magie des graphes et du binaire*.
- 21/01/2016. Conférence au lycée Amiral de Grasse (classes de terminale). *a) Pas besoin de réfléchir, les ordinateurs calculent tellement vite ? Théorie des graphes et algorithmique pour les réseaux. b) La magie des graphes et du binaire*.

8.3.1.7. Conférences dans des collèges des Alpes-Maritimes.

- 05/12/2016. Conférence au collège Jules Verne de Cagnes-sur-Mer (deux classe de sixième) (avec Rémi Watrigant). *La magie des graphes et du binaire*.

8.3.1.8. Conférences dans des écoles primaires des Alpes-Maritimes dans le cadre d'ASTEP.

- 22/03/2016. Conférence à l'école élémentaire de La Tournière, Antibes (classe de CE2). *La magie des graphes et du binaire, algorithmes et jeux (algorithmes grandeur nature pour trier, jeux combinatoires...)*.
- 18/03/2016. Conférence à l'école élémentaire Langevin 2, Vallauris (classe de CP). *La magie des graphes et du binaire, algorithmes et jeux (algorithmes grandeur nature pour trier, jeux combinatoires...)*.

8.3.1.9. Autres présentations.

- 05/01/2016. Présentation à des lycéens d'Australie et de Nouvelle-Zélande (classes de secondes) à Inria Sophia Antipolis - Méditerranée. *La magie des graphes et du binaire*.

AMIB Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events Selection

7.1.1.1. Member of the Conference Program Committees

- Yann Ponty: RECOMB'17, BICOB'17, SeqBio'16, ECCB'16, BioVis'16, ISMB'16, and BICOB'16

7.1.1.2. Reviewer

For international conferences:

- Yann Ponty: MFCS'16

7.1.2. Journal

7.1.2.1. Member of the Editorial Boards

M. Régnier is an editor of PeerJ Computer Science.

7.1.2.2. Reviewer - Reviewing Activities

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

7.1.3. Invited Talks

Mireille Regnier was an invited speaker of the *Advanced Algorithms on Strings* workshop in the honor of Alberto Apostolico.
Yann Ponty gave invited talks at the *Journées Combinatoires Franco-Vancouvéroises* (Vancouver, Canada), the college of life sciences (Wuhan University, China), and multiple seminars (C3BI@Pasteur, LIGM, LAMSADE, 2x Bioinfo@LIX/LRI...)

7.1.4. Leadership within the Scientific Community

Yann Ponty is the scientific animator of the *macromolecular structure and interactions axis* of the CNRS *Molecular Bioinformatics* workgroup (GdR BIM).

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

7.1.5. Scientific Expertise

Yann Ponty acted as an external expert for the French *Agence Nationale de la Recherche* (ANR, JCJC program), and for the Canadian *Sciences and Engineering Research Council* (NSERC/CRSNG, Discovery grant program);

Yann Ponty acted as an external reviewer for the evaluation of the assistant professor position of Jing Qin at University of Southern Denmark, towards her promotion as an associate professor;

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

7.1.6. Research Administration

Since 2016, M. Regnier acts as the head of LIX (CNRS/Ecole Polytechnique);

Until Sept. 2016, Yann Ponty was an elected member of the *comité national du CNRS*, and took part in the evaluation of CNRS research scientists and structures at a national level in Computer Science (Section 6) and Life Science interfaces (CID 51);
Yann Ponty is an elected member of the *conseil de laboratoire* of LIX.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

We have and we will go on having trained a group of good multi-disciplinary students both at the Master and PhD level. Being part of this community as a serious training group is obviously an asset. Our project is also very much involved in two major student programs in France: the Master AMI2B at Paris-Saclay (previously BIBS (Bioinformatique et Biostatistique) at Université Paris-Sud/École Polytechnique) and the parcours d'Approfondissement en Bioinformatique at École Polytechnique.

At Ecole Polytechnique, M. Régnier is in charge of M1 and M2. Most team members are teaching in this master program.

Beyond the plateau de Saclay, Yann Ponty taught 12h at the M2 level for University Pierre et Marie Curie in the BIM Master program.

7.2.2. Supervision

HDR

L. Mouchard *Contributions algorithmiques à l'analyse des séquences génomiques* : J.-M. Steyaert

PhD

Vladimir Reinharz, *Algorithmic properties of evolved structured RNAs*, McGill University (Montréal, Canada), July 2016, supervised by J. Waldispühl (CS Dept, McGill Univ.) and Yann Ponty

PhD in progress

Alice Héliou, *Identification et caractérisation d'ARN circulaires dans des séquences NGS*, Ecole Polytechnique, Encadrant(els): Mireille Régnier and Hubert Becker
Wei Wang, *Homology based approaches for predicting 3D structure of RNA molecules*, Univ. Paris XI, Encadrant(els): Alain Denise and Yann Ponty;
Amélie Héliou, *Game theory and conformation sampling for multi-scale and multi-body macromolecule docking*, Ecole Polytechnique, Encadrant(els): Johanne Cohen;
Afaf Saaidi, *Differential analysis of RNA SHAPE probing data*, Ecole Polytechnique, Encadrants: Yann Ponty and Mireille Régnier.
Antoine Soulé, *Evolutionary study of RNA-RNA interactions in yeast* , Ecole Polytechnique, Encadrants: Jean-Marc Steyaert and J. Waldispuhl (U. McGill, Canada);
Jorgelindo Moreira da Veiga, *Caractérisation dynamique et optimisation des flux métaboliques* , Ecole Polytechnique, Encadrants: L. Schwartz (AP-HP)Sabine Peres (U. Paris-Sud)

7.2.3. Juries

HDR

S. Bérard *Histoires évolutives et autres comptes* : M. Régnier
M. Magnin *Contributions à l'élaboration de connaissances qualitatives en bio-informatique* : M. Régnier

PhD

Manuel Lafond, Comparative Genomics, Université de Montréal, Canada, August 2016
Karen Druart, Computational Structural Biology, Ecole Polytechnique, December 2016

7.3. Popularization

Afaf Saaidi participated to the *Ma thèse en trois minute* contest, and won the best poster award at the *Journées de l'école doctoral Interfaces* of Paris Saclay University.

BEAGLE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Organisation

8.1.1.1. General Chair, Scientific Chair

- The team has been accepted as the main organizer of ECAL 2017
- Organization and chair of the second EvoEvo workshop (satellite workshop of CSS 2016), Amsterdam, September 20th 2016

8.1.1.2. Member of the Organizing Committees

- Co-organization of the minisymposium "Modeling Spatiotemporal Calcium Dynamics" at ECMTB 2016 (10th European Conference on Mathematical and Theoretical Biology), The University of Nottingham, UK, 11-15 July 2016 (H. Berry and R. Thüll, U Nottingham)
- Co-organization the thematic school "EIEFB 2016: Ecole interdisciplinaire d'échanges et de formation en biologie", Paris, 13-15 June 2016 (H. Berry and B. Abou, Univ. Paris Diderot).
- Co-organization of the module "Molecular assembling and dynamics: from experimentation to modeling" at the thematic school "Functional Microscopy in Biology" (MiFoBio 2016), Seignosse, France, 30 Sep-07 Oct 2016 (H. Berry, C. Favard, CNRS Montpellier and L. Héliot, CNRS Lille).
- E Tannier is a member of the organizing committee of ICGT 2018 (International Conference on Graph Theory)

8.1.2. Scientific Events Selection

8.1.2.1. Member of the Conference Program Committees

- C Knibbe is a member of the Program committee of Alife XV, Cancun, Mexico, July 2016
- C Rigotti is a member of the Program committee of ACM International Conference on Knowledge Discovery and Data Mining (KDD)
- E Tannier is a member of Recomb Comparative Genomics 2016 program Committee
- E Tannier is a member of ECCB 2016 program Committee
- E Tannier is a member of SEMOVI (séminaire de modélisation du vivant) program Committee
- G Beslon is a member of the Program committee of ALife 2016 (Cancun, Mexico)
- G Beslon is a member of the Program committee of Jobim 2016 (Lyon, France)
- G Beslon is a member of the Program Committee of MUME 2016 (Paris, France)

8.1.2.2. Reviewer

- CPM 2016, RECOMB 2016 (E Tannier)
- ECCB 2016 (C Knibbe)
- EuroPar 2016 (J Rouzaud-Cornabas)

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

- E Tannier is a member of the editorial committee of *Peer Community in Evolutionary Biology*, an open archive labeling system alternative to publications.
- H Berry is a member of the editorial committee of AIMS Biophysics

8.1.3.2. Reviewer - Reviewing Activities

- PLoS One, Systematic Biology, Bioinformatics, Discrete Applied Mathematics, PLoS Computational Biology, BMC evolutionary Biology, Genome Biology and Evolution, Bulletin of Mathematical Biology (E Tannier)
- Scientific Reports, Physical Biology, Frontiers Synaptic Neuroscience, PLoS Computational Biology, Journal Mathematical Neuroscience, New Journal of Physics (H Berry)
- Entropy, PLoS Computational Biology (G Beslon)
- IEEE Geoscience, Remote Sensing Letters (C Rigotti)
- IEEE Transaction on Cloud Computing (J Rouzaud-Cornabas)

8.1.4. Invited Talks

- J Rouzaud-Cornabas, "Performance Optimization for Computational Biolog", Perfomance Analysis Day, Lyon, December 2016
- C Knibbe, "Insights on genome dynamics from in silico experimental evolution and mathematical modelling", Séminaire de Modélisation du Vivant (SeMoVi), 28th of September 2016, Lyon, France.
- C Knibbe, "Genome size evolution: Putting intuition to the test with modeling and simulation", Jacques Monod Conference on "Evolutionary genomics and systems biology: bringing together theoretical and experimental approaches", 10-14th of October 2016, Roscoff, France.
- G Beslon, Hybrid Systems Biology workshop (Grenoble, France) at the Semideev meeting (Saclay, France), at the FET technical seminar (Brussels, Belgium)
- H Berry, “Estimating the impact of anomalous diffusion on intracellular biochemical kinetics", workshop "Stochastic Modelling of Transport Processes In Biology", 30th-31st March 2016, Manchester, UK
- H Berry, “Estimating the effects of spatial non-homogeneities in intracellular diffusion-reactions”, meeting of the BIOSS Working-Group, July 1st 2016, Lyon
- H Berry, “Calcium signals in astrocytes: from intercellular to subcellular models”, workshop “In vitro and in silico modelling of neuron-astrocyte communication” of the 2016 Bernstein Conference, September 20-21 2016, Berlin, Germany
- H Berry, “The many dimensions of cortico-striatal STDP”, meeting of the GDR BioComp, 10-12 Oct 2016, Lyon
- H Berry, “Anomalous diffusion in cells: experimental data and modelling”, CIMPA School "Mathematical models in biology and medicine", December 05-16 2016, Moka, Mauritius.
- E Tannier, "The second root of molecular evolution" Genetic depatment of the Trinity College, Dublin, Feruary 2017
- E Tannier, "Molecules as documents of evolutionary history: 50 years before", Jacques Monod Conference *Molecules as Documents of Evolutionary History*, Roscoff, May 2016
- E Tannier, "Breaking bad", workshop *Pattern Avoidance and Genome Sorting*, Dagstuhl, February 2016

8.1.5. Leadership within the Scientific Community

- H Berry is a Member of the Scientific Board (comité scientifique) of GdR MIV (Microscopie et Imagerie du Vivant, GdR 2588)
- H Berry is a Member of the Steering Commitee (comité de pilotage) of GdR IMaBIO (Imagerie et Microscopie pour la BIOlogie, submitted)

8.1.6. Scientific Expertise

- H Berry is a Reviewer for the US National Science Foundation (NSF), call “Early-career Program”

- H Berry is a Member of the evaluation committee for research program ROSIRIS of the IRSN (Institut de Radioprotection et de Sûreté Nucléaire)
- E Tannier is a Member of the evaluation committee for the FRNQT, Research program in Quebec.

8.1.7. Research Administration

- C Knibbe is a member of Inria Grenoble-Rhône Alpes Comité de Développement Technologique (CDT)
- C Knibbe is a member of the Selection committee in CNU section 67/64 at Université Paris Diderot
- C Knibbe is a member of the Conseil de Laboratoire LIRIS (UMR 5205 CNRS)
- C Rigotti is an elected member of Insa Scientific board (Conseil scientifique)
- G Beslon member of the CoNRS (Section 6 and CID 51)
- G Beslon member of the scientific commission 5 (CSS5) of the IRD (Institut de Recherche pour le Developpement)
- H Berry is Vice-Chair of Inria's "Evaluation Committee" (Commission d'Evaluation)
- H Berry is Chair of the Search Committee for "Junior Research Scientists" (Président Jury d'admissibilité CR2) of Inria Grenoble Research Center
- H Berry is Elected member of Inria's "Scientific Board" (Conseil Scientifique)
- H Berry is Member of Inria's "Parity-Equality" Committee
- H Berry is Member of the Science Steering Committee of the Rhône-Alpes Complex Systems Institute (IXXI)
- E Tannier is an elected member of Inria Administration Council
- E Tannier is the scientific referent of the Inria symposium committee

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

License: J Rouzaud-Cornabas, Programmation orientée objets, 20heqTD, L3, INSA-Lyon, France

Master: J Rouzaud-Cornabas, Systèmes, 10heqTD, M1, INSA-Lyon, France

Master: J Rouzaud-Cornabas, Interface Homme Machine, 50heqTD, M1, INSA-Lyon, France

Master: J Rouzaud-Cornabas, Évaluation de performance et reproducibilité, 6heqTD, M2, INSA-Lyon, France

Master: J Rouzaud-Cornabas, Computational Science and High Performance Computing, 6heqTD, M2, INSA-Lyon, France

Master: J Rouzaud-Cornabas, Parallel Computing, 80heqTD, M2, INSA-Lyon, France

Master: J Rouzaud-Cornabas, Parallel Computing for Bio-informatics, 10heqTD, M2, INSA-Lyon, France

Licence: C Rigotti, Object-Oriented Programming and Graphical User Interfaces, 86h, L2, Department 1er cycle of INSA-Lyon.

Licence: C Rigotti, Simulation of Chemical Reactions, 26h, L2, Department 1er cycle of INSA-Lyon.

Licence: C Rigotti, Numerical Modelling for Engineering, 60h, L2, Department 1er cycle of INSA-Lyon.

Master: C Rigotti, Data Mining, 25h, M1, Bioinformatics and Modeling Department of INSA-Lyon.

Master: E Tannier, Algorithmics for Bioinformatics, 18h, M1, Bioinformatics and Modeling Department of INSA-Lyon.

Master: E Tannier, Algorithmics for Bioinformatics, 12h, M1, University of Lyon 1.

Licence: C Knibbe, Algorithmique et programmation procédurale, 123h eqTD, L2 Informatique, Université Lyon 1, France

Master: C Knibbe, Programmation web, 40h eqTD, M1 Informatique, Université Lyon 1, France

Master: C Knibbe, Connaissance métier pour la recherche, 24h eqTD, M2 Informatique, Université Lyon 1, France

Master: C Knibbe, Intelligence artificielle bio-inspirée, 22h eqTD, M2 Informatique, Université Lyon 1, France

Licence: C Knibbe, Applications en mathématiques et informatique, 39h eqTD, L1 Informatique, Université Lyon 1, France

Licence: C Knibbe, Programmation fonctionnelle pour le web, 20h eqTD, L2 Informatique, Université Lyon 1, France

Master: C Knibbe, Programmation orientée objets pour la bioinformatique, 52h eqTD, M1 Bioinformatique, Université Lyon 1, France

Master: C Knibbe, Projet en bioinformatique, 25h eqTD, M1 Bioinformatique, Université Lyon 1, France

8.2.2. Supervision

PhD : Ilya Prokin, “Modeling and simulation of signal transduction in living cells: synaptic plasticity of basal ganglia neurons”, INSA Lyon, Ph.D. defended: December 02, 2016, Supervisor: H. Berry

PhD in progress : Marie Fernandez, “Extraction and analysis of the acoustic network of social birds: tools for population tracking”, Starting date Oct 2016, co-supervision: H. Berry, H. Soula (CRC, Univ. P&M Curie, Paris) and C. Vignal (Univ. J. Monnet, Saint-Etienne)

PhD in progress : Audrey Denizot, “Simulation of calcium signaling in fine astrocytic processes”, Starting date Oct 2016, co-supervision: H. Berry and H. Soula (CRC, Univ. P&M Curie, Paris)

PhD in progress : Alexandre Foncelle, ‘Modeling the signaling pathway implicated in STDP: the role of endocannabinoid and dopamine signaling”, Starting date Oct 2014, supervision: H. Berry

PhD in progress : Alvaro Mateos Gonzalez; “Anomalous subdiffusion equations as diffusion limits to integro PDEs with age structure”, Starting date Sep 2014, co-supervision: H. Berry, Vincent Calvez (EPI Numed) and Thomas Lepoutre (EPI Dracula).

PhD in progress : Wandrille Duchemin; "Phylogénie des dépendences, dépendances des phylogénies", Starting date 2015, co-supervision: E Tannier and V Daubin (CNRS, Univ Lyon 1)

PhD in progress : Yoann Anselmetti; "Evolution de l’organisation des génomes en présence de génomes non assemblés", Starting date 2015, co-supervision: E Tannier and S Bérard (Univ Montpellier)

PhD in progress : Damir Hasic; "Gene tree Species tree reconciliation in the presence of gene conversion", Starting date 2016, co-supervision: E Tannier (Univ Sarajevo)

PhD in progress: Sergio Peignier, Subspace clustering algorithms based on biological evolution mechanisms, INSA de Lyon, started in September 2014, C Rigotti and G Beslon.

PhD in progress : Charles Rocabert, Studying Evolution of Evolution of Bacterial Microorganisms by Computer Simulation Approaches, started in October 2013, supervised by G Beslon and C Knibbe

PhD in progress: Yoram Vadee Le Brun, "Evolution expérimentale in silico de réseaux de régulation génétique", INSA-Lyon (now Min. Enseignement National), Starting date Sep 2013, co-supervision: G Beslon, J Rouzaud-Cornabas

PhD in progress: Vincent Liar, "Towards a quantitative digital genetics platform", INSA-Lyon, Starting date Oct 2016, co-supervision: G Beslon, J Rouzaud-Cornabas, C Ofria (Michigan State University, BEACON Center)

8.2.3. Juries

- C Knibbe is a reviewer of the PhD thesis Gaël Jalowicki, University College Dublin, October 2016
- H Berry is a Member (reviewer) of the PhD jury for Guillaume Rodriguez, “Modélisation des bases neuronales de la mémoire de travail paramétrique dans le cortex préfrontal” Univ. P & M Curie, Paris, Oct 20, 2016.
- H Berry is a Member (reviewer) of the HdR jury for Dominique Martinez, “Modélisation biologique, biocapteurs et inspiration pour la robotique autonome”, Univ. Nancy-Lorraine, Nancy, 2017
- H Berry is a Member of the Search committee for two tenured Full Professor positions in Systems Biology at University P & M Curie, Paris, 2016 (64PR0596 and 65PR3266)
- G Beslon is a member of the Jury of Ilya Prokins (INSA-Lyon, Lyon, France)
- G Beslon is a reviewer of the PhD thesis of Arthur Bertrand (UPMC, Paris, France)
- G Beslon is a reviewer of the PhD thesis of Sandro Colizzi (Utrecht University, Utrecht, NL)

8.3. Popularization

- E Tannier gave a series of lectures for a large public at "Université Populaire de Lyon", on "anarchy in biology".

BIGS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

- BIGS team has organised a two-days workshop "Rencontres des équipes Inria travaillant sur le cancer" in Paris. 10 inria teams were present. https://team.inria.fr/bigs/workshopcancer/
- A. Gégout-Petit co-organised the "Health Session" of the day Fédération Charles Hermite- Enterprises, Nancy, January 2016.
- Céline Lacaux participated to the organisation of the following events:
  - European Study Group with Industry, 117th edition, May 2016, Avignon.
  - Session *Statistics* of the 14th Colloque Franco-Roumain de Mathématiques Appliquées, August 2016, Iasi.
  - Conference of GDR 3475 Analyse Multifractale, September 2016, Avignon.

10.1.2. Scientific Events Selection

10.1.2.1. Chair of Conference Program Committees

- A. Gégout-Petit is chair of 2017 "Congrès Francophone International de l'Enseignement de la Statistique" (CFIES), Grenoble, September, 2017.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

P. Vallois is in the editorial board of "Risk and Decision Analysis".

10.1.3.2. Reviewer - Reviewing Activities

All the BIGS members are regular reviewers for journals in probability, statistics and machine learning as: Bernoulli, Scandinavian Journal of statistics, Stochastics, Journal of Statistical Planning Inference, Journal of theoretical Biology, IEEE Trans. Biomedical Eng., Theoretical Biology and Medical Modelling, Royal Society of Chemistry, Signal Processing: Image Communication, Mathematical Biosciences, LIDA, Annals of Applied Probability, Annals of Operations Research and Journal of Machine Learning Research, as well as conferences such as ICML, World IFAC Congress, FOSBE, ALCOSP...

10.1.4. Invited Talks

- Anne Gégout-Petit was invited in SADA'2016 conference in Cotonou. [20]
- Bruno Scherrer was an invited speaker in EWRL'2016 workshop in Barcelona.
- Thierry Bastogne was invited the 19 October 2015 by Pr. Luc Leyns at the Vrije Universities Brussels for a talk on the *Statistical Analysis of Cell Impedance Signals for the Characterization of Anti-Cancer Drug Effects*.
- Romain Azaïs was an invited speaker in SSIAB 2016 in Rennes.
- S. Ferrigno : *Nouvelles approches d'estimation de la croissance en Foetopathologie*. Journée "Nouvelle approche de la croissance foetale", Maternité Régionale du CHRU de Nancy (Sept 2016).

10.1.5. Leadership within the Scientific Community

- Anne Gégout-Petit is member of the board of the European Regional Council of the Bernoulli society

- Céline Lacaux is responsible of the *Statistic team*, Laboratory of Mathematic of Avignon (since September 2016)

10.1.6. Scientific Expertise

- T. Bastogne: scientific expert in Biostatistics and Signal Processing in Nanomedicine for CYBERnano (start-up).

10.1.7. Research Administration

- A. Gégout-Petit: elected member of the laboratory of mathematics "Institut Elie Cartan de Lorraine".
- Céline Lacaux is
  - member of the bord of the SMAI-MAS group,
  - elected member of the council of the Laboratory Mathematics of Avignon,
  - correspondant AMIES pour Avignon,
  - Member of the scientific committee of GDR 3477 Stochastic Geometry.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- A. Gégout-Petit : Head of the Master 2 "Ingénierie Mathématique et Outils Informatiques (Mathematical Engineering and Computer Tools)", Université de Lorraine
- A. Gégout-Petit created and is now in charge of cursus CMI in applied mathematics for Lorraine University
- P. Vallois is head of the "Parcours Mathématiques Financières" of the master "Applied mathematics" of Université de Lorraine
- P. Vallois is head of the convention between "Université de Lorraine and Université Hammam Sousse" about master organization. Master ISC (Ingénierie de Systèmes Complexes)
- T. Bastogne is in charge of the spécialité Systèmes & TIC du master Ingénierie de Systèmes Complexes
- T. Bastogne created and is now in charge of professional master: CIIBLE (Cybernétique, Instrumentation, Image en Biologie et medecinE) en M2 with Medicine Faculty of Université de Lorraine
- T. Bastogne created and is now in charge research master << Biosanté Numérique >> with engineering school "Telecom Nancy"
- Master: S. Ferrigno, Experimental designs, 4.5h, M1, fourth year of EEIGM, Université de Lorraine, France
- Master: S. Ferrigno, Data analyzing and mining, 63h, M2, third year of Ecole des Mines, Université de Lorraine, France
- Master: S.Ferrigno, Modeling and forecasting, 43h, M1, second year of Ecole des Mines, Université de Lorraine, France
- Master: S.Ferrigno, Training projects, 18h, M1/M2, second and third year of Ecole des Mines, Université de Lorraine, France
- Master: A. Muller-Gueudin, Probability and Statistics, 160h, second year of ENSEM and ENSAIA, University of Lorraine, France.
- Master: A. Muller-Gueudin, Scientific calculation with Matlab, 20h, second year of ENSAIA, University of Lorraine, France.
- Master: R. Azaïs, Machine learning, 20h, M2, Université de Lorraine and third year of Telecom Nancy, France.

- Master: R. Azaïs, Machine learning, 20h, M1, second year of Ecole des Mines, Université de Lorraine, France.
- Master: J.-M. Monnez, Multivariate Analysis, Master 2 IFM (Ingénierie de la Finance de Marché), until June 2016.
- Master: A.Gégout-Petit, Statistics, modeling, 15h, future teacher, Université de Lorraine, France
- Master: A.Gégout-Petit, Statistics, modeling, data analysis, 80h, master in applied mathematics, Université de Lorraine, France
- Licence: S. Wantz-Mézières, Applied mathematics for management, financial mathematics, Probability and Statistics, 160h, I.U.T. (L1/L2/L3)
- Licence: S. Wantz-Mézières, Probability, 100h, first year in Telecom Nancy engineering school (initial and apprenticeship cursus)
- Master: J.-M. Monnez, Data Analysis, Statistical Learning, Master 2 IMOI (Ingénierie Mathématique et Outils Informatiques), until June 2016.
- Licence: A. Muller-Gueudin, Statistics, 60h, first year of ENSAIA, University of Lorraine, France.
- Licence: S. Ferrigno, Descriptive and inferential statistics, 60h, L2, second year of EEIGM, Université de Lorraine, France
- Licence: S. Ferrigno, Statistical modeling, 60h, L2, second year of EEIGM, Université de Lorraine, France
- Licence: S. Ferrigno, Mathematical and computational tools, 20h, L3, third year of EEIGM, Université de Lorraine, France
- Licence: S. Ferrigno, Training projects, 20h, L1/L3, first, second and third year of EEIGM, Université de Lorraine, France
- Licence: C. Lacaux: Probability and Statistic, 75h, L3, University of Avignon.
- Licence: C. Lacaux: Numerical simulation in probability, 36.75h, L3, University of Avignon.
- Licence: C. Lacaux: Probability and Statitics, 22.5h, L1, University of Avignon.
- Licence: C. Lacaux: Statistic techniques applied to SVT, 25.5h, L3, University of Avignon.
- Licence: C. Lacaux: Statistics, 24h, L2, University of Avignon.

10.2.2. Supervision

- PhD : Clémence Karmann, " Network inference for zero-inflated models", Grant : Inria-Cordis. Advisors: A. Gégout-Petit, A. Muller-Gueudin.
- PhD : Florine Gréciet, " Modèles markoviens déterministes par morceaux cachés pour la propagation de fissures", grant CIFRE SAFRAN AIRCRAFT ENGINES, Advisors : R. Azaïs, A. Gégout-Petit.
- PhD : Kévin Duarte, "Aide à la décision médicale et télémédecine dans le suivi de l'insuffisance cardiaque", Advisors : J.-M. Monnez and E. Albuisson.
- PhD : P. Retif. Modeling, digital simulation and analysis of nanoparticles-X ray interaction. Applications to augmented radiotherapy. Theses, Université de Lorraine, Mar. 2016.
- Post-doc: Florian Bouguet. Advisors: Romain Azaïs, Anne Gégout-Petit, Aurélie Muller-Gueudin.
- Post-doc: Benoît Henry (starting in Dec. 2016). Advisors: Romain Azaïs with Inria team Madynes.
- Master: Yaojie Shi, Toulouse School of economics, 2016. « Analyse de données transcriptomiques et protéomiques en oncologie », Advisors: A. Gégout-Petit, A. Muller-Gueudin, B. Bastien (Société Transgene, Strasbourg).
- Master: Yuyan Cao, Toulouse School of economics, 2016. " Spatio-temporal Bayesian models for the analysis of esca disease", with Inra Bordeaux. Advisor: A. Gégout-Petit, L. Guérin-Dubrana.

- Master: Félicie Bonte, Master Ecologie Ecologie Lille, AgroParistech Nancy et Museum National d'Histoire Naturelle 2016. « Etude des modifications de la croissance et du développement des plantes herbacées en forêt en réponse aux changements globaux », co-direction AgroParistech Nancy. Advisors: A. Gégout-Petit, Jean-Claude Gégout, Serge Muller.
- Master: all BIGS members regularly supervise project and internship of master IMOI students
- Engineering school: all BIGS members regularly supervise project of "Ecole des Mines ", ENSEM or EEIGM students

10.2.3. Juries

- HDR, Bruno Scherrer, "Contributions algorithmiques au contrôle optimal stochastique à temps discret et horizon infini", Université de Lorraine, July, 2016, Examinator, A. Gégout-Petit
- HDR, Corine Hahn, "Penser la question didactique pour la formation en alternance dans l'enseignement supérieur. Dispositifs frontières, Statistique et Management." Université Lyon 2, May, 2016, Examinator, A. Gégout-Petit
- PhD, Florian Bouguet, "Etude quantitative de processus de Markov déterministes par morceaux issus de la modélisation", Université de Rennes, June, 2016, Referee: A. Gégout-Petit
- PhD, Houda Ghamlouch, "Modélisation de la dégradation, maintenance conditionnelle et pronostic : usage des processus de diffusion", Université Technologique de Troyes, June, 2016, Referee: A. Gégout-Petit
- PhD, Etienne Baratchart, "Etude quantitative des aspects dynamiques et spatiaux du développement métastatique à l'aide de modèles mathématiques", Université de Bordeaux, February, 2016, Referee: A. Gégout-Petit
- PhD, Johann Cuenin, Sur les modèles Tweedie multivariés, Université de Besancon, December, Examinator: A. Gégout-Petit
- PhD : Clémence Chamard-Jovenin, Impact d'une surexpression d'ERα36 et/ou d'une exposition aux alkylphénols sur la physiopathologie de la glande mammaire, Université de Lorraine, 9 décembre 2016. Examinator : A. Muller-Gueudin.
- PhD : M. Ben Abdallah, Université de Lorraine, "Un modèle de l'évolution des gliomes diffus de bas grade sous chimiothérapie", December, 12, 2016, jury member: S. Wantz-Mézières.
- PhD : Marc Bourotte, Générateur stochastique de temps multisite basé sur un champ gaussien multivarié, INRA, Équipe BioSP, July, 4th,2016, President : C. Lacaux.
- PhD : Nhu Dang, Estimation des indices de stabilité et d'autosimilarité par variations de puissances négatives, Laboratoire Jean Kuntzmann Grenoble, July, 5th,2016, Examinator : C. Lacaux.

10.3. Popularization

- A. Gégout-Petit is involved in the promotion of study in the fields of mathematics in Lorraine university. She was very active in the realisation of the video for the promotion of Mathematical studies http://videos.univ-lorraine.fr/index.php?act=view&id=3236.
- A. Gégout-Petit participates to the "Table ronde Bourse aux technologues, Big data et industrie du futur", Ecole des Mines de Nancy, November, 2016.
- Animation d'ateliers MATh.en.JEANS en collège dans la région de Nancy (Romain Azaïs, Clémence Karmann)
- S. Ferrigno: Advisor of a group of students, "La main à la Pâte" project, elementary schools, Nancy, January-June 2016
- S. Ferrigno: Advisor of a group of students, "La main à la Pâte" project, Institut médico-éducatif (IME), Commercy, September-December 2016
- S. Ferrigno: Advisor of a group of students, "De Léonard de Vinci au Drone" project, Collège Paul Verlaine, Malzéville, December 2016-February 2017.

BONSAI Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organization

10.1.1.1. General Chair, Scientific Chair

- RepSeq 2016, workshop on immune repertoire sequencing at ECCB 2016 (M. Giraud, M. Salson).

10.1.1.2. Member of the Organizing Committees

- SMPGD, Statistical Methods in Post Genomic Data (H. Touzet).

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

- WABI 2016 (H. Touzet).
- RECOM-seq 2016 (H. Touzet).

10.1.2.2. Reviewer

- ECCB 2016 (J.-S. Varré, R. Chikhi).
- PSC 2016 (M. Salson).
- RECOMB-CG 2016 (J.-S. Varré).
- TCBB 2016 (J.-S. Varré).
- RECOMB 2016 (R. Chikhi).

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing Activities

- Bioinformatics (M. Salson, J.-S. Varré, R. Chikhi, H. Touzet).
- PLoS Genetics (R. Chikhi).
- Genome Research (R. Chikhi).
- Nucleic Acids Research (R. Chikhi).
- Journal of Discrete Algorithms (M. Salson).
- Briefing in Bioinformatics (H. Touzet).

10.1.4. Invited Talks

- RegPep2016 (regulated peptides) in Rouen (France), Symposium 8 "In silico approaches to peptide identification and design" (M. Pupin).
- SMPGD keynote in Lille (France), (R. Chikhi).
- National meeting of GDR Informatique Mathématique in Paris (H. Touzet).
- MatBio 2016 in London (H. Touzet).
- Summer school in metagenomics in Paris (H. Touzet).

10.1.5. Scientific Expertise

- Reviewer for a Swiss National Science Foundation grant (R. Chikhi).
- Member of the scientific committee of the national program Environmics (H. Touzet).
- Reviewer for a CRSNG grant (H. Touzet).

- Reviewer for labex CIMI PhD grant (H. Touzet).
- Member of three HCERES committees: L2N (LINA and IRCCyN, Nantes), Loria (Nancy), I2M (Marseille) (H. Touzet).

10.1.6. Research Administration

- Member of the CUB for Inria Lille (S. Blanquart).
- Member of the Charles Viollette Institute Laboratory council (V. Leclère).
- Member of the Charles Viollette Institute scientific committee (V. Leclère).
- Member of the scientific operational committee of Xperium, Univ. Lille 1 (V. Leclère).
- Member of the Inria local committee for technology development (M. Pupin).
- Member of the executive council of the IFB, Institut Français de Bioinformatique, (M. Pupin).
- Member of the Inria local committee for the IT users (M. Salson).
- Member of the national scientific committee of INS2I–CNRS (H. Touzet).
- Member of the scientific committee of MBIA – INRA (H. Touzet).
- Head of the national CNRS network GDR Bioinformatique moléculaire (http://www.gdr-bim.cnrs.fr, H. Touzet).
- Vice-head of the Lille Bioinformatics platform, bilille (H. Touzet).
- Member of the CRIStAL Laboratory council (H. Touzet).
- Member of the CRIStAL scientific council, coordinator of the thematic group "Modeling for life sciences" (J.-S. Varré).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Teaching in computer science:

- Master: Y. Dufresne, *Algorithmics and complexity*, 36h, M1 Computer Science, Univ. Lille 1.
- License: Y. Dufresne, *Oriented object design*, 42h, L3 Computer Science, Univ. Lille 1.
- License: S. Janot, *Introduction to programming (C)*, 50h, L3 Polytech'Lille, Univ. Lille 1.
- License: S. Janot, *Databases*, 30h, L3 Polytech'Lille, Univ. Lille 1.
- Master: S. Janot, *Databases*, 12h, M1 Polytech'Lille, Univ. Lille 1.
- Master: S. Janot, *Logic and Semantic Web*, 80h, M1 Polytech'Lille, Univ. Lille 1.
- License: L. Noé, *Networks*, 42h, L3 Computer science, Univ. Lille 1.
- License: L. Noé, *Programming (Python)*, 54h, L3 Computer science' S3H, Univ. Lille 1.
- License: L. Noé, *Coding and information theory*, 36h, L2 Computer science, Univ. Lille 1.
- License: L. Noé, *Functional Programming*, 30h, L2 Computer science, Univ. Lille 1.
- License: P. Pericard, *Data structures*, 18h, L3 Polytech'Lille, Univ. Lille 1.
- License: P. Pericard, *Introduction to programming (C)*, 34h, L3 Polytech'Lille, Univ. Lille 1.
- License: P. Pericard, *Programming (C)*, 22h, L3 Polytech'Lille, Univ. Lille 1.
- License: P. Pericard, *Databases*, 22h, M1 Polytech'Lille, Univ. Lille 1.
- License: M. Pupin, *Introduction to programming (Python)*, 78h, L1 Computer science, Univ. Lille 1.
- License: M. Pupin, *Professional project*, 18h, L3 Computer science, Univ. Lille 1.
- Master: M. Pupin, *Introduction to programming (JAVA)*, 24h, M1 Mathématiques et finance, Univ. Lille 1.
- License: T. Rocher, *Algorithmics and programming*, 32h, L3 Polytech'Lille, Univ. Lille 1.

- License: T. Rocher, *Algorithmics and programming (remedial course)*, 8h, L3 Polytech'Lille, Univ. Lille 1.
- License: T. Rocher, *Databases*, 26h, L3 Polytech'Lille, Univ. Lille 1.
- License: C. Saad, *Algorithmics and programming*, 28h, L3 Polytech'Lille, Univ. Lille 1.
- License: C. Saad, *Databases*, 36h, L3 Polytech'Lille, Univ. Lille 1.
- Master: M. Salson, *Skeptical thinking*, 18h, M2 Journalist and Scientist, ESJ, Univ. Lille 1.
- License: M. Salson, *Coding and information theory*, 63h, L2 Computer science, Univ. Lille 1.
- License: J.-S. Varré, *Web programming*, 36h, L2 Computer Science, Univ. Lille 1.
- License: J.-S. Varré, Y. Dufresne, *Object oriented programming*, 36h, L2 Computer Science, Univ. Lille 1.
- License: J.-S. Varré, *Algorithms and data structures*, 50h, L2 Computer science, Univ. Lille 1.
- License: J.-S. Varré, *System*, 36h, L3 Computer science, Univ. Lille 1.
- Master: J.-S. Varré, Y. Dufresne, *Software project*, 24h, M1 Computer science, Univ. Lille 1.

Teaching in bioinformatics:

- License: S. Blanquart, R. Chikhi, M. Giraud, *Bioinformatics*, 40h, L3 Computer Science, Univ. Lille 1.
- Master: S. Blanquart, *Algorithms and applications in bioinformatics*, 24h, M1 Computer Science, Univ. Lille 1.
- Master: S. Blanquart, *Methods in phylogenetics*, 4h, M2 Biodiversité Evolution Ecologie, Univ. Lille 1.
- License: V. Leclère, *Biotechnology*, 24h, L3 Biology, Univ. Lille 1.
- Master: L. Noé, *Bioinformatics*, 40h, M1 Biotechnologies, Univ. Lille 1.
- Master: M. Pupin *Bioinformatics*, 40h, M1 Biology and Biotechnologies, Univ. Lille 1.
- Master: M. Salson, *Algorithms for life sciences*, 18h, M2 Complex models, algorithms and data, Univ. Lille 1.

Teaching in biology:

- Master, V. Leclère, *Mycology, secondary metabolites, food microbiology*, 37 h, M1 Biology, Univ. Lille 1.

10.2.2. Teaching administration

- Head of the computer science modules in the 1st year of licence, univ. Lille 1 (M. Pupin).
- Head of the licence semester "Computer Science – S3 Harmonisation (S3H)", univ. Lille 1 (L. Noé).
- Member of UFR IEEA council (M. Pupin, J.-S. Varré).
- Head of the 3rd year of licence of computer science, univ. Lille 1(J.-S. Varré).
- Head of the GIS department (Software Engineering and Statistics) of Polytech'Lille (S. Janot).
- Member of UFR Biologie council (V. Leclère).
- Head of the master "Innovations en biotechnologies végétales, enzymatiques et microbiennes", univ. Lille 1 (V. Leclère).

10.2.3. Supervision

- PhD : C. Vroland, Algorithmique pour la recherche de motifs approchée et application à la recherche de cibles de microARN, univ. Lille 1, 2016/05/18, H. Touzet, V. Castric, M. Salson.
- PhD : Y. Dufresne, Algorithmes pour l'annotation automatique de peptides non-ribosomiques, univ. Lille 1, 2016/12/01, M. Pupin, L. Noé.

- PhD in progress: P. Pericard, Methods for taxonomic assignation in metagenomics, 2013/11/01, H. Touzet, S. Blanquart.
- PhD in progress: T. Rocher, Indexing VDJ recombinations in lymphocytes for leukemia follow-up, 2014/11/01, M. Giraud, M. Salson.
- PhD in progress: C. Saad, Caractérisation des erreurs de séquençage non aléatoires, application aux mosaïques et tumeurs hétérogènes, 2014/10/01, M.-P. Buisine, H. Touzet, J. Leclerc, L. Noé, M. Figeac.
- PhD in progress: L. Siegwald, Bionformatic analysis of Ion Torrent metagenomic data, 2014/01/03, H. Touzet, Y. Lemoine (Institut Pasteur de Lille).
- PhD in progress: P. Marijon, Graph assembly analysis for third generation sequencing data, 2016/10/01, J.-S. Varré, R. Chikhi (Institut Pasteur de Lille).

10.2.4. Juries

- Member of the HDR committee of Laurent Mouchard (Univ. Rouen, J.-S. Varré).
- Member of the PhD committee of Qassin Esmael (Univ. Lille 1, M. Pupin, V. Leclère).
- Member of the PhD committee of Souhir Sabri (Univ Montpellier, V. Leclère).
- Member of the PhD committee of Wahiba Chaara (Univ. Paris 6, M. Giraud).
- Member of the PhD committee of Leandro Ishi (Univ. Lyon, R. Chikhi).
- Member of the PhD committee of Jerome Audoux (Univ. Montpellier, R. Chikhi, M. Salson).
- Member of the PhD jury of Clara Benoit (Univ. Lyon, R. Chikhi).
- Member of the HDR jury of Morgane Thomas-Chollier (IBENS, Ecole Normale Supérieure Paris, H. Touzet).
- Member of the HDR jury of Annie Chateau (LIRMM, Université de Montpellier, H. Touzet).
- Member of the HDR jury of Pierre Peterlongo (Inria Rennes, H. Touzet).
- Member of the HDR jury of Séverine Bérard (ISEM, Université de Montpellier, H. Touzet).
- Member of the PhD jury of Thomas Hume (LaBRI, Université Bordeaux 1, H. Touzet).
- Member of the PhD jury of Aymeric Antoine-Lorquin (IRISA, Université de Rennes 1, H. Touzet).
- Member of the hiring committee MdC of Univ. Nancy (M. Pupin).
- Member of the hiring committee MdC of Univ Lille 1 (V. Leclère).
- Member of the hiring committee professor of Univ. Rouen (H. Touzet).
- Member of the hiring committee Research Engineer of Univ. Paris-Diderot (M. Pupin).
- Member of the hiring committee of research engineer of Univ Lille 1 (V. Leclère).

10.3. Popularization

The team has always been very active in popularizing computational biology and computer science in general.

- M. Salson participated in an exchange with scientific journalists organized by the French association of scientific journalists (AJSPI). A journalist was hosted during one week in the team and M. Salson spent one week in the newsroom of *La Recherche*, a French science magazine.
- Within a project on skeptical thinking with a popularization association “Les Petits Débrouillards”, M. Salson is part of the monitoring committee and gave lectures to social workers.
- The team participates to dissemination actions for high school students and high school teachers on a regular basis: multiple presentations on bioinformatics and research in bioinformatics with our dedicated “genome puzzles”, booth about computer science unplugged for high school girls, booth at Xperium about development of biopesticides (including a demo on the use of Norine), plenary presentations at the “Day for Programming and Algorithmic Teaching”, presentations at “Salon de l’étudiant”, visit of high school students in the team (M. Giraud, M. Pupin, M. Salson, J.-S. Varré, R. Chikhi, V. Leclère)

CAPSID Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

Marie-Dominique Devignes is a member of the Steering Committee for the European Conference on Computational Biology (ECCB).

David Ritchie is a member of the Bureau of the GGMM (Groupe de Graphisme et Modélisation Moléculaire).

Marie-Dominique Devignes organised a workshop ("Atelier Santé") for the Fédération Charles Hermite ("Journée Enterprises", 21/01/2016).

9.1.1.2. Member of Organizing Committees

Marie-Dominique Devignes co-organised a workshop on Structural Modeling of Type IV Secretion Systems (PEPS workshop "Model-ICE", 13/12/2016).

9.1.2. Scientific Events Selection

9.1.2.1. Member of Conference Program Committees

Marie-Dominique Devignes was a member of the programme committee for KDIR-2016, ECCB-2016, and BIBM-2016.

9.1.2.2. Reviewer

David Ritchie was a reviewer for IJCAI-2016.

Marie-Dominique Devignes reviewed grant applications for the Medical Research Council (UK) and National Science Centre (Poland).

9.1.3. Journal

9.1.3.1. Member of Editorial Boards

David Ritchie is a member of the editorial board of Scientific Reports.

9.1.3.2. Reviewing Activities

The members of the team have reviewed manuscripts for *Algorithms for Molecular Biology, Bioinformatics, Current Opinion in Structural Biology, Journal of Biomedical Semantics, Journal of Computational Chemistry Journal of Chemical Information and Modeling, Journal of Molecular Recognition,* and *Proteins: Structure, Function & Bioinformatics.*

9.1.4. Invited Talks

David Ritchie gave a presentation at the *6th CAPRI Evaluation Meeting* in Tel Aviv.

9.1.5. Research Administration

Marie-Dominique Devignes is Chargée de Mission for the CyberBioHealth research axis at the LORIA and is a member of the "Comipers" recruitment committee for Inria Nancy – Grand Est.
David Ritchie is a member of the Commission de Mention Informatique (CMI) of the University of Lorraine's IAEM doctoral school, and is a member of the Bureau of the Project Committee for Inria Nancy – Grand Est.
Marie-Dominique Devignes was a member of the "Commission de spécialistes" for the recruitment of an associate professor in computer science at Telecom Nancy, Université de Lorraine, April-May 2016.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: Sabeur Aridhi, *Programming Techniques and Tools,* 24 hours, L1, Telecom Nancy, Univ. Lorraine.

Licence: Sabeur Aridhi, *Big Data Hackathon,* 4 hours, L3, Telecom Nancy, Univ. Lorraine.

Licence: Marie-Dominique Devignes, *Relational Database Design and SQL,* 30 hours, L3, Telecom Nancy, Univ. Lorraine.

Master: Marie-Dominique Devignes, *Gene Discovery in Biological Databases,* 8 hours, M1, Univ. Lorraine.

9.2.2. Supervision

PhD in progress: Maria Elisa Ruiz Echartea, *Multi-component protein assembly using distance constraints,* 01/11/2016, David Ritchie.

PhD in progress: Gabin Personeni, *Exploration of linked open data in view of knowledge discovery. Application to the biomedical domain,* 01/10/2014, Marie-Dominique Devignes, Adrien Coulet.

PhD in progress: Seyed Ziaeddin Alborzi, *Large-scale exploration of 3D protein domain family binding sites,* 01/10/2014, David Ritchie, Marie-Dominique Devignes.

9.2.3. Juries

HDR: Olivier Dameron, *Ontology-based methods for analysing life science data,* Université de Rennes, 11/01/2016.

PhD: Minh-Son Phan, *Contribution á l'estimation de la similarité dans un ensemble de projections tomographiques non-orientées,* Université de Strasbourg, 07/10/2016, Pr Mohamed Tajine, Dr Étienne Baudrier, Dr Loïc Mazo.

PhD: Yassine Ghouzam, *Nouvelles approches pour l'analyse et la prédiction de la structure tridimensionnelle des protéines,* Université Paris 7, 18/10/2016, Dr Jean-Christophe Gelly.

PhD: Benoît Henry, *Probability theory applied to evolutionary biology,* Université de Lorraine, 17/11/2016, Dr Nicolas Champagnat, Dr David Ritchie.

PhD: Yoann Dufresne, *Algorithmique pour l'annotation automatique de peptides non ribosomiques,* Université de Lille, 01/12/2016, Pr Maude Pupin, Dr Laurent Noé.

9.3. Popularization

An article on our KBDOCK resource for studying protein-protein interactions was published in ERCIM News (edition 104, January 2016) [22].

The team made a presentation at the public "Cité Forum" in Nancy (01-02 Apr 2016).

DYLISS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Selection

9.1.1.1. Member of the Conference Program Committees

- JOBIM (2016): French conference of Bioinformatics [A. Siegel]
- BBCC (2015): Bioinformatica e Biologia Computazionale in Campania [O. Dameron]
- IC 2016 Atelier IA et santé, Symposium sur l'Ingénierie des Connaissances [O. Dameron]
- JFO 2016: Journées Francophones sur les ontologies [O. Dameron]
- SASB 2016: The six international workshop on static analysis and system biology [N.Théret]
- ICGI 2016: The 13th International Conference on Grammatical Inference [F. Coste]

9.1.1.2. Review

- ISMB 2016, Biotechno 2016 [A. Siegel]

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- Academic editor: Plos One [J. Bourdon]

9.1.2.2. Reviewer - Reviewing Activities

- Journal of Mathematical Biology. Bioinformatics. Theorie des Sciences Informatiques. [A. Siegel]
- Briefings in Bioinformatics, Journal of Biomedical Informatics, Journal of Biomedical Semantics. [O. Dameron]
- Molecular Cancer, Oncotarget,Hepatology, Int J cancer, Bioinformatics and Biology Insight, Chembioint, Cell death and Disease, Plos One [N. Théret]
- IEEE BIBM 2016: IEEE International Conference on Bioinformatics and Biomedicine [F. Coste]

9.1.3. Invited Talks

- M. Aite *User-control metabolic network reconstruction within flexible workflows with the PADMet Toolbox*, INRA Food Working Group annual assembly, Paris (Jul. 2016)
- F. Coste *Grammatical inference of protein languages*, Seminar of Department of Biomedical Engineering, Wroclaw University of Technology, Polland (May 2016)
- F. Coste *Partial multiple sequence alignments to model protein families*, Theoretical Biology and Bioinformatics Group, Utrecht Univ., Netherland (Sep. 1016)
- F. Coste *Modelling protein families with Protomata-Learner*, University of Chile (Nov. 2016)
- C. Trottier *The PADMET-Toolbox and AuReMe workflow: application to the genome-scale metabolic network reconstruction of algae*, IDEALG project Annual General Meeting, Lorient (Nov. 2016)
- C. Frioux *Metabolic network gap-filling: parsimonious combinatorial methods to approach biological reality*, INRA Food Working Group annual assembly, Paris (Jul. 2016)
- C. Frioux *Answer Set Programming for bioinformatics and metabolic networks*, University of Potsdam Knowledge Processing and Information System group weekly seminar, Potsdam, Germany (Oct. 2016)
- A. Siegel *Cancer biology in the Dyliss Group*, Inria (Mar. 2016)

- A. Siegel *Identification of logical models for signaling pathways: towards a systems biology loop*, EMCTS, Nottingham, UK (Jul. 2016) [39]
- A. Siegel *An introduction to metabolic networks modelling*, INRA (Oct. 2016)
- A. Siegel *A prospective about the construction of bioId chip based on multi-scale integrative methods*, University of Chile (Nov. 2016)
- A. Siegel *Combinatorial problems related to the reconstruction of genome-scale metabolic networks*, University of Lille, Workshop of the BIOSS working group on metabolism (Nov. 2016)
- N.Théret *Computational modeling to identify biomarkers and targets*, DHU2020, Fibrosis and remodelling: from common pathways to personalized targets, Autumn School (Oct. 2016)

9.1.4. Leadership within the Scientific Community

- Member of the steering committee of the International Conference on Grammatical Inference [F. Coste].
- The team was involved in the foundation of a national working group on the symbolic study of dynamical systems named bioss [web access]. The group gathers more 100 scientists, from computer science to biology. Three meetings were organized this year. The group is supported by two French National Research Networks: bioinformatics (GDR BIM : bioinformatique moléculaire) and informatics-mathematics (GDR IM : Informatique Mathématique). It gathered twice in 2016: for a general meeting in Lyon (Jul. 2016) and for a workshop focused on computational and methological insights about metabolic network in Lille (Nov. 2016) [A. Siegel]

9.1.5. Scientific Expertise

- Member (nominated) CNU section 65 [O. Dameron]
- Scientific Advisory Board of GDR BIM " Molecular Bioinformatics" [J. Nicolas].
- Inria National evaluation board [A. Siegel]
- Member of the Operational Legal and Ethical Risk Assessment Committee (COERLE) at Inria [J. Nicolas].
- Recruitment committees: Professor (UMPC, Paris) [A. Siegel, N Théret], Associate professor (Nancy) [O. Dameron), Engineer (INRA) [A. Siegel], Inria senior researcher (National committee) [A. Siegel].
- Member of the IRISA laboratory council [F. Coste].
- Member of the Inria Rennes center council [A. Siegel].
- Scientific Advisory Board of Biogenouest [J. Bourdon, N Théret].
- Member of SCAS (Service Commun d'Action Sociale) of Univ. Rennes 1 [C. Belleannée].
- Member of CUMIR (Commission des Utilisateurs des Moyens Informatiques, Inria Rennes) [F. Coste].
- Expertise for Prix Victor et Erminia MESCLE [N. Théret]
- Expertise for Ligue Contre le Cancer, InterRégion Rhône-Alpes-Auvergne-Drome-Saone et Loire [N. Théret]
- Member of the board of directors of the French Society for biology of the extracellular matrix [N. Théret]

9.2. Teaching - Supervision - Juries

9.2.1. Teaching track responsibilities

- Coordination of the doctoral school "Life, Agronomy and Health" of University of Rennes 1 [N. Théret]

- Coordination of the master degree "Bioinformatics and genomics", Univ. Rennes1 [O. Dameron]
- Coordination of the track "From Data to Knowledge: Machine Learning, Modeling and Indexing Multimedia Contents and Symbolic Data", Master in Computer Science, University of Rennes 1, France [F. Coste].

9.2.2. Course responsibilities

- "Bioinformatique expérimentale", Master 1 in computer science, Univ. Rennes1 & ENS [O. Dameron]
- "Bases de mathématiques et probablité" and "Méthodes en informatique", Master1 in public health, Univ. Rennes 1 [O. Dameron]
- "Représentation des connaissances biomédicales", Master 2 in public health, Univ. Rennes 1 [O. Dameron]
- "Principes de programmation et d'algorithmique", Master 1 in bioinformatics, Univ. Rennes 1 [O. Dameron]
- "Gestion de projets informatiques", Master 1 in bioinformatics, Univ. Rennes 1 [O. Dameron]
- "Standardisation des connaissances et bio-ontologies", Master 2 in bioinformatics, Univ. Rennes 1 [O. Dameron]
- "e-Santé et réseaux hospitaliers", last year in engineering school ESIR, Univ. Rennes 1, [O. Dameron]
- "Equilibre Dynamique de la communication Cellulaire" Master 2 in Sciences cellulaire et Moléculaire du Vivant, Univ. Rennes 1 [N. Theret]

9.2.3. Teaching

Licence: C. Belleannée, Langages formels, 22h, L3 informatique, Univ. Rennes1, France.

Licence: C. Belleannée, Traitement de textes et données tabulées, 40h, L1 informatique, Univ. Rennes1, France.

Licence: C. Belleannée, Algorithmique et Programmation Fonctionnelle, 60, L1 informatique, Univ. Rennes1, France.

Licence: J. Coquet, Algorithmique et Programmation Fonctionnelle, 40h, L1 informatique, Rennes1, France.

Licence: O. Dameron, Biostatistiques, 12h, PACES, Univ. Rennes 1, France.

Licence: V. Delannée, Bureautique, 36h, DFGSP2, Univ. Rennes 1, France.

Licence: C. Frioux, Bureautique, 12h, L1 informatique, Rennes1, France.

Master: C. Belleannée, Algorithmique du texte et bioinformatique, 10h, M1 informatique, Univ. Rennes1, France

Master: C. Belleannée, Préférences, Logique et Contraintes, 40h M1 informatique,Univ. Rennes1, France

Master: F. Coste, Apprentissage Supervisé, 10h, M2 Informatique, Univ. Rennes 1, France

Master: F. Coste, Données Séquentielles Symboliques, 10h, M2 Informatique, Univ. Rennes 1, France

Master: O. Dameron, Bases de mathématiques et probablité, 30h, Master1 in public health, Univ. Rennes 1, France.

Master: O. Dameron, Méthodes en informatique, 50h, Master1 in public health, Univ. Rennes 1, France.

Master: O. Dameron, Bioinformatique expérimentale, 10h, M1 informatique, Univ. Rennes 1 and ENS Rennes, France.

Master: O. Dameron, Principes de programmation et algorithmique, 50h, M1 bioinformatique et génomique, Univ. Rennes 1, France.

Master: O. Dameron, Gestion de projets informatiques, 23h, M1 bioinformatique et génomique, Univ. Rennes 1, France.

Master: O. Dameron, Standardisation des connaissances et bio-ontologies, 24h, M2 bioinformatique et génomique, Univ. Rennes 1, France.

Master: O. Dameron, Représentation des connaissances biomédicales, 20h, M2 bioinformatique et génomique, Univ. Rennes 1, France.

Master: A. Siegel, Integrative and Systems biology, 20h, M2, Univ. Rennes 1, France

Master: N. Théret, Extracellular matrix remodeling and Signaling, 3H, Univ. Rennes 1, France

Master: N. Théret, Extracellular matrix remodeling and Signaling, 3H, Univ. Cergy Pontoise, France

Doctorat: A. Siegel, Modelling the integration of heterogeneous knowledge with Answer Set Programming, 4h, Ecole de printemps, Porquerolles, France

9.2.4. Supervision

HDR: Olivier Dameron *Ontology-based methods for analyzing life science data* [12]

PhD : Aymeric Antoine-Lorquin, *TITRE*, started in Oct. 2013, supervised by C. Belleannée, defended on the 1st of December 2016 [11]

PhD in progress : Lucas Bourneuf, *Justifiable graph decomposition to assist biological network understanding*, started in Oct. 2016, supervised by J. Nicolas.

PhD in progress : Jean Coquet, *Semantic-based reasoning for biological pathways analysis*, started in Oct. 2014, supervised by O. Dameron and N. Théret.

PhD in progress : Victorien Delannée, *Optimisation à différentes échelles pour étudier la variabilité de la toxicité de contaminants alimentaires*, started in Oct. 2014, supervised by A. Siegel and N. Théret.

PhD in progress : Clémence Frioux, *Using preferences in Answer Set Programming to decipher interactions within the species of an ecosystem at the genomic scale*, started in Oct. 2015, supervised by A. Siegel.

PhD in progress : Julie Laniau, *Méthodes d'optimisation combinatoire pour reconstruire et analyser les systèmes métaboliques de microalgues*, started in Oct. 2013, supervised by A. Siegel and D. Eveillard.

PhD in progress : Yann Rivault, *Analyse de parcours de soins à partir de bases de données médico-administratives en utilisant des outils du Web Sémantique : identification de complications et de leurs déterminants suite à la pose chirurgicale de dispositif médical implantable en ambulatoire* , started in Oct. 2015, supervised by O. Dameron and N. Lemeur.

9.2.5. Juries

- *Member of Ph-D thesis juries*. M. Morterol, Univ. Paris Sud [A. Siegel, reviewer]. A. Rougny, Univ. Paris Sud [A. Siegel, reviewer]. P. Traynard, ENS Paris [A. Siegel, jury member]. A Lamora, Univ. Nantes [N. Théret, reviewer]. L. Alcaraz, Univ. Lyon [N. Théret, reviewer], F Courivaud, UMPC [N. Théret, reviewer]. P Hascoet, Univ. Rennes1 [N. Théret, president]
- *Member of habilitation thesis juries*. O. Dameron, Univ. Rennes 1 [A. Siegel, jury member], A. Chateau, Univ. Montpellier [A. Siegel, reviewer]. M. Elati, Univ. Evry [A. Siegel, reviewer]. L. Levy, Univ Paris-Diderot [N. Théret, reviewer]. C. Le Goff, Univ Paris Descartes [N. Théret, reviewer].
- *Member of medical thesis jury*. P. Hamon, Rennes [O. Dameron, jury member].

9.2.6. Internships

- Internship, from Jan until Jun 2016. Supervised by A. Siegel. Student: Mael Conan. Subject: Reconstruction of the metabolic map of E. Synecchococcus.
- Internship, from Jan until Jun 2016. Supervised by M. Chevallier and A. Siegel. Student: Pierre Vignet. Subject: Development of a web interface for the aided-curation of metabolic network identifiers.
- Internship, from Jun until Jul 2016. Supervised by O. Dameron and A. Siegel. Student: David Saulpic. Subject: Using formal concept analysis to classify the attractors of perturbated boolean networks.
- Internship, from Jan. until Jun 2016. Supervised by J. Nicolas. Student: Lucas Bourneuf. Subject: Model reduction with power graph algorithms.
- Internship, from Feb. until Jun 2016. Supervised by F. Coste. Student: Mikael Demirdelen. Subject: Fast parser for biological sequences and a new algorithm for the inference of substitutable languages.
- Internship, from Jun until Jul 2016. Supervised by O. Dameron. Student: Arnaud Belcour. Subject: Intégration de données biologiques en RDF pour l'analyse de réseaux de régulation.
- Internship, from Jun until Jul 2016. Supervised by O. Dameron. Student: Mael Kerbiriou. Subject: Création et analyse d'un réseau de régulation génique en RDF : application au puceron.
- Internship, from Jun until Jul 2016. Supervised by A. Evrard. Student: Xavier Garnier. Subject: Mise à jour et développement d'AskOmics, outil d'intégration et d'interrogation de données biologiques.
- Internship, from Jan. until Jun. 2016. Supervised by C. Belleannée. Student: Nathan Alary. Subject: Données génomiques et données ChIP-Seq au service de la prédiction de sites de fixation d'un facteur de transcription. Application au facteur LXRalpha.
- Internship, from Mar until Aug 2016. Supervised by J. Got. Student: Sanae El Mhijar, Subject: Analyse et vérifications du réseau métabolique de *Tisochrysis lutea*.
- Internship, from May until Jul 2016. Supervised by F. Coste. Student: RemySun, Subject: Learning Deep Latent Features of Proteins.
- Internship, from Jun. until Jul. 2016. Supervised by F. Morreews. Student: Vivien Le Breton Subject: RDF et SPARQL pour l'integration de réseaux métaboliques et génétiques de référence.
- Internship, from Jan. until Jun. 2016. Supervised by J. Nicolas. Student: Guillaume Lebreton Subject: Metabolic pathway reconstruction on metagenomes, application to the development of a bacterial consortium for fermented products.
- Internship, from Apr. until Jun. 2016. Supervised by J. Nicolas. Student: Marie Salmon Subject: Analyse par concepts formels de données génomiques sur le mélanome du chien.

9.3. Popularization

- *Organization of Sciences en Cour[t]s*. Since 2007, Sciences en Cour[t]s is a project of Nicomaque organization, the association of PhD and PhD students of Brittany. It is a popularization Festival where PhD students explain their thesis via short films of 5min. The goal is to present their scientific researches to the general public. Every year, PhD students of Inria/IRISA join the organization or make movies.[*J. Coquet (coordinator of the festival), V. Delannée (president of Nicomaque), A. Antoine-Lorquin (organizer of the festival)*] [more info].
- *Production of Sciences en Cour[t]s film*. "Une petite histoire de symbiose(s)" .[*C. Frioux*] [more info].
- *Bioinfo-fr.net* Bioinfo-fr.net is a french web site where researchers, engineers and students talks about bioinformatics. We have written or contributed to 3 articles for this web site on diverse subjects: "Remise des diplômes du master BIG (Rennes)", "Les dev' jam c'est bon pour vous !", "Ecrire son parseur à la main: chroniques d'une mauvaise bonne idée". [*L Bourneuf, O. Dameron*]. [more info].

ERABLE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. General chair, scientific chair

- Alberto Marchetti-Spaccamela is member of the Steering committee of WG, Workshop on Graph Theoretic Concepts in Computer Science, and of ATMOS, Workshop on Algorithmic Approaches for Transportation Modeling, Optimization, and Systems.
- Marie-France Sagot was from 2010 to 2016 member and from 2014 to 2016 Chair of the Steering Committee of the International Conference *LATIN* (http://www.latintcs.org/). She is member of the Steering Committee of the *European Conference on Computational Biology* (*ECCB*) since 2002 and of the International Symposium on Bioinformatics Research and Applications (ISBRA) since 2008.

8.1.1.2. Member of the organising committees

- Leen Stougie was co-organiser, together with Neil Olver and René Sitters of the 8th Workshop on Flexible Network Design, July 4-8, 2016, Vrije Universiteit, Amsterdam, The Netherlands.

8.1.2. Scientific events selection

8.1.2.1. Member of the conference program committee

- Laurent Bulteau (external collaborator of ERABLE) was a member of the program committee for the following international conferences in 2016: 41st International Symposium on Mathematical Foundations of Computer Science (MFCS 2016) and 11th International Conference on Algorithmic Aspects of Information and Management (AAIM).
- Pierluigi Crescenzi was a member of the program committee for the following international conferences in 2016: 17th Italian Conference on Theoretical Computer Science (ICTCS), 31st IEEE International Parallel & Distributed Processing Symposium (IPDPS).
- Roberto Grossi was a member of the program committee for the following international conferences in 2016: 12th Latin American Theoretical Informatics Symposium (LATIN), 27th International Workshop on Combinatorial Algorithms (IWOCA), 8th International Conference on Fun with Algorithms (FUN).
- Alberto Marchetti-Spaccamela was a member of the program committee for the following international conference in 2016: 15th International Symposium on Experimental Algorithms (SEA).
- Nadia Pisanti was a member of the program committee for the following international conferences in 2016: 10th International Workshop on Algorithms and Computation (WALCOM), 5th International Symposium on Network Enabled Health Informatics, Biomedicine and Bioinformatics (Hi BI BI), 5th RECOMB Satellite Workshop on Computational Cancer Biology (RECOMB-CCB), 16th Workshop on Algorithms in BIoinformatics (WABI), 6th RECOMB Satellite Workshop on Massively Parallel Sequencing (RECOMB-Seq), 12th International Symposium on Bioinformatics Research and Applications (ISBRA), 7th International Conference on Information Technology on Bio- and Medical-Informatics (ITBAM), 6th IEEE International Conference on Computational Advances in Bio and Medical Sciences (ICCABS).
- Marie-France Sagot was a member of the program committee for the following international conferences in 2016: Intelligent Systems for Molecular Biology (ISMB), Prague Stringology Conference 2016, 11th International Conference on Algorithmic Aspects of Information and Management (AAIM), 20th Annual International Conference on Research in Computational Molecular Biology (RECOMB), 14th RECOMB Satellite Workshop on Comparative Genomics (RECOMB-CG), 16th Workshop of Algorithms in Bioinformatics (WABI).

- Leen Stougie was a member of the program committee of the following conferences in 2016: 18th Conference on Integer Programming and Combinatorial Optimization (IPCO), Workshop on Approximation and Online Algorithms (WAOA).

8.1.2.2. Reviewer

Besides the above, various other members of ERABLE have been reviewer for other international conferences, such as SODA etc.

8.1.3. Journal

8.1.3.1. Member of the editorial board

- Pierluigi Crescenzi is member of the Editorial Board of *Journal of Computer and Systems Science* and *Electronic Notes on Theoretical Computer Science*.
- Roberto Grossi is member of the Editorial Board of *Theory of Computing Systems (TOCS)* and *RAIRO – Theoretical Informatics and Applications – Informatique Théorique et Applications*.
- Alberto Marchetti-Spaccamela is member of the Editorial Board of *Theoretical Computer Science* and *Transactions on Algorithms Engineering*.
- Nadia Pisanti is since 2012 member of Editorial Board of *International Journal of Computer Science and Application (IJCSA)*.
- Marie-France Sagot is member of the Editorial Board of *Lecture Notes in Bioinformatics* (subseries of *Lectures Notes in Computer Science*), *Journal of Discrete Algorithms*, *BMC Bioinformatics*, and *BMC Algorithms for Molecular Biology*.
- Leen Stougie is member of the Editorial Board of *Transactions on Algorithms Engineering* since 2010, *Surveys in Operations Research and Management Science* since 2011, and *Journal of Industrial and Management Optimization* since 2013.
- Cristina Vieira is Executive Editor of *Gene*, and since 2014 member of the Editorial Board of *Mobile DNA*.

8.1.3.2. Reviewer for Journals

Members of ERABLE have reviewed papers for the following journals: *Theoretical Computer Science*, *Algorithmica*, *IEEE/ACM Transactions in Computational Biology and Bioinformatics (TCBB)*, *Algorithms for Molecular Biology*, *Scientific Reports*, *Journal of Computational Biology*, *BMC Bioinformatics*, *Computing and Informatics*, *BMC Evolutionary Biology*, *Genetica*, *Gene*, *Genome Biology and Evolution*, *Genetical Research*, *Genome Research*, *Molecular Biology and Evolution*, *Insect Biochemistry and Molecular Biology*, *PLoS Genetics*, *Mutation research*, *mBio*, *Frontiers in Microbiology*, *Infection, genetics and evolution*, *PLoS Biology*.

8.1.4. Invited talks

Clara Benoit-Pilven gave a lecture (Workshop Colib'read, November 7-8, 2016).

Roberto Grossi gave an invited talk (Eleventh International Conference on Algorithmic Aspects in Information and Management (AAIM), Bergamo, Italy, July 18-20, 2016).

Gunnar Klau gave an invited talk (Simon's Institute for the Theory of Computing, Workshop on Network Biology, April 11-15, 2016).

Vincent Lacroix gave a lecture+demonstration (Workshop Colib'read, November 7-8, 2016). He also made an invited presentation in the context of a CNRS training meeting (Formation Bioinformatique pour les NGS Montpellier, March 24, 2016)

Hélène Lopez-Maestre gave a lecture (Workshop Colib'read, November 7-8, 2016).

Nadia Pisanti gave two invited talks (Data Driven Innovation Open Summit, Rome, May 20-21, 2016; Conference Mathematical Foundations in Bioinformatics (MatBio), London, UK, July 20, 2016).

Marie-France Sagot gave two invited talks (German Conference on Bioinformatics (GCB), Berlin, Germany, Sept 12-15, 2016; First Workshop on Enumeration Problems and Applications (WEPA), Aubière, France, Nov 21-22, 2016).

Blerina Sinaimeri gave a talk (University of Palermo, Sept 27, 2016).

Leen Stougie gave two lectures (Graduate School on Methods for Discrete Structures, Free University Berlin, 25 April 2016; 7th Cargese Workshop on Combinatorial Optimization, October 9-14, 2016).

Laura Urbini gave a lecture (Warwick University, Computer Science Department, November 10, 2016).

8.1.5. Leadership within the scientific community

Alberto Marchetti-Spaccamela is Member of the Council of EATCS, the European Association for Theoretical Computer Science.

Leen Stougie was Chairman of the Dutch Network on the Mathematics of Operations Research (Landelijk Netwerk Mathematische Besliskunde (LNMB)) from February 2011 to January 2016. From February 2016, he is Member of the general board of the LNMB. He is also Chairman Program Committee Econometrics and OR, VU Amsterdam and Member of the Board of the research school ABRI-VU, Amsterdam.

Cristina Vieira is director of the GDRE "Comparative genomics" since the latter was renewed in 2010.

Marie-France Sagot and Fabrice Vavre are members of the Steering Committee of the LabEx Ecofect (http://ecofect.universite-lyon.fr/).

8.1.6. Scientific expertise

Marie-France Sagot is member of the Advisory Board of the CWI, Amsterdam, The Netherlands, and chair of the "Commissions Scientifiques Spécialisées" (CSS) of the INRA for the Department of Applied Mathematics and Computer Science. She was also a Panel Member for the ERC.

Fabrice Vavre is member of the Section 29 of the Comité National de la Recherche Scientifique (CoNRS).

8.1.7. Research administration

Hubert Charles is director of the Biosciences Department of the Insa-Lyon.

Alberto Marchetti-Spaccamela is Director of the Department of Computer, Control, and Management Engineering Antonio Ruberti at Sapienza University of Rome, Italy.

Nadia Pisanti is since 2013 member of the Board of the Regional PhD School of Computer Science at the University of Pisa, Italy.

Alain Viari is since 2012 Deputy Scientific Director at Inria responsible for the domain "Digital Health, Biology and Earth". He thus represents Inria at several national instances related to Life Sciences, Health and Environment.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Most of the members of ERABLE are Assistant / Associate or Full Professors and as such have a heavy load of teaching. Depending on the country, this represents between 150 to 192 hours in front of a class plus the additional work of preparing the courses and exams, and of correcting the latter. Many are also responsible for some of the university courses at the undergraduate or graduate levels.

More in detail:

- In France:
  - Hubert Charles is responsible for the Master of Modelling and Bioinformatics (BIM) at the Insa of Lyon. He teaches 192 hours per year in statistics and biology.
  - Pierluigi Crescenzi taught 120h (72h of Programming in Java for the undergraduate program in Computer Science and 48 of Distributed Algorithms for the Master in Computer Science) at the University of Florence.
  - Vincent Lacroix is responsible for several courses both at the University (L2: Bioinformatics, L3: Advanced Bioinformatics, M1: Methods for Genomics, M1: Methods for Transcriptomics, M1: Projects, M2: Bioethics) and at the Insa (M1: Gene Expression). He teaches 192 hours per year in bioinformatics and statistics.
  - Arnaud Mary taught 109+115 hours in 2016 at the University of Lyon 1 (L1: mathematics; L2: bioinformatics; M1: data analysis; M1: computer science).
  - Cristina Vieira is responsible for the Evolutionary Genetics and Genomics academic career of the Master Ecosciences-Microbiology. She was awarded an IUF (Institut Universitaire de France) distinction and teaches genetics 64 hours per year at the University and ENS Lyon.
- In Italy: Nadia Pisanti taught a total of 104 hours (L1: algorithms and programming; M2: algorithms for bioinformatics).
  - Alberto Marchetti-Spaccamela taught 60 hours of Computing Models (undergraduate class) and 30 hours of Privacy in the electronic society (master class) at Sapienza University of Rome.
  - Nadia Pisanti taught 72h (24h of Programming in C for the undergraduate program in Computer Science and 42 of Algorithms for Bioinformatics for the Master in Computer Science) at the University of Pisa.

Inria or CNRS Junior and senior researchers as well as PhD students and postdocs are also involved in teaching. Notably Alice Julien-Laferrière (PhD student) taught 6 hours (Jury PEL 4); Hélène Lopez-Maestre (PhD student) and Laura Urbini (PhD student) taught each 64 hours of Mathematics and Statistics at the Department of Biology (undergraduate students); Blerina Sinaimeri (Junior Inria Researcher) taught 12h in Discrete Mathematics at the Master of Modelling and Bioinformatics (BIM), INSA, University Lyon 1, as well as 24h at the Master 2 in Computer Science at the ENS Lyon; Fabrice Vavre taught 25h on symbiosis (L3, M1, M2, University Lyon 1, ENS Lyon, University of Poitiers).

Roberto Grossi also participated this year to the Olympiads in Informatics.

8.2.2. Supervision

The following are the PhDs defended in ERABLE in 2016.

- Martin Wannagat, University of Lyon 1, June 2016, supervisors: M.-F. Sagot, A. Marchetti-Spaccamela, L. Stougie.
- Alice Julien-Laferrière, University of Lyon 1, December 2016, supervisors: M.-F. Sagot, V. Lacroix, S. Vinga.

8.2.3. Juries

The following are the PhD or HDR juries to which members of ERABLE participated in 2016.

- Gunnar Klau: Reviewer of the PhD of Arnon Mazza, Tel Aviv University, and of the HDR of Pierre Peterlongo, University of Rennes.
- Marie-France Sagot: Reviewer of the PhD of Yoann Dufresne, University of Lille 1, France.
- Blerina Sinaimeri: Reviewer of the PhD of Nilakantha Paudel, University of Rome, Italy.

8.3. Popularisation

Gunnar Klau wrote an article for ERCIM News about Networks in Biology (http://ercim-news.ercim.eu/en104/special/networks-to-the-rescue-from-big-omics-data-to-targeted-hypotheses).

Roberto Grossi participated to the Pisa CoderDojo (https://www.unipi.it/index.php/news/item/7983-toscana-dojocon-2016-una-giornata-per-la-programmazione-digitale).

Marie-France Sagot, together with Roeland Merks from the CWI, co-edited a special Theme for ERCIM News on Tackling Big Data in the Life Sciences (http://ercim-news.ercim.eu/images/stories/EN104/EN104-web.pdf).

Blerina Sinaimeri participated to the “Conférences ISN et enseignement 2016” organised by Inria, 27 April 2016, to "Les journées nationales de l’APMEP: À la lumière des mathématiques", October 2016, and to “Filles et informatique : une équation lumineuse !” (Nov. 28. 2016, Lyon, France).

Fabrice Vavre participated in a television program on Arte, on the topic of “Ces microbes qui nous gouvernent”.

GENSCALE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

- Workshop Colib'read. Scientific and practical organization [C. Lemaitre, C. Marchet, P. Peterlongo]

10.1.2. Scientific Events Selection

10.1.2.1. Chair of Conference Program Committees

- WCO16, Gdansk, Poland (co-chair) [A. Mucherino]

10.1.2.2. Member of the Conference Program Committees

- BIBM 2016: IEEE International Conference on Bioinformatics and Biomedicine [D. Lavenier]
- BIOKDD 2016: 15th International Workshop on Data Mining in Bioinformatics [D. Lavenier]
- ACM PASC16 Conference : Platform for Advanced Scientific Computing [D. Lavenier]
- RECOMB 2016 : International Conference on Research in Computational Molecular Biology [D. Lavenier]
- ECCB 2016 : 15th European Conference on Computational Biology [P. Peterlongo]
- SeqBio 2016 : Bioinformatics multidisciplinary workshop [P. Peterlongo]
- WACEBI 2016 : Workshop on Accelerator-Enabled Algorithms and Applications in Bioinformatics [D. Lavenier]

10.1.2.3. Reviewer

- RECOMB 2017 [R. Andonov, C. Lemaitre]
- ECCB 2016 [P. Peterlongo]

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing Activities

- Algorithms for Molecular Biology [P. Peterlongo]
- Bioinformatics [D. Lavenier, P. Peterlongo]
- BMC Bioinformatics [P. Peterlongo]
- Drug Dicovery Today [D. Lavenier]
- Journal of Parallel and Distributed Computing [D. Lavenier]
- Plos One [D. Lavenier, R. Andonov]
- Journal of Biomedical and Health Informatics [D. Lavenier]
- Briefing in Bioinformatics [D. Lavenier]
- Theoretical Computer Science [P. Peterlongo]
- Fundamenta Informaticae, Integrated Computer-Aided Engineering (IOS Press) [A. Mucherino]
- COMPAG, Elsevier [A. Mucherino]

10.1.4. Invited Talks

- D. Lavenier, *Parallel Processing of Sequencing Data*, Conférence d'informatique en Parallélisme, Architecture et Système, Lorient, France, July 2016

- D. Lavenier *GATB: A Genomic Analysis Tool Box for designing parallel and low memory fingerprint bioinformatics software*, Pasteur Institut, Paris, France, Sep. 2016.
- D. Lavenier, *Low memory fingerprint data structure for genomics*, ENS Rennes, France, oct. 2016.
- D. Lavenier *GATB: A Genome Analysis Tool Box for designing parallel and low memory footprint bioinformatics software*, Workshop on Emerging Bioinformatics Applications for Microbial Ecogenomics, Brest, France, oct. 2016.
- C. Lemaitre, *Comparing numerous metagenomics datasets*, Laboratoire de Biométrie et Biologie Évolutive, Lyon, France, Nov. 2016.
- P. Peterlongo *De novo comparison of (large number of) metagenomic samples*, Metagenomics day, Billile, Lille, France June 2016.
- P. Peterlongo *Finding SNPs de novo from reads* , Bioadvection workshop, Napoli, Italy, June 2016.
- P. Peterlongo *De novo comparison of (large number of) metagenomic samples, What are the technical challenges? what can we expect from this?*, RCAM workshop - keynote speaker, The Hague, Netherlands, September 2016.
- P. Peterlongo *Multiple Comparative Metagenomics using Multiset k-mer Counting*, Pasteur Summer School 2016 In Metagenomics, September 2016.
- C. Lemaitre *Comparaison (massive) de (nombreux) metagénomes. Passons par les kmers pour passer à l'échelle*, Journée scientifique sur "le Microbiome" organisée par Biogenouest, Rennes, France, December 2016.
- F. Legeai *Les analyses bioinformatiques pour les données épigénomiques*, Atelier ChIP du réseau REacTION, Paris, France, December 2016.
- R. Andonov, *Global Optimization Methods for Genome Scaffolding and Completing Genome Assemblies*, Workshop on Graph Assembly Algorithms for omics data, Univ. Milano-Bicocca, Italy, November 18, 2016

10.1.5. Leadership within the Scientific Community

- P. Peterlongo. Animator of one of the scientific axes of the GDR BIM group of research.
- P. Peterlongo. Member of the SFBI board.

10.1.6. Scientific Expertise

- Expert for the MEI (International Expertise Mission), French Research Ministry [D. Lavenier]
- Member of the Scientific Council of BioGenOuest [D. Lavenier]
- Member of the Scientific Council of the Computational Biology Institute of Montpellier [D. Lavenier]

10.1.7. Research and Pedagogical Administration

- Member of the CoNRS, section 06, [D. Lavenier]
- Member of the local Inria Rennes CDT (Technologic Transfer Commission) [D. Lavenier]
- Member of the steering committee of the INRA BIPAA Platform (BioInformatics Platform for Agroecosystems Arthropods) [D. Lavenier]
- Member of the steering committee of The GenOuest Platform (Bioinformatics Platform of BioGenOuest) [D. Lavenier]
- Representative of the environnemental axis of UMR IRISA [C. Lemaitre]
- AGOS first secretary [P. Peterlongo]
- Organisation of the weekly seminar "Symbiose" [P. Peterlongo]
- Scientific Responsible for International Relationships at ISTIC [A. Mucherino]
- Member of "Commission Affaires Internationales" at University of Rennes 1 [A. Mucherino]

- In charge of the bachelor's degree in the computer science department of University of Rennes 1 (90 students) [R. Andonov]

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence : R. Andonov, Graph Algorithms, 60h, Univ. Rennes 1, France.

Licence : A. Mucherino, Java basis, 80h, L1, Univ. Rennes 1, France.

Master : A. Mucherino, R. Andonov, Operational Research, 78h, M1, Univ. Rennes 1, France.

Master : A. Mucherino, Introduction to Computational Systems and Networks, 42h, M1, Univ. Rennes 1, France.

Master : A. Mucherino, Object Oriented Programming, 40h, M1, Univ. Rennes 1, France.

Master : A. Mucherino, P. Peterlongo and R. Andonov, Algorithms on Sequences and Structures, 36h, M2, Univ. Rennes 1, France.

Master : A. Mucherino, Parallel Computing (in English), 18h, M1, Univ. Rennes 1, France.

Master : C. Lemaitre, Dynamical systems for biological networks, 20h, M2, Univ. Rennes 1, France.

Master : C. Lemaitre, P. Peterlongo, Algorithms on Sequences for Bioinformatics, 24h, M1, Univ. Rennes 1, France.

Master : P. Peterlongo, Experimental Bioinformactics, 12h, M1, ENS Rennes, France.

Master : D. Lavenier, Research training module, 24h, M1, Univ. Rennes 1, Rennes, France.

Master : R. Andonov, Advanced Algorithmics, 25h, Univ. Rennes 1, France.

Training : P. Durand, G. Rizk, GATB Programming Day, 8h (June 16th), Univ. Rennes 1, Rennes, France.

Training : P. Durand, G. Rizk, GATB Programming Day, 8h (May 9th), Institut Henri Poincaré, France.

E-learning

Online tutorial : GATB-Core Online Training tool. http://gatb-core.gforge.inria.fr/training/

discoSnp tutorial available from the discoSnp webpage: https://colibread.inria.fr/software/discosnp/

10.2.2. Supervision

HdR : Pierre Peterlongo, Lire les lectures : analyse de données de séquençage, Univ. Rennes 1, 25/01/2016, [11] https://hal.inria.fr/tel-01278275.

PhD in progress : G. Benoit, New algorithms for comparative metagenomics, 01/11/2014, D. Lavenier and C. Lemaitre.

PhD in progress : A. Limasset, Algorithm for Genomics, 09/2014, D. Lavenier and P. Peterlongo.

PhD in progress : C. Guyomar, Bioinformatic tools and applications for metagenomics of bacterial communities associated to insects, 01/10/2015, C. Lemaitre and F. Legeai.

PhD in progress : C. Marchet, Nouvelles méthodologies pour l'assemblage de données de séquençage polymorphes, 01/10/2015, P. Peterlongo.

PhD in progress : P. Hoan Son, Data mining and bioinformatics, 01/2015, D. Lavenier and A. Termier.

PhD in progress : S. François, Combinatorial Optimization Approaches for Bioinformatics, 01/10/2016, R. Andonov.

10.2.3. Juries

- *President of Ph-D thesis jury*. Phuong Do Viet, University of Montpellier [R. Andonov], Karel Brinda, University of Marne la Vallée [D. Lavenier]
- *Member of Ph-D thesis juries*. Joseph Lucas, University Pierre et Marie Curie [C. Lemaitre].
- *Referee of Ph-D thesis*. Cécile Monat, University of Montpellier [D. Lavenier], C. Vroland, University of Lille [P. Peterlongo].
- *Member of Ph-D thesis comitees*. L. Ishi Soares de Lima, University of Lyon [C. Lemaitre], Yoann Aigu, University of Rennes [F. Legeai], Hélène Boulain, University of Rennes [F. Legeai], Chunxiang Hao, University of Rennes [D. Lavenier], Alix Mas, University of Rennes [P. Peterlongo], Pierre Charrier, University of Nantes [P. Peterlongo], Cervin Guyomar, University of Rennes [P. Peterlongo], Lea Siegwald, University of Lille [P. Peterlongo].

10.3. Popularization

- Operation "A la découverte de la recherche" [P. Peterlongo]

IBIS Project-Team

9. Dissemination

9.1. Research

9.1.1. Scientific events: organizing committees

9.1.1.1. Member of organizing committees

IBIS members	Conference, workshop, school	Date
Eugenio Cinquemani	Fifth International Workshop on Hybrid Systems Biology (HSB 2016), Grenoble	October 2017
Hidde de Jong	CompSysBio: Advanced Lecture Course on Computational Systems Biology, Aussois	March 2017
Delphine Ropers	Séminaire de Modélisation du Vivant (SeMoVi), Lyon and Grenoble	2016

9.1.2. Scientific events: selection committees

9.1.2.1. Chair of conference program committees

IBIS member	Conference, workshop, school	Role
Eugenio Cinquemani	European Control Conference (ECC 2016)	Associate editor
Eugenio Cinquemani	Fifth International Workshop on Hybrid Systems Biology (HSB 2016)	Program chair
Hidde de Jong	International Conference on Intelligent Systems in Molecular Biology (ISMB 2016)	Area chair

9.1.2.2. Member of conference program committees

IBIS member	Conference, workshop, program
Eugenio Cinquemani	HSB 2016, SASB 2016
Hidde de Jong	ISMB 2016, ECCB 2016, HSB 2016, FOSBE 2016
Delphine Ropers	JOBIM 2017

9.1.3. Journals

9.1.3.1. Member of editorial boards

IBIS member	Journal
Johannes Geiselmann	Frontiers in Microbiology (review editor)
Hidde de Jong	Journal of Mathematical Biology
Hidde de Jong	Biosystems
Hidde de Jong	ACM/IEEE Transactions on Computational Biology and Bioinformatics

9.1.4. Scientific evaluation and expertise

IBIS member	Organism	Role
Johannes Geiselmann	BGene	Member scientific advisory board
Johannes Geiselmann	ANR	Member of selection committee
Johannes Geiselmann	INRA	Member of scientific advisory committee Microbiologie, Adaptation, Pathogénie
Johannes Geiselmann	UMR5240 CNRS-UCBL-INSA-BayerCropScience	Member scientific council
Johannes Geiselmann	ARC1, Rhône-Alpes region	Member scientific committee
Hidde de Jong	International Human Frontier Science Program (HFSP)	Member selection and review committees
Hidde de Jong	Microbiology and Food Chain Department, Inra	Member scientific council
Hidde de Jong	BGene	Member scientific advisory board
Hidde de Jong	HCERES	Member of evaluation committee of TAGC laboratory (UMR U1090), Marseille

9.1.5. Recruitment committees

IBIS member	Organism	Recruitment
Hidde de Jong	Université Pierre et Marie Curie, Paris	Full professors in systems biology, applied to microbiology and to physiology
Delphine Ropers	Inria Lille	Chargés de recherche (jury d'admissibilité)
Delphine Ropers	Inria	Chargés de recherche (jury d'admission)
Delphine Ropers	INSA de Lyon	Assistant professor

9.1.6. Invited talks

Eugenio Cinquemani

Title	Event and location	Date
Reconstruction of promoter activity statistics from reporter protein population snapshot data	Seminar at Control theory and systems biology laboratory, D-BSSE, Basel, Switzerland	January 2016
Identifying variability of gene expression dynamics from time-course data	Seminar at IBM Research Center, Zurich, Switzerland	January 2016
Reconstruction of promoter activity statistics from reporter protein population snapshot data	Seminar at Automatic control laboratory, ETH Zurich, Switzerland	January 2016
Inference of regulatory networks from time-series reporter gene data: The case of promoter regulation in the E. coli motility network	Invited talk at workshop on Static Analysis in Systems Biology (SASB 2016), Edinburgh, UK	September 2016
On observability and reconstruction of promoter activity statistics from reporter protein mean and variance profiles	Presentation at 5th International Workshop on Hybrid Systems Biology (HSB 2016), Grenoble	October 2016

Hidde de Jong

Title	Event and location	Date
Natural and synthetic control of growth rate and gene expression in bacteria	Seminar Centre de Biologie Intégrative de Toulouse	February 2016
Natural and synthetic control of resource allocation in bacteria	Seminar MIRA institute, University of Twente, the Netherlands	July 2016
A synthetic growth switch based on controlled expression of RNA polymerase	Presentation at 17th International Conference on Systems Biology (ICSB 2016), Barcelona, Spain	October 2016
Natural and synthetic control of resource allocation in bacteria	Journée Biologie des systémes BiLille, Lille	November 2016

Johannes Geiselmann

Title	Event and location	Date
Growth control in bacteria	Seminar at CPBS Montpellier	June 2016

Nils Giordano

Title	Event and location	Date
Dynamical allocation of cellular resources as an optimal control problem: Novel insights into microbial growth strategies	Talk during annual meeting of working group GT-BIOSS, Lyon	July 2016

Stephan Lacour

Title	Event and location	Date
Direct versus indirect gene regulation by the stress response SigmaS factor	Seminar Institut de Biologie Structurale, Grenoble	February 2016
Identification of novel curli regulators in Escherichia coli	Poster at Biofilms7, Porto, Portugal	June 2016
Quantification of non-coding RNAs in bacterial cells using a Broccoli aptamer	Poster at 8th Bordeaux RNA Club Symposium & Aptamers in Bordeaux	June 2016

Aline Métris

Title	Event and location	Date
What does it take for a foodborne pathogen to survive a pinch of salt? Bioinformatics and systems biology approaches to model food safety	Invited researcher seminar Inria Grenoble - Rhône-Alpes	December 2016
Modèles et –omics pour mieux comprendre la réponse des pathogènes alimentaires au stress osmotique	INRA Avignon	December 2016

Delphine Ropers

Title	Event and location	Date
Adaptation of E. coli growth to environmental cues: global control of gene expression and post-transcriptional regulations	Institute for Food Research, Norwich, UK	March 2016
Adaptation of E. coli growth to environmental cues: global control of gene expression and post-transcriptional regulations	Journées INRA-Inria, Mallemort	October 2016

9.1.7. Research administration

IBIS member	Committee	Role
Eugenio Cinquemani	Inria Grenoble - Rhône-Alpes	Member Comité des Emplois Scientifiques (CES)
Eugenio Cinquemani	Inria Grenoble - Rhône-Alpes	Member Comité des Utilisateurs des Moyens Informatiques (CUMI)
Eugenio Cinquemani	Inria	Member Comité Administrative Paritaire (CAP)
Johannes Geiselmann	Department of Biology, Université Grenoble Alpes	Member scientific council
Hidde de Jong	Inria Grenoble - Rhône-Alpes	Member scientific council
Hidde de Jong	Inria	Member working group on International Relations of Conseil d'Orientation Scientifique et Technique (COST)
Delphine Ropers	Inria	Member of Commission d'évaluation d'Inria
Delphine Ropers	Inria Grenoble - Rhône-Alpes	Référente chercheurs
Delphine Ropers	Inria Grenoble - Rhône-Alpes	Member of Comité des études doctorales (CED)

9.2. Teaching - Supervision - Committees

9.2.1. Teaching

Four members of the IBIS team are either full professor, associate professor or assistant professor at the Université Grenoble Alpes. They therefore have a full teaching service (at least 192 hours per year) and administrative duties related to the organization and evaluation of the university course programs on all levels (from BSc to PhD). Besides the full-time academic staff in IBIS, the following people have contributed to courses last year.

Eugenio Cinquemani

Master: Stochastic modelling of gene regulatory networks, M2, BIM, INSA de Lyon (6 h)

Master: Statistics for systems biology, M1, Master Approches Interdisciplinaires du Vivant, CRI/Université Paris Descartes (24 h)

Master: Modelling and identification of metabolic networks, M1, Phelma, INP Grenoble (4 h)

Hidde de Jong

Master: Modeling and simulation of gene regulatory networks, M2, BIM, INSA de Lyon (20 h)

Master: Integrated models of the cell: metabolism, gene expression, signalling, M2, ENS Paris (6 h)

Master: Integrated models of the cell: metabolism, gene expression, signalling, M2, Institut de Technologie et d'Innovation, Paris Sciences Lettres (PSL) (6 h)

Nils Giordano

Bachelor: La bio-informatique : de l'analyse du génome à la modélisation, L2, Université Grenoble Alpes (9 h)

François Rechenmann

E-learning: MOOC Bioinformatique : algorithmes et génomes (https://www.fun-mooc.fr/courses/inria/41003S02/session02/about)

French language version of Bioinformatics MOOC published last year, including the possibility to run the algorithms by means of a dedicated Python notebook (in collaboration with Thierry Parmentelat from Inria Sophia-Antipolis - Méditerranée).

Delphine Ropers

Master: Modelling in systems biology, M1, Phelma, INP Grenoble (16 h)

Master: Modeling and simulation of genetic regulatory networks, M1, Université Grenoble Alpes (6 h)

Master: Modeling and simulation of genetic regulatory networks, M2, INSA de Toulouse (4 h)

9.2.2. Supervision

PhD in progress: **Stefano Casagranda**, Analysis and control of cell growth models. Supervisors: Jean-Luc Gouzé (BIOCORE) and Delphine Ropers

PhD in progress: **Nils Giordano**, Régulation de la croissance chez *Escherichia coli* : étude théorique et expérimentale à l'aide de modèles coûts-bénéfices. Supervisors: Hidde de Jong and Johannes Geiselmann

PhD in progress: **Bernard Chielli Ponce de Leon**, Stochasticity of gene expression in strains of *E. coli* with a controlled growth rate and number of chromosomes. Supervisors: Irina Mihalcescu (Université Grenoble Alpes) and Johannes Geiselmann

PhD in progress: **Thibault Etienne**, Analyse intégrative de la coordination entre stabilité des ARNm et physiologie cellulaire chez *Escherichia coli*. Supervisors: Delphine Ropers and Muriel Cocaign-Bousquet (INRA Toulouse)

PhD in progress: Joël Espel: RNA engineering: Design of the dynamical folding of RNA and of RNA switches. Supervisors: Alexandre Dawid (Université Grenoble Alpes) and Johannes Geiselmann

9.2.3. PhD thesis committees, PhD advisory committees, and habilitation committees

PhD thesis committees

IBIS member	Role	PhD student	University	Date
Hidde de Jong	Rapporteur	Jetse Scholma	University of Twente, the Netherlands	July 2016
Hidde de Jong	Rapporteur	Jean-Baptiste Lugagne	Université Paris Descartes	December 2016
Hidde de Jong	Président	José Morales Morales	Université de Grenoble	December 2016
Hidde de Jong	Rapporteur	Sébastien Raguideau	AgroParisTech	December 2016
Johannes Geiselmann	Président	Jessica Penin	Université de Grenoble	April 2016
Johannes Geiselmann	Rapporteur	Minyeong Yoo	Université Paul Sabatier Toulouse	May 2016
Johannes Geiselmann	Président	Ramachandran Boopathi	ENS de Lyon	May 2016
Johannes Geiselmann	Rapporteur	Ayyappasamy Sudalaiyadum Perumal	Université de Montpellier	June 2016
Stéphan Lacour	Examinateur	Simon Léonard	Université de Lyon	September 2016
Stéphan Lacour	Examinateur	Alice Berry	Université de Grenoble	November 2016

Habilitation (HDR) committees

IBIS member	Role	PhD student	University	Date
Hidde de Jong	Examinateur	Morgan Magnin	Université de Nantes	Avril 2016
Johannes Geiselmann	President	Jan Bednar	Université de Grenoble	December 2015

PhD advisory committees

IBIS member	PhD student	University
Johannes Geiselmann	Jean-Baptiste Lugagne	Université Paris Descartes

9.2.4. Teaching adminstration

Yves Markowicz is director of the BSc department at Université Grenoble Alpes.

Michel Page is coordinator of the master Systèmes d'information et d'organisation at the Institut d'Adminstration des Entreprises (IAE), Université Grenoble Alpes.

Eugenio Cinquemani organizes a module on statistics in systems biology at CRI/Université Paris Descartes.

Delphine Ropers organizes a module on the mathematical modeling of biological systems at PHELMA, INP Grenoble.

Hidde de Jong organizes with Daniel Kahn a module on the modeling of genetic and metabolic networks at INSA de Lyon.

9.3. Science education

Delphine Ropers gave a course on bacteria and antibiotic resistance at the primary school Ecole Bizanet in Grenoble (December 2016).

LIFEWARE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Selection

9.1.1.1. Member of the Conference Program Committees

- Grégory Batt was member of the program committees of:
  - FOSBE'16 6th IFAC Conference on Foundations of Systems Biology in Engineering, Laboratory for Systems Theory and Automatic Control, Otto von Guericke University, Magdeburg, Germany, 9th - 12th October 2016.
  - CMSB'16 14th International Conference on Computational Methods in Systems Biology, Computer Laboratory, University of Cambridge, UK, 21st - 23rd September 2016.
  - HSB'16 5th international workshop on Hybrid Systems Biology, Grenoble, October 20-21, 2016.
- François Fages was member of the program committees of:
  - CIE'16 Computability in Europe, Paris, 2016.
  - CMSB'16 14th International Conference on Computational Methods in Systems Biology, Computer Laboratory, University of Cambridge, UK, 21st - 23rd September 2016.
  - CP'16 22nd International Conference on Principles and Practice of Constraint Programming, Toulouse, France, September 5-9, 2016.
  - HSB'16 5th international workshop on Hybrid Systems Biology, Grenoble, October 20-21, 2016.
  - IJCAI'16 25th International Joint Conference on Artificial Intelligence, New York, 2016.
  - SASB'16 The Seventh International Workshop on Static Analysis and Systems Biology, September 8–10, 2016, Edinburgh, UK
  - WCB'16 12th International Workshop on Constraint-Based Methods for Bioinformatics, Toulouse, 2016.
- Sylvain Soliman was member of the program committees of:
  - CP'16 22nd International Conference on Principles and Practice of Constraint Programming, Toulouse, France, September 5-9, 2016.
  - WCB'16 12th International Workshop on Constraint-Based Methods for Bioinformatics, Toulouse, 2016.
- Sucheendra K. Palaniappan was member of the program committee of Formal Methods for Biological and Biomedical Systems (FMBBS 2016), Shenzhen, China, December 2016.

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

François Fages is member of

- the Editorial Board of the Computer Science area of the Royal Society Open Science journal since 2014,
- the Editorial Board of the journal RAIRO OR Operations Research since 2004.

9.1.2.2. Reviewer - Reviewing Activities

Beyond their Editorial Board and Program Committee duties,

- Grégory Batt reviewed an article for *ACS Synthetic Biology*
- François Fages reviewed articles for *BMC Systems Biology*, *Fundamenta Informaticae*, *BioSystems*, *PLOS-One* and *Computers and Industrial Engineering*.
- Sylvain Soliman reviewed articles for *BMC Systems Biology*, *BioSystems* and *AMS Math Reviews*.

9.1.3. Invited Talks

- François Fages gave invited talks at
  - Workshop on Symbolic Computation for Biological Systems, "Biochemical Programs and Mixed Analog-Digital Algorithms in the Cell", Univ. Bonn, 22 November 2016
  - Bilille scientific day on Systems Biology, "Biochemical Programs and Mixed Analog-Digital Algorithms in the Cell", Univ. Lille, 15 November 2016,
  - Colloque de Cérisy, Sciences de la vie, science de l'information, "Biochemical Programs and Mixed Analog-Digital Algorithms in the Cell", 20 September 2016,
  - Workshop on Formal Verification of Real-Time Systems, "Continuous Valuations of Temporal Logic Specifications with applications to Parameter Optimization and Robustness Measures", ENSTA Brest, 28 June 2016,
  - Workshop on Verification of Biological Systems, "Hybrid Analog/Digital Computation with Biochemical Reaction Systems", ENS Cachan, 17 May 2016,
  - International Worskhop on Entropy and Information, "Digital/Analog Computation in the Cell", Univ Paris-Diderot, 9 May 2016.
  - GT TheorBio, "Computational Systems Biology and Optimization", Orsay, 9 Février 2016.
- Grégory Batt gave invited talks at
  - Seminar at Systems Biology group, Clinical Pharmacology, Roche Pharma Research, on "Multi-scale modeling of TRAIL-induced apoptosis", March 2016, Basel
  - Seminar at Control Theory and Systems Biology Lab, Department of Biosystems Science and Engineering, ETHZ, on "Multi-scale modeling of TRAIL-induced apoptosis", March 2016, Basel
  - Journées Inria Cancer, Modeling dynamics of cell-to-cell variability in TRAIL-induced apoptosis explains fractional killing and predicts reversible resistance, March 2016, Paris
  - Third International Workshop on Synthesis of Complex Parameters, "What population reveals about individual cell identity: Single-cell parameter estimation of models of gene expression in yeast", April 2016, Eindhoven
  - Open University: systèmes hybrides et systèmes biologiques, "Predicting long-term effects of apoptosis-inducing drug treatments", May 2016, ENS Cachan, France
  - Journées scientifiques Inria, "What population reveals about individual cell identity: Single-cell parameter estimation of models of gene expression in yeast", June 2016, Rennes
  - Second Conference of the French Research Group on Synthetic Biology, "Balancing a genetic toggle switch by real-time control or periodic stimulations", June 2016, Bordeaux
  - Second Conference of the French Research Group on Symbolic Systems Biology, "Multi-scale modeling of TRAIL-induced apoptosis", July 2016, Lyon
  - Pasteur Quantitative Biology Symposium, "Balancing a genetic toggle switch by real-time control or periodic stimulations", Oct 2016, Paris

  - Bilille scientific day on Systems Biology, “Balancing a genetic toggle switch by real-time control or periodic stimulations”, Nov 2016, Lille
- Jakob Ruess gave invited talks at
  - Dracula seminar, “Towards real-time in vivo mathematical biology at the level of single cells”, Nov 2016, Lyon

9.1.4. Leadership within the Scientific Community

- Grégory Batt is a member of
  - the IEEE/CSS Technical Committee on Systems Biology,
  - the scientific board of the GDR de Biologie de Synthèse et des Systèmes
  - the GDR de Bioinformatique Moléculaire, in charge of the axis on Biological network modelling, systems biology and synthetic biology
  - co-animator of the French working group on Symbolic Systems Biology GT BIOSS
- François Fages is a member of
  - the Steering Committee of the International Conference on Computational Methods for Systems Biology since 2008,
  - the Scientific Council of the *Doctorate School “Frontières Du Vivant”* at *Center for Research and Interdisciplanirity*, Universities Paris Descartes and Paris Diderot, since 2010,
  - The Scientific Commmittee of the Summer School Ecole Thématique Modélisation Formelle des Réseaux de Régulation Biologique since 2010.

9.1.5. Scientific Expertise

François Fages

- is a member of the jury for the *Prix de thèse Gilles Kahn* of the *Société Informatique de France*, since 2015,
- reviewed one research project for the **Israel Science Foundation**.

Grégory Batt has been a member of the selection committee for Junior research scientists (CR2) at Inria Rennes - Bretagne Atlantique in 2016.

9.1.6. Research Administration

François Fages is member of the “Bureau du Comité des Projets” of Inria Saclay-IdF.

Sylvain Soliman is member of

- the “Commission Scientifique” of Inria Saclay-IdF
- and of the AAP Digiteo/Digicosme Ph.D. grant jury.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: Grégory Batt (coordinator and teacher: 48h) and Jakob Ruess (24h), *Computational Biology*, M1, Master Approches Interdisciplinaires du Vivant (AIV).

Master: Grégory Batt (6h) and Denis Thieffry (coordinator), *Dynamical Modelling of Cellular Regulatory Networks*, M2, Interdisciplinary Master in Life Science at the Ecole Normale Supérieure, Paris.

Master/PhD: Grégory Batt (co-coordinator 80h, teacher 8h) and Jakob Ruess (8h), *Modeling and engineering of biological systems*, M2/PhD, Institut de Technologie et d’Innovation of Paris Sciences et Lettres (PSL-ITI), Paris.

Master: Chiara Fracassi (48h), *Experimental Methods in Biophysics*, M1, Master Approches Interdisciplinaires du Vivant (AIV).

Master: François Fages (coordinator module 48h, teaching 12h), Grégory Batt (12h), and Denis Thieffry (12h), C2-19 *Computational Methods for Systemic and Synthetic Biology*, Master Parisien de Recherche en Informatique (MPRI), Paris.

Doctorate: François Fages (6h), *Méthodes formelles pour la biologie des systèmes*, Ecole Thématique Modélisation Formelle des Réseaux de Régulation Biologique, Ile de Porquerolles, 6-10 June 2016

Master: Chiara Fracassi, *Dynamics of Living Systems*, 24h, M1, Master Approches Interdisciplinaires du Vivant (AIV).

Master: Thierry Martinez, *Développement logiciel*, 17h, M1, Ecole des Ponts et Chaussée, Champs-sur-Marne.

Master: Sylvain Soliman, C2-35-1 *Constraint Programming*, coordinator and teaching 24h, M2, Master Parisien de Recherche en Informatique (MPRI), Paris.

Master: Pauline Traynard, *Introduction to Linux and Programming with Python and R*, M1, M2, 30h, master IMaLiS du département de biologie de l'ENS,

9.2.2. Supervision

PhD : Pauline Traynard, *Model Building by Temporal Logic Constraint Solving: Investigation of the Coupling between the Cell Cycle and the Circadian Clock*, Université Paris Diderot, Paris (Oct 2012), Dir. François Fages and Denis Thieffry (ENS), 10 May 2016.

PhD : François Bertaux. *Cell-based multi-scale modeling for systems and synthetic biology: from stochastic gene expression in single cells to spatially organized cell populations*. Université Paris - Diderot, Dir. Dirk Drasdo (EPI MAMBA) and Grégory Batt, 15 May 2016.

PhD : Jean-Baptiste Lugagne, Université Paris Diderot, Paris (Oct 2012), Dir. Grégory Batt and Pascal Hersen (CNRS, MSC), 13 Dec 2016.

PhD in progress: Jonas Sénizergues, Université Paris Diderot, Paris (Oct 2015, until August 2016), Dir. François Fages and Sylvain Soliman.

PhD in progress (Sept 2016-): Virgile Andréani, Ecole Polytechnique, Paris , Dir. Grégory Batt and Lingchong You (Duke U.).

PhD in progress (Dec 2016-): Jean-Baptiste Caron, relais thèse Inria, Dir. Grégory Batt.

9.2.3. Juries

- HDR: Morgan Magnin, "Contributions à l'élaboration de connaissances qualitatives en bioinformatique", Ecole Centrale de Nantes, *François Fages, Reviewer*, 28 avril 2016.
- Ph.D.: Simona Catozzi, "Retroactivity in Signal Transduction", Univ. Nice Sophia-Antipolis, *François Fages, Examiner*, 15 Dec. 2016.
- Ph.D.: Alexandre Temperville, "Bases creuses en algèbre linéaire exacte et simplification algorithmique de modèles biologiques", Université de Lille, *François Fages, Reviewer*, 11 juillet 2016.
- Ph.D.: Ignacio Salas, "Packing Curved Objects with Interval Methods", Ecole des Mines de Nantes, *François Fages, Reviewer, Chairman of the Jury*, 29 avril 2016.
- Ph.D.: Louis Fippo Fitime, "Modélisation hybride, Analyse et Vérification Quantitative des grands réseaux de régulation biologique", École Centrale de Nantes, *Sylvain Soliman, Examiner*, November 28, 2016.
- Ph.D.: Adel Mezine, "Conduite d'expériences par apprentissage actif pour l'identification de systèmes dynamiques biologiques", Paris-Saclay University, *Grégory Batt, Reviewer*, October 11, 2016.

9.3. Popularization

François Fages

- wrote a book chapter "AI and Biological Modeling" [17], for an encyclopedic book entitled "A guided tour to Artificial Intelligence Research" to appear next year,
- participated in the **Colloque de Cérisy** "Sciences du vivant, sciences de l'information", 20 Septembre 2016, with a conference and an article [18] to appear in a book next year,
- wrote an article for ERCIM news [16],
- and received a schoolgirl for one afternoon in our research team.

MORPHEME Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Organisation

8.1.1.1. Member of the Organizing Committees

Florence Besse was a co-organizer of the SIgnalife Maths-Bio workshop (Sophia, Nov 2016)

8.1.2. Scientific Events Selection

8.1.2.1. Member of the Conference Program Committees

Laure Blanc-Féraud was associate editor of the workshops: New Computational Methods in Inverse Problems - NCMIP 2016 (NCMIP) in ENS Cachan, and Optimization Techniques for Inverse Problems III, Modena Italy 1-21 September 2016

Eric Debreuve: Advanced Concepts for Intelligent Vision Systems (ACIVS) and Reconnaissance des Formes et l'Intelligence Artificielle (RFIA)

Grégoire Malandain was in charge of a special session "Approches RF et vision en imagerie biologique et médicale" at RFIA.

8.1.2.2. Reviewer

Laure Blanc-Féraud was a reviewer for the conference ICIP.

Eric Debreuve was a reviewer for the conferences IEEE International Conference on Image Processing (ICIP) and International Symposium on Biomedical Imaging (ISBI)

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

Grégoire Malandain was reviewer for the conferences EMBC, ISBI, ICPR, MICCAI, and the Second Workshop on BioImage Computing at ECCV 2016.

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

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

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

8.1.3.2. Reviewer - Reviewing Activities

Laure Blanc-Féraud was reviewer for the Journal Signal Processing.

Eric Debreuve was reviewer for the journals IEEE Transactions on Medical Imaging, Signal Processing: Image Communication (Elsevier), and Digital Signal Processing (Elsevier).

Xavier Descombes was reviewer for the journals IEEE on IP, Pattern Recognition and DSP.

Grégoire Malandain was reviewer for the journals CVIU NeuroImage and MedIA.

8.1.4. Invited Talks

Laure Blanc-Féraud was invited to give a talk at the workshops: NCMIP'16 in Cachan in May, ATLAS Workshop organized by the GdR MaDICS in Grenoble in May, and Optimization Techniques for Inverses Problems III in Modena Italy in September.

Xavier Descombes was invited to give a talk at the workshop "Mathématiques et Biologie" organized within the labex Signalife programm.

8.1.5. Leadership within the Scientific Community

Florence Besse is a member of the scientific council (CAC) of the University Cote d'Azur (UCA), a member of the scientific council of the IDEX JEDI Academy 2, and a member of the scientific council of the LabeX Signalife program.

Laure Blanc-Féraud is director of GdR 720 ISIS of CNRS, a group for the animation of research at national french level on the thematics Signal Image and Vision. This group includes around 160 academic laboratories and twenty industrial partners totaling almost 3,000 members. She heads the scientific committee of academy 1 of UCA (COMUE université Côte d'Azur) and Idex UCA JEDI.

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

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

8.1.6. Scientific Expertise

Laure Blanc-Féraud is part of the scientific committee of the Institut des Technologies Avancées en sciences du Vivant" (ITAV, USR CNRS 3505). She headed the HCERES expert committee (18 members) of LabSTICC Lab in Brest and headed the recruitment panel "Comité de sélection" of a MCF at University Paris Descartes in section 26. Sha was member of the scientific committee of the "rencontres du numériques" of ANR. She is expert member of the MIUR: Italian Ministry for Education, University and Research (Italy) and expert for the Fund for Scientific Research - FNRS (Belgium). She was expert for an application at a director of research position in ONERA DTIM.

Xavier Descombes is an expert for the DRRT within the CIR (”Crédit Impot Recherche”) and JEI (”Jeunes Entreprise Innovantes”) programs.

8.1.7. Research Administration

Laure Blanc-Féraud was member of the steering committee of the "défi 7" of the ANR. She was member of the CNRS admission for chargé de recherche at INS2I of CNRS. She is member of the academic council of UCA (COMUE université Côte d'Azur).

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

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

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master: Florence Besse, Genetic control of neuronal branching, 2h, Université Côte d'Azur, France.

Master: Florence Besse, Dissection of neuronal circuits, 4h, Université Côte d'Azur, France.

Master: Florence Besse, Post-transcriptional regulation of neuronal development and maturation, 2h, Nancy, France.

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

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

Master/Engineer: Eric Debreuve, Data Mining, 27.5h équivalent TD, M2/Engineer 5th year, Université Côte d'Azur, France

Master: Eric Debreuve, Introduction to Inverse Problems in Image Processing, 28.5h équivalent TD, International M2, Université Côte d'Azur, France
Master: Xavier Descombes, Traitement d'images, Analyse de données, Techniques avancées de traitement d'images, 10h Eq. TD, Niveau M2, ISAE, France.
Master: Xavier Descombes, Traitement d'images, master VIM, 12h Eq. TD, Niveau M2, Université Côte d'Azur, France.
Master: Xavier Descombes, Bio-imagerie, master IRIV, 6h Eq. TD, Niveau M2, Université de Strasbourg, France
Master: Xavier Descombes, Analyse d'images, master GBM, 9h Eq. TD, Niveau M2, Université Côte d'Azur, France.
Master: Gaël Michelin, Traitement Numérique des Images, 8h Eq. TD, Niveau M2, EPU, Université Côte d'Azur, France.
IUT : A. Razetti, initiation à la mesure du signal, 30h Eq. TD, IUT Nice Côte d'Azur, Université Côte d'Azur, France.
Licence : Emmanuel Soubies, Images et Filtres, 54h Eq.TD, Niveau L3 , EPU, Université Côte d'Azur, France.

8.2.2. Supervision

PhD: Emmanuel Soubies, Sur quelques problèmes de reconstruction en imagerie MA-TIRF et en optimisation parcimonieuse par relaxations continue exacte de critères pénalisés en norme ℓ_0, Université Côte d'Azur, 14 october 2016.
PhD: Gaël Michelin, Outils d'analyse d'images et recalage d'individus pour l'étude de la morphogénèse animale et végétale, 28 october 2016.
PhD in progress: Lola Baustista, DIC microscopy image reconstruction, 1st november 2013, Laure Blanc-Féraud.
PhD in progress: Agustina Razetti, Modelling and characterizing axon growth from in vivo data, 1st november 2014, Xavier Descombes (advisor), Florence Besse (co-supervisor).
PhD in progress: Emmanuelle Poulain, Fluoroscopy/CTA dynamic registration, 1st february 2016, Grégoire Malandain.
PhD in progress: Anca-Ioana Grapa, Characterization of the organization of the Extracellular Matrix (ECM) by Image Processing , 19 September 2016, Laure Blanc-Féraud, Xavier Descombes.

8.2.3. Internships

Nicolas Cedilnik: M1 BIM, UNS, Small particle detection. Supervisors: X. Descombes.
Simon Gazagnes: M2 INSA Lyon. Sparse 3D reconstruction for TIRF-PALM Imaging. Supervisors: L. Blanc-Féraud, E. Soubies.
Djampa Kozlowski: M2 BIM, UNS, Nuclei detection and classification in genome-wide RNAi screens. Supervisors: X. Descombes, F. Besse, F. de Graeve (iBV).
Raphaël Meunier: M1 INSA Toulouse. Classification of the extracellular matrix. Supervisors: X. Descombes, L. Blanc-Féraud.

8.2.4. Juries

Laure Blanc-Féraud participated to the PhD thesis committee of Sébastien Combrexelles (IRIT Toulouse), as reviewer of the HDR of Gabriele Facciolo (ENS Cachan) and reviewer of the 2 PhD thesis: Fred NGole MBoula (CEA Saclay), Meriem Ben Abdallah (CRAN Nancy).
Xavier Descombes participated to the PhD thesis committee of A. Sarr (Univ. de Bretagne)
Grégoire Malandain participated as chair to the PhD thesis committee of D. Chen (Paris Dauphine univ.), G. Michelin (Côte d'Azur univ.) as reviewer to the PhD thesis committee of O. Merveille (Paris Est univ.), A. Sironi (EPFL), and as committee head to the PhD thesis committee of P. Samarakoon (Grenoble Alpes univ.).

8.3. Popularization

Xavier Descombes was invited to give a talk at "La fête de la science" in Juan Les Pins.
The Morpheme team has animated a stand during the "fête de la science" in Juan Les Pins.

PLEIADE Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Journal

9.1.1.1. Member of the Editorial Boards

Alain Franc is member of the editorial board of BMC Evolutionary Biology.

9.1.1.2. Reviewer - Reviewing Activities

Alain Franc has been reviewing in 2016 manuscripts for BMC Evultionary Biology, Nature reports, Methods in Ecology and Evolution, Research in Microbiology, Molecular Ecology.

9.2. Teaching - Supervision - Juries

9.2.1. Juries

A. Franc has been supervisor of PhD Thesis of François Keck, UMR Carrtel, Thonon, Grenoble University, with Agnès Bouchez and Frédéric Rimet as co-supervisors. The PhD has been defended on April, 26, 2016. Reference: https://www.theses.fr/196768691. The topic is the use of phylogenetic signal for improving the assessment of water quality from inventories of diatoms. Three papers have been published by François Keck [7], [8], [9].

A. Franc has been

- member of the committee of the PhD of Cyril Noël at IPREM, University of Pau and Pays de l'Adour (PhD advisor: Cristiana Cravo-Laureau)
- reviewer of the HdR of Jean-Daniel Bontemps on large scale forest growth models, University of Nancy
- reviewer of the HdR of Benoit de Thoisy, University of Cayenne, on "from Pleistocene to likely to the dawn of the sixth extinction crisis: the tormented history of Amazonian mammals".
- member of the jury for PhD defense of Arielle Salmier, University of Cayenne, on the response of chiroptera to changing environment: viral diversity and adaptation, at Cayenne on December, 13, 2016.

D. Sherman was president of the jury for Claire Capdevieille in the Unversity of Bordeaux on Novembre 3, 2016.

D. Sherman was president of a first-year jury for the Mathematics and Computer Science Doctoral School at the University of Bordeaux.

9.2.2. Internships

Rémi Pellerin of the ENS Lyon was an intern in PLEIADE during June–July 2016, and contributed to Declic, a software package written in Python by A. Franc that provides several tools for data analysis, in the domains of multivariate data analysis, machine learning, and graph based methods. It permits users to study in depth the accuracy of the dictionary between molecular based and morphological based taxonomy.

Adrien Lopez of the Collège Henri Brisson in Talence spent a week in PLEIADE for his "stage du troisième".

9.3. Popularization

David Sherman participated in popularization activities based on Thymio-II mobile robots for education, coordinated by the Mobsya association and EPFL (Switzerland). He helped organize a team in the R2T2 event (http://r2t2.org) on November 2, 2016. He contributed code to the Aseba project for piloting Thymio-IIs from the Scratch programming language, and with Thibault Lainé of Inria Bordeaux Sud-Ouest helped improve a photo-realistic simulator for multiple robots.

SERPICO Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. Member of the Organizing Committees

Frédéric Lavancier and Charles Kervrann were head of the organizing committee of the international workshop "Spatial Statistics and Image Analysis in Biology" (SSIAB'16), Inria Rennes, May 2016.

Frédéric Lavancier was head of the workshop "Spatio-Temporal Models and Statistics", IRMAR University of Rennes 1, LMJL University of Nantes, ENSAI, University of Rennes 2, INRA Rennes, Inria Rennes, April 2016.

Patrick Bouthemy and Thierry Pécot were respectively main organizer and co-organizer of the BioImage Computing workshop in conjunction with ECCV'2016, Amsterdam, October 2016.

Patrick Bouthemy and Charles Kervrann were respectively main organizer and co-organizer of the mini-symposium "Image analysis advances in dynamic microscopy and live cell imaging" in SIAM Conference on Imaging Sciences, Albuquerque, New-Mexico, USA, May 2016.

Charles Kervrann was member of the organization committee of the Microscopy school MiFoBio'2016, Seignosse, October 2016.

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

Charles Kervrann: member of the scientific committee of RFIA'2016 (Clermont-Ferrand), Associated Editor for the conference ISBI'2017, member of the scientific committee of the "Image the Cell 2017" conference (Rennes), member of the scientific committee "Journées d'Imagerie Optique Non-Conventionnelle" (JIONC'2016 and JIONC'2017).

Patrick Bouthemy: Associate Editor for the conference ISBI'2016 and ISBI'2017, Area Chair of ICIP'2016, member of the program committee of RFIA'2016.

Thierry Pécot: member of the program committee of BIOIMAGING'2016.

10.1.2.2. Reviewer

Charles Kervrann: reviewer for ICIP'2016, ICASSP'2016, ISBI'2016, ICASSP'2017, ICIP'2017.

Patrick Bouthemy: reviewer for ICIP'2016, ISBI'2016.

Thierry Pécot: reviewer for ISBI'2016, BIOIMAGING'2016.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

Charles Kervrann is Guest Editor of the special issue entitled "Advanced Signal Processing in Microscopy and Cell Imaging" of the IEEE Selected Topics in Signal Processing Journal, February 2016.

Charles Kervrann is Associate Editor of the IEEE Signal Processing Letters journal (since January 2015).

Patrick Bouthemy is co-editor in chief of the open access journal Frontiers in ICT, specialty Computer Image Analysis.

10.1.3.2. Reviewer - Reviewing Activities

Charles Kervrann: BMC Bioinformatics, IEEE Transactions on Computational Imaging, SIAM J. on Imaging Sciences, Methods, expert for the project evaluation in the framework of FONDECYT Science Council (Chile).

Patrick Bouthemy: IEEE Transactions on Image Processing, Mathematical Problems in Engineering, IEEE Signal Processing Letters, IEEE Robotics and Automation Letters, Applied Soft Computing Journal, Computational Intelligence and Neuroscience.

Frédéric Lavancier: Spatial Statistics, R Journal

Thierry Pécot: Bioinformatics, IEEE Transactions on Medical Imaging.

10.1.4. Invited Talks

Charles Kervrann:

Invited talk at the FBI seminar (Paris centre), Computational methods for diffusion, motion and molecular interaction estimation, Pont l'Eveque, February 2016.

Invited talk at the Forum Mathématique Diderot, Computational analysis of intracellular membrane dynamics: from live cell images to biophysical model, Paris, March 2016.

Seminar UTSW, Danuser's lab, Computational analysis of intracellular membrane dynamics: from live cell images to biophysical model, Dallas, TX, USA, May 2016.

Invited talk at SIAM Conference on Imaging Sciences, PEWA: Patch-based Exponentially Weighted Aggregation for image denoising, Albuquerque, New-Mexico, USA, May 2016.

Patrick Bouthemy

Invited talk at SIAM Conference on Imaging Sciences, A scale-adaptive method for retracing and registering in correlative light-electron microscopy, Albuquerque, New-Mexico, USA, May 2016.

Vincent Briane:

Invited talk at SSIAB'2016 workshop, An adaptive statistical test to detect non Brownian diffusion from particle trajectories, Inria Rennes, May 2016.

Thierry Pécot:

Invited talk at SSIAB'2016 workshop, A non-parametric procedure for co-localization studies in fluorescence microscopy, Inria Rennes, May 2016.

Talk and practical course at Microscopy school MiFoBio'2016, mage processing methods for the temporal analysis of moving particles, Seignosse, October 2016.

Seminar IGDR, QuantEv: Quantifying the spatial distribution of intracellular events, Rennes, November 2016.

Frédéric Lavancier:

Seminar of Statistics and Probability in Lille 1, Determinantal point process models and statistical inference, Lille, March 2016.

Seminar in Statistics of University Toulouse 1, A general procedure to combine estimators, Toulouse, June 2016.

Invited talk at "Journées MAS", Determinantal point process models and statistical inference, Grenoble, August 2016.

10.1.5. Scientific Expertise

Charles Kervrann:

Member of the IEEE BISP "Biomedical Image and Signal Processing" committee.

Member of executive board of the GdR MIV (2588 - Microscopie Fonctionnelle du Vivant) CNRS.

Member of the scientific committee of the Interdisciplinary MiFoBio School CNRS (http://www.mifobio.fr).

Patrick Bouthemy:

Member of the board of AFRIF (Association Française pour la Reconnaissance et l'Interprétation des Formes).

Member of the Research Committee of Telecom Bretagne.

Frédéric Lavancier:

Elected member of CNU section 26.

Expert for the project evaluation in the framework of FNRS (Fonds de la Recherche Scientifique), Belgium.

10.1.6. Research Administration

Charles Kervrann:

Member of the executive board of the project committee of the Inria Rennes - Bretagne Atlantique centre.

Member of the Scientific Council of the INRA Rennes Research Centre.

Co-head of the "BioImage Informatics" node (ANR France-BioImaging project, National Infrastructure en Biologie et Santé).

Patrick Bouthemy:

Head of Excellence Lab CominLabs since April 2014.

Deputy member of the board of directors and member of the Selection and Validation Committee of the Images & Réseaux competitivity cluster.

Deputy member of the board of directors of IRT (Technological Research Institute) b<>com.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Charles Kervrann:

Engineer Degree: Genomics and Informatics, 4.5 hours, Ecole Nationale Supérieure des Mines de Paris.

Master: From Bioimage Processing to BioImage Informatics, 5 hours, coordinator of the module (30 hours), Master 2 Research IRIV, Telecom-Physique Strasbourg and University of Strasbourg.

Master: Geometric Modeling for Shapes and Images, 6 hours, Master 2 Research SISEA, University of Rennes 1.

Engineer Degree and Master 2 Statistics and Mathematics: Statistical Models and Image Analysis, 37 hours + 15 hours (TP, Emmanuel Moebel), 3rd year, Ecole Nationale de la Statistique et de l'Analyse de l'Information (ENSAI), Rennes.

Patrick Bouthemy:

Master: Analysis of Image Sequences, 18 hours, Master 2 Research SISEA, ISTIC & University of Rennes 1.

Master: Video Indexing, 9 hours, Master 2 Research Computer Science, ISTIC & University of Rennes 1.

Engineer Degree and Master 2 Research IRIV: Motion Analysis, 12 hours, Telecom-Physique Strasbourg & University of Strasbourg.

Frédéric Lavancier:

Master: Linear Models, 36 hours, Master 2 Mathematics & Engineering, option Statistics, University of Nantes.

Master: Time Series, 36 hours, Master 2 Mathematics & Engineering, option Statistics, University of Nantes.

10.2.2. Supervision

PhD in progress: Arnaud Poinas, Inference for inhomogeneous determinantal point processes, started in September 2016, supervised by Bernard Delyon and Frédéric Lavancier

PhD in progress: Hoai Nam Nguyen, Methods and algorithms for tissue microarrays image analysis, started in October 2013, supervised by Charles Kervrann and Vincent Paveau (Innopsys).

PhD in progress: Vincent Briane, Statistical methods and models for motion analysis in microscopy, started in October 2014, supervised by Charles Kervrann and Myriam Vimond (ENSAI-CREST).

PhD in progress: Bertha Mayela Toledo Acosta, Methods and algorithms for 3D image registration and correlative microscopy, started in October 2014, supervised by Patrick Bouthemy and Charles Kervrann.

PhD in progress: Emmanuel Moebel, New strategies for the nonambiguous identification and enumeration of macromolecules in cryo electron tomograms, started in November 2015, supervised by Charles Kervrann.

PhD in progress: Juan Manuel Perez Rua, Semantically meaningful motion descriptors for video understanding, started in January 2015, supervised by Patrick Bouthemy in collaboration with Tomas Crivelli and Patrick Pérez (Technicolor).

PhD in progress: Ancageorgiana Caranfil, Data assimilation methods for cell division mechanisms and molecule trafficking analysis, started in December 2016, supervised by Charles Kervrann and Yann Le Cunff.

PhD in progress: Sandeep Manandhar, Optical flow methods for 3D fluoresence imaging, started in October 2016, supervised by Patrick Bouthemy and Charles Kervrann.

10.2.3. Juries

Referee of PhD thesis: G. Michelin (University of Côte d'Azur, supervised by G. Malandain) [P. Bouthemy], L. Azzari (Tampere University of Technology, Finland, supervised by A. Foi) [C. Kervrann], H. Robjani (University of Strasbourg, supervised by C. Ronse) [C. Kervrann].

TAPDANCE Team

6. Dissemination

6.1. Promoting Scientific Activities

6.1.1. Scientific Events Organisation

6.1.1.1. Chair of Conference Program Committees

Woods. Program committee (PC) co-chair for DNA22: The 22nd International Conference on DNA Computing and Molecular Programming, 2016. Munich, Germany (co-chairing with Yannick Rondelez, CNRS, ESPCI)

6.1.1.2. Member of the Conference Program Committees

Woods. AUTOMATA 2016. 22nd International Workshop on Cellular Automata & Discrete Complex Systems, ETH Zürich, Switzerland

6.1.1.3. Reviewer

Woods was reviewer for several conferences and journals (not listed for confidentiality reasons).

6.1.2. Invited Talks

- Woods. Transversal aspects of tilings, month-long workshop/course, Oléron, France. Week 1 lectures on Theory and Experiments with Algorithmic Self-Assembly. Invited lecture series.
- Woods. Dagstuhl Seminar 16271 on Algorithmic Foundations of Programmable Matter, 3-8 July 2016 (Germinay).
- Woods. Oxford University, Department of Computer Science, UK, 2016.
- Woods. Journées GT COA, Bordeaux. Evaluating a large class of Boolean circuits via algorithmic self-assembly of DNA strands. 28-29 Nov, 2016.
- Woods. 15éme Journées de la Matière Condensée, Bordeaux 22-26 Aug 2016 (JMC15). Evaluating a large class of Boolean circuits via algorithmic self-assembly of DNA strands

6.2. Teaching - Supervision - Juries

6.2.1. Teaching

Woods made preparations, including visits, to teach a 1-week school at ENS Lyon showing students both theoretical results and wet-lab experimental results. Also, students took part in wet-lab experiments, as well as carrying out projects in teams (involving both theory and experiments). The school occurred in the week of Jan 16-20, 2017.

6.2.2. Juries

In 2016 Woods was PhD examiner for: Frits Dannenberg. Oxford University, 2016 (Supervisors: Marta Kwiatkowska & Andrew Turberfield) Thesis title: Modelling and verification for DNA nanotechnology

VIRTUAL PLANTS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. Member of the Organizing Committees

Yann Guédon was member of the organizing committee of the 48ème journées de statistique de la SFdS.

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

Christophe Godin and Yann Guédon were members of the program committee of the IEEE International Conference on Functional-Structural Plant Growth Modeling, Simulation, Visualization and Applications (FSPMA 2016).

9.1.2.2. Reviewer

Frédéric Boudon was referee for papers submitted to Eurographics and Siggraph Asia and was a rewiever and a member of the jury for best paper of the Journée Francaise d'Informatique Graphique (jFIG).

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Christophe Godin is a member of the Editorial Board of Frontiers in Plant Sciences. He was also a guest editor for PLoS Computational Biology,

9.1.3.2. Reviewer - Reviewing Activities

- Yann Guédon was referee for papers submitted to Functional Ecology and Journal of Internet Services and Applications.
- Christophe Godin reviewed papers for several journals in plant sciences and modelling.

9.1.4. Invited Talks

- C. Godin gave invited talks at RDP-ENS-Lyon research unit in Lyon (January), at the African Institute for Mathematical Sciences (AIMS), Dakar, Senegal, (February), at the University of Lund, Sweden (June), at the Journées scientifiques Inria, Rennes, (June), at the European Conference on Computational Biology and Bioinformatics, The Hague, The Netherlands (September), Inria/Inra joint meeting programme, Aix-en-Provence, (October), at CRBM research unit in Montpellier (October), BPMP research unit in Montpellier (December), and a plenary talk at the International workshop on multiscale modeling of complex systems in plant and developmental biology, U. Riverside, USA (December).
- F. Boudon gave invited talks at the workshop "Tree data and modelling", Tampere, Finland (June), in the AGAP scientific seminar and at the journée AGAP.
- Y Guédon gave an invited talk at the AGAP scientific seminar.
- C. Pradal gave invited talk at the "Agricultural Model Exchange Initiative" in Bologna, Italy (June), at the workshop "Multi-scale Plant Modeling" at the Pacific Northwest National Laboratory, USA (August), and at the workshop SUCCES, in Paris (November).

9.1.5. Leadership within the Scientific Community

- Christophe Godin is member of the Board of the Functional Structural Plant Models series of conferences.

- Christophe Godin is co-coordinator with Patrick Lemaire of the 4th Research Axis on Imaging in Biology and Modeling of the Institute for Computational Biology (IBC) of Montpellier.
- Christophe Godin spent 3 days at the African Institute for Mathematical Sciences (AIMS) to study potential future collaborations between Inria and AIMS in Dakar.

9.1.6. Scientific Expertise

- Christophe Godin is a member of the International Scientific Advisory Committee of the new Plant Phenotyping and Imaging Research Centre (P2IRC), Saskatchewan, Canada.
- Christophe Godin is a member of the Review and Mentoring committee of James Lock's group in Sainsbury Lab, Cambridge, UK.
- Christophe Godin is a member of the scientific councils of the Environnement-Agronomie department (up to August 2016) and of the Biologie et Amélioration des Plantes Department at Inra (Starting September 2016).

9.1.7. Research Administration

- Christophe Godin is a member of the project committee board at Sophia-antipolis Mediterrannée Reacher Center
- Christophe Godin is also part of the steering board of the Institute for Computational Biology (IBC) of Montpellier.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master Computer Science: Frédéric Boudon, Guillaume Cerutti, Christophe Godin, Christophe Pradal and David Vanderhaege and Loïc Barthe [IRIT, Toulouse], Computer graphics, 45h, M2, University Montpellier, France.

Master Computer Science: Christophe Godin, Frédéric Boudon, Computational and Discrete Geometry and graphics, 15h, M1, University Montpellier, France.

Master Functional Plant Biology: Christophe Godin, Introduction to plant modeling, 25h, M2, University Montpellier, France.

Master Life Sciences (IMaLiS): module co-organized by Patrick Lemaire and Christophe Godin, Animal and Vegetal Morphogenesis, 6 days, 4 h + TD supervision every afternoon, ENS Paris, Montpellier, France.

Master Functional Plant Biology: Christophe Godin, Phyllotaxis class in a module on Mathematical modeling in biology, 4h, M2, University Montpellier, France.

Master Functional Bioinformatics: Christophe Godin and Patrick Lemaire (Coordination O. Radulescu), Modeling in biology, 5h, M2, University Montpellier, France.

Master Biostatistics: Yann Guédon and Pierre Fernique, Stochastic processes, 32h, M2, University Montpellier, France.

Master Bioinformatique - Biomathématiques: Christophe Godin, iPlant, Modeling organ development, 4h, M2, Cheikh Anta Diop University (UCAD), Dakar, Senegal.

Master Plant Breeding: Christophe Pradal, Plant modelling, 4h, M2, Project CultiVar, University Montpellier, France.

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

9.2.2. Supervision

- PhD in progress : Anne Schneider, *"Modeling branching in Roses"*, Angers University, Jessica Bertheloo, C. Godin, F. Boudon.

- PhD in progress : Hadrien Oliveri, *"Mechanical modeling of organ growth"*, Montpellier University, C. Godin, J traas and O. Ali.
- PhD in progress : Jean-Louis Dinh, *"Coupling flux and growth models in plant development"*, Nottingham University, C. Hodgman, C. Godin.
- PhD in progress : Jean-Philippe Bernard, *"Meshless methods for organ development"*, Montpellier University, C. Godin, B. Gilles.
- PhD in progress : Severine Persello, *"Structural-Functional modeling of yield and fruit quality build-up of the mango, and integration of the effects of cultural practices"*, Montpellier University, F. Normand, I. Grechi, F. Boudon.
- PhD : Beatriz Moreno-Ortega, Developmental instability in lateral roots of maize: a multi-scale analysis, Montpellier SupAgro, December 12th 2016, Betrand Muller, Yann Guédon.
- PhD : Sixtine Passot, Exploring pearl millet root system and its outcome for drought tolerance, Montpellier University, September 30th 2016, Laurent Laplaze, Yann Guédon.
- PhD in progress : Marc Labadie, Study of the alternation between vegetative and floral development in strawberry: spatio-temporal architecture and analysis of key flowering genes, Bordeaux University, Béatrice Denoyes, Yann Guédon.

9.2.3. Juries

- Christophe Godin was the Opponent of Beruz Bozorg, June, University of Lund, Sweden, a member of the PhD Jury of Gaël Michelin, October University Cote d'Azur, Président of the PhD Jury of Sam Caullodin, December ENS-Lyon. He also participated in the PhD committees of Adrien Corot (AgroparisTech), Léo Serra (AgroParisTech) and Mathilde Dumond (ENS-Lyon).
- Yann Guédon was referee of Philippe Cuvillier PhD: On temporal coherency of probabilistic models for audio-to-score alignment, Pierre and Marie Curie University, Paris, December 15th 2016, Arshia Cont (supervisor).

9.3. Popularization

- Olivier Ali is a member of the writing committee of the newsletter of the Sophia-Antipolis Méditerrannée Inria Centre.
- High School: Christophe Godin gives regular 2h classes at Lycée Pompidou (Montpellier) and in other Lycées.
- Christophe Godin gave two invited seminars in the context of the Maths Week (March), at the Lycée International de Valbonne, France.
- Christophe Godin gave an interview to the European Journal Labtimes about their paper published in eLife: Alejandrolvido (2016). Green noise. Labtimes 5, 34–35.

ARAMIS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Selection

10.1.1.1. Member of the Conference Program Committees

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

S. Durrleman was on the advisory panel of MICCAI Workshop on Spectral and Shape Analysis in Medical Imaging (SESAMI)

F. De Vico Fallani was member of the program committee of the Satellite on Brain networks, International Conference on Network Science (NetSci), Seoul, South Korea, 2016

F. De Vico Fallani was member of the program committee of5th International Workshop on Complex Networks and their Applications, Milan, Italy, 2016

10.1.1.2. Reviewer

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

S. Durrleman acted as a reviewer for Computer Vision and Pattern Recognition (CVPR), International Conference on Computer Vision (ICCV), and Workshop on Biomedical Image Registration (WBIR).

10.1.2. Journal

10.1.2.1. Member of the Editorial Boards

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

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

10.1.2.2. Reviewer - Reviewing Activities

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

S. Durrleman acted as a reviewer for NeuroImage, IEEE Trans Medical Imaging, Medical Image Analysis, Frontiers in Neuroimaging, International Journal of Computer Assisted Radiology and Surgery (IJCARS), Advances in Data Analysis and Classification, among others.

A. Bertrand acted as a reviewer for Neurobiology og Aging, Frontiers in Neuroscience, American Journal of Neuroradiology, Journal of Neuroradiology.

F. De Vico Fallani acted as a reviewer for Brain, Cerebral Cortex, IEEE TBME/TNRSE, Human Brain Mapping, Neuroimage, Plos Computational Biology, J Neurosci Meth, Sci Rep, Brain Connectivity.

10.1.3. Invited Talks

S. Durrleman gave an invited lecture at the International Colloquium "Evolution du cerveau et des capacités cognitives des Hominidés fossiles depuis Sahelanthropus tchadensis, il y a sept millions d'années jusqu'à l'Homme moderne" in Tautavel.

F. De Vico Fallani gave an invited talk at the Workshop on Complex networks, Lipari, Italy, 2016

F. De Vico Fallani gave an invited talk Meeting on Dynamics and synchronization on complex networks, Tarragona, Spain, 2016

F. De Vico Fallani gave an invited talk Workshop on Dynamic networks, Institut Systèmes Complexes, Toulouse, France, 2016

F. De Vico Fallani gave an invited talk Satellite on Brain networks, International Conference on Network Science (NetSci), Seoul, South Korea, 2016

10.1.4. Scientific Expertise

S. Durrleman has served in the “Commission de développement technologique” (CDT) of the Inria Paris center.

S. Durrleman has led a working group on neuroinformatics at the ICM (Brain and Spine Institute).

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

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

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

Master: Stanley Durrleman, Master in Computer Science, 9 hours (eqTD), Université Pierre et Marie Curie

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

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

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

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

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

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

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

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

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

Medical school: Anne Bertrand, Courses for Medical Students, Université Pierre et Marie Curie

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

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

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

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

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

10.2.2. Supervision

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PhD in progress: Lou Albessard, "Etude de la co-variation morphologique entre le crâne et le cerveau dans le genre Homo", started 2015, advisors: D. Grimaud-Hervé and S. Durrleman

Master 2: Alexandre Morin, Master in Neuroscience, Université Pierre et Marie Curie, Oct 2015-Aug 2016, advisor: Olivier Colliot

Master 2: Thomas Jacquemont, Master in Neuroscience, Université Pierre et Marie Curie, Oct 2015-Aug 2016, advisor: Olivier Colliot

Master 2: Martina Sundqvist, Master in Cognitive Science, Ecole Normale Supérieure, Oct 2015-Aug 2016, advisors: Olivier Colliot and Marc Teichmann

Master 2: Enrico Valenti, Master in Psychiatry, Université Sapienza, Rome, Italy, Sep 2016-Dec 2016, advisor: Fabrizio De Vico Fallani

Master 2: Carlos Tor Diez, Master in BioMedical Engineering, ParisTech Universite Paris Descartes, Mar-Sept 2016, advisor: Marie Chupin

Internship: Ayoub Louati, Tunisia Polytechnic School, Mar-Sept 2016, advisor: Marie Chupin

10.2.3. Juries

Fabrizio De Vico Fallani participated, as referee, to the PhD committee of Aziz Adebimpe (Université Picardie), 2016 (supervisors: Fabrice Wallois and Ardalan Aarabi).

Mario Chavez participated, as referee, to the PhD committee of Aziz Adebimpe (Université Picardie), 2016 (supervisors: Fabrice Wallois and Ardalan Aarabi).

Olivier Colliot participated, as referee, to the PhD committee of Mehdi Hadj-Hamou (Inria Sophia), 2016 (supervisors: Xavier Pennec and Nicholas Ayache).

Olivier Colliot participated, as examiner, to the PhD committee of Bishesh Kanal (Inria Sophia), 2016 (supervisors: Xavier Pennec and Nicholas Ayache).

Olivier Colliot participated, as examiner, to the PhD committee of Baptiste Morel (Telecom ParisTech), 2016 (supervisors: Isabelle Bloch and Catherine Adamsbaum).

Olivier Colliot participated, as examiner, to the PhD committee of Romain Colle (Université Paris-Sud), 2016 (supervisor: Emmanuelle Corruble).

10.3. Popularization

With the precious help of the communication department of the Inria Paris Center, ARAMIS prepared and presented games on brain data analysis, presented at the "Salon Culture et Jeux Mathématiques" and at the "Fête de la Science".

ASCLEPIOS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

- **X. Pennec** organized a workshop on the Geometry of shapes Workshop (Math in the Mine) from June 26 to July 2, 2016, at la Minière de Vallauria, Alpes Maritimes, FR.

9.1.1.2. Member of the Organizing Committees

- **M. Sermesant** was a co-chair of the MICCAI 2016 Workshop Statistical Atlases and Computational Models of the Heart (STACOM 2016), which was held in Athens, Greece, on October 17, 2016. He also co-organised the Cardiac Imaging Research Day at the French Radiologists Conference.

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

- **X. Pennec** was a member of the program committee of RFIA RFP 2016 (Reconnaissance de Formes et Perception) (Clermont-Ferrand, FR), the 2nd Int. W. on Differential Geometry in Computer Vision Diff-CVML'16, Las Vegas, USA), and of the Workshop on Biomedical Image Registration (WBIR 2016, Las-Vegas, USA).
- **H. Delingette** was program committee member of the conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2016), the MICCAI 2016 workshop on Simulation and Synthesis of Medical Imaging (SASHIMI'16), and the Eurographics conference on Visual Computing for Biology and Medicine (VCBM'16).

9.1.2.2. Reviewer

- **H. Delingette** was a reviewer for the International Symposium on Biomedical Imaging (ISBI'16), the international conference on computer-aided interventions (IPCAI'16), the conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2016), the European Conference on Computer Vision (ECCV 2016), the International Conference on Computer Vision and Pattern Recognition (CVPR 2016).
- **M. Sermesant** was a reviewer for the MICCAI 2016 conference.
- **X. Pennec** was a reviewer for the conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2016), the European Conference on Computer Vision (ECCV 2016) and the int. Workshop on Representation, analysis and recognition of shape and motion FroM Imaging data (RFMI 2016).

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

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

[0] http://www.elsevier.com/wps/find/journaleditorialboard.cws_home/620983/editorialboard

9.1.3.2. Reviewer - Reviewing Activities

- **H. Delingette** was a reviewer for the following journals: *Medical Image Analysis* (Elsevier), IEEE Transactions in Medical Imaging, IEEE Transactions in Biomedical Engineering, Computer Vision and Image Understanding, Biomedical Engineering, Computers in Biology and Medicine and Journal of Fluids and Structures.
- **X. Pennec** was a reviewer for the following journals: Biometrika, Chaos, Proceedings on the London Mathematical Society (PLMS), SIAM journal on Imaging Sciences (SIIMS), Medical Image Analysis (MedIA), IEEE Transactions on Pattern Analysis (PAMI), NeuroImage (NIMG).
- **M. Sermesant** was a reviewer for the following journals: Journal of the American College of Cardiology, IEEE Transactions on Medical Imaging, IEEE Transactions on Biomedical Engineering, Medical Image Analysis and Computers in Biology and Medecine.

9.1.4. Invited Talks

- **Nicholas Ayache** gave the following invited lectures:
  - To honor Michel Lazdunski, Nice Hospital, January 2016
  - Science and Society event, Toulouse, May 2016
  - Institut Universitaire de France, Annual Event, Rennes, June 2016
  - Connected Health, Monaco, June 2016
  - SSIMA Summer School, Bucharest, July 2016
  - MISS Summer School, Favigna, August 2016
  - Academy of Sciences , Sept 2016
  - IHU Liryc, Bordeaux, Sept 2016
- **Hervé Delingette** gave the following invited lectures at the:
  - MICCAI 2016 Programme Committee Workshop on May 27th in London.
  - Biomedical Image Analysis Seminar at University of Basel on November 22nd.
- **Xavier Pennec** gave invited lectures at the following events:
  - Colloquium of the Dieudonné Lab (LJAD), Nice University, October 10, 2016.
  - VIth Int. W. on Representation, analysis and recognition of shape and motion FroM Imaging data (RFMI 2016), Sidi Bou Said village, Tunisia, October 27-29 2016.
  - International Workshop on Geometry, PDE's and Lie Groups in Image Analysis, Eindhoven (NL) 24-26 August 2016.
  - Workshop on Geometry and Stochastics of Nonlinear, Functional and Graph Data, Bornholm (DK), 15-19 August 2016.
  - 12th IEEE IVMSP Workshop 2016, Bordeaux (FR), July 11-12, 2016.
  - Statistical Analysis of Manifold-Valued Data and Beyond: Nottingham workshop, 4-6 April 2016, UK.
  - Mathematical Imaging and Surface Processing, Mathematisches Forschungsinstitut Oberwolfach (DE), 24-30 January 2016.
- **Maxime Sermesant** gave an invited lecture at the Virtual Physiological Human Summer School, Barcelona.

9.1.5. Leadership within the Scientific Community

- **H. Delingette** is a member of the MICCAI Society Board of Directors from 2016 to 2019.
- **Nicholas Ayache** is a member of the French Academy of Sciences in the section of Mechanics and Informatics.

9.1.6. Scientific Expertise

- **Nicholas Ayache** was invited in Nagoya, Japan in February 2016 to evaluate a national program on the "Multidisciplinary Computational Anatomy Initiative" funded by the MEXT. He has been a member of the Research Council of the "Fondation pour la Recherche Médicale (FRM)" since January 2015.
- **Xavier Pennec** was an evaluator for the Fonds de la Recherche Scientifique-FNRS, Belgium, the Alpes Grenoble Innovation Recherche (AGIR) projects, and for the PhD fellowships of Ecole Normale cachan.
- **H. Delingette** was an evaluator for the ECOS Sud France-Chili program, for the European Research Concil, for the Comet program in Austria (FWF), for the International Graduate School of Science and Engineering (IGSSE) of the Technical University of Munich.
- **M. Sermesant** is a member of the Medical Simulation Working Group of Aviesan.

9.1.7. Research Administration

- **Nicholas Ayache** is a member of the scientific council of the Ile de France region since 2016.
- **Xavier Pennec** is a member of the Doctoral follow-up Committee (CSD) at Inria Sophia Antipolis, of the the "Comité de la Recherche Biomédicale en Santé Publique (CRBSP)" of the Nice hospitals, in charge of the relationships of Inria-Sophia with the Nice University Hospital (CHU), of and the board of the Ecole doctorale STIC.
- **H. Delingette** is a member of the local committee in charge of the scientific selection of visiting scientists (Comité NICE) and the local committee on the immersive platform.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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

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

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

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

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

9.2.2. Theses Defended

- Pietro Gori , *Statistics on the brain connectivity of patients with neurological diseases*, University of Paris. Started in 2012. Thesis in collaboration with the Aramis project-team, co-directed by O. Colliot, S. Durrleman and N. Ayache. Defended on January 8, 2016.
- Mehdi Hadj-Hamou, *Biophysical modeling of the anatomical evolution of the brain*, Nice Sophia Antipolis University. Co-directed by N. Ayache and X. Pennec. Defended on December 14, 2016.
- Bishesh Khanal, *Modeling the atrophy of the brain in Alzheimer's disease*, Nice Sophia Antipolis University. Co-directed by X. Pennec and N. Ayache. Defended on July 20, 2016.
- Nina Miolane, *Geometric Statistics in Computational Anatomy: Template Estimation and Subspace Learning in Manifolds, Lie groups and Stratified Spaces*, Nice-Sophia Antipolis University. Directed by X. Pennec. Defended on December 16, 2016.

- Anant Vemuri, *Inter-operative biopsy site relocalization in gastroscopy : application to oesophagus*, Nice Sophia Antipolis University. Co-directed by S. Nicolau and N. Ayache. Defended on April 26th 2016.
- Matthieu Lê, *Brain tumor growth modeling : application to radiotherapy imaging*, Nice Sophia Antipolis University. Co-directed by H. Delingette and N. Ayache. Defended on June 23rd 2016.
- HdR : Maxime Sermesant, When Cardiac Biophysics Meets Groupwise Statistics: Complementary Modelling Approaches for Patient-Specific Medicine, Universite Nice Sophia Antipolis, June 9.

9.2.3. PhD in progress

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

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

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

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

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

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

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

Qiao Zheng, *Deep learning for cardiac image analysis*, Nice Sophia Antipolis University. Started in January 2016. Co-directed by N. Ayache and H. Delingette.

Shuman Jia, *Population-based Model of Atrial Fibrillation: from Shape Statistics to Group-wise Physiology*, Nice Sophia Antipolis University. Started in 2016. Co-directed by M. Sermesant and X. Pennec.

Wen Wei, *Learning Brain Alterations in Multiple Sclerosis from Multimodal Neuroimaging Data*, Nice Sophia Antipolis University. Started in 2016. Co-directed by N.Ayache and O.Colliot.

Julian Krebs, *Robust image registration based on machine learning*, Nice Sophia Antipolis University. Started in 2016. Co-directed by H. Delingette and N. Ayache.

9.2.4. Juries

N. Ayache was co-supervisor of the PhD theses of Matthieu Lê (Univ. of Nice Sophia Antipolis), Anant Vemuri (Univ. of Nice Sophia Antipolis), Pietro Gori (University of Paris), Mehdi Hadj-Hamou (Univ. of Nice Sophia Antipolis), and Bishesh Khanal (Univ. of Nice Sophia Antipolis). He was a member of the PhD thesis committee of Nina Miolane (Univ. of Nice Sophia Antipolis).

Hervé Delingette was co-supervisor of the PhD thesis of Matthieu Lê (Univ. of Nice Sophia Antipolis). He was a reviewer in the PhD thesis committee of Vincent Jaouen (Univ. of Tours) and of Tom Haeck (University KUL Leuven, Belgium). He was a member of the PhD thesis committee of Bishesh Khanal (Univ. of Nice Sophia Antipolis).

Xavier Pennec was supervisor or co-supervisor of the PhD theses of Bishesh Khanal (Univ. of Nice Sophia Antipolis), Mehdi Hadj-Hamou (Univ. of Nice Sophia Antipolis) and Nina Miolane (Univ. of Nice Sophia Antipolis).

Maxime Sermesant was a reviewer and a member of the PhD jury of Andjela Davidovic, Bordeaux University (Dec 9).

9.3. Popularization

- Nina Miolane participated to the following popularization events:
  - Speaker at Unesco France's Ceremony for 70th Anniversary.
  - Speaker at the Women Forum Global Meeting 2016. How to bring more women in the sci-tech workforce?
  - Speaker at the L'Oreal-Unesco Prizes Ceremony 2016.
  - Journal regional de France 3 Azur (Oct. 31 2016)
  - Invited on "Le Club de la Tete au Carre". France Inter (National Radio), Oct. 14 2016.
- M. Sermesant gave general audience lectures in regional high schools, during the Science Festival in Juan-les-Pins Congress center (Oct 23), and during the Inria-Industry meeting (Dec 1).

ATHENA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

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

10.1.1.2. Member of the Organizing Committees

- M. Clerc organized, with Bruno Cessac from Biovision team,the conference neurostim2016.inria.fr on neurostimulation of the sensory and central nervous systems.

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

- R. Deriche is member of the conference Programme Committee (PC) of the International Symposium on Biomedical Imaging (ISBI), member of the PC of MICCAI 2016 Workshop on Computational Diffusion MRI and member of the PC of MFCA 2016 MICCAI workshop on Mathematical Foundations of Computational Anatomy.
- Demian Wassermann, member of the Program Committee of MICCAI 2016.
- Maureen Clerc was member of the BCI Meeting 2016 Program Committee.

10.1.2.2. Reviewer

- R. Deriche serves several international institutions in reviewing applications : ERC Grants, Swiss National Science Foundation, the Netherlands Organisation for Scientific Research (NWO)...
- R. Deriche serves several international conferences (Isbi, MICCAI, ISMRM...) and international workshops (CD-MRI Miccai, MFCA Miccai...).
- T. Papadopoulo serves several international conferences as a reviewer (ICIP, EMBC, MICCAI, ISBI, CDMRI, HBM).
- D. Wassermann serves several international institutions in reviewing applications: ANR, the Netherlands Organisation for Scientific Research (NWO), ...
- D. Wassermann serves several international conferences as a reviewer (MICCAI, ISMRM, HBM, CDMRI, etc)

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

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

- M. Clerc is member of the Editorial Board of Biomedical Engineering OnLine, and of the ISTE-Wiley book series.

10.1.3.2. Reviewer - Reviewing Activities

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

10.1.4. Invited Talks

- M. Clerc gave invited talks at: Seminar SIESTE (ENS Lyon, March 2016), Imaging Seminar in Paris (Institut Henri Poincaré, November 2016)
- R. Deriche gave two plenary talks at the *13th IEEE International Conference on Signal Processing, November 7, 2016* in Chengdu and at the *Big Data in Medical Imaging Forum, November 10th, 2016* in Guiyang, both in China.
- R. Deriche gave a plenary talk at the *Summer school on Brain Connectomics, September 20, 2016* in Verona, Italy.
- T. Papadopoulo gave an invited talk in the ChildBrain symposium at the *Biomag conference, October 6, 2016* in Seoul, Korea [20].
- D. Wassermann gave a invited talks at: Stanford Medical School and at the Brain and Spine Institute, Paris.

10.1.5. Leadership within the Scientific Community

- M. Clerc coordinates the Inria Project Lab BCI-LIFT.
- R. Deriche is the P.I of the ERC AdG CoBCoM.

10.1.6. Scientific Expertise

- M. Clerc is a member of the Inria Evaluation Committee since 2015.
- M. Clerc is a member of the Scientific Committee of Académie 4 of University Côte d'Azur.
- R. Deriche is a member of the Scientific Committee of Académie 2 of University Côte d'Azur.
- R. Deriche serves several international institutions in reviewing applications : ERC Grants, Swiss National Science Foundation, the Netherlands Organisation for Scientific Research (NWO).

10.1.7. Research Administration

- M. Clerc is Déléguée Scientifique Adjointe (vice-head of Science) of the Sophia Antipolis Inria Research Center since 2014.
- M. Clerc is member of the Commission Scientifique Interne (CoSI) of Inria since 2014.
- R. Deriche is Chair of the 2015 and 2016 Inria Sophia Antipolis recruitment commitees
- R. Deriche is member of 4 Scientific Councils: University of Nice Sophia Antipolis, ITMO ITS (Institut des Technologies pour la Santé), Olea Medical Company (http://www.olea-medical.com/ and the GIS UNS-ENSL-CNRS-Inria.
- R. Deriche is member of the Administration Council of AFRIF (Association Française pour la Reconnaissance et l'Interprétation des Formes) and member of the Academic Council of UCA (Nice Côte d'Azur University)
- T. Papadopoulo is the head of the DTK platform committee of the Sophia Antipolis Inria Research Center since 2016.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Tutorial course by M. Clerc at ChildBrain Winter School (Jyväskylä, Finland, January 2016) : “Advanced Signal Processing”.

Tutorial course by M. Clerc at IEEE International Conference on Systems Man and Cybernetics (Budapest, Hungary, October 2016): “Why bother with avanced modeling in BCI ? Lessons from neuroimaging”.

Master: R. Deriche, Variational approaches and Geometrical Flows for Computational Brain Imaging, 36 ETD, M2 "Computational Biology and Biomedicine", University of Nice Sophia Antipolis, France.

Master: R. Deriche, Advanced Image Processing Techniques, 12 ETD, M1 International CBB & Ubinet, University of Nice Sophia Antipolis, France.

Master: T. Papadopoulo, *3D Computer Vision*, 12 ETD, M1 International Ubinet, University of Nice Sophia Antipolis, France.

Master: T. Papadopoulo, *Inverse Problems in Brain Functional Imaging*, 36 ETD, M2 "Computational Biology and Biomedicine", University of Nice Sophia Antipolis, France.

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

Master: D. Wassermann, *Introduction to Computer Science*, 24 ETD, M2, "Computational Biology and Biomedicine", University of Nice Sophia Antipolis, France.

Master: D. Wassermann, *Machine Learning in Neuroimaging*, 36 ETD, University of Buenos Aires, Argentina

10.2.2. Supervision

PhD in progress: Rutger Fick, “Microstructure Recovery via dMRI”, started Oct. 2013, Université Nice Sophia Antipolis. Supervisor: Rachid Deriche.

PhD in progress: Kai Dang, “Modeling and characterizing electrical conductivity for cochlear implantation”, started Dec. 2013, Université Nice Sophia Antipolis. Supervisor: Maureen Clerc.

PhD defended in April 20, 2016: Gabriel Girard, “fMRI & dMRI”, started Sept. 2012, Supervisors: Rachid Deriche & Maxime Descoteaux (University of Sherbrooke, CA).

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

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

PhD in progress: Marco Pizzolato, “Diffusion & Perfusion MRI: From bench to bedside” started Dec. 2013, Université Nice Sophia Antipolis. Supervisor: Rachid Deriche.

PhD in progress: Abib Alimi, “Diffusion & PLI” started Nov, 1st, 2016, Université Nice Sophia Antipolis. Supervisor: Rachid Deriche.

PhD in progress: Isa Costantini, “Brain Connectomics” started Oct. 1st, 2016, Université Nice Sophia Antipolis. Supervisor: Rachid Deriche.

PhD in progress: Brahim Belaoucha, “Using diffusion MR information to reconstruct networks of brain activations from MEG and EEG measurements”, Université Nice Sophia Antipolis, started Oct. 2013, Supervisor: Theo Papadopoulo.

PhD in progress: Kostiantyn Maksymenko, “Inverse problem in EEG/MEG/SSEG: towards a better consideration of anatomo-functional constraints ”, Université Nice Sophia Antipolis, started Oct. 2016, Supervisor: Theo Papadopoulo and Maureen Clerc.

PhD in progress: Guillermo Gallardo Diez, “Connectivity-Based Brain Parcellation”, started Nov. 2015, Université Nice Sophia Antipolis. Supervisors: D. Wassermann/ R. Deriche

PhD in progress: Nathalie Gayraud, “Structured Dictionary Learning”, University Nice Sophia Antipolis, started November 2015, supervisor: Maureen Clerc.

PhD in progress: Federica Turi, “User-adapted Brain Computer Interaction”, University Nice Sophia-Antipolis, started October 2016, supervisor: Maureen Clerc.

Master: Kostiantyn Maksymenko, “Efficient lead field computation a la Reduced Basis Methods”, Supervised by T. Papadopoulo and M. Clerc.

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

Master: Nahuel Lascano, “Weigthed Newtwork Representations of Structural Connectivity”, Supervised by D. Wassermann.

Master: Leonel Exequiel Gomez, “Super-resolution approaches to Multi-Shell dMRI”, Supervised by D. Wassermann.

Internship: Federica Turi, “Novel flashing strategies for the P300-speller”, Supervised by M. Clerc.

10.2.3. Juries

- M. Clerc participated in PhD juries of: Michaël Acquadro (Grenoble, April 2016) as reviewer, Tafkarinas Medani (Paris 6, September 2016) as reviewer, Flavie Torrecillos (Marseille, October 2016) as examiner, Andéol Evain (Rennes, December 2016) as examiner.
- M. Clerc participated in HDR jury of Sophie Achard as reviewer (Grenoble, March 2016) and Fabien Lotte (Bordeaux, September 2016) as examiner.
- M. Clerc participated in the recruitment jury of Professor in section 26 in University Nice Sophia Antipolis.
- M. Clerc participated in the recruitment jury for CR2/CR1 in Inria Sophia Antipolis.
- R. Deriche chaired the recruitment jury for CR2/CR1 in Inria Sophia Antipolis.
- R. Deriche chaired the PhD jury of Simona Schiavi at Ecole Polytechnique, Paris Saclay, Dec. 1st, 2016.
- R. Deriche chaired the PhD jury of Mehdi Hadj-Hamou at Nice University, Dec. 14th, 2016.
- R. Deriche participated in the PhD Jury of P. Gori at ICM, Paris, Jan. 8th, 2016
- R. Deriche participated in the PhD Jury of G. Girard at Sherbrooke University, April, 20, 2016.
- T. Papadopoulo participated in the PhD Jury of G. Girard as reviewer at Sherbrooke University, April, 20, 2016.
- T. Papadopoulo participated in the PhD Jury of A. Pillain as reviewer at Telecom Bretagne, October, 12, 2016.

10.3. Popularization

During the “Semaine du Cerveau” (Brain Awareness week) in March 2016, Maureen Clerc organized a “Cafe Technologique” about Brain-Computer Interfaces, in which over 100 attendees could see a live demo of the P300 speller with both clinical-grade and consumer-grade devices.

Maureen Clerc participated in a “Gala for Amyotrophic Lateral Sclerosis” at the AXA Headquarters in Paris, a fundraising event, where she presented the P300 speller project.

BIOVISION Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Organisation

8.1.1.1. Member of the Organizing Committees

- Bruno Cessac: "Neural Network Dynamics in Health and Disease", 12-14 October 2016, Institut de Neurosciences de la Timone (INT), Marseille, France, http://www.gdr-neuralnet.cnrs.fr/en.
- Bruno Cessac: "Neurostim2016", http://neurostim2016.inria.fr/ 22 November 2016.

8.1.2. Scientific Events Selection

8.1.2.1. Member of the Conference Program Committees

- Pierre Kornprobst was a member of the program committee of the 24th European Signal Processing Conference (EUSIPCO 2016).

8.1.2.2. Reviewer

Pierre Kornprobst has been a reviewer for SIGGRPAH 2016.

8.1.3. Journal

8.1.3.1. Member of the Editorial Boards

Pierre Kornprobst is associate editor for the Computer Vision and Image Understanding Journal (CVIU).

8.1.4. Invited Talks

- Bruno Cessac, Toulon, March 2016.
- Bruno Cessac, Theoretical Physics lab, Geneve, March 2016.

8.1.5. Research Administration

- Pierre Kornprobst is an elected member of the Conseil Académique d'Université Côte d'Azur (UCA).
- Pierre Kornprobst leads the project UCAGate to provide UCA a new tool aiming at (i) giving a clear view of skills and competences of UCA for internal and external users, (ii) facilitate the emergence of new transdisciplinary synergies between UCA partners, (iii) provide UCA tools to show the transformation effect from the IDEX for the next evaluation. A first prototype is expected in February 2017.
- Pierre Kornprobst is member of the editorial committee of the Sophia Antipolis internal letter SAM & YOU.
- Pierre Kornprobst has been appointed by Inria Direction representative of the administration in the advisory committee of Inria contractual doctoral candidates[0] (on July 16, for two years).

[0] Représentant de l'administration suppléant au sein de la Commission consultative des doctorants contractuels d'Inria

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Licence : Theodora Karvouniari, "Transmissions numériquese , 1ere année de l' IUT, Departement Réseaux et Telecommunications, 64h/ an, 50 students.

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

8.2.2. Supervision

- PhD in progress: Selma Souihel, "Generic and specific computational principles for the visual anticipation of motion trajectories". Started in November 2016. Supervisor B. Cessac
- PhD in progress: Theodora Karvouniari, "Retinal waves in the retina: theory and experiments". Started in October 2014. Supervisor, B. Cessac.
- PhD defended: Kartheek Medathati, "Towards synergistic models of motion information processing in biological and artificial vision", co-supervised by Pierre Kornprobst and Guillaume S. Masson (Institut de Neurosciences de la Timone, Marseille, France), December 13, 2016.

8.2.3. Juries

Bruno Cessac, member of the Jury's thesis: "Vers des modèles synergiques de l'estimation du mouvement en vision biologique et artificielle", by Kartheek Medathati.

Bruno Cessac, member of the Jury's thesis: "Structuration temporelle de la mémoire de travail dans les réseaux de neurones récurrents" by Guillaume Rodriguez.

8.3. Popularization

- Rencontre avec le public à la suite de la projection du film "La nuit qu'on suppose" de Benjamin d'Aoust, Médiathèque d'Antibes, 16 Janvier 2016.
- Bruno Cessac. Cafe In Sophia. La rétine, fonctionnement et thérapie, 28 Janvier 2016.

CAMIN Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

Christine Azevedo Coste was general chair of IFESS conference. http://ifess2016.inria.fr
M. Hayashibe is Co-Chair of IEEE Technical Committee on Human Movement Understanding at Robotics and Automation Society with E. Demircan (Univ. of Tokyo), D. Kulic (Univ. of Waterloo) and D. Oetomo (Univ. of Melbourne). https://sites.google.com/site/ieeehmu/

10.1.1.2. Member of the Organizing Committees

François Bonnetblanc, Mitsuhiro Hayashibe were membres of the IFESS organizing committee;

We organized the third European Computational Motor Control Summer School, June 26- July 2, 2016, Montpellier (Nicolas Schweighofer, Denis Mottet, Mitsuhiro Hayashibe) and Mitsuhiro Hayashibe organized Hands-on seminar for Friday July 1st. Motor Synergies. (AM : Andrea D'Avella, PM: Mitsuhiro Hayashibe)

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

- David Guiraud was associate editor of Theme 6 (rehabilitation Engineering) at IEEE EMBC conference
- David Guiraud was member of the IFESS program committee
- François Bonnetblanc was member of the IFESS program committee
- David Andreu was member of the IFESS program committee
- Mitsuhiro Hayashibe was member of the IFESS program committee
- Daniel Simon, ETFA 2016 and ICINCO 2016
- Mitsuhiro Hayashibe was Associate Editor of IEEE ICRA'17 (International Conference on Robotics and Automation) in charge of handling reviews on 6 papers in Nov.2016.

10.1.2.2. Reviewer

- Christine Azevedo was reviewer for IFESS and Engineering in Medicine and Biology Conference conferences
- David Guiraud was reviewer for IFESS, IEEE EMBC conferences
- François Bonnetblanc was reviewer for the IFESS and IEEE EMBC conferences;
- Daniel Simon was reviewer for the ETFA, ICINCO and MED conferences;
- Karen Godary-Dejean was reviewer for the IROS conference

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

M. Hayashibe is member of the Editorial Board of the International Journal of Advanced Robotic Systems, in Rehabilitation Robotics. David Guiraud is member of the editorial board of Journal of Neural Engineering (JNE) M. Hayashibe is member of the Editorial Board of ROBOMECH Journal.

10.1.3.2. Reviewer - Reviewing Activities

- François Bonnetblanc was reviewer for Cerebral Cortex, Neuropsychologia, and for the Journal of Neurophysiology;
- David Guiraud was reviewer for IEEE TNSRE, IEEE TBME, JNE, MEP, IEEE TBIOCAS, JNER, IEEE TCSC, journals
- Christine Azevedo was reviewer for Gait and Posture, IEE Transactions on Robotics (TRO), Artificial Organs, IEEE Journal of Biomedical and Health Informatics, IEEE Transactions on Biomedical Engineering (TBME) and IEEE Transactions on Neural Systems and Rehabilitation Engineering (TNSRE) Journals

10.1.4. Invited Talks

Mitsuhiro Hayashibe gave 2 talks on "Personalized Neuroprosthetics" and " Synergetic Learning Control" for LSRO and BIOROB labs, EPFL respectively at October 2016 (Lausanne, Switzerland).
Mitsuhiro Hayashibe gave a talk on "Synergetic Learning Control Paradigm - Computational Motor Control Principle" at Workshop Human Motor Control and Learning (EUROMOV, Montpellier) on November 21th 2016. In this workshop, Prof. Mark L. Latash (Pennsylvania State University, USA) and Dr. Yen-Hsun Wu were also invited.
Christine Azevedo gave a talk on "Neuroprosthetics in functional assistance: from observation to artificial control of movement" at EUROMOV, Montpellier on November 10th 2016.
Christine Azevedo gave a lecture at the International Symposieum on Electrical Stimulation Applied to Assistive technologies at Brasilia University in May 2016
Christine Azevedo gave a lecture at Genoploys center in June 16th ithin RUREKA cycle of conferences

10.1.5. Leadership within the Scientific Community

Christine Azevedo Coste is member of the board of International Functional Electrical Stimulation Society.

10.1.6. Scientific Expertise

Karen Godary-Dejean is member of COSTI «Acquisition de données traitement et visualisation de données numériques – Mécatronique » at Transfert LR, and member of the tranfer commission at LIRMM.

10.1.7. Research Administration

Christine Azevedo Coste is member of Inria Evaluation Committee.
She is involved in the working group for DEFROST and CHROMA Inria teams creation.
David Guiraud is involved in the working group for BIOVISION Inria team creation.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

- Master : Christine Azevedo, Ethics consideration in bioengineering research, 3h, M1, Master STIC SANTÉ, Montpellier University, France
- Master: Mitsuhiro Hayashibe, Neuroprotheses I and II (module coordinator), EMG and EEG signal processing and other rehabilitation modeling issues, 12h, Master STIC pour la Sante, Univ. de Montpellier, France;
- Master: Karen Godary-Dejean, computer engineering: embedded network, real time, DES (Discrete event system) modeling and control, dependability, formal validation, 230h, Polytech Montpellier.
- Master: David Guiraud, FES and Neuroprosthesis, M2 SMH, 12h, M1 and M2 Stic Santé 6h
- Master : D. Andreu, Software engineering, real time OS, discrete event systems, control architectures, networks, neuro-prosthesis, 200h, master and engineers degrees, Polytech Montpellier, France;

The team is leading 2 modules in Master Stic-Santé in Montpellier: Neuroprosthesis I (HMSN216) and II and (HMESN321). The objective is to initiate students to techniques used for the design of neuroprotheses in order to compensate for sensory motor deficiencies. This course aims at: investigating uses and needs for basic medical systems, as well as active and implantable ones and teaching of theoretical tools required for theirs understanding, settings and their conception (command, signal processing of physiological and physical signals, physical interfacing between living and artificial systems, bases in neurophysiology). Students will have to learn the following skills: electro- and neurophysiology bases required to understand active medical implantable systems, bases in signal processing, bases in embedded informatics and electronics, knowledge about sensory-motor functions and their deficiencies, bases on simulations and closed loop control for living and artificial systems.

10.2.2. Supervision

PhD defended on December 14th 2016 : Wafa Tigra, Assistance à la préhension par stimulation électrique fonctionnelle chez le patient tétraplégique, 01/10/2013, Christine Azevedo Coste, David Guiraud,

PhD defended on December 9th 2016 : Thomas Guiho, Évaluation de l'efficience de la stimulation électrique médullaire en vue de la restauration des fonctions urinaires et intestinales chez le patient lésé médullaire, 01/10/2013, David Guiraud, Christine Azevedo Coste

PhD in progress : Antony Boyer, Neuroplasticité et récupération dans les structures corticales et sous corticales distantes suite à une chirurgie éveillée des gliomes infiltrants de bas grades, 01/09/2016, François Bonnetblanc and Sofiane Ramdani.

PhD in progress : Marion Vincent, Mesures des potentiels évoqués par la stimulation électrique directe lors de la chirurgie éveillée des gliomes infiltrants de bas grades vers une compréhension des effets électrophysiologiques, 01/12/2013, François Bonnetblanc, David Guiraud and Hugues Duffau.

PhD in progress : Maxence Blond, Commande et modélisation d'un véhicule sous-marin, 18/01/2016, Daniel Simon, Vincent Creuze (LIRMM) and Ahmed Chemori (LIRMM).

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

PhD in progress : Mélissa Dali, modèles de génération et de propagation de potentiel d'action neurla en condition de stimulation sélective multipolaire, since october 2014, David Guiraud and Olivier Rossel (up to july 2016).

PhD in progress : Benoît Sijobert, Stimulation électro-fonctionnelle pour l'assistance aux mouvements des membres inférieurs dans les situations de déficiences sensori-motrices, Since Dec. 2015, Christine Azevedo Coste and D. Andreu.

PhD in progress: Victor VAGNE, "Couplage de la Spectroscopie en proche infrarouge et de la stimulation Transcrânienne (NIRS-tDCS) à courant continu dans l'Evaluation diagnostique de l'ischémie cérébrale lors d'un AVC", Oct. 2016, M. Hayashibe, D. Guiraud, Vincent Costalat (CHU Montpellier) and Emmanuelle Le Bars (CHU Montpellier)

10.2.3. Juries

Daniel Simon was reviewer and member of the PhD jury of Wael Zouaoui (LAAS Toulouse, january 15, 2016).

Karen Godary-Dejean was member of the PhD jury of Louis Marie Givel,École Centrale de Nantes, december 16, 2016.

David Guiraud was reviewer of 2 PhD thesis at UTC and Univ. Of Toulon.

David Guiraud was member of the selection committee, CNU61, for an assistant professor position at the university of Nantes.

Christine Azevedo was member of the selection committee, Inria, Young graduate scientist ("CR2") in Paris.

David Andreu was reviewer and member of the PhD jury of Nicolas Gobillot, INPT Toulouse, april 29, 2016, and member of the PhD jury of Lotfi Jaiem, University of Montpellier, november 21, 2016.

10.3. Popularization

- Large cover in general media (radio, TV, newspapers) of Cybathlon project http://freewheels.inria.fr/
- Christine Azevedo presented Cybathlon project at DIRCOM Inria, Rocquencourt, in the context of Handicap national week.
- Christine Azevedo presented Freewheels experience at Carrefour du Pôle EUROBIOMED (Marseille).
- Christine Azevedo presented the job of researcher in secondary school Collège Léon Cordas (Montpellier)

GALEN Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. Member of the Organizing Committees

- Pesquet, Jean-Christophe (co-organizer): Special session on Advanced Optimization Methods for Online Signal Processing at the European Signal Processing Conference (EUSIPCO) 2016

9.1.2. Scientific Events Selection

9.1.2.1. Chair of Conference Program Committees

- Kokkinos, Iasonas: European Conference on Computer Vision (ECCV) 2016, Asian Conference on Computer Vision (ACCV), IEEE Conference on Computer Vision and Pattern Recognition (CVPR)

9.1.2.2. Member of the Conference Program Committees

- Pesquet, Jean-Christophe: European Signal Processing Conference (EUSIPCO), IEEE International Conference on Image Processing (ICIP)

9.1.2.3. Reviewer

The members of the team reviewed numerous papers for several international conferences, such as for the annual conferences on Computer Vision and Pattern Recognition (CVPR), Medical Image Computing and Computer Assisted Intervention (MICCAI), Neural Information Processing Systems (NIPS) and International Conference on Learning Representations (ICLR), IEEE International Conference and Acoustics Speech and Signal Processing (ICASSP), IEEE International Conference on Image Processing (ICIP), IEEE Statistical Signal Processing workshop (SSP), European Signal Processing Conference.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Paragios, Nikos: Medical Image Analysis Journal (MedIA), SIAM Journal on Imaging Sciences
- Kokkinos, Iasonas: Image and Vision Computing Journal (IVC), Computer Vision and Image Understanding Journal (CVIU), Special Issue on Deep Learning for Computer Vision (guest editor)
- Zacharaki, Evangelia: Medical Physics (guest editor), International Journal of Radiology, Dataset Papers in Science (Radiology)

9.1.3.2. Reviewer - Reviewing Activities

- Pesquet, Jean-Christophe: IEEE Trans. on Signal Processing, IEEE Trans. on Image Processing, IEEE Trans. on Information Theory (IEEE-TI), Signal Processing, SIAM Journal on Optimization, SIAM Journal on Imaging Sciences, Journal of Mathematical Imaging and Vision, Journal of Optimization Theory and Applications
- Kokkinos, Iasonas: International Journal of Computer Vision, IEEE Trans. on Pattern Analysis and Machine Intelligence, Computer Vision and Image Understanding (CVIU)
- Chouzenoux, Emilie: IEEE Trans. on Image Processing, IEEE Trans. Image Processing, Journal of Mathematical Imaging and Vision (JMIV), Journal of Optimization Theory and Applications, Journal of Global Optimization
- Zacharaki, Evangelia: IEEE Trans. on Medical Imaging (T-MI), Medical Image Analysis (MedIA), Trans. on Biomedical Engineering, Neuroimage, Artificial Intelligence in Medicine, Expert Systems with Applications

- Ferrante, Enzo: IEEE Trans. on Medical Imaging (T-MI), Medical Image Analysis (MedIA), Computarized Medical Imaging and Graphics (CMIG)

9.1.4. Invited Talks

- Pesquet, Jean-Christophe: Modena (Optimization Techniques for Inverse Problems workshop), Mathematics Faculty of Wien University,
  Polytechnic University of Warsaw.
- Kokkinos, Iasonas: Local features workshop held in conjunction with ECCV, October 2016 (keynote speech),
  Astronomical Data Analysis Summer School, Chania, Greece, May 2016 (keynote speech),
  September 2016, Qualcomm-UvA Deep Vision Seminar
  Perceptual Organization in Computer Vision Workshop (CVPR), Jun 2016,
  Facebook Artificial Intelligence Research (FAIR) Paris, May 2016,
  ETH,May 2016,
  Oxford University, March 2016,
  Univerity College London, March 2016,
  Center for Machine Perception, Prague, March 2016,
  Simon Fraser University, February 2016.
- Chouzenoux, Emilie: Séminaire Parisien des Mathématiques Appliquées à l'Imagerie, IHP, Paris, November 2016,
  Cavalieri workshop on Optimization and Optimal Transport for Imaging, Inria Paris, October 2016.
- Zacharaki, Evangelia: LIGM, Université Paris Est, November 2016

9.2. Teaching - Supervision - Juries

Masters

Kokkinos, Iasonas

- Master: Machine Learning for Computer Vision, 24, M2, Ecole Normale Superieure-Cachan, FR
- Master: Introduction to Deep Learning, 24, M2, CentraleSupélec, FR

Zacharaki, Evangelia

- Master: Foundations in Machine Learning, 36, M2 DataScience, CentraleSupélec , FR

Corbineau, Marie-Caroline and Pesquet, Jean-Christophe

- Master: Advanced course on Optimization, 30h, M1, CentraleSupélec,FR

Chouzenoux Emilie and Pesquet, Jean-Christophe

- Master: Foundations of Distributed and Large Scale Computing, 24h, M2 DataScience, CentraleSupélec,FR

9.2.1. Supervision

PhD in progress : Eugène Belilovsky, Structured Output Prediction on Large Scale Neuroscience Data, Universite Paris-Saclay & KU Leuven, 2014-2017, M. Blaschko

PhD in progress : Jiaqian Yu, Structured Prediction Methods for Computer Vision and Medical Imaging, Universite Paris-Saclay, 2014-2017, M. Blaschko

PhD in progress : Wacha Bounliphone, Statistical tools for Imaging-Genetics data integration, 2013-2016, Universite Paris-Saclay & KU Leuven, M. Blaschko & A. Tenenhaus

PhD in progress : Diane Bouchacourt, Large Scale Diverse Learning for Structured Output Prediction, 2014-2017, M. Pawan Kumar

PhD in progress: Siddhartha Chandra, Efficient Learning and Optimization for 3D Visual Data, 2013-2016, I. Kokkinos, Pawan Kumar

PhD in progress: Stefan Kinauer, Surface-based representations for high-level vision tasks, 2013-2016, I. Kokkinos.

PhD in progress: Alp Guler, Learning 3D representations for high-level vision, 2016-2018, I. Kokkinos.

PhD in progress : Stavros Alchatzidis, Message Passing Methods, Parallel Architectures & Visual Processing, 2011-2014 (extended), Nikos Paragios

PhD in progress : Enzo Ferrante, 2D-to-3D Multi-Modal Deformable Image Fusion, 2012-2015 (extended), N. Paragios

PhD in progress : Vivien Fecamp, Linear-Deformable Multi-Modal Deformable Image Fusion, 2012-2015 (extended), N. Paragios

PhD in progress : Evgenios Kornaropoulos, Diffusion Coefficient: a novel computer aided biomarker, 2013-2016, N. Paragios

PhD in progress : Maxim Berman, Learning Higher Order Graphical Models, 2014-2017, N. Paragios, I. Kokkinos

PhD in progress : Hariprasad Kannan, Efficient Inference on Higher Order Graphs, 2014-2017, N. Paragios

PhD in progress : Huu Dien Khue Le, Graph-based Visual Perception : Theories and Applications, 2014-2017, N. Paragios

PhD in progress : Marie-Caroline Corbineau, Fast online optimization algorithms for machine learning and medical imaging, 2016-2019, supervised by Emilie Chouzenoux and J.-C. Pesquet

PhD in progress : Loubna El Gueddari, Parallel proximal algorithms for compressed sensing MRI reconstruction - Applications to ultra-high magnetic field imaging, 2016-2019, supervised by Emilie Chouzenoux and J.-C. Pesquet

PhD in progress : Azar Louzi, Fast online optimization algorithms for machine learning and computer vision, 2016-2019, supervised by Emilie Chouzenoux and J.-C. Pesquet

9.2.2. Juries

The faculty members of the team (N. Paragios, J.-C. Pesquet, I. Kokkinos, E. Chouzenoux) participated in several PhD Thesis Committees, HDR Committees and served as Grant Reviewers.

MATHNEURO Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events Organisation

7.1.1.1. General Chair, Scientific Chair

Romain Veltz was the General Chair of the 2nd International Conference on Mathematical Neuroscience, held in Antibe-Juan les Pins, May 30 - June 1 2016.

7.1.1.2. Member of the Organizing Committees

Mathieu Desroches was on the Organizing Committee of the MURPHYS-HSFS 2016 Workshop on Hysteresis and Slow-Fast Dynamics held at the Centre de Recerca Matemàtica (CRM) in Barcelona, June 13-17, 2016.

7.1.2. Scientific Events Selection

7.1.2.1. Member of the Conference Program Committees

Pascal Chossat and Martin Krupa were on the Program Committee of the 2nd International Conference on Mathematical Neuroscience, held in Antibe-Juan les Pins, May 30 - June 1 2016.

7.1.3. Journal

7.1.3.1. Member of the Editorial Boards

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

7.1.3.2. Reviewer - Reviewing Activities

Mathieu Desroches acts as a reviewer for Physica D, SIAM Journal on Applied Dynamical Systems (SIADS), PLoS Computational Biology, Journal of Nonlinear Science, IMA Journal of Applied Mathematics, Journal of Mathematical Neuroscience.

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

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

Romain Veltz acts as a reviewer for Neural Computation, Elife, SIADS, Journal of the Royal Society Interface.

7.1.4. Invited Talks

R. Veltz, “Some applications of hybrid systems in neurosciences”, University of Bristol, April 2016

M. Desroches, “Simplifying singular perturbation theory in the canard regime with piecewise-linear dynamics; application to neuronal models”, Invited Plenary talk, *10th NoLineal Conference*, University of Seville (Spain), June 2016.

M. Desroches, “Canards, folded singularities and bursting”, Invited talk in the mini-symposium *Slow-fast dynamics in neuroscience* at the *10th ECMTB Conference*, Nottingham (UK), July 2016.

M. Desroches, “Spike-adding in parabolic bursters: the role of folded-saddle canards”, Invited talk in the workshop *Dynamics in Life Science, Neuroscience* at the *Volga Neuroscience meeting 2016*, St-Petersburg/Nizhny-Novgorod (Russia), July 2016.

M. Desroches, “Canards in piecewise-linear slow-fast systems”, Invited seminar talk, *Applied Mathematics Seminar*, University of Sydney (Australia), August 2016.

M. Desroches, “Canards in planar piecewise-linear slow-fast systems”, Invited seminar talk, *Applied Mathematics Seminar*, University of Auckland (New Zealand), September 2016.

M. Desroches, “Understanding synaptic mechanisms: why a multi-disciplinary approach is important”, Invited talk in the Symposia meeting *New Techniques in Electro- and Optophysiology*, SFN conference, San Diego (USA), November 2016.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Chalk-learning

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

Master 1 BIM/UPMC: Mathieu Desroches, Modèles Mathématiques et Computationnels en Neuroscience, 30 hours, Paris, France.

7.2.2. Supervision

PhD in progress: Pascal Helson, "Study of plasticity laws with stochastic processes", started in September 2016, co-supervised by Romain Veltz and Etienne Tanré (Inria TOSCA).

PhD in progress: A. Dolcemascolo, "All optical neuromimetic devices", started in January 2016, co-supervised by Romain Veltz and S. Barland (INLN).

PhD completed: Lucile Mégret, “Explosions de cycles: Analyse qualitative, simulations numériques et modèles”, defended on 25 November 2016, co-supervised by Mathieu Desroches and J.-P. Françoise (UPMC).

PhD completed: Giovanni Carmantini, “Dynamical Systems Theory for Transparent Symbolic Computation in Neuronal Networks”, defended on 28 November 2016, co-supervised by Mathieu Desroches and S. Rodrigues (Plymouth University, UK).

PhD completed: Elif Köksal-Ersöz, “A mathematical study on coupled multiple timescale systems, synchronization of populations of endocrine neurons”, defended on 13 December 2016, co-supervised by Mathieu Desroches, J.-P. Françoise (UPMC) and F. Clément (Inria Paris).

7.2.3. Juries

Mathieu Desroches was a jury member for the PhD defence of Catalina Vich (University of the Balearic Islands, Spain) on 4 July 2016. He was also jury member for the PhD defence of Lucile Mégret (UPMC, France) on 25 November 2016 and that of Elif Köksal-Ersöz (Inria Paris / UPMC, France) on 13 December 2016.

MIMESIS Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Events Selection

8.1.1.1. Chair of Conference Program Committees

- Igor Peterlik was chair in the Workshop on Mathematical and Engineering Methods in Computer Science, October 21 — 23, Telc, Czech Republic
- Nazim Haouchine was a co-chair of the Medical Robotics session at IROS 2016, the International Conference on Intelligent Robots and Systems

8.1.1.2. Reviewer

- Hadrien Courtecuisse made reviews for the IEEE Haptics Symposium and the conference Medical and Biological Engineering and Computing
- Nazim Haouchine made reviews for the International Symposium on Biomedical Imaging

8.1.2. Journal

8.1.2.1. Reviewer - Reviewing Activities

- David Cazier is reviewer for the Computer-Aided Design Journal and for the International Journal of Virtual Reality
- Igor Peterlik is reviewer for the following journals: IEEE Transaction on Haptics, IEEE Transaction on Industrial Electronics, IEEE Transaction on Visualization and Computer Graphics and Computer and Graphics
- Hadrien Courtecuisse is reviewer for the journal Transactions on Haptics and Visual Computer
- Nazim Haouchine made reviews for the International Journal of Computer Assisted Radiology and Surgery

8.1.3. Invited Talks

- Stéphane Cotin gave an invited talk at the 14th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering (Tel Aviv, Israel, 2016)

8.1.4. Scientific Expertise

- Igor Peterlik made scientific expertises at Masaryk University for teaching, supervision of master and Ph.D. students and scientific consultations. Active participation at project funded by Grand Agency of the Czech Republic: *Development of Reliable Methods for Automated Quantitative Characterization of Cell Motility in Fluorescence Microscopy*.

8.1.5. Research Administration

- GTAS : David Cazier heads (with Marc Parenthoen) the national Workgroup on Animation and Simulation of the GDR IG-RV since 2014

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

- Master: Stéphane Cotin, *Medical Imaging (4h)*, M2, Arts et Métiers ParisTech - Paris, France
- Master: Stéphane Cotin, *Medical Imaging (4h)*, M2, Master of Surgical Sciences - Paris, France

- Master: Igor Peterlik, *Modélisation des Systèmes Vivants (10h)*, M2, Master TIC-Santé, Télécom Physique Strasbourg
- Master: Hadrien Courtecuisse, *Real time simulation (30h)*, M2, Master TIC-Santé, Télécom Physique Strasbourg
- Master: Hadrien Courtecuisse, *Real time simulation (10h)*, M1, Master IRMC, Télécom Physique Strasbourg
- Licence: David Cazier, *Web technologies and programming (96h)*, Licence, Université de Strasbourg, France

8.2.2. Supervision

- PhD : Rosalie Plantefeve, *Augmented reality and numerical simulations for resection of hepatic tumors*, Université de Lille, defended on 08/06/2016, supervised by Stéphane Cotin
- PhD in progress: Christoph Paulus, *Modélisation et simulation temps-réel pour la prise en compte des changements topologiques dans les tissus mous*, 01/01/2014, supervised by David Cazier, Stéphane Cotin
- PhD in progress: Jaime Garcia Guevara, *Augmented ultrasound imaging for hepatic surgery*, 01/09/2015, supervised by Stéphane Cotin, Marie-Odile Berger
- PhD in progress: Raffaella Trivisonne, *Computer-aided vascular interventions*, 01/09/2015, Stéphane Cotin, Erwan Kerrien
- PhD in progress: Yinoussa Adagolodjo, *Coupling between robotics and medical simulation for automated procedures*, 01/02/2015, supervised by Hadrien Courtecuisse
- PhD in progress: Fanny Morin, *Non linear simulation for intraoperative guidance for neurosurgery*, 01/10/2014, supervised by Yohan Payan, Matthieu Chabanas, Hadrien Courtecuisse (collaboration with the TIMC laboratory, Grenoble)
- PhD in progress: Lukas Rucka, *Validation and verification of soft tissue models*, 2016 - 2019, supervised by Igor Peterlik and Professor Ludek Matyska in the scope of an international collaboration with Faculty of Informatics, Masaryk University, Czech Republic.
- Master thesis in progress: Petra Ondrejkova, *Contact modeling for forward and inverse simulations of deformable objects in Matlab*, 01/09/2016 - 31/07/2017 , supervised by Igor Peterlik and Prof. Ludek Matyska in the scope of an international collaboration with Faculty of Informatics, Masaryk University, Czech Republic.

8.2.3. Juries

- HdR defense: Benoit Crespin, *Modélisation d'objets complexes, simulation de fluides et interactions*, 14/12/2016, Université de Limoges, David Cazier (reviewer)
- PhD defense: Armelle Bauer, *Modélisation anatomique utilisateur spécifique et animation temps réel : Application a` l'apprentissage de l'anatomie*, 11/11/2016, Université Grenoble, Stéphane Cotin (reviewer)
- PhD defense: Yuen Law, *Real-Time Simulation of B-Mode Ultrasound Images for Medical Training*, 23/11/2016, RWTH Aachen, Germany, Stéphane Cotin (reviewer)
- PhD defense: Lucas Royer, *Real-time Tracking of Deformable Targets in 3D Ultrasound Sequences*, 12/12/2016, INSA Rennes, France, Stéphane Cotin (reviewer)

8.3. Popularization

Stéphane cotin gave invited talks at:

- the Fist European workshop on Nanomedicine, Modeling, Virtual Reality and Robotics applied to surgery (Strasbourg, 2016)
- the Business Engineering and Surgical Technologies symposium (Strasbourg, 2016)
- the OpenYourMind seminar (Paris, 2016)
- IHU Scientific meeting on registration and augmented reality (Strasbourg)

Members of the MIMESIS team contributed to the following events:

- presentation of our research activities during several IHU fellow meetings
- demonstration of our prototype of retina surgery training system during the national congress of ophthalmology (May 2016, Paris)
- demonstration of our prototype of retina surgery training system during the DMLA meeting (September 2016, Paris)
- demonstration of our prototype of retina surgery training system during the regional ophthalmology meeting (November 2016, Strasbourg)

MNEMOSYNE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

X. Hinaut : Co-organiser of the 2nd Automn Day of the Working Group (GT8) "Robotique et Neurosciences" of Groupe de Recherche (GDR) Robotique (CNRS), at LaBRI, 17th November 2016.

10.1.1.2. Member of the Organizing Committees

Projections, Interactions, Emotions - Journées PsyPhINe, 2016 (http://poincare.univ-lorraine.fr/fr/manifestations/psyphine-2016, N. Rougier)

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

F. Alexandre: SAB 2016

10.1.2.2. Reviewer

F. Alexandre reviewer for AMINA 2016; X. Hinaut for CogSci 2016.

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Frédéric Alexandre: Review Editor for Frontiers in Neurorobotics;
- Nicolas Rougier: Editor in chief for ReScience, review editor for Frontiers in Neurorobotics.

10.1.3.2. Reviewer - Reviewing Activities

- F. Alexandre: Frontiers in Human Neuroscience; npj Science of Learning; European Journal of Neuroscience; PLoS ONE;
- A. Garenne: Journal of Integrative Neuroscience
- X. Hinaut: PLoS ONE, Neural Networks, Intellectica, Frontiers in Neurorobotics, ReScience, Cognitive Computation.

10.1.4. Invited Talks

F. Alexandre: invited talk at the conference: “Modeling: success and limitations” (http://www.cnrs.fr/insmi/spip.php?article1876), Dec 6th and interview for the journal of the CNRS (https://lejournal.cnrs.fr/articles/modeliser-plus-pour-simuler-moins).

X. Hinaut: “Reservoir Computing for Robot Language Acquisition”, at IROS Workshop on Machine Learning Methods for High-Level Cognitive Capabilities in Robotics. Daejon, South Korea, October 2016 [9].

N. Rougier:

- Open Science, AdaWeek, November 2016, Paris
- ReScience, "La loi numérique, et après ?", November 2016, Meudon
- "One actor, two critics", Robotiques et Neurosciences, November 2016, Bordeaux
- "Advanced Scientific Programming in Python", July 2016, Austin, USA.
- "Computational Neuroscience", International School of Bioelectromagnetics, Erice, April 2016, Italy.

10.1.5. Leadership within the Scientific Community

X. Hinaut:

- member of the Administration Committee of Fresco association (French Federation of students in Cognitive Science)
- member of "open citizen labs" : MindLaBdx (Bordeaux), IA*lab and CogLab (La Paillasse, Paris).

10.1.6. Scientific Expertise

F. Alexandre is the french expert for Mathematics and Computer Science of the PHC (Hubert Curien Program) Utique for scientific cooperation between France and Tunisia.

10.1.7. Research Administration

- F. Alexandre is member of the Inria Evaluation Committee; Deputy Scientific Delegate and Vice-head of the Project Committee of Inria Bordeaux Sud-Ouest; Corresponding scientist for Bordeaux Sud-Ouest of the Inria COERLE ethical committee; Member of the national Inria committee for international chairs; Member of the local Inria committee for young researchers hiring; Member of the steering committee of the regional Cluster on Information Technology and Health; of the regional Cluster on Robotics; Expert of the ITMO 'Neurosciences, Sciences Cognitive, Neurologie, Psychiatrie'
- N. Rougier is vice-head of the Mnemosyne team-project; elected member of the Inria Evaluation Committee; Responsible of the local Inria committee for invited professors; Member of the steering committee for the BioComp CNRS consortium; Editor in chief and co-founder of ReScience.
- Thierry Viéville is in charge, at the Inria national level till October 2016, of the institute science outreach actions and depends on the Direction Générale Déléguée à la Science for this part of his work. He is, for Inria, in charge of the http://classcode.fr project.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Advanced scientific python summer school, University of Reading, September 2016 (N. Rougier).

F. Alexandre: Teaching at the IBRO Advanced School in Neuroscience "Basal Ganglia, Parkinson's disease And Related Disorders", May 9-21, 2016, Faculty of Sciences, Rabat (Morocco)

Many courses are given in french universities and schools of engineers at different levels (LMD) by most team members, in computer science, in applied mathematics, in neuroscience and in cognitive science.

Thierry Viéville is since 2009 in charge of formations of high-school teachers in popular computer science.

10.2.2. Juries

We participate to many juries each year.

10.3. Popularization

For a multi-disciplinary team as Mnemosyne, science popularization is not only a nice and useful contribution to the dissemination of scientific knowledge but also a necessity since we work with colleagues from bio-sciences with whom sharing profound ideas in computer science is mandatory for a real collaboration.

- Thierry Viéville is for 80% of his time involved in popularization actions.
- Frédéric Alexandre: Article in the journal La Tribune in January 2016 about robots and emotions; Article in tribute to Marvin Minsky (Blog Binaire http://binaire.blog.lemonde.fr/2016/01/29/lintelligence-artificielle-debraillee/; Bulletin of the French Society of Computer Science http://www.societe-informatique-de-france.fr/bulletin/1024-numero-8/); Article about learning in the magazine of the University of Bordeaux (http://www.u-bordeaux.fr/Universite/U-magazine)

- Xavier Hinaut: “Apprentissage de la grammaire par un cerveau positronique”. CogTalk organised by the association Ascoergo, Bordeaux, March 2016.
- Nicolas Rougier: "Le Grand Remue-Méninges", Octobrer 2016, Bordeaux; "Les neurosciences au coeur des innovations", May 2016, Lyon; Interview for the "Verge of Discovery" March 2016; Intervention for the "Artificial Intelligence forum", Bordeaux.
- For all the team: participation to the “Fête de la Science” in an exhibition in the Scientific Museum Cap Sciences: http://www.bordeaux-neurocampus.fr/fr/divers/toutes-les-communications/com-2016/fete-de-la-science.html

NEUROSYS Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organization

10.1.1.1. Member of the Organizing Committees

- Member of the organization committee of the second OpenViBE workshop as a satellite event of the Brain-Computer Interfaces meeting, May 30th 2016, Asilomar, CA/USA (L. Bougrain) http://openvibe.inria.fr/the-2nd-international-openvibe-workshop-2016-contents/
- Member of the organization committee of the iPAC séminar (Image, Perception, Action et Cognition) (L. Buhry)

10.1.2. Scientific Events Selection

10.1.2.1. Member of the Conference Program Committees

- French conference on machine learning CAP 2016 (L. Bougrain)
- IEEE International Conference on Systems, Man, and Cybernetics (SMC) special sessions on Brain-Machine Interfaces, Budapest, 2016 (L. Bougrain)

10.1.2.2. Reviewer

- Brain-Computer Interfaces meeting 2016 (L. Bougrain)
- IEEE International Conference on Systems, Man, and Cybernetics (SMC) special sessions on Brain-Machine Interfaces, Budapest, 2016 (L. Bougrain)
- French conference on machine learning CAP 2016 (L. Bougrain)
- IEEE International Conference on Acoustic, Speech and Signal Processing - ICASSP, 2016 (T. Tošić)
- IEEE International Conference on Image Processing - ICIP, 2016. (T. Tošić)
- International Conference on Artificial Neural Networks (M. Fedotenkova)

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing Activities

- L. Buhry is a reviewer for Journal of Computational Neuroscience, Frontiers in Computational Neuroscience, Journal of Neural Engineering, IEEE TNN (Transactions on Neural Networks), Neurocomputing, CCSP (Circuits, Sys. & Signal Proc.), IEEE international NEWCAS, Hippocampus
- T. Tošić is a reviewer for IEEE Transactions on Signal Processing (TSP), ACM Transactions on Sensor Networks (TOSN), Signal Processing : Image Communication

10.1.4. Invited Talks

- Active brain-computer interfaces and motor handicap compensation, IFRATH (Institut Fédératif de Recherche sur les Aides Techniques pour personnes Handicapées) and ITMO “Neurosciences, Sciences Cognitives, Neurologie, Psychiatrie”, feb. 4th 2017, INJS Paris (L. Bougrain)
- An introduction to OpenViBE, OpenViBE workshop, satellite event of the Brain-Computer Interfaces meeting, May 30th 2016, Asilomar, CA/USA (L. Bougrain) http://openvibe.inria.fr/the-2nd-international-openvibe-workshop-2016-contents/

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Engineering school: L. Bougrain, *Interfaces cerveau-ordinateur*, 4.5h, 3rd year, Supelec, France

Engineering school: T. Tošić, *Atelier Artem (Art-Technologie-Management) : ABCDWeb*, 30h, 2nd year, ICN, Ecole d'art et design, École des Mines Nancy, France

Engineering school: T. Tošić, *Parcours de recherche et Initiation à la recherche*, 11h, 2nd and 3rd year, Telecom Nancy and École des Mines Nancy, France

Engineering school: T. Tošić, *Apprentissage automatique - Modélisation avancée des connaissances*, 58h, 3rd year, École des Mines Nancy, France

Engineering school: T. Tošić, *Tronc Commun d'Informatique - Python*, 140h, 1st year, École des Mines Nancy, France

Engineering school: T. Tošić, *Techniques et Solutions Informatiques*, 47h, 2nd year, École des Mines Nancy, France

Engineering school: T. Tošić, *Pépites Algorithmiques*, 18h, 1st year, École des Mines, France

Engineering school: T. Tošić, *Passerelle au Numérique*, 28h, 1st year, École des Mines, France

Engineering school: T. Tošić, *Model Driven Architecture and UML*, 21h, 2nd year, École des Mines, France

Engineering School: F. Giovannini, *Intelligence artificielle* (3rd year), 34h, Telecom Nancy, France

Licence: L. Buhry, *Applications en Sciences Cognitives*, 3h , niveau L1 MIASHS, University of Lorraine, France

Licence: L. Buhry, *Programmation Python*, 37h, level L1 MIASHS, University of Lorraine, France

Licence: L. Buhry *Probabilités-Statistiques*, 30h, level L1 MIASHS, University of Lorraine, France

Licence : L. Buhry, *IA et Résolution de problèmes*, 25h, level L3 MIASHS, University of Lorraine, France

Licence : L. Bougrain, *développement sur mobile*, 35h, Licence of computer science (3st year), University of Lorraine, France

Licence : L. Bougrain, *Intelligence artificielle*, 35h, Licence of computer science (3st year), University of Lorraine, France

Licence : L. Bougrain, *Optimisation*, 37.5h, Licence of computer science (3st year), University of Lorraine, France

Master : L. Buhry, *Algorithmique pour l'intelligence artificielle*, 31h, niveau Master 1 SCA (Sciences Cognitives et Applications), University of Lorraine, France

Master : L. Buhry, *IA fondamentale et fouille de données*, 18h, niveau Master 1 SCA (Sciences Cognitives et Applications), University of Lorraine, France

Master: L. Buhry, *Formalismes de Représentation et Raisonnement*, 25h, niveau Master 1 SCA (Sciences Cognitives et Applications), University of Lorraine, France

Master: L. Buhry, *Memory and Machine Learning*, 38h, niveau Master 1 SCA (Sciences Cognitives et Applications), University of Lorraine, France

Master : L. Buhry, *Neurosciences Computationnelles*, 25h, niveau Master 2 SCMN, University of Lorraine, France

Master : L. Bougrain, *Apprentissage automatique*, 18h, Master of computer science, 2st year, University of Lorraine, France

Master : L. Bougrain, *Facteurs humains*, 30h, Master of computer science 1st year, University of Lorraine, France

10.2.2. Supervision

PhD : Meysam Hashemi, Analytical and numerical studies of thalamo-cortical neural population models during general anesthesia, Univ. Lorraine, Jan. 14, 2016, A. Hutt [2]

PhD : Mariia Fedotenkova, Extraction of multivariate components in brain signals obtained during general anesthesia, Univ. Lorraine, Dec. 2, 2016, A. Hutt [1]

PhD in progress : Cecilia Lindig-Leon, Multilabel classification of EEG-based combined motor imageries implemented for the 3D control of a robotic arm, November 2013, A. Hutt and L. Bougrain

PhD in progress : Francesco Giovannini, Mathematical modelling of the memory system under general anesthesia, Oct. 2014, L. Buhry and A. Hutt

PhD in progress : Sébastien Rimbert Study of the dynamics of brain motor components during anesthesia, January 2016, A. Hutt and L. Bougrain

PhD in progress : Amélie Aussel, Extraction of electrophysiological markers and mathematical modeling of epileptic hippocampus, Oct. 2016, L. Buhry, Patrick Hénaff and R. Ranta

10.2.3. Juries

Laure Buhry was member of the PhD committee of Meysam Hashemi, University of Lorraine.

Laure Buhry was member of the PhD committee of Guillaume Viejo, Université Pierre et Marie Curie, Paris

10.3. Popularization

Interview and demo "Science on live" for the Science Festival 2016 at Cité des sciences et de l'industrie, Forum Explora about "Brain-Computer Interfaces for stroke rehabilitation" Oct. 8, 2016 (L. Bougrain, S. Rimbert). https://www.youtube.com/watch?v=cRCtGuvRW5A

Interview Huffington Post, Oct. 26, 2016 (L. Buhry)
(http://www.huffingtonpost.fr/2016/10/26/la-fille-du-train-creativite-imagination/)

Interview for Inria to introduce Neurosys' research on Brain-Computer Interfaces, Oct. 2016 (L. Bougrain) https://www.youtube.com/watch?v=DBajwAI9VEw at 5:38:10

Interview for the Regional TV news (JT 19/20 France 3 Lorraine): Brain-Computer Interfaces, Sept. 29, 2016 (L. Bougrain, S. Rimbert)

Talk during the National Brain Awareness Week: Brain, consciousness and waves, Mar. 18, 2016, Bibliothèque Multimédia Intercommunale, Epinal (L. Buhry, L. Koessler)

Interview for Radio CaraibNancy: Neuroscience in Lorraine, Mar. 16, 2016 (L. Bougrain, S. Caharel and L. Koessler)

Exhibit at Loria's open day for master students and engineers: controlling a robotic arm using EEG, Apr. 9, 2015 (L. Bougrain, J. Nex)

L. Bougrain & B. le Golvan, Neuroprosthetics, Evolution Psychiatrique, Elsevier [5] published on line on Mar. 8, 2016.

PARIETAL Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. Member of the Organizing Committees

- **Bertrand Thirion**: Organization for Human Brain Mapping.

9.1.1.2. Reviewer

- **Philippe Ciuciu**: IEEE ISBI (15 papers), IEEE ICASSP (10 papers), IEEE ICIP (5 papers), NIPS (4 papers), EUSIPCO (5 papers).
- **Bertrand Thirion**: IPMI, MICCAI, NIPS, ISBI, PRNI, AISTATS
- **Gaël Varoquaux**: IEEE ICASSP, MICCAI, NIPS, IPMI, ICML

9.1.2. Journal

9.1.2.1. Member of the Editorial Boards

- **Bertrand Thirion**: Medical Image Analysis, Frontiers in brain imaging
- **Gaël Varoquaux**: Frontiers in NeuroInformatics, Frontiers in brain imaging methods, NeuroImage

9.1.2.2. Reviewer - Reviewing Activities

- **Philippe Ciuciu**: Reviewer for Neuroimage, IEEE Signal Processing Letters, Signal Processing, IEEE Trans. Medical Imaging, Plos One, Plos Comput. Biology, Frontiers in Neuroscience.
- **Bertrand Thirion**: Human Brain Mapping, IEEE TMI, MedIA, NeuroImage, PNAS
- **Gaël Varoquaux**: NeuroImage, JSTSP, PNAS, HBM, PLOS Comp Bio, Gigascience
- **Olivier Grisel**: Journal of Machine Learning Research (software track).

9.1.3. Invited Talks

9.1.3.1. Bertrand Thirion

- February: invited talk at the *Imagerie du Vivant* National congress, entitled *Large-scale analyses in functional brain Imaging*.
- February: presentation at the Pasadena working group of the Digicosme Labex.
- April: invited presentation at European Neuroscience institute, Paris, entitled *Seeing it all: Convolutional network layers map the function of the human visual system*.
- April: presentation Functional connectomicts, at DTU Copenhagen, entitled *from large-scale estimators to empirical validation*.
- May: Talk at Atlas workshop, Grenoble, entitled *Learning representations from functional brain imaging*.
- June: organizer of a table ronde at the *Futur en Seine* event entitled *Computational methods for neurosciences & medical imaging.*
- October: talk at MPI Psychiatry, Munich, entitled *Machine learning for neuroimaging: current challenges and solutions*.
- June: Talk at Neurostic workshop, Grenoble, entitled *Learning representations from functional brain imaging*.
- October: Invited talk by the ITMO Neuroscience, Bordeaux, entitled *Working with large data samples: the case of human brain imaging*.

9.1.3.2. Philippe Ciuciu

- 12/16: IEEE Lecture at University of British Columbia (Vancouver, Canada): *Sparkling: Novel non-Cartesian sampling schemes for accelerated 2D anatomical imaging at 7 Tesla*.
- 12/16: Pacific Parkinson's research center (Vancouver, Canada): *Impact of perceptual learning on resting-state brain dynamics in fMRI: A supervised classification study*.
- 09/16: GdR d'Analyse Multifractale (Avignon, France): *Convergence of neural activity to multifractal attractors in MEG predicts learning*.
- 08/16: invitation to the Special session entitled "Unraveling brain networks from functional neuroimaging data" at EUSIPCO'16 (Budapest, Hungary): *Impact of perceptual learning on resting-state fMRI connectivity: A supervised classification study*.
- 06/16: Journées scientifiques d'Inria (Rennes, France): *Compressive Sampling in MRI*.
- 06/16: Inria Sophia-Antipolis, équipe Athena. *New physically plausible compressive sampling schemes for MRI: First results at 7 Tesla*
- 05/16: University of Geneva (Campus BioTech, Geneva, Switzlerand): *Convergence to asymptotic Multifractal dynamics in the brain predicts learning*.
- 02/16: Grenoble Institut of Neurosciences (Grenoble, France): *Physically plausible trajectories for Compressed Sensing in MRI*.
- 02/16: Workshop on 7 Tesla scanner at NeuroSpin (Gif-sur-Yvette, France) *Compressed sensing for high resolution MRI at 7 Tesla*.
- 01/16: Cosmostat lab, IRFU/CEA. *On the generation of compressed sampling schemes in MRI*.

9.1.3.3. Loïc Estève

- EuroScipy 2016: scikit-learn tutorial
- Budapest BI 2016 : scikit-learn tutorial and talk "Recent developments in scikit-learn and joblib"

9.1.3.4. Olivier Grisel

- PyData Berlin and PyData Paris 2016: *"Predictive modeling with Python, trends and tools*
- invited talk on *Some recent developments in Deep Learning researc* at Strata London 2016.

9.1.3.5. Gaël Varoquaux

- Paris Open Source summit 2016: scikit-learn, the vision and the community
- EuroScipy 2016 (Erlangen): keynote: "On writing code the science"
- Open Data Science Conference 2017 (London): keynote: "The code of data science"
- EuroPython 2016 (Bilbao): keynote "Scientists meet web dev: how Python became the language of data"
- PiterPy 2016 (St Petersbourg): keynote: "Python for data"
- Facebook AI Research: some statistical learning problems in brain imaging
- GDR ISIS Imagerie medicale: prediction de pathologies psychiatriques à partir d'imagerie fonctionnelle de repos
- Brain network analysis workshop, MICCAI 2016 (Athenes): keynote
- Journée Graphes et neuroscience à Marseilles: Machine learning on brain graphes
- Séminaire débat sur le Big data en Neuroscience, Lyon
- Seminar Max Planck Institute Leipzig: data mining for neuroimaging
- Seminar Telecom ParisTech: randomized methods for high-dimensional statistical learning
- Séminaire d'équipe Asclepios: Quelques problèmes d'apprentissage sur des images cérébrales

9.1.4. Leadership within the Scientific Community

- Gaël Varoquaux: Chair of the steering committee, IEEE PRNI
- Bertrand Thirion: member of the *Committee on Best Practices in Data Analysis and Sharing* for the OHBM community.

9.1.5. Scientific Expertise

- Philippe Ciuciu: ANR JC, NSERC au Canada, FWO
- Bertrand Thirion: ANR, NWO, NSF
- Gaël Varoquaux: Membre de la Commission Expertises Scientifiques, (CE23) ANR
- Olivier Grisel did 3 days of consulting with the CTO of the Therapixel startup to share expertise on the use of Deep Learning for the predictive analysis of 3D imaging data.

9.1.6. Research Administration

9.1.6.1. Philippe Ciuciu

- 03/16: Involvement in the CEA visiting committee on High Performance Computing.
- 05/16: Member of a Comité de sélection for hiring an Assistant Professor in Paris-Saclay University (Section 61 of CNU).
- 06/16: Member of the Inria scientific commission in charge of ranking PhD and post-doctoral applicants as well as delegations of Assistant Professors to Inria.

9.1.6.2. Bertrand Thirion

- Leader of the Datasense axis of the Digicosme Labex
- Member of the STIC department committee Paris-Saclay University and of the bureau thereof.
- DSA Saclay.

9.1.6.3. Gaël Varoquaux

- Member of "Commité de suivi doctoral", Inria Saclay
- Member of "Commité cluster", Inria Saclay
- Member of "Commission de Développement Technologique", Inria Saclay
- Member of the directorate of the Paris-Saclay CDS (Center for Data Science)

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

9.2.1.1. Bertrand Thirion

Master : Brain Computer interface and Functional Neuroimaging, 12 heures équivalent TD, niveau M2, ENS Cachan

9.2.1.2. Philippe Ciuciu

Master 2 : “Functional MRI: From data acquisition to analysis”, 3h, Univ. Paris V René Descartes & Télécom-Paristech, Master of Biomedical Engineering

Master 2 : “FMRI data analysis”, 3h, Univ. Paris-Saclay, Master of medical Physics

9.2.1.3. Gaël Varoquaux

Master 2 : “Brain functional connectivity analysis”, 7h, Univ. Paris V René Descartes & Télécom-Paristech, Master of Biomedical Engineering

Master 2 : “Machine learning with scikit-learn”, 2h, ENSAE

Master 2 : “Advanced Machine learning with scikit-learn”, 3h, Centrale Paris, MSc in data sciences & business analytics

Ecole d’été multidisciplinaire analyse de données, Rennes, 1h

OHBM 2016: course on machine learning for cognitive neuroimaging 30mn

PRNI 2016: nilearn for machine learning on brain images, 8h

Max Planck Institute Leipzig: nilearn for machine learning on brain images, 8h

9.2.2. Supervision

9.2.2.1. Bertrand Thirion

PhD in progress: Elvis Dohmatob,

PhD in progress: Arthur Mensch,

PhD in progress: Andrés Hoyos Idrobo

9.2.2.2. Philippe Ciuciu

PhD defended: Aina Frau-Pascual, "Statistical models for the analysis of BOLD and ASL Magnetic Resonance modalities to study brain function and disease", University of Grenoble-Alpes (doctoral school: Mathématiques, Sciences et Technologies de l'Information, Informatique), defense: 19/12/2016, Advisors: Florence Forbes (Dir), Philippe Ciuciu (Co-Dir)

PhD in progress: Carole Lazarus, "Physically plausible compressed sensing for high resolution MRI at 7 Tesla in Humans" starting date: October 2015 (Univ. Paris-Saclay, doctoral school: EOBE). Advisors: Philippe Ciuciu (Dir), Alexandre Vignaud (Co-Dir)

PhD in progress: Loubna El Gueddari, "Parallel proximal algorithms for compressed sensing MRI reconstruction. Applications in ultra-high magnetic field imaging", starting date: October 2016 (Univ. Paris-Saclay, doctoral school: EOBE). Advisors: Philippe Ciuciu (Dir) and Jean-Christophe Pesquet (Co-Dir, Prof. at Centrale-Supélec)

9.2.2.3. Gael Varoquaux

PhD defended: Alexandre Abraham

PhD in progress: Elvis Dohmatob,

PhD in progress: Arthur Mensch,

PhD in progress: Andrés Hoyos Idrobo

9.2.3. Juries

9.2.3.1. Bertrand Thirion

- 04/29: Reviewer of Niklas Kasenburg PhD Thesis , Univ. Copenhagen, Denmark.
- 01/12: Examiner of Simona Schiavi PhD Thesis, Univ. Paris Saclay.
- 14/12: Reviewer of Olivier Marre habilitation, Paris.
- 15/12: Reviewer of Maite Termenon PhD thesis, Univ. Grenoble.

9.2.3.2. Philippe Ciuciu

- 04/16: Reviewer of Aiping Liu's PhD thesis (ECCS Dpt, Univ. British Columbia, Vancouvern Canada) entitled *"Brain Connectivity Network Modeling using fMRI signals"*
- 05/16: Reviewer of Andrea Laruelo-Fernandez's PhD thesis (INP Toulouse-IRIT- ENSEEIHT) entitled *"Integration of magnetic resonance spectroscopic imaging into the radiotherapy treatment planning"*
- 09/16: Examinor of Mohanad Albughdadi's PhD thesis (INP Toulouse-IRIT- ENSEEIHT) entitled *" Bayesian joint detection-estimation in functional MRI with automatic parcellation and functional constraints"*
- 10/16: Reviewer of Sébastien Combrexelle's PhD thesis (INP Toulouse-IRIT- ENSEEIHT) entitled *"Multifractal analysis for multivariate data with application to remote sensing"*.
- 10/16: Co-director of Aina Frau-Pascual's PhD thesis (see above).

9.2.3.3. Gaël Varoquaux

- 06/16: Examiner of Alberto García Durán, PhD Thesis, UTC Compiegne.

9.3. Popularization

9.3.1. Gaël Varoquaux

- Unithé ou Café, Inria Saclay Ile de France
- Atelier IHEST Les mots du numérique - 17 novembre

9.3.2. Loïc Estève

Software Carpentry workshops:

- git course at UNIC in Gif-sur-Yvette March 29-30
- helper at "Scientific Programming with Python and Software Engineering Best Practices" workshop, April 28-29 at Télécom Paris
- git course at Proto 204, May 24-25

Mentor at Startup Weekend Artificial Intelligence, November 4-6.

9.3.3. Olivier Grisel

"La tête au carré" radio show on France Inter in January 2016 to share his expertise and opinion on the use and impacts of Big Data and predictive algorithms [0].

[0] https://www.franceinter.fr/emissions/la-tete-au-carre/la-tete-au-carre-05-janvier-2016

SISTM Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

Daniel Commenges organised a SFB (Société Française de Biometrie) in Montpellier (3 Juin 2016),

Daniel Commenges Co-organised the "Journées GDR-SFB" in Lyon (27-28 Juin)

Robin Genuer Co-organised a reading group called Smiling in Bordeaux (http://www.math.u-bordeaux.fr/~machaven/smiling)

Rodolphe Thiébaut organized the scientific program of the Bordeaux Modelling Workshop (1 et 2 Juin 2016)

Rodolphe Thiébaut organised a 10 hours seminar on "Bayesian filters and particule methods" at Inria Bordeaux (Nov. and Dec. 2016)

10.1.2. General Chair, Scientific Chair

Rodolphe Thiébaut is a member of the scientific committee of the Muraz Center (Bobo-Dioulasso, Burkina Faso), since 2016

Rodolphe Thiébaut is a member of the Scientific Advisory Board de l'Institut Pierre Louis d'Epidémiologie et de Santé Publique (UPMC, Dir : Dominique Costagliola), since 2015

Daniel Commenges is a member of the scientific committee of de "Journée de la SFdS (Société Francaise de Statistiques)" (Montpellier, 30 Mai-3 Juin)

10.1.3. Member of the Organizing Committees

All the team members helped in the ground organisation of the Bordeaux Modelling Workshop

10.1.4. Member of the Journal Editorial Boards

Lifetime Data Analysis (Daniel Commenges)

Statistics Surveys (Daniel Commenges)

Journal de la Société Francaise de Statistique (Daniel Commenges)

Daniel Commenges DC Principales revues de Statistique (Biometrics, JASA, JRSS, Stat Med, LIDA,...)

10.1.5. Reviewer - Reviewing Activities

AIDS (Rodolphe Thiébaut)

Annals of Applied Statistics (Boris Hejblum)

BioData Mining (Boris Hejblum)

Biometrics (Daniel Commenges, Mélanie Prague)

International Journal of Biostatistics (Robin Genuer)

International Journal of Epidemiology (Daniel Commenges)

Journal of Applied Statistics (Marta Avalos)

Journal of the Royal Statistical Society: Interaction (Mélanie Prague)

Machine Learning (Robin Genuer)

Neural Information Processing Systems (Robin Genuer)

Pattern Recognition Letters (Robin Genuer)

Statistics and Computing (Robin Genuer)

Statistical Methods and Applications (Marta Avalos)

Statistics in Medicine (Daniel Commenges, Rodolphe Thiébaut, Mélanie Prague)

Statistics Surveys (Daniel Commenges)

10.1.6. Invited Talks

Daniel Commenges gave 3 invited talks in Vienne (19 Mai), Vigo (26 Ocotbre) and Berlin (25 Novembre).

Laura Richert gave 2 invited talks in Webinar about "big data in epidemiology" (20 juin) and in Paris for the Colloquium "One Health" about "Signature transcriptomique post-vaccinale chez l'Homme" (3 Novembre).

Rodolphe Thiébaut gave 3 invited talks

Mélanie Prague gave 2 invited talks one in Nancy (20 fev.) and one un Summer Sim (26 july).

10.1.7. Leadership within the Scientific Community

Daniel Commenges is the president of the SFB (Société Française de Biométrie) which is the French satellite for the IBS (International Biometrics society).

10.1.8. Research Administration

Daniel Commenges is the director of the Biostat-Info axis in the Inserm BPH (Bordeaux Public Health) institute.

Rodolphe Thiébaut is a member of the department of life science in University of Bordeaux

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

In class teaching

Master : Marta Avalos teaches in the two years of the Master of Public Health at ISPED, Univ. Bordeaux, France.

Master : Robin Genuer, teaches in the two years of the Master of Public Health (M1 Santé publique, M2 Biostatistique, M2 Informatique médicale, M2 Santé internationale, M2 épidémiologie).

Master : Boris Hejblum, teaches in the two years of the Master of Public Health (M1 Santé publique, M2 Biostatistique, M2 Informatique médicale, M2 Santé internationale, M2 épidémiologie).

Master : Robin Genuer, MSS du collège ST, intervention dans le cours de Statistique en grande dimension.

Master : Rodolphe Thiébaut, teaches in the two years of the Master of Public Health, and he is head of the Epidemiology specialty of the second year of the Master of Public Health.

Master : Laura Richert teaches in the two years of the Master of Public Health at ISPED, Univ. Bordeaux, France (M2 Biostatistiques).

Master : Laura Richert teaches in the Master of Vaccinology at UPEC (University Paris-Est-Créteil), France.

Master : Chloe Pasin is a teaching assistant for the two years of the Master of Public Health at ISPED, Univ. Bordeaux, France.

Master : Laura Villain is a teaching assistant for the two years of the Master of Public Health at ISPED, Univ. Bordeaux, France

Bachelor : Laura Richert teaches in PACES and DFASM1-3 for Medical degree at Univ. Bordeaux, France

Summer School: All the SISTM team member teach in the ISPED Summer school.

E-learning

Marta Avalos is head of the first year of the e-learning program of the Master of Public Health, and teaches in it.

Mélanie Prague teaches in the Diplôme universitaire "Méthodes statistiques de régression en épidémiologie".

Laura Richert teaches in the Diplôme universitaire "Recherche Clinique".

Rodolphe Thiébaut is head of the Epidemiology specialty of the second year of the e-learning program of the Master of Public Health, and teaches in it.

Robin Genuer and Perrine Soret participate to the IdEx Bordeaux University "Défi numérique" project "BeginR" (http://beginr.moutault.net/).

10.2.2. Supervision

PhD in progress : Wenjia Wang "Modèle de Rasch" (CIFRE, co-direction avec Mickael Guedj Pharnext), from Oct 2015, directed by Daniel Commenges.

PhD in progress : Laura Villain "Modélisation de l'effet du traitement par injection IL7" (CIFRE, co-direction avec Rodolphe Thiébaut), from Oct 2015, directed by Daniel Commenges.

PhD in progress : Perrine Soret, *Modélisation de données longitudinales en grande dimension*, from Oct 2014, directed by Marta Avalos.

PhD in progress : Mélanie Née *Recherche et caractérisation de profils attentionnels : mieux comprendre la place de l'attention dans la survenue des accidents de la vie courante*, from Oct 2015, co-directed by Emmanuel Lagarde (60%), Cédric Galera (20%), Marta Avalos (20%)

PhD in progress : Chloé Pasin, *Modelling the immune response to HIV vaccine*, from Sep 2015, co-directed by Rodolphe Thiébaut and Francois Dufour

PhD in progress : Edouard Lhomme, *Analyse des déterminants de la réponse immunitaire post-vaccination dans des stratégies vaccinales expérimentales*, from Oct 2016, directed by Laura Richert.

PhD in progress : Hadrien Lorenzo, *Analyses de données longitudinales de grandes dimensions appliquées aux essais vaccinaux contre le VIH et Ebola*, from Oct 2016, co-directed by Rodolphe Thiébaut and Jérôme Saracco.

Master internship : Hao Ren "Contribution au développement d'un outil statistique d'aide à la décision en sport de haut niveau", directed by Marta Avalos and Perrine Soret (01/03/2016-12/08/2016)

Master internship : Madelyn Rojas "Practices for the provision of prior information in Bayesian Logistic Regression: Application in MAVIE project", directed by Marta Avalos and David Conesa (11/07/2016-09/09/2016)

Master internship : Thomas Blondel "Application of Bayesian linear models to sports science data", directed by David Conesa and Marta Avalos (05/04/2016 - 04/06/2016)

Master internship : Julie Havas "Application of Bayesian Logistic Regression to the mavie study of home and leaisure injury", directed by David Conesa and Marta Avalos (05/04/2016 - 04/06/2016)

Master internship : Thomas Esnaud "Etude de la méthode de clustering par forêts aléatoires, applications à la reconnaissance automatique de populations cellulaires.", directed by Robin Genuer (14/03/2016 - 31/08/2016)

Master internship : Lise Mandigny "Revue systématique et Méta-analyse des essais cliniques publiés de développement de vaccins contre le virus Ebola", directed by Rodolphe Thiébaut (1/04/2016 - 31/09/2016)

Master internship : Stella Huang "Modélisation de l'infection à pseudomonas aeruginosa dans les services de réanimation ? étude DYNAPYO", directed by Rodolphe Thiébaut (11/02/2016 - 15/08/2016)

Master project : B Dufoyer, A Chevalier, H Aassif, A Labchri, projet de programmation du Master 1 Informatique, Univ Bordeaux. Titre : " Développement d'un outil de prévention des accidents de la vie courante à partir de méthodes de machine learning : site web et bases de données ", directed by Marta Avalos and L Orriols, M Travanca, L Divert, INSERM U1219. (11/01/2016-12/04/2016)

Master project : N Craeye, C Elassaoui, F Elouazi, B Faltrept, projet de programmation du Master 1 Informatique, Univ Bordeaux. Titre : " Développement d'un outil de mesure de l'attention via internet ", directed by Marta Avalos and M Née, L Divert, E Lagarde, INSERM U1219. (11/01/2016-12/04/2016)

10.2.3. Juries

Daniel Commenges was involved in two PhD defences as president of the jury: Leila Azarang (Vigo), Anais Rouanet (Bordeaux).

Robin Genuer was in charge of the reports of the PhD of Havelund Welling, entitled "Characterization of absorption enhancers for orally administered therapeutic peptides in tablet formulations", defended on 30/09/2016 in Department of Applied Mathematics and Computer Science, Technical University of Denmark, Kongens Lyngby

Mélanie Prague is a member of the follow-up dissertation comity of Sébastien Benzkcry's PhD student (Inria Bor- deaux Sud-ouest, MONC team). Nicolo Chiara is working on "Mathematical modeling of systemic aspects of cancer and cancer therapy".

Rodolphe Thiébaut took part in the HDR committee of Vivian Viallon (2016) and Francesco Salvo (2016)

Robin Genuer took part in the recruitment commission MCF CNU 26 (Toulouse 2016)

Rodolphe Thiébaut took part in the recruitment commissions PU CNU 26 (Paris Descartes 2016), MCF CNU 26 (Bordeaux 2016), MCF CNU 85 (Bordeaux 2016).

10.3. Popularization

Marta Avalos, Marius Kwémou and Perrine Soret animated "Mais qui est le coupable ? (Ou comment les maths contribuent à conduire une enquête épidémiologique)" for high school students through the "Fête de la Science" organized at Inria, Oct 2016.

Laura Richert participated to "Nuit Européenne des Chercheurs" with speed dating and a radio interview, Cap Sciences, Bordeaux, September 2016.

VISAGES Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

- Olivier Commowick was General Chair of the "Multiple Sclerosis Lesions Segmentation Challenge", MICCAI 2016.

10.1.1.2. Member of the Organizing Committees

- Olivier Commowick, Michael Kain, Florent Leray, Jean-Christophe Ferré, Anne Kerbrat, Mathieu Simon and Christian Barillot organized the "Multiple Sclerosis Lesions Segmentation Challenge", MICCAI 2016.
- Christian Barillot is member of the Board of Directors of IPMI conference series (Information Processing in Medical Imaging)

10.1.2. Scientific Events Selection

10.1.2.1. Chair of Conference Program Committees

- Christian Barillot was area chair of SPIE Medical Imaging 2016
- Christain Barillot was area chair of IEEE ISBI 2016

10.1.2.2. Member of the Conference Program Committees

- Christian Barillot was TPC Member of PatchMI-2016, MICCAI-MCV2016
- Emmanuel Caruyer was Program Committee member of the CDMRI MICCAI workshop.

10.1.2.3. Reviewer

- ISBI (Emmanuel Caruyer, Olivier Commowick), ISMRM (Élise Bannier), MICCAI (Emmanuel Caruyer, Olivier Commowick).

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Christian Barillot is member of Editorial Boards of Medical Image Analysis, Current Medical Imaging Reviews, ISRN Signal Processing
- Christian Barillot is Editor-in-Chief of Frontiers in ICT: Computer Image Analysis.

10.1.3.2. Reviewer - Reviewing Activities

- Am J Neuroradiol (Élise Bannier), Comput Biol Med (Christian Barillot), Comput Meth Prog Bio (Christian Barillot), Front Neurosc (Pierre Maurel), Hum Brain Mapp (Emmanuel Caruyer), IEEE TMI (Pierre Maurel, Olivier Commowick), Med Image Anal (Olivier Commowick), Med Phys (Christian Barillot) Neuroimage (Christian Barillot, Isabelle Corouge, Emmanuel Caruyer, Olivier Commowick), Pattern Recog Lett (Christian Barillot).

10.1.4. Invited Talks

- Gilles Edan gave an invited keynote at the world 2016 ECTRIMS conference (London, UK)
- Christian Barillot published an invited position paper for the 20th anniversary of Medical Image Analysis
- Christian Barillot gave an invited lecture at the 25ème COLLOQUE DE LA CONFÉRENCE NATIONALE DES COMITÉS DE PROTECTION DES PERSONNES (CNCP)

- Christian Barillot gave an invited lecture at the Global Bioimaging Training Program, Eurobioimaging ESFRI program, EMBL, Germany
- Christian Barillot gave an invited lecture at the Miccai-BrainLes Workshop 2016, Athenes, GR
- Christian Barillot gave an invited lecture at the Maria de Maeztu Strategic Research Program; Department of Information and Communication Technologies, UPF, Barcelona, Spain
- Christian Barillot gave an invited lecture at the RIR 2016 - Emerging challenges in neuroscience, neurology & psychiatry, Paris, France
- Christian Barillot gave an invited lecture at the Biomedical Imaging Seminar, Erasmus MC, Rotterdam
- Christian Barillot gave an invited lecture at the FCRIN day on "Specificities of clinical research in imaging"
- Christian Barillot, Emmanuel Caruyer and Olivier Commowick gave an invited talk at the "MRI based Virtual Histology: Meeting Tomorrow's Healthcare Challenges Today" workshop, University College London, May 26-27th.

10.1.5. Leadership within the Scientific Community

- Gilles Edan was elected Fellow of the European Academy of Neurologie. Member of the EAN teaching committee in 2015
- Christian Barillot is member of the Scientific Council of the INS2I [0] Institute of CNRS since 2011 and is Chairman of the Board since 2015
- Christian Barillot is member of the C3N committee (CNRS)
- Christian Barillot is member of the scientific board of "GIS France Grilles"

10.1.6. Scientific Expertise

- Christian Barillot provided an expertise for the Royal Netherlands Academy of Arts and Sciences (KNAW)
- Christian Barillot provided expertise for the EPSRC, UK
- Christian Barillot provided an expertise for ANRT
- Christian Barillot provided expertise for the Assistant professor committee for the University of Paris Sud
- Emmanuel Caruyer provided expertise for the Inria Associate Team program.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master SIBM, University of Angers-Brest-Rennes

Christian Barillot, Élise Bannier, Emmanuel Caruyer, Olivier Commowick, Isabelle Corouge, Jean-Yves Gauvrit, Sylvain Prima, 3D medical imaging – visualization, segmentation, fusion, management, normalization (26h)

Sylvain Prima, Master 1 SIBM, University of Rennes (5h)

Christian Barillot is responsible for one semester

Jean-Yves Gauvrit is the coordinator for the Master

École Supérieure d'Ingénieur de Rennes (ESIR): Pierre Maurel, General image processing (60h), Algorithmics and complexity (60h), Medical imaging (60h)

ENS Rennes: Pierre Maurel, Introduction to image processing (24h)

ISTIC – Université of Rennes 1: Emmanuel Caruyer, Software Engineering (12h)

[0] http://csins2i.irisa.fr

10.2.2. Supervision

PhD: Hrishikesh Deshpande, “Dimensionality Reduction and Statistical Learning for Computational Modeling of Natural Evolution of Brain Pathologies”, Inria, Jun 2012, Christian Barillot, Pierre Maurel.

PhD in progress: Sudhanya Chatterjee, “Image-based Tissue Compartment Characterization of Neural Circuits with in-vivo MRI”, Inria, from Nov 2015, Christian Barillot, Olivier Commowick, Jean-Christophe Ferré, Simon Warfield.

PhD in progress: Renaud Hédouin, “Biomarker discovery in brain imaging by using diffusion MRI”, Inria/Inserm, from November 2013, Christian Barillot, Olivier Commowick.

PhD in progress: Cédric Meurée, “Quantitative Analysis Of Arterial Spin Labeling MRI For Robust Parametric Information Of Perfusion Maps”, Inria / Siemens, from Mar 2014, Christian Barillot, Pierre Maurel.

PhD in progress: Corentin Vallée, “Joint estimation of neuronal activation, resting-state and basal metabolism from Arterial Spin Labeling”, Christian Barillot, Isabelle Corouge, Pierre Maurel.

PhD in progress: Antoine Legouhy, “Analyse IRM multimodale pour l’e´tude du de´veloppement ce´re´bral chez le pre´mature´”, from Nov 2016, Christian Barillot, Olivier Commowick, François Rousseau.

PhD in progress: Lorraine Perronnet, “Neurofeedback Using Virtual Reality And Combining Eeg-Mri For Brain Rehabilitation”, Inria/CominLabs Hemisfer project, from Dec 2013, Christian Barillot, Maureen Clerc (Inria Sophia-Antipolis), Anatole Lecuyer (HYBRID project), Fabien Lotte (Inria Bordeaux)

PhD in progress: Haykel Snoussi, “Diffusion MRI detection of early occurring spine lesions in relapsing-remitting multiple sclerosis with late physical impairment”, from Nov 2015, Christian Barillot, Gilles Edan, Emmanuel Caruyer

PhD in progress: Pierre-Yves Jonin, “Relationships between context-free and context-rich memory: cognitive and neural subtrates”, Inria/Inserm/CNRS from Oct 2014, Christian Barillot (co-supervisor)

PhD in progress: Maia Proisy, “Perfusion in neonates and in pediatric diseases”, Univ. Rennes 1/CHRU Rennes, from Oct 2014, Jean-Christophe Ferré (supervisor)

PhD in progress: Anne Kerbrat, “Quantitative MR imaging in MS for Brain and Spine”, Univ. Rennes 1/CHRU Rennes, from Oct 2014, Gilles Edan (supervisor)

10.2.3. Juries

- Pierre Maurel, PhD committee Hrishikesh Despande, Inria, Rennes July 2016.
- Christian Barillot, PhD committees: Hrishikesh Despande, Inria, Rennes July 2016.
- Christian Barillot, PhD reviewer: Mehdi Hadj-Hamou, Inria, Sophia; Dec 2016; Ester Bron, Erasmus MC, NL, March 2016

10.3. Popularization

- Inria demonstration stand, Journées Françaises de Radiologie.

XPOP Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. General Chair, Scientific Chair

Julie josse was chair of useR!2016, Stanford, CA, USA, July 2016. http://user2016.org.

10.1.2. Scientific Expertise

Marc Lavielle is member of the Scientific Committee of the High Council for Biotechnologies

10.1.3. Research administration

Marc Lavielle is member of

- the Scientific Programming Committee (CPS) of the Institute Henri Poincaré (IHP),
- the Executive Board (CA) of SMAI.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master : Julie Josse, Statistics with R, 48, M2, X-HEC

Master : Eric Moulines, Regresson models, 36, M2, X-HEC

Engineering School : Eric Moulines, Statistics, 36, 2A, X

Engineering School : Eric Moulines, Markov Chains, 36, 3A, X

Engineering School : Erwan Le Pennec, Statistics, 36, 2A, X

Engineering School : Erwan Le Pennec, Statistical Learning, 36, 3A, X

Engineering School : Marc Lavielle, Time Series, 24, 3A, X

10.2.2. Supervision

PhD in progress : Nicolas Brosse, September 2016, Eric Moulines

PhD in progress : Geneviève Robin, September 2016, Julie Josse

PhD in progress : Belhal Karimi, October 2016, Marc Lavielle and Eric Moulines

PhD in progress : Marine Zulian, October 2016, Marc Lavielle

AIRSEA Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific events organisation

E. Blayo, A. Vidard and E. Cosme organized the 6th French national symposium on data assimilation (Grenoble, November 30 - December 2, 2016).

L. Debreu has organized the international workshop "DRAKKAR" on global ocean modelling with the NEMO system (January 2016).

F. Lemarié was the convener of a session « Recent Developments in Numerical Earth System Modeling » during the 2016 European Geosciences Union General Assembly in Vienna (http://meetingorganizer.copernicus.org/EGU2016/session/21050).

C.Prieur was a member of the organizing committee of the Journées MAS 2016, Grenoble http://www.sciencesconf.org/browse/conference/?confid3D2486

10.1.2. Scientific events selection

10.1.2.1. Member of the conference program committees

L. Debreu was a member of the program committee of the International Conference on Computational Science (ICCS 2016), Paris, December 2016.

C.Prieur is a member of the program committee of the International Conference on Sensitivity Analysis of Model Output (SAMO 2016), La Réunion http://samo2016.univ-reunion.fr/

10.1.3. Journal

10.1.3.1. Reviewer - Reviewing activities

E. Blayo: reviewer for Mathematics and Computers in Simulation, Ocean Modelling.

L. Debreu: reviewer for Ocean Modelling, Ocean Dynamics, Geophysical Model Development.

F. Lemarié: reviewer for Ocean Modeling, Dynamics of Atmospheres and Oceans, Geoscientific Model Development, SIAM Journal on Scientific Computing

10.1.4. Leadership within the scientific community

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

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

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

10.1.5. Scientific expertise

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

10.1.6. Research administration

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

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

E.Arnaud is a member of the executive committee of IXXI (complex system institute) http://www.ixxi.fr.

C.Prieur is an elected member of the National Council of Universities (CNU).

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

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

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence: E. Blayo, Mathématiques pour l'ingénieur, 52h, L1, University of Grenoble

License : E. Arnaud, Mathématiques pour l'inge´nieur, 57h, L1, University Grenoble Alpes, France.

License : E. Arnaud, Diplôme d'accès à la license, 15h, L1, University Grenoble Alpes, France.

Licence : M. Nodet, outils mathématiques pour l'ingénieur, 100h, L1, Univ. Grenoble Alpes, France

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

Master : E. Arnaud, Projet de programmation en traitement d'images, 16h, M1, University Grenoble Alpes, France.

Master : E. Arnaud, Computer Vision, 9h, M2, University Grenoble Alpes, France.

Master : M. Nodet, partial differential equation, 20h, M1, Univ. Grenoble Alpes, France.

Master : M. Nodet, inverse methods and data assimilation, 30h, M2, Univ. Grenoble Alpes, France.

Master: E. Blayo, Méthode des éléments finis, 47h, M1, University of Grenoble.

Master: E. Blayo, Partial Differential Equations and numerical methods, 43h, M1, ENSIMAG and University of Grenoble.

Doctorat: E. Blayo, M. Nodet, A. Vidard, Introduction to data assimilation, 20h, University of Grenoble.

Doctorat : L. Debreu, Formation doctorale nationale Modélisation numérique de l'océan et de l'atmosphère, 21-25 novembre 2016, Paris, France. With T. Dubos (LMD/Ecole Polytechnique, Paris), G. Roullet (Brest University), F. Hourdin (LMD/CNRS, Paris).

E-learning

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

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

10.2.2. Supervision

PhD : Nelson Feyeux, Application du transport optimal pour l'assimilation de données images, December 2016, A. Vidard, M. Nodet.

PhD : Mehdi-Pierre Daou, Développement d'une méthodologie de couplage multimodèles avec changements de dimension - Validation sur un cas-test réaliste, Université Grenoble Alpes, 27 septembre 2016, E. Blayo & A. Rousseau, see [1].

PhD : Laurent Gilquin, Echantillonage Monte Carlo et quasi-Monte Carlo pour l'estimation des indices de Sobol'. Application à un modèle transport-urbanisme, Université Grenoble Alpes, 17 octobre 2016, C. Prieur and E. Arnaud, see [2].

PhD in progress : Thomas Capelle, Calibration of LUTI models, octobre 2013, P. Sturm (EPI STEEP), A.Vidard.

PhD in progress : Rémi Pellrej, Assimilation de données pour les modèles couplés, octobre 2014, A. Vidard, F. Lemarié.
PhD in progress: Charles Pelletier, Etude mathématique et numérique de la formulation du couplage océan-atmosphère dans les modèles de climat. December 2014, E. Blayo, F. Lemarié and P. Braconnot.
PhD in progress : Patricia Tencaliec, Approches stochastiques pour la gestion des risques environnementaux extrêmes, October 2013, Clémentine Prieur, Anne-Catherine Favre (LTHE).
PhD in progress : Reda El Amri, Analyse d'incertitudes et de robustesse pour les modèles à entrées et sorties fonctionnelles, April 2016, Clémentine Prieur, Céline Helbert (Centrale Lyon), funded by IFPEN, int the OQUAIDO chair program.
Internship : Damien Garino, Suivi de formes non rigides dans les images, M2, University Grenoble Alpes, 6 months, E. Arnaud and A. Vidard.

10.2.3. Juries

E. Blayo:

- 1 July 2016 - HDR thesis of Yann Michel, University of Toulouse (referee),
- 5 July 2016 - PhD thesis of François Mercier, University of Versailles-Saint Quentin (examiner),
- 9 November 2016 - PhD thesis of Vladimir Groza, University of Nice (referee),
- 5 December 2016 - PhD thesis of Cyrille Mosbeux, University of Grenoble (president).

L. Debreu – PhD thesis of Charles Colavolpe, University of Toulouse (referee),
L. Debreu – PhD thesis of Amandine Declerck, University of Toulon (referee),
A. Vidard – PhD thesis of Rachida El Ouaranis, Institut national polytechnique de Toulouse / Université Hassan 2 de Casablanca (referee),
F.-X. Le Dimet – HDR thesis of Philippe Moireau, Paris-Saclay,
F. Lemarié: 30 mars 2016 - PhD thesis of Véra Oerder, Université Pierre et Marie Curie, Paris 6 (examiner),
E. Anaud: juries of M2 thesis and M2 Miage apprentices,
Clémentine Prieur took part to recruiting CR2 for Inria Grenoble Alpes (2014,2015,2016).

10.3. Popularization

E. Blayo gave several outreach talks, in particular for middle school and high school students, and for more general audiences.
Ch. Kazantsev and E. Blayo participate in the creation of "La Grange des maths" in Varces (south of Grenoble). See http://www.la-grange-des-maths.fr/.
Since 2010, Ch. Kazantsev is the Director of the IREM of Grenoble http://www-irem.ujf-grenoble.fr/irem/accueil/. The Institute is under rapid development now, joining about 50 teachers of primary and secondary schools of the Grenoble region and 15 university professors. They work together 16 times a year on the development of the teaching strategy for the educational community. In addition to this, IREM is the editor of two journals: "Grand N" destined to primary schools teachers and "Petit x" – to the secondary schools.
M. Nodet and E. Arnaud co-organises a year-round weekly math club in two secondary schools, where pupils research open mathematical problems.
M. Nodet is a member of "les Emulateurs", a group of Grenoble Univ. professors meeting once a month around the subjects of innovative pedagogy and its applications to universities.
M. Nodet takes part in a maths club "Math en Jeans" involving two secondary schools around Grenoble.
M. Nodet takes part in training modelling in mathematics to secondary school maths teachers through the regional "Maison pour la Science" and is also in charge of an IREM group about building interdisciplinary projects for secondary school classes.
Podcast Interstices Clémentine Prieur's interview https://interstices.info/jcms/p_86521/mieux-modeliser-le-climat-grace-aux-statistiques

ANGE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. Member of the Organizing Committees

B. Di Martino, C. Guichard, A. Mangeney, Y. Penel and J. Sainte-Marie organised the workshop "Complex rheology for granular flows: challenges and deadlocks" that took place at IPGP on October 14th and that gathered 25 researchers.

M. Parisot organise's the Working group (GdT) of the Ange team.

Moreover, L. Boittin co-organise's the Junior Seminar at Inria–Paris.

10.1.2. Journal

10.1.2.1. Reviewer - Reviewing Activities

Member	Journal
E. Audusse	Advanced Water Resources, ESAIM:ProcS., SMAI Journal of Computational Mathematics
E. Godlewski	Computers and Fluids
C. Guichard	Numerische Mathematik, Mathematics and Computers in Simulation, Annali di Matematica Pura ed Applicata
B. Haspot	Analysis of PDE, JDE, JMAA, M3AS, ARMA, Siam Analysis, Mathematische Annalen, CMS, JFA, Acta Applicandae Mathematicae
A. Mangeney	J. Fluid Mech., J. Geophys. Res., Numeric. Analyt. Methods Geomech., Earth Surf. Processes and Landforms
M. Parisot	Continuum Mechanics and Thermodynamics, Hydrological Processes
Y. Penel	Hydrological Processes
J. Salomon	SIAM Journal on Numerical Analysis, M2AN, SIAM Journal of Scientific Computing
J. Sainte-Marie	M2AN, Nonlinearity, IJNMF, Applied mathematical modellling, Journal of Hydraulic Research, Computers and Fluids, European Journal of Applied Math, Numerische Mathematik

10.1.3. Invited Talks

Conference	Location	Month	Members involved
European Geosciences Union	Vienna (Austria)	April	A. Mangeney
Peril flood	Paris	May	M. Parisot
CANUM	Obernai	May	D. Kazerani
ECMI	Santiago de Compostela (Spain)	June	C. Guichard
CECAM	Lyon	June	A. Mangeney
Martian gullies and Earth analogues	London (UK)	June	A. Mangeney
Scientific computing and modelling	Amiens	June	J. Sainte-Marie
Asymptotic Behavior of systems of PDE	Lille	June	D. Kazerani
AIMS	Orlando (US)	July	N. Aissiouene
EGU FORM-OSE training school	Azores (Spain)	July	A. Mangeney
HYP	Aachen (Germany)	August	Y. Penel
Modelling of coastal hydrodynamics	Vannes	September	E. Audusse, J. Sainte-Marie
GDR Renewable marine energies	Nantes	October	J. Salomon
GDR Transnat	Roscoff	November	E. Audusse
Liquid-vapor interfaces in fluid flows	Paris	December	D. Kazerani

Seminars	Date	Member
IMUS (Sevilla, Spain)	February	Y. Penel
EDANYA (Málaga, Spain)	April	N. Aissiouene
Paris (LJLL)	May	M. Parisot
GIS HED^2	June	D. Kazerani
Luminy (CEMRACS)	August	E. Audusse
Lille	September	M. Parisot

10.1.4. Leadership within the Scientific Community

Organisation	People	Duty
AMIES	E. Godlewski	Member of board
CFEM	E. Godlewski	Director
Comité d'Orientation Pour les Risques Naturels Majeurs du Ministère de l'Environnement	A. Mangeney	Member
EGRIN	E. Audusse	Correspondent (Paris 13)
	B. di Martino	Correspondent (Corse)
	N. Goutal	Correspondent (EDF)
	C. Guichard	Correspondent (UPMC)
	A. Mangeney	Member of board
	M. Parisot	Correspondent (ANGE)
	J. Sainte-Marie	Scientific head
HCERES	A. Mangeney	Expert
LJLL	E. Godlewski	Deputy director
Research commission of UPMC	D. Kazerani	Member
SMAI	Y. Penel	Member of board

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

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

Master's degree (M2) E. Godlewski, Numerical methods for nonstationary PDEs, 18 hours (example and programming classes), Univ. Pierre et Marie Curie Paris 6

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

Master's degree (M2) H. Martin and J. Sainte-Marie, Numerical methods in fluid mechanics, 52 hours (lectures and programming classes), Univ. Paris Diderot Paris 7, IPGP

Master's degree (M2) B. Haspot, Linear partial differential equations, 15 hours (lectures), Univ. Paris Dauphine

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

Master's degree (M2) J. Salomon, Scientific computing and numerical analysis, 30 hours (lectures, example and programming classes), Univ. Paris Dauphine

Engineering school (2nd year) E. Audusse, Hyperbolic systems, 30 hours (lectures and example classes), Univ. Paris 13

Engineering school (2nd year) E. Audusse, Finite difference method for PDEs, 30 hours (lectures and programming classes), Univ. Paris 13

Master's degree (M1) C. Guichard, Basis of numerical methods, 68 hours (programming classes), Univ. Pierre et Marie Curie Paris 6

Master's degree (M1) H. Martin and J. Sainte-Marie, Models in geosciences, 40 hours (lectures and programming classes), Univ. Paris Diderot Paris 7, IPGP

Master's degree (M1) B. Di Martino, Numerical methods, 27 hours (lectures and programming classes), Univ. Corse

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

Master's degree (M1) B. Haspot, Functional analysis, 85 hours (lectures and example classes), Univ. Paris Dauphine

Master's degree (M1) E. Godlewski, Numerical methods, 24 hours (lectures), Univ. Pierre et Marie Curie Paris 6

Engineering school (1st year) E. Audusse, Numerical analysis for differential equations, 30 hours (example classes), Univ. Paris 13

Bachelor's degree (L3) C. Guichard, Numerical linear algebra, 76.5 hours (example and programming classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L3) M. Parisot, Hilbert analysis, 30 hours (lectures and example classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L3) B. Di Martino, Numerical methods, 18 hours (lectures and programming classes), Univ. Corse

Bachelor's degree (L2) E. Audusse, Scientific computing, 36 hours (lectures), Univ. Paris 13

Bachelor's degree (L2) Y. Penel, Integration in 2 and 3 dimensions, 12 hours (lectures), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L1) F. Wahl, Linear algebra, 54 hours (example classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L1) F. Wahl, Analysis and algebra for sciences, 38.5 hours (example classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L1] E. Nayir, Mathematics, 72 hours (example classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L1) E. Godlewski and E. Nayir, Linear algebra, 48 hours (lectures and example classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L1) L. Boittin, Calculus, 28 hours (example classes), Univ. Pierre et Marie Curie Paris 6

Some members are responsible of educational pathways:

- E. Audusse is the deputy director of the "Applied Mathematics and Scientific Computing" program of the SupGalilee engineering school.
- E. Godlewski is the head of the "Mathematics for Industry" M.Sc. program of Univ. Pierre et Marie Curie Paris 6.
- C. Guichard is the associated head of the "Mathematics and Programming" B. program of Univ. Pierre et Marie Curie Paris 6.
- A. Mangeney is the head of the "Telluric Natural Hazards" M. Sc. specialty of IPGP.

10.2.2. Supervision

PostDoc in progress El Hadji Kone, *Numerical modelling of shallow two-phase flows*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney, from 2016

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

PhD Nora Aïssiouene, *Derivation and analysis of a non-hydrostatic Shallow water type model*, Univ. Pierre et Marie Curie Paris 6 (Inria grant), supervised by E. Godlewski and J. Sainte-Marie, defended on Dec. 16

PhD Dena Kazerani, *Simulation et modélisation de problèmes à frontière libre*, Univ. Pierre et Marie Curie Paris 6, supervised by N. Seguin (in collaboration with P. Frey and C. Audiard), defended on Nov. 16

PhD Clément Mifsud, *Analyse et approximation des systèmes de Friedrichs : application à la modélisation de l'élastoplasticité*, Univ. Pierre et Marie Curie Paris 6, supervised by N. Seguin (in collaboration with J.-F. Babadjian and B. Després), defended on Nov. 16

PhD Amandine Sergeant-Boy, *Detection and characterisation of seismic sources generated by glaciers: numerical modelling and analysis of seismic waves*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with J.-P. Montagner, E. Stutzmann and O. Castelnau), defended on Nov. 16

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

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

PhD in progress Do Minh Hieu, *Analyse mathématique et schémas volumes finis pour la simulation des écoulements quasi-géostrophiques à bas nombre de Froude*, Univ. Paris 13, supervised by E. Audusse and Y. Penel (in collaboration with S. Dellacherie and P. Omnes), from 2014

PhD in progress Virginie Durand, *Spatio-temporal measurement, analysis and simulation of gravitational flows and seismic signals*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney, from 2016

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

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

PhD in progress Hélène Miallot, *Numerical modelling of landquakes*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with Y. Capdeville), from 2015

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

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

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

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

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

M2 internship Marie Zehgdoudi, *Étude des flux de lave émis au Piton de la Fournaise à partir d'enregistrements sismiques*, IPGP, supervised by A. Mangeney, Summer 2016

L3 internship Albin Grataloup, *Perturbation theory applied to the shallow water equations*, Ecole Normale Supérieure de Lyon, supervised by E. Audusse and Y. Penel, Summer 2016

We also mention that N. Goutal and M. Parisot supervised a student during the 2016 session of CEMRACS during the summer.

10.2.3. Juries

Feb., PhD A. Mangeney (president): Antoine Frère (CEA, *Modélisation des tsunamis génér{es par écoulement gravitaire : application dans le golfe de Gascogne*)

Feb., PhD A. Mangeney (referee): Véronique Dansereau (Univ. Grenoble, *A Maxwell-Elasto-Brittle model for the drift of ice*)

July, PhD E. Godlewski: Khalil Haddaoui (Univ. Pierre et Marie Curie Paris 6, *Méthodes numériques de haute précision et calcul scientifique pour le couplage de modèles hyperboliques*)

Sept., PhD E. Godlewski (referee): Asma Toumi (Univ. Toulouse, *Méthode numérique asynchrone pour la modélisation de phénomènes multi-échelles*)

Oct., PhD E. Godlewski (referee): Hippolyte Lochon (Univ. Marseille, *Modélisation et simulation d'écoulements transitoires eau-vapeur en approche bi-fluide*)

Oct., PhD B. Di Martino (referee): Ralph Lteif (Univ. Chambéry, *Modélisation et analyse mathématique de modèles en océanographie*)

Nov., PhD J. Sainte-Marie (referee): Amina Nouhou-Bako (Univ. Orléans, *Modélisation numérique de l'érosion diffuse des sols. Interaction gouttes-ruissellement*)

Nov., PhD E. Godlewski and J. Sainte-Marie: Dena Kazerani (Univ. Pierre et Marie Curie Paris 6, *Études mathématiques de fluides à frontières libres en dynamique incompressible*)

Nov., PhD A. Mangeney: Amandine Sergeant-Boy (Univ. Paris 7, *Detection and characterisation of seismic sources generated by glaciers: numerical modelling and analysis of seismic waves*)

Nov., PhD A. Mangeney: Sébastien Lherminier (Univ. Lyon 1, *Dynamique des avalanches invariantes d'échelle*)

Dec., PhD E. Godlewski, A. Mangeney and J. Sainte-Marie: Nora Aïssiouene (Univ. Pierre et Marie Curie Paris 6, *A numerical method for a dispersive shallow water system*)

Dec., HdR J. Sainte-Marie: Carine Lucas (Univ. Orléans, *Analyse mathématique et numérique de quelques modèles d'érosion*)

M. Parisot participated to the intermediate evaluation of Cécile Taing's PhD thesis (Univ. Pierre et Marie Curie Paris 6). A. Mangeney was a member of the jury evaluating M2 internships at IPGP.

10.3. Popularization

March E. Audusse intervened in a middle school on the occasion of the French week of Maths. J. Salomon went to a high school at Limay.

May N. Aïssiouene, E. Audusse, E. Godlewski (organiser), Y. Penel and F. Wahl ran a stand on the occasion of the "salon de la culture et des jeux mathématiques".

July M. Parisot gave a vulgarisation talk at Inria ("demi-heure de la science").

October E. Audusse intervened in a high school on the occasion of Savantes Banlieues.

November E. Nayir, Y. Penel and F. Wahl ran a stand during the ONISEP exhibition.

December E. Godlewski managed a group of middle school students at the Jacques-Louis Lions lab.

December F. Wahl helped the organisation at the "Math. Employment" show.

A. Sergeant-Boy, A. Mangeney, E. Stutzmann, J.-P. Montagner, F. Walter, L. Moretti, and O. Castelnau wrote an article entitled "La sismologie pour ausculter les pertes des glaciers des calottes polaires, lors du vêlage d'icebergs" in the CNRS–INSU newspaper (Apr.).

A. Mangeney is coaching high-school students from disadvantaged areas to manage scientific projects.

CASTOR Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events Organisation

7.1.1.1. Member of the Organizing Committees

- D. Auroux, C. Boulbe and L. Busé (Aromath - Inria) have organized a SEME (Semaine d'Etudes Maths-Entreprises) under the initiative of AMIES.
  - Project proposed by Option Way, Optis, Thales Alenia Space, Wever, Exact Cure
  - 25-29 Juanary 2016, Campus Sophia Tech (Inria, Univ. Nice Sophia Antipolis)
  - http://math.unice.fr/~auroux/SEME/
- From April 12th to 15th 2016, CASTOR (Boniface Nkonga, Hervé Guillard, Afeintou Sangam) has organized in Sophia Antipolis, the annual user meeting of the Jorek code that has gathered 25 plasma specialists around the development of this code dedicated to MHD studies in Tokamaks.
- Minisymposium: Numerical Methods for Magnetohydrodynamics/Méthodes numériques pour les équations de la magnétohydrodynamique, CANUM 2016, 43e Congrès National d'Analyse Numérique, Obernai, France, May 09-13, 2016.

  The simulation of electrical conducting fluids relies on numerical methods from computational fluid dynamics and computational electrodynamics. As the underlying magnetohydrodynamic (MHD) models are non-standard coupled systems of non-linear partial differential equations, the main ingredients of numerical solution methods such as preconditioners, iteration schemes and stability require special attention. Moreover, in many applications such as plasmas, where we have no unique canonical MHD formulation in terms of PDEs, the development of numerical methods goes hand in hand with modelling: the models depend on the time and length scales of interest, but particular variations can avoid pitfalls in the numerical simulation.

  In this minisymposium we gathered talks from different application areas. Contributions included numerical analysis and computational methods for both established MHD models as well as specialized models for applications in plasma physics:
  - José Costa, CASTOR, Inria, SAM: High order stabilized finite element method for MHD and Reduced-MHD plasma modelling
  - Emmanuel Franck, Inria NANCY GRAND EST: Analyse des préconditionneurs physiques pour les équations d'Euler et de la MHD linéarisée
  - Céline Caldini-Queiros, MPI Garching: Couplage de modèles MHD et cinétiques dans des géométries complexes
  - Tahar Boulmezaoud, Université de Versailles: Equilibres magnétohydrostatiques et champs force-free

7.1.2. Journal

7.1.2.1. Member of the Editorial Boards

- C. Boulbe is layout editor of the free journal SMAI-Journal of Computational Mathematics.
- J. Blum is member of
  - the editorial board of the Journal of Scientific Computing (JSC),
  - the scientific commitee of the collection "Mathématiques et Statistiques" of the ISTE publications,

- editor in chief of the ISTE Open Science journal: "Mathématiques appliquées et stochastiques".

7.1.2.2. Reviewer - Reviewing Activities

H. Guillard is reviewer for several journals including

- Journal of computational physics
- Computers and Fluids

7.1.3. Invited Talks

- J. Blum, The use of optimal control theory for equilibrium identification and optimization of plasma scenarios, Swiss Plasma Center, EPFL, Switzerland, November 28, 2016
- H.Heumann, Control methods for the optimization of plasma scenarios in a tokamak. Oberseminar Scientific Computing, University Würzburg, Würzburg, Germany, November 14, 2016
- H.Heumann, Numerical methods for tokamak plasma equilibrium evolution at the resistive diffusion timescale, Zurich Colloquium in Applied and Computational Mathematics, ETH Zurich, Zurich, Switzerland, March 16, 2016
- H.Heumann, Free-Boundary Axisymmetric Plasma Equilibria: Computational Methods and Applications , Theory Group Seminar, Princeton Plasma Physcis Laboratory, Princeton, USA, March 3, 2016
- H.Heumann, Quasi-static Free-Boundary Equilibrium of Toroidal Plasma: Computational Methods and Applications, Magneto-fluid dynamics seminar, Courant Institut, New York University, New York, USA, February 23, 2016

7.1.4. Leadership within the Scientific Community

- J. Blum is:
  - a member of the scientific committee of Academy 1 of UCA-IDEX JEDI: «Networks, Information and Digital society»,
  - member of the "bureau" and the director committee of the Fédération FR-FCM (Fédération de Recherche Fusion par Confinement Magnétique - ITER).
- H. Guillard is coordinator of the topic "Turbulence and transport of edge plasma" within the Fédération FR-FCM
- C. Boulbe is task coordinator of the ACT2: Free boundary equilibrium and Control within the Eurofusion WPCD workpackage.
- B. Nkonga is chairman of the GAMNI ("Groupe pour l'Avancement des Méthodes Numériques de l'Ingénieur"), group of the SMAI.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

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

Ecole d'ingénieur: D. Auroux, Méthodes numériques, 36h, M2, Polytech Nice Sophia, Université de Nice Sophia Antipolis, France

Ecole d'ingenieur: D. Auroux, Projet, 35h, L3, Polytech Nice Sophia Antipolis, France

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

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

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

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

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

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

Ecole d'ingenieur: C. Boulbe, Projet, 35h, L3, Polytech Nice Sophia Antipolis, France

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

Master: S. Minjeaud, module Méthodes numériques en EDP, 36 h, M1, Université de Nice Sophia Antipolis, France.

Master: S. Minjeaud, module Analyse et simulations numériques pour les EDP, 20 h, M2, Université de Nice Sophia Antipolis, France.

Master: S. Minjeaud, module Simulations numériques des problèmes d'évolution, 20 h, M2, Université de Nice Sophia Antipolis, France.

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

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

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

Ecole d'ingénieur/Master: B. Nkonga, Eléments finis mixtes, 24h, M2, Polytech Nice Sophia, France

Ecole d'ingénieur/Master: B. Nkonga, Scilab, 28h, L3, Polytech Nice Sophia, France

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

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

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

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

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

Master: A. Sangam, Introduction to Finite Elements, 25h, M1, Université Nice Sophia Antipolis, France

7.2.2. Supervision

- PhD in progress: E. Estibals, "MHD réduite: Modélisation et Simulation numérique utilisant des éléments finis stabilisés d'ordre élevé sur un maillage courbe non-structuré. Application à l'injection de glaçons et de masse dans ITER", 15th october 2013, Hervé Guillard, Afeintou Sangam.
- PhD in progress : X. Song, "Model based control oriented scenario construction in Tokamak", october 2016, Blaise Faugeras, Holger Heumann.
- PhD in progress : J. Llobell, "Schémas numériques sur grilles décalées pour la dynamique des gaz", October 1st 2015, T. Goudon, S. Minjeaud.

7.2.3. Juries

R. Pasquetti was in the following juries:

- HdR : Pascal Henri Biwole, Université Côte d'Azur,
- PhD : Benjamin Gaume, Université d'Evry Val-d'Essonne.

B. Nkonga was referee in the following juries:

- HdR: Jérôme Breil, Université de Bordeaux,
- PhD: Quentin Viville, Université de Bordeaux,
- PhD: Sara Pavan, Université Paris-Est.

H. Guillard was in the PhD jury thesis of

- PhD: José Costa, Université Côte d'Azur.
- PhD:: Léo Nouveau, Université de Bordeaux.

J. Blum was in the PhD jury thesis of

- PhD: Vladimir Groza, Université Côte d'Azur,
- PhD: Bienvenu Youmbi, Université Côte d'Azur,
- PhD: Michel Massaro, Université de Strasbourg.

7.3. Popularization

J. Blum has been invited to a dinner-conference organized by the Rotary Club of Grenoble Sud.
Title of the talk: "L'énergie de demain, ITER un soleil miniature?"

CLIME Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Selection

10.1.1.1. Reviewer

- Isabelle Herlin: International Conference on Computer Vision and Pattern Recognition (CVPR), International Conference on Computer Vision (ECCV), Asian Conference on Comuter Vision (ACCV), International Conference on Image Processing (ICIP).

10.1.2. Journal

10.1.2.1. Reviewer - Reviewing Activities

- Julien Brajard: IEEE Transactions on Geoscience and Remote Sensing (TGRS).
- Isabelle Herlin: IEEE Transactions on Geoscience and Remote Sensing (TGRS), IEEE Geoscience and Remote Sensing Letters, Mathematical Methods in Applied Sciences.

10.1.3. Invited Talks

- Vivien Mallet: Processing environmental simulations and observations for smart cities; Perspectives and New Challenges in Data Science, École des Ponts ParisTech; February 2016.
- Vivien Mallet: Assimilation de données et prévision d'ensemble appliquées à la qualité de l'air; CEA seminar; June 2016.

10.1.4. Scientific Expertise

- Isabelle Herlin is a member of the Scientific Council of ANDRA (French national radioactive waste management agency)
- Isabelle Herlin is a member of the Scientific Council of CSFRS (High Council for Strategic Education and Research in France).
- Isabelle Herlin and Vivien Mallet reviewed several research proposals, especially for ANR (France).

10.1.5. Research Administration

- Isabelle Herlin is a member of the program committee of DIGITEO, French research cluster in science and technology of information.
- Isabelle Herlin is a member of the Evaluation Committee at Inria.

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Master OACOS/WAPE: Marc Bocquet, Vivien Mallet, Jean-Matthieu Haussaire; Introduction to Data Assimilation for Geophysics; 12 hours; M2; UPMC, X, ENS, ENSTA ParisTech, École des Ponts ParisTech; France.

Master SGE and 3rd-year class at École des Ponts ParisTech: Vivien Mallet; Air quality modeling; 4.5 hours; M2; Universities Paris Diderot- Paris 7, Paris 12 and École des Ponts ParisTech, France.

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

Training: Vivien Mallet; Introduction to data assimilation: Kalman filters and ensembles; 4.5 hours; CEMRACS (summer school).

10.2.2. Supervision

- PhD in progress : Pacôme Eberhart, “Génération automatique de codes performants et fiables pour l’assimilation de données”, September 2013, Fabienne Jezequel, Pierre Fortin and Julien Brajard
- PhD in progress : Jean Thorey, “Prévision d’ensemble du rayonnement solaire pour la production photovoltaïque du parc EDF”, November 2013, Vivien Mallet.
- PhD in progress: Ruiwei Chen, “Quantification d’incertitude en simulation des émissions du trafic routier”, November 2014, Vivien Mallet.
- PhD in progress: Raphaël Ventura, “Simulation numérique de la ville par couplage entre la modélisation et l’observation”, September 2014, Vivien Mallet.
- PhD in progress: Ngoc Bao Tran Le, “Quantification d’incertitude par réduction de modèle de dispersion atmosphérique”, November 2016, Vivien Mallet.

10.2.3. Juries

- Vivien Mallet for the PhD defense of Michaël Zamo, “Statistical Post-processing of Deterministic and Ensemble Windspeed Forecasts on a Grid”, December 2016, Météo France.

10.3. Popularization

Vivien Mallet and Raphaël Ventura, together with Cong Kinh Nguyen (MiMove), Pierre-Guillaume Raverdy (SED), Fadwa Rebhi (MiMove), Fabienne Giboudeaux (Paris city), Awa Ndiaye (Paris city), Gilles Plattner (Particitae) and Laure Turcati (Particitae), took part to collaborative measuring of noise pollution with volunteers from the general public. Using the mobile application Ambiciti, the volunteers carried out a journey in a city district in order to measure noise pollution with their smartphones, and therefore help to map noise pollution in the area. At the end of the journeys, the observations were merged with an existing noise map so as to produce an improved map. Discussion about the strengths and limitations of mobile observation were engaged, and the activity helped to inform about noise pollution. This was carried out in Paris at the opening of the “Canopée des Halles”, at Futur en Seine festival and during the “journée sans voiture”.

COFFEE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

We do not keep track of such activities.

9.1.1.2. Member of the Organizing Committees

We do not keep track of such activities.

9.1.2. Scientific Events Selection

9.1.2.1. Chair of Conference Program Committees

We do not keep track of such activities.

9.1.2.2. Member of the Conference Program Committees

We do not keep track of such activities.

9.1.2.3. Reviewer

We do not keep track of such activities.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

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

9.1.4. Invited Talks

We do not keep track of such activities.

9.1.5. Scientific Expertise

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

T. Goudon is member of Scientific Committees of CIRM and FSMP.

9.1.6. Research Administration

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

Thierry Goudon is member of the Evaluation Committee of Inria.

Thierry Goudon is Scientific Officer at the French Ministry of Education and Research.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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

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

9.2.2. Supervision

PhD : Arthur Vavasseur, Kinetic models for particles interacting with their environment , Univ. Côte d'Azur, Oct. 2016, supervised by T. Goudon

PhD : Nathalie Ayi, Influence of stochasticity on many-scale problems, Univ. Côte d'Azur, Sept. 2016, supervised by F. Berthelin & L. Saint Raymond (DMA-ENS)

PhD : Bastien Polizzi, Modeling and numerical simulations for fluid mechanics systems with constraints ; application to biology and road traffic, Univ. Côte d'Azur, Sept. 2016, supervised by M. Ribot & T. Goudon

PhD : Maya Grozza, Modelization and discretization of two-phase flows in porous media with discrete fracture networks Univ. Côte d'Azur, Nov. 2016, supervised by R. Masson with Laurent Jeannin (GDFSuez EP), and Jean Frédéric Thebault (Storengy)

PhD in progress : Laurence Beaude, started in november 2015, co-supervised by R. Masson, K. Brenner from LJAD and S. Lopez, F. Smai from BRGM, Discretization of high energy geothermal systems in faulted porous media

PhD in progress : Julian Hennicker, started in june 2014, co-supervised by R. Masson, K. Brenner and P. Samier from TOTAL, Discretization of multiphase Hybrid dimensional Darcy flow models in fractured porous media.

PhD in progress : Julie Llobell, stated Sept. 2015, co-supervised by T. Goudon and S. Minjeaud (team Castor), Staggered schemes for conservation laws of gas dynamics.

PhD in progress : Giulia Lissoni, started Sept. 2016, co-supervised by T. Goudon and S. Krell, Domain decomposition and DDFV methods.

PhD in progress : Thi Huong, started June 2014, Le, supervised by S. Junca, vibrations and mechanical systems, nonlinear modes with an unilateral constraint.

PhD in progress : Pierre Castelli, started Sept. 2013, supervised by S. Junca, smoothing effect for conservation laws (P. Castelli is teacher at Lycée d'Audiberti, Antibes)

The bibliography is automatically extracted form hal; it looks far from complete.

FLUMINANCE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

- J. Erhel organizes with J-R. de Dreuzy and T. Le Borgne the international conference CWMR (Saint-Malo, France, June 2018).

9.1.1.2. Member of the Organizing Committees

Etienne Mémin

- SWGEN (Vannes) program committee
- Scientific committee of the national colloqium on data assimilation, (Grenoble)

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

Jocelyne Erhel

- international advisory committee of the parallel CFD conferences (Kobe, Japan, May 2016).
- program committee of the international conference CARI 2016.
- scientific committee of JEMP 2016.
- scientific committee of NLAA 2016.
- program committee of the workshop Visualization in Environmental Sciences 2016 (co-event of EuroVis)

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Jocelyne Erhel

- member of the editorial board of ETNA.
- member of the editorial board of ESAIM:Proceedings and Surveys.

Etienne Mémin

- Associate editor for the Int. Journal of Computer Vision (IJCV)
- Associate editor for the Image and Vision Computing Journal (IVC)

9.1.3.2. Reviewer - Reviewing Activities

Jocelyne Erhel: Reviewer for the journals ADWR, ARIMA, JCAM, MATCOM
Dominique Heitz: Reviewer for Exp. in Fluids, ASME J. on Heat Transfer
Cédric Herzet: Reviewer for IEEE Tr. on Signal Processing, IEEE Tr. on Information Theory
Etienne Mémin: Reviewer for Tellus-A, IEEE Im. Proc., IEEE trans. Pat. Anal. Mach. Intel. , Im. Vis. Comp., Exp. in Fluids, Nonlinear Proc. in Geophysics., Journ. of Comp. Phys, Fluid Dynamics Research.

9.1.4. Invited Talks

Dominique Heitz

- Next generation transport aircraft workshop, Honolulu, Hawai, 22-25, February, 2016.
- Cap Aliment training "Les technologies douces de conservation des denrées alimentaires", Nantes, 13, October, 2016. Assisses du Génie des Procédés, région OUEST - Nantes, 9, november, 2016

Cédric Herzet

- GdR Isis « Algorithmes gloutons pour l'optimisation sous contrainte de parcimonie », Juin 2016

Roger Lewandowski

- Special Session on Above and Beyond Fluid Flow studies: In celebration of the 60th birthday of Prof. William Layton » within the Fall Western Sectional Meeting of the AMS, University of Denver, Denver, CO October 8-9, 2016.

Etienne Mémin

- E. Mémin. Représentation sous incertitude d'écoulements géophysiques, Huitième Ecole Interdisciplinaire de Rennes sur les Systèmes Complexes, Oct. 2016.

9.1.5. Leadership within the Scientific Community

- J. Erhel is scientific coordinator of the website Interstices (since June 2012). https://interstices.info.

9.1.6. Scientific Expertise

- J. Erhel is a member of the scientific council of IFPEN, since April 2016.
- J. Erhel was reviewer for ANR.

9.1.7. Research Administration

Jocelyne Erhel

- correspondent of Maison de la Simulation for Inria Rennes.
- correspondent of AMIES for Inria Rennes, from September 2015.
- member of the Inria national committee for secondment, 2016.
- member of the Inria local committee for health and safety (référent chercheur) from January 2016.
- member of the Inria administrative commission (CAP) for researchers, from January 2016.

Dominique Heitz

- Responsible of the Irstea ACTA Team
- Member of Pôle Cristal scientific council
- Member of Irstea OPAALE research unit Executive Committee
- Member of Irstea center of Rennes Executive Committee

Etienne Mémin

- Responsible of the "Commission Développement Technologique" Inria Rennes
- Member of the "Commission Personnel" Inria-IRISA Rennes

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: Jocelyne Erhel, Optimisation, 24h, niveau L3, ENSAI Rennes

Licence : Dominique Heitz, Mécanique des fluides, 30h, niveau L2 INSA Rennes

Master: Jocelyne Erhel, modélisation et calcul scientifique, 12h, niveau M2, INSA Rennes

Master: Jocelyne Erhel, arithmétique flottante, 4h, niveau M1, INSA Rennes

Master : Dominique Heitz, Mécanique des fluides, 25h, niveau M1, Dep GMA INSA Rennes

Master : Cédric Herzet, Représentations parcimonieuses et compressed sensing, niveau M2, ENSAI, 12h

Master : Cédric Herzet, Représentations parcimonieuses et compressed sensing, niveau M2, niveau M2, INSA, 10h

Master: Roger Lewandowski, Euler and the Navier-Stokes equations, M2, master « fondamental mathematics ».

Master : Etienne Mémin, Analyse du mouvement, Mastere Informatique, 15h, niveau M2, Université de Rennes 1.

Master : Etienne Mémin, Vision par ordinateur , 15h, niveau M2, ESIR Université de Rennes 1.

9.2.2. Supervision

Master research work: C. Bonvoisin (ENS Cachan) February 2016 to June 2016, advisor R. Lewandowski

PhD in progress: B. Delfino, University of Rennes 1, November 2015, co-advisors J.-R. de Dreuzy and J. Erhel.

PhD in progress: P.-M. Gibert, University of Lyon, October 2015, co-advisors D. Tromeur-Dervout and J. Erhel.

PhD in progress: B. Hamlat, University of Rennes 1, October 2016, co-advisors J. Erhel and A. Michel.

PhD in progress : Benoit Pinier, Scale similarity and uncertainty for Ocean-Atmosphere coupled models, started 01/10/2014, supervisors: Roger Lewandowski, Etienne Mémin

PhD in progress : Valentin Resseguier, Oceanic models under uncertainty and image assimilitation, started 01/10/2013, Bertrand Chapron (Ifremer), Etienne Mémin

PhD in progress : Pranav Chandamouli, Turbulent complex flows reconstruction via data assimilation in large eddy models, started october 2015, Dominique Heitz, Etienne Mémin.

PhD in progress : Romain Schuster, Large-scale fluid motion estimation, started october 2016, Dominique Heitz, Etienne Mémin.

9.2.3. Juries

Jocelyne Erhel

- Rafife Nheili, PhD, Univ. Perpignan (rapporteur)

Etienne Mémin

- Laurent Cordier HDR, Univ. Poitiers.
- Nicolas Papadakis, HDR IMB, Univ. Bordeaux
- Yann Michel, HDR Meteofrance, Univ. Toulouse Paul Sabatier (Rapporteur)
- Van Linh Nguyen, PhD Univ. Lille (Rapporteur)
- Iliass Azijli, PhD TU Delft (Rapporteur),
- Raphael Legrand, PhD Meteofrance Univ. Paul Sabatier Toulouse (Rapporteur)

9.3. Popularization

Jocelyne Erhel

- présidente du jury du rallye de mathématiques du CNED, 2016.
- talk at day "au coeur des maths, enfermement ou liberté ?", LVN, May 2016.
- scientific responsible of the scientific culture web journal "Interstice" (https://interstices.info/)

Dominique Heitz

- Interview dans L'Usine Nouvelle, No 3479, pp. 30-31, 2016

LEMON Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Journal

10.1.1.1. Member of the editorial board

Vincent GUINOT : Journal of Hydroinformatics.

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

10.1.1.2. Reviewer

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

Vincent GUINOT : Journal of Hydrology and Journal of Hydroinformatics.

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

10.1.2. Invited talks

Carole DELENNE workshop « Modelling the flood peril » Paris, May 30th and 31st, Université Pierre et Marie Curie

Antoine ROUSSEAU : Café Scientifique (Institut Français de Santiago, Ambassade de France), August 6th, 2016

Antoine ROUSSEAU : 4th French-Chilean workshop on Bioprocess Modeling, Santiago, Sept. 2016

10.1.3. Research administration

Antoine ROUSSEAU belongs to the workgroup dedicated to the development of SELECT, an Inria internal software to manage scientific recruitment. Carole DELENNE responsable d'année EGC3, direction des études EGC et tutorat de 5 apprentis (je sais pas où ca se met. . .)

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

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

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

C. Delenne, Méthodes mathématiques pour l'ingénieur, 10.5H CM, 22.5hTD, L3, Polytech Montpellier

C. Delenne, Hydraulique, 60hTP, M1, Polytech Montpellier

C. Delenne, Hydraulic transients, 27hTD, M1, Polytech Montpellier

C. Delenne, Modélisation hydraulique à surface libre 2D, 6h TD, M2, Polytech Montpellier

C. Delenne, Tutorat de stages et projets, 77hETD, L3-M2, Polytech Montpellier

C. Delenne, Mathématiques, 15h CM, 15hTD, L3 (apprentissage), Polytech Montpellier

C. Delenne, Hydraulique, 28hTD, L1, IUT Génie Civil, Nîmes

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

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

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

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

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

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

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

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

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

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

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

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

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

A. Rousseau, Towards Coupling Coastal and Large Ocean Models, 6h, Master, PUC, Santiago, Chile

A. Rousseau, Introduction to numerical methods in CFD, 6h, Master, Inria Chile, Santiago, Chile

A. Rousseau, Introduction to ROMS, 12h, Master, Inria Chile and CIGIDEN, Santiago, Chile

10.2.2. Supervision

PhD: Mehdi Pierre Daou, *Développement d'une méthodologie de couplage multi-modèles avec changements de dimension. Validation sur un cas-test réaliste en dynamique littorale*, Univ. Grenoble, Sept. 2016, Eric Blayo (EPI MOISE) and Antoine Rousseau

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

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

10.2.3. Juries

Carole DELENNE : Jury member: Andriarimina Daniel Rakotonirina, *Fluid-solid interactions in a non-convex granular media: application to rotating drums and packed bed reactors*, december 2016, ENS Lyon

Antoine ROUSSEAU : Referee and jury member: Mrs Souad Khiari, *Problèmes Inverses de Points Sources dans les Modèles de Transport Dispersif de Contaminants Identifiabilité et Observabilité*, October 2016, Université de Technologie de Compiègne & Université de Tunis El-Manar / ENIT

Antoine ROUSSEAU : Jury member: M. Mehdi Pierre Daou, *Développement d'une méthodologie de couplage multi-modèles avec changements de dimension. Validation sur un cas-test réaliste en dynamique littorale*, September 2016, Univ. Grenoble

Antoine ROUSSEAU : Jury member: M. Victor Riquelme, *Problemas de control óptimo para la bioremediación de recursos acuíferos*, September 2016, Univ. de Chile, Santiago & Univ. Montpellier

Fabien MARCHE : Jury member: Mrs Nora Aissiouene, *Analyse numérique et approximation discrète d'un modèle dispersif en eau peu profonde*, December 2016, Univ. Pierre et Marie Curie, Paris

Antoine ROUSSEAU : Jury member: Mrs Carine Lucas, *Modélisation de problèmes de me´canique des fluides : approches théoriques et numériques*, December 2016, Université d'Orléans

Teaching manager of the department "Water and Civil Engineering", Polytech Montpellier, in charge of the first year of the training. Academic supervisor of 5 apprentices.

10.3. Popularization

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

Fête de la Science, Oct. 2016, Genopolys Montpellier

Café Cientificó, Aug. 2016, Instituto Francés, Santiago, Chile

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

Antoine ROUSSEAU is member of the editorial board of Interstices

Antoine ROUSSEAU co-authored the Calendrier Mathématique 2017

MAGIQUE-3D Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

- Hélène Barucq organized the Fourth Workshop of Strategic Action DIP in Houston, October 10-11, 2016, http://dip.inria.fr/workshops/fourth-workshop-of-the-strategic-action-dip/ and JOSO 2016 (Wave days in South-West) in Pau, March 9-11 https://team.inria.fr/magique3d/conference-and-workshops/joso-2016-wave-days-in-south-west/

9.1.1.2. Member of the Conference Program Committees

Victor Péron was member of the Program Committee of the Conference JOSO 2016 (Wave days in South-West) in Pau, March 9-11 https://team.inria.fr/magique3d/conference-and-workshops/joso-2016-wave-days-in-south-west/

9.1.2. Journal

9.1.2.1. Reviewer - Reviewing Activities

Members of Magique 3D have been reviewers for the following journals:

- Annales de l'Institut Henri Poincare / Analyse non linéaire
- Applied Mathematics and Computation
- ESAIM : Mathematical Modelling and Numerical Analysis
- Geophysical Journal International
- IMA Journal of Numerical Analysis
- International Journal for Numerical Methods in Engineering
- Journal of Computational Physics
- Journal of Scientific Computing
- Journal of Sound and Vibration
- Journal of the Acoustical Society of America
- Siam Journal on Scientific Computing
- Zeitschrift fuer Angewandte Mathematik und Physik

9.1.3. Scientific Expertise

- Julien Diaz was expert for the evaluation of Millennium Science Initiative project for the government of Chile.

9.1.4. Research Administration

- Hélène Barucq has been the chairwoman of the local jury of Inria competitive selection for Young Graduate Scientists (CR2) in Bordeaux. She participated to the selection committee for an Assistant Professor position at the University of Nantes and Paris 13. She was also part of the hiring commity for a Professor position at the University of Rennes 1. She is member of the local bureau of Inria Bordeaux Sud-Ouest focusing on scientific questions arising from research teams and of the Center Committee dealing with general questions related to the whole Research Center. She is the scientific head of the project DIP since its creation in 2009.

- Juliette Chabassier is member of the Workgroup for sustainable development at Inria Bordeaux Sud-Ouest.
- Julien Diaz is elected member of the Inria Technical Committee and of the Inria Administrative ans Scientific Boards. He is appointed member of the CDT (Commission de Développement Technologique)
- Mamadou N'Diaye is member of the Center Committee of Inria Bordeaux Sud-Ouest.
- Victor Péron is appointed member of the CJC (Commission Jeunes Chercheurs) of Inria Bordeaux Sud-Ouest.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Izar Azpiroz, Fonctions et intégrales, 19.5 heures, MATH L1, UPPA, France

Master : Julien Diaz, Transformées, 24h Eq. TD, M1, EISTIA, France

Master : Marc Duruflé, Calcul scientifique en C++, 96h Eq. TD, M1, Bordeaux INP, France

Licence : Marc Duruflé, Equations Différentielles, 20h Eq. TD, L3, Bordeaux INP, France

Licence : Marc Duruflé, Calcul scientifique en Fortran 90, 20h Eq. TD, L3, Bordeaux INP, France

Licence : Marc Duruflé, Algorithmique numérique, 30h Eq. TD, L3, Bordeaux INP, France

Licence : Mamadou N'Diaye, Compléments d'algèbre, 19,5h Eq. TD, L1, UPPA, France

Licence : Mamadou N'Diaye, Fonction de la variable réelle, 19,5h Eq. TD, L1, UPPA, France

Licence : Mamadou N'Diaye, Développements limités - suites et séries, 19,5h Eq. TD, L2, UPPA, France

Licence : Mamadou N'Diaye, Analyse 3A et Analyse 3B, 19,5h Eq. TD, L2, UPPA, France

Master : Victor Péron, Analyse des EDP, 9 Eq. TD, M1, EISTI, France

Master : Victor Péron, Analyse numérique fondamentale, 70 Eq. TD, M1, UPPA, France

Master : Victor Péron, Analyse, 23 Eq. TD, M1, UPPA, France

Master : Victor Péron et Sébastien Tordeux, Analyse Numérique 1: différences finies, 87 eq. TD, Master1, UPPA, FRANCE

Master : Victor Péron et Sébastien Tordeux, Introduction aux phénomènes de propagation d'ondes, 38 eq. TD, Master 2, UPPA, FRANCE

Licence : Sébastien Tordeux, Statistique descriptive, 55 eq. TD, L1, UPPA, FRANCE

Licence : Sébastien Tordeux, Analyse complexe , 20 eq. TD, niveau (M1, M2), L3, UPPA, France

9.2.2. Supervision

HDR : Julien Diaz, Modelling and advanced simulation of wave propagation phenomena in 3D geophysical media, Université de Pau et des Pays de l'Adour, April 7th, 2016 [9].

PhD : Aralar Erdozain, Fast inversion of 3D Borehole Resistivity Measurements using Model Reduction Techniques based on 1D Semi-Analytical Solutions, Université de Pau et des Pays de l'Adour, December 15th 2016, Hélène Barucq, David Pardo (BCAM) and Victor Péron. [10].

PhD : Vincent Popie, Modélisation asymptotique de la réponse acoustique de plaques perforées dans un cadre linéaire avec étude des effets visqueux, ISAE, January 14th 2016 , Estelle Piot (ONERA) and Sébastien Tordeux. [11].

PhD in progress : Izar Azpiroz Iragorri, Approximation des problèmes d'Helmholtz couplés sur maillages virtuels , October 2014, Hélène Barucq, Julien Diaz and Rabia Djellouli (CSUN).

PhD in progress : Vincent Darrigrand, Etude d'erreur pour des problèmes d'Helmholtz approchés par des techniques de Petrov-Galerkin , October 2013, Hélène Barucq and David Pardo.

PhD in progress : Aurélien Citrain, Déformation 3D de maillages en imagerie sismique, Méthodes d'inversion sismique dans le domaine fréquentiel , October 2016, Hélène Barucq and Christian Gout.
PhD in progress : Florian Faucher, Méthodes d'inversion sismique dans le domaine fréquentiel , October 2014, Hélène Barucq.
PhD in progress : Hamza Alaoui Hafidi, Imagerie ultrasonore tridimensionnelle dans les milieux hétérogènes complexes, October 2015, Encadrement : Marc Deschamps, Michel Castaings, Eric Ducasse, Samuel Rodriguez (I2M), Hélène Barucq, Marc Duruflé, Juliette Chabassier (Magique 3D).
PhD in progress : Justine Labat, Diffraction d'une onde par des petits obstacles dans des milieux complexes, October 2016, Victor Péron and Sébastien Tordeux.
PhD in progress : Mamadou N'Diaye, Analyse et développement de schémas temporels hybrides pour les équations hyperboliques du premier ordre, January 2015, Hélène Barucq and Marc Duruflé.
PhD in progress : Chengyi Shen, Approches expérimentale et numérique de la propagation d'ondes sismiques dans les roches carbonatées, October 2016, Julien Diaz and Daniel Brito (LFC).
PhD in progress : Elvira Shishenina, Approximations hybrides par éléments finis et éléments virtuels discontinus pour l'élasto-acoustique, October 2015, Hélène Barucq and Julien Diaz.
Master thesis : Aurélien Citrain, 2D hybrid meshes for a DG code, Insa de Rouen, Sept. 2016.
Master thesis : Alain Ha, High order time discretization for dissipative wave equations, Université de Rennes, Sept. 2016.
Master thesis : Justine Labat, Diffraction of an electromagnetic wave by small obstacles, Université de Pau et des Pays de l'Adour, Sept. 2016.
Master 1 internship : Baptiste Olivier, Modeling wave propagation in musical instruments, MatMeca, Sept. 2016.

9.2.3. Juries

- Hélène Barucq : Julien Diaz (Université de Pau et des Pays de l'Adour) " Modelling and advanced simulation of wave propagation phenomena in 3D geophysical media", HDR, April 7th 2016
- Hélène Barucq : Vincent Deymier (ONERA Toulouse) "Etude d'une méthode d'éléments finis d'ordre élevé et de son hybridation avec d'autres méthodes numériques pour la simulation électromagnétique instationnaire dans un contexte industriel", PhD thesis, December 8th 2016
- Hélène Barucq : Asma Toumi (Université Paul Sabatier Toulouse III) "Méthodes numériques asynchrone pour la modélisation de phénomènes multi-échelles", PhD thesis, September 21th 2016
- Hélène Barucq : Romain Brossier (Université de Grenoble) "Contributions to developments and applications of Full Waveform Modeling and Inversion", HDR, November 18th 2016
- Julien Diaz : Azba Riaz (Université de Cergy Pontoise) "A new discontinuous Galerkin formulation for time dependent Maxwell's equations: a priori and a posteriori error estimation", PhD thesis, April 4th 2016
- Julien Diaz : Valentin Vinoles (Université de Paris Saclay) " Problèmes d'interface en présence de métamatériaux : modélisation, analyse et simulations", PhD thesis, September 8th 2016
- Julien Diaz (reviewer): Asma Toumi (Université Paul Sabatier Toulouse III) "Méthodes numériques asynchrone pour la modélisation de phénomènes multi-échelles", PhD thesis, September 21th 2016

9.3. Popularization

- Juliette Chabassier took part in a round table around science professions in the high school of Valence d'Agen in March 2016.
- Juliette Chabassier shared her experience as a scientist during "Printemps de la Mixité" in May 2016.
- Juliette Chabassier participated in scientific "speed datings" during the "Filles et Maths" day in May 2016.
- Juliette Chabassier was co-responsible for a workshop around "Women in science" during Inria "Fête de la science" in October 2016.

SERENA Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

A. Ern co-organized with D. Di Pietro and L. Formaggia the IHP Thematic Quarter on Numerical methods for PDEs from September 5th to December 16th, 2016.

M. Vohralík co-organized, together with I. Vignon-Clémentel from the project-team REO, the monthly *Scientific computing, modeling, and numerical analysis* seminar ("Rencontres Inria-LJLL en calcul scientifique"), see the web page https://project.inria.fr/rencontresljll/, until July, 2016. Since September, 2016, I. Smears co-organizes this seminar together with C. Grandmont from the project-team REO.

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

A. Ern and M. Vohralík are members of the Scientific Committee of the ENUMATH 2017 conference (Voss, Norway).

M. Vohralík is a member of the Scientific Committee of the Finite Volumes for Complex Applications 8 conference (Lille, France).

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

A. Ern is a member of the editorial boards of SIAM Journal on Scientific Computing, ESAIM Mathematical Modelling and Numerical Analysis, IMA Journal of Numerical Analysis, Computational Methods in Applied Mathematics, and Journal de l'Ecole polytechnique, Mathématiques.

M. Vohralík is a member of the editorial boards of SIAM Journal on Numerical Analysis and of Acta Polytechnica.

9.1.3.2. Reviewer - Reviewing Activities

M. Kern was a reviewer for the journal Mathematics and Computers in Simulation, Electron. Trans. Numer. Anal., and Oil and Gas Science and Technology,

L. Monasse was a reviewer for J. Comput. Phys. and J. Comput. Particle Mech.

A. Ern and M. Vohralík served as reviewers for tens of papers in different journals.

9.1.4. Invited Talks

A. Ern, plenary speaker, ECCOMAS 2016, Crete.

A. Ern, plenary speaker, WONAPDE 2016, Concepción, Chile.

M. Kern, minisymposium speaker at the German Priority Programme, Software for Exascale Computing, Germany.

M. Vohralík, invited speaker, Adaptive algorithms for computational PDEs, Birmingham, Great Britain.

M. Vohralík, plenary speaker, WONAPDE 2016, Concepción, Chile.

M. Vohralík, plenary speaker, ALGORITMY 2016, Podbanske, Slovakia.

9.1.5. Leadership within the Scientific Community

M. Kern was a member of the nominating committee for the SIAM Activity Group on Geosciences.

M. Kern is a reviewer for the German Supercomputing Center JARA program.

M. Kern is a member of the Scientific Committee of Orap (ORganisation Associative du Parallélisme), of the Scientific Board of GDR Calcul and of the jury and executive board of Label C3I.

M. Vohralík is a member of the steering committee of GIS Géosciences franciliennes.

9.1.6. Research Administration

F. Clément is a member of the *Comité local d'hygiène, de sécurité et des conditions de travail* of the Inria Research Center of Paris.

F. Clément is the *correspondant Inria-entreprise* of the Inria Research Center of Paris for AMIES.

M. Kern is Deputy Director of Maison de la Simulation, a joint project between CEA, CNRS, Inria, Université de Paris 11, and Université de Versailles, focused on applications of high end computing.

M. Kern is a member of the *Comité de site* of the Inria center of Paris.

G. Pichot is a member of the *Comité local d'hygiène, de sécurité et des conditions de travail* of the Inria center of Paris.

G. Pichot is member of the Conseil de département MAM of Polytech Lyon.

G. Pichot is member of the Commission de developpement technologique (CDT) of the Inria center of Paris.

G. Pichot is a member of the CES commission of the Inria center of Paris.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

A. Ern, Analyse numérique et optimisation, 78h, L3, Ecole Polytechnique (professeur chargé de cours), France.

A. Ern, Méthodes de Galerkine Discontinu, 20h, M2 Mathématiques de la modélisation, Paris 6, France.

M. Kern, Modélisation et simulation des écoulements de fluides dans la géosphère (with E. Mouche, CEA), 30h, M2 Mathématiques et Applications (parcours Analyse, Modélisation et Simulation), Université Paris Saclay, France.

M. Kern, Eléments finis (avec D. Ryckelynck), 30h, 2nd year students, Ecole Mines-ParisTech, France.

M. Kern, Problèmes inverses, 24 h, 2nd year students, Ecole Mines-ParisTech, France.

M. Kern, Analyse numérique avancée, 20h, 3rd year students, MACS, Université Paris Nord, France.

L. Monasse, Analyse et Calcul Scientifique, 30h, L3, ENPC, France.

M. Vohralík, A posteriori error estimates for efficiency and error control in numerical simulations, 36h, M2, Charles University in Prague, Czech Republic.

M. Vohralík, A posteriori error estimates and adaptive error components balancing in numerical simulations, summer school "IHP quarter on Numerical Methods for PDEs", Cargèse, Corsica & Paris, France, 15h.

9.2.2. Supervision

PhD: N. Birgle, *Underground flow, numerical methods and high performance computing*, University Paris VI, defended on March 24th, 2016, advisor J. Jaffré, co-advisor J. E. Roberts.

PhD: F. Cheikh, *Identification of fractures in a porous medium by a method of indicators*, University Paris VI and University of Tunis El Manar, defended on October 12th, 2016, advisors J. E. Roberts and H. Ben Ameur, co-advisors V. Martin and F. Clément.

PhD: M. H. Riahi, *Identification of hydrogeological parameters in a porous medium*, University Paris VI and University of Tunis El Manar, defended on October 12th, 2016, advisors J. Jaffré and H. Ben Ameur.

PhD in progress: S. Ali Hassan, *A posteriori error estimates and stopping criteria for domain decomposition solvers with local time stepping*, University Paris VI, November 2013, advisor M. Vohralík, co-advisors C. Japhet and M. Kern.

PhD in progress: J. Dabaghi, *Adaptive modeling via complementarity of phase appearance and disappearance in fractured and porous media*, University Paris VI, November 2015, advisor M. Vohralík, co-advisor V. Martin.

PhD in progress: P. Daniel, *Adaptive multilevel solvers with a posteriori error control for porous media flows* University Paris VI, October 2015, advisor M. Vohralík, co-advisor A. Ern.

PhD students at ENPC are listed in Section 1.

9.2.3. Juries

A. Ern, external examiner of the PhD of Z. Dong, University of Leicester, November 24, 2016.

A. Ern, chair of jury of the PhD of M. Giacomini, Ecole Polytechnique, December 9, 2016.

M. Kern, jury member for the PhD of V. Groza, Identification de paramètres et analyses de sensibilité pour un modèle d'usinage par jet d'eau abrasif, Université de Nice, November 9, 2016.

M. Kern, jury member for the PhD of M. Massaro, Méthodes numériques pour les plasmas sur architectures multicoeurs, Université de Strasbourg, December 16, 2016.

M. Kern, jury member for the Habilitation of Y. Mesri, Méthodes numériques massivement parallèles à base de maillages non structurés adaptatifs et anisotropes pour la mécanique numérique, Université de Nice, December 19, 2016.

G. Pichot, jury member of the PhD of A. Botella, Unstructured volumetric meshing of geological models for physical phenomenon simulations, University of Lorraine, April, 1st, 2016.

G. Pichot, jury member of the PhD of A. Dartois, Study of the macro-dispersion of inert particles in highly heterogeneous 3D porous media, University of Poitiers, December, 14, 2016.

M. Vohralík, reviewer and jury member of the PhD of R. Tittarelli, University Lille 1, September 27, 2016.

M. Vohralík, chair of jury of the PhD of M. Groza, Université de Nice, November 10, 2016.

9.3. Popularization

F. Clément was member of the Organizing Committee of the *17e Salon Culture & Jeux Mathématiques*, held in Paris, 26–29 May, 2016. He was member of the Editorial Board of the *Maths Société Express* booklet distributed during the exhibition. He was also coordinator of the Maths-Enterprises booth for AMIES.

F. Clément realized, with the Communication Department of the Inria Research Center of Paris, an exhibition illustrating the results of the *Etude de l'impact socio-économique des mathématiques en France* sponsored by AMIES, FSMP, and FMJH.

F. Clément coordinated an article about AMIES in the magazine PLOT published by the *Association des Professeurs de Mathématiques de l'Enseignement Public*.

Major publications by the team in recent years: [1], [2], [3], [4], [5], [6], [7], [8], [9], [10].

STEEP Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Selection

10.1.1.1. Member of the Conference Program Committees

- Association for the Advancement of Artificial Intelligence (AAAI) 2016 Computational Sustainability and AI (S. Fenet)
- International Conference on Principles and Practices of Constraint Programming (CP) 2016 Computational Sustainability track (S. Fenet)
- CompSust@CP-2016 (the 22nd International Conference on Principles and Practice of Constraint Programming), Toulouse, France, September 2016 (E. Prados)
- Journées Scientifiques Inria – Inria Science Days (P. Sturm)
- German Conference on Pattern Recognition (P. Sturm)

10.1.1.2. Reviewer

- EVOSTAR 2016 (S. Fenet)

10.1.2. Invited Talks

- E. Prados has been invited by the Wimmics team to give a seminar at Inria Sophia-Antipolis (Conference title : "Comment réduire l'impact d'un éventuel effondrement ? Comment construire le monde d'après ?", Sophia-Antipolis, France, 10th of November, 2016).
- E. Prados gave a seminar at the Conseil Scientifique de l'AURG (Conference title : "Modèle TRANUS d'usage des sols et transport pour l'agglomération grenobloise", Grenoble, France, 6th of July, 2016).
- P. Sturm gave an invited seminar at the Czech Technical University (Prague, Czech Republic), on former work in computer vision.

10.1.3. Scientific Expertise

- P. Sturm: Expert for the European Eureka/Eurostars program and for the regional ARC6 program.

10.1.4. Research Administration

- P. Sturm is Deputy Scientific Director of Inria, in charge of domain "Perception, Cognition and Interaction".
- E. Prados and P. Sturm organized the Inria – FING partnership. The FING (Fondation Internet Nouvelle Génération) is a think tank working on socio-economic changes inspired by technology and its uses. In 2016, they organized two workshops in the framework of the project "Transition^2" [http://www.transitions2.net/], see https://team.inria.fr/steep/fing/

10.2. Teaching - Supervision - Juries

10.2.1. Supervision

PhD: Jean-Yves Courtonne, Evaluation environnementale de territoires à travers l'analyse de filières - La comptabilité biophysique pour l'aide à la décision délibérative, Grenoble University, 28/06/2016, D. Dupré and P.Y. Longaretti

PhD: Laurent Gilquin, Echantillonnages Monte Carlo et quasi-Monte Carlo pour l'estimation des indices de Sobol'. Application à un modèle transport-urbanisme, Grenoble University, 17/10/2016, Elise Arnaud and C. Prieur

PhD in progress: Michela Bevione, Sustainability and territorial energy transition: coupling supply chains with LCA, 11/2016, N. Buclet and P.Y. Longaretti

PhD in progress: Thomas Capelle, Development of optimisation methods for land-use and transportation models, 10/2013, P. Sturm and A. Vidard

PhD in progress: Luciano Gervasoni, Modeling the dynamics of urban sprawl, 10/2015, S. Fenet and P. Sturm

PhD in progress: Julien Salotti, Spatio-temporal analysis of traffic data for smart mobility, 11/2014, S. Fenet, C. Solnon and N.-E. El Faouzi

PhD in progress: Lucas Foulon, Detection of anomalies in real-time ground–on board flows of the SNCF, 12/2016, S. Fenet, C. Rigotti and D. Jouvin

10.2.2. Juries

- P. Sturm was reviewer of the PhD thesis of Liming Yang, Ecole Centrale de Nantes.
- P. Sturm was reviewer of the PhD thesis of Jan Heller, Czech Technical University, Prague.

10.3. Popularization

STEEP team has organized a series of conferences entitled "Understanding and Acting" (six conferences in 2016). The conferences has been filmed, edited and posted on the video-sharing website, YouTube. A total of more than 500 people have attended to the conferences. The conferences received more than 2000 YouTube views (December 2016).
https://www.youtube.com/channel/UCJbcXCcOA63M8VMysAbmt_A
https://team.inria.fr/steep/les-conferences-debats-comprendre-et-agir/

Emmanuel Prados gave a "conférence-débat" at "Marie Reynoard" High school on "Sustainable development, territorial governance and democracy" (Villard-Bonnot, France, 16th of December, 2016).

Emmanuel Prados gave a conference at the "Café In" of Inria Sophia-Antipolis entitled "Comprendre les phénomènes d'effondrement de sociétés. Quel avenir pour la nôtre ?" (Sophia-Antipolis, France, 10th of November, 2016).

Emmanuel Prados has organized a workshop in collaboration with the EP SCOT Grenoble on the land-use and transport modelling and on its potential application to the follow up of the Grenoble' SCOT project (Grenoble, France, 14th of October, 2016). Representatives of all the main political and administrative authorities of Grenoble area attended to this workshop (Région Rhône-Alpes, Département of Isère, Grenoble-Alpes Métropole, AURG, municipalities communities of Grenoble employment catchment areas).

TONUS Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Journal

9.1.1.1. Member of the editorial boards

Philippe Helluy is member of the editorial board of IJFV http://ijfv.org/

9.1.1.2. Reviewer - Reviewing activities

Emmanuel Franck has been reviewer for

- Communications in computational physics
- Methods and Algorithms for Scientific Computing
- Methods for Partial Differential equations

Philippe Helluy has been reviewer for

- Math. Review
- International Journal for Numerical Methods in Fluids
- Computers and fluids
- M2AN
- ESAIM Proceedings
- PIER Journal

Sever Adrian Hirstoaga has been reviewer for

- Journal of Fixed Point Theory and Applications
- MathSciNet/Mathematical Reviews

Michel Mehrenberger has been reviewer for

- SISC
- Electronic Journal of Qualitative Theory of Differential Equations (EJQTDE)
- Mathematical Methods in the Applied Sciences
- Journal Of Computational Physics
- Computer Physics Communications
- Computational and Applied Mathematics
- Zeitschrift fuer Angewandte Mathematik und Physik

David Coulette has been reviewer for

- Journal of Plasma Physics - Cambridge University Press

9.1.2. Invited Talks

Emmanuel Franck was invited at

- Minisymposium Fusion, Canum 2016, Obernai
- Workshop Jorek, Nice, France
- Seminar of numerical analysis, Rennes university, France

Emmanuel Franck has participated as speaker at

ECCOMAS 2016, Greece

Workshop ABPDE 2016, Lille, France

IGA and free mesh methods, La Jolla, USA

Philippe Helluy was invited at:

Oberwolfach au workshop (Hyperbolic Techniques for Phase Dynamics)

Sever Adrian Hirstoaga was invited at

17th SIAM Conference on Parallel Processing for Scientific Computing, 12-15 April 2016, Paris.

PASC (Platform for Advanced Scientific Computing), 8-10 June 2016, Lausanne.

NumKin, October 2016, Strasbourg

Michel Mehrenberger was invited at

ECCOMAS Congress 2016 , 5-10 june 2016 Crete Island, Greece.

Conference - Stability of non-conservative systems 4th-7th July 2016, University of Valenciennes, France.

Collaborative Research Center (CRC) seminar, Karlsruhe Institute of Technology (KIT), 28 april 2016.

Seminar, "Modellistica Differenziale Numerica", Dipartimento di Matematica - Sapienza Universita di Roma, 19 april 2016.

Seminar, "Applications des mathématiques", ENS Rennes, 2 mars 2016.

Laurent Navoret was invited at

Seminar. Laboratoire Jean Kuntzmann Grenoble

Workshop: Kinetic theory : from equations to models - Imperial College, Londres

Laurent Navoret has participated as speaker at

Congres Hyp2016, Aachen, Germany

David Coulette was invited at

14eme congress of French Physics Society and IAP Plasma Workshop, Nancy France

European Physical Society - 43rd conference on Plasma Physics, Leuven - Belgium

9.1.3. Scientific Expertise

Philippe Helluy, expertises for:

ANR

9.1.4. Research Administration

Philippe Helluy is the head of the "Modélisation et Contrôle" research team at IRMA Strasbourg.

Michel Mehrenberger is in the IREM ("Institut de recherche sur l'enseignement des mathématiques") team "Modélisation" for the year 2016-2017.

Philippe Helluy and Sever Hirstoaga have participated in a jury for an assistant professor position.

Michaël Gutnic is member of the National Commitee for Scientific Research (from september 2012 to august 2016).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Laurent Navoret, Nonlinear optimisation (108h eq. TD)

Licence : Laurent Navoret, Integration (34h eq. TD)

Licence : Philippe Helluy, scientific computing (70h eq. TD)

Licence : Philippe Helluy, statistic (50h eq. TD)

Licence : Philippe Helluy, basic mathematics (20h eq. TD)

Licence : Michel Mehrenberger, Scientific computing (65 h eq. TD)

Licence : Michel Mehrenberger, nonlinear optimization (18 h eq. TD)

Licence : Michel Mehrenberger, mathematics for chemistry (56h eq. TD)

Licence: Michaël Gutnic, Mathematics for biology, (84h eq. TD)

Licence: Michaël Gutnic, Statistic for biology, (65h eq. TD)

Master 1: Laurent Navoret, Python (19h eq. TD)

Master 1: Philippe Helluy, operational research (50h eq. TD)

Master 1: Michaël Gutnic, probability and statistic, (30h eq. TD)

Master 2 (Agrégation) : Laurent Navoret, scientific computing (50h eq. TD)

Master 2 (Cellar physic) : Laurent Navoret, Basics in maths (24h eq. TD)

Master 2 (Agrégation) : Michel Mehrenberger, scientific computing (28h eq. TD)

Master 2: Philippe Helluy, hyperbolic systems (30h eq. TD)

Master 2: Sever Hirstoaga "two-scales convergence" (24h eq. TD)

9.2.2. Supervision

PhD defended (december 2016): Thi Trang Nhung Pham, "Méthodes numériques pour Vlasov", Advisors: Philippe Helluy, Laurent Navoret.

PhD defended (december 2016): Michel Massaro, "Méthodes numériques pour les plasmas sur architectures multicœurs", Advisor: Philippe Helluy.

PhD in progress: Pierre Gerhard, "Résolution des modèles cinétiques. Application à l'acoustique du bâtiment.", October 2015, Advisors: Philippe Helluy, Laurent Navoret.

PhD in progress: Bruno Weber, "Optimisation de code Galerkin Discontinu sur ordinateur hybride. Application à la simulation numérique en électromagnétisme", March 2015, Advisor: Philippe Helluy.

PhD in progress: Nicolas Bouzat, "Fine grain algorithms and deployment methods for exascale codes", October 2015, Advisors: Michel Mehrenberger, Jean Roman, Guillaume Latu.

PhD in progress: Mustafa Gaja, "Compatible finite element method and preconditioning", December 2015, Advisors: E. Sonnendruecker (IPP, germany), A. Ratnani (IPP), E. Franck

PhD in progress: Conrad Hillairet, "Implicit Boltzmann scheme and Task Parallelization for MHD simulations", November 2016, Advisors: Philippe Helluy, E. Franck

PhD in progress: Ksander Ejjaouani, "Conception of a programmation model, application to gyrokinetic simulations", October 2015, Advisors: Michel Mehrenberger, Julien Bigot, Olivier Aumage.

9.2.3. Juries

Philippe Helluy:

PhD defense of Rémi Chauvin (Toulouse)

PhD defense of Eric Madaule (Nancy)

PhD defense of Juan Manuel Martinez Caamano (Strasbourg)

PHD defense of Thibault Gasc (CEA Paris)

PHD defense of Nicolas Deymier (Toulouse)

Habilitation defense of Virginie Grandgirard (CEA cadarache)

Michel Mehrenberger:

PhD defense of Florian Delage (Strasbourg)

BIOCORE Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

J.-L. Gouzé organized with P. Brest, H. Barelli and F. Besse the Signalife Maths-Bio workshop held at the Inria Sophia Antipolis center, on November 25.

10.1.1.1. Members of the conference program committee

J.-L. Gouzé is a member of the program committee for the conference BIOMATH, held in Sofia (Bulgaria), and POSTA (Rome, Italy). He is in the scientific committees of several summer schools.

O. Bernard is in the technical committee of the Computer Applied to Biotechnology (CAB) conferences, of the FOSBE conference (Foundations of Systems Biology in Engineering) and of the Algae Europe conference.

Valentina Baldazzi co-organised the HortiModel2016 international symposium on *Models for plant growth, environment control and farming management in protected cultivation*, Avignon, 16–22 September 2016.

10.1.1.2. Reviewers

All BIOCORE members have been reviewers for the major 2016 conferences in our field: CDC, IFAC NOLCOS,...

10.1.2. Journal

10.1.2.1. Members of the editorial board

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

10.1.2.2. Reviewers

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

10.1.3. Invited talks

J.-L. Gouzé was invited to give the plenary introductory lecture at POSTA, the 5th International Symposium on Positive Systems, Università Campus Bio-Medico di Roma , Italy.

M. Chaves gave a talk at the workshop on “Asynchronous dynamics of logical models: assessing biologically relevant properties”, at CIRM, Marseille (November 2016).

O. Bernard was invited to give a conference on microalgae at Ecole Centrale de Paris (“Biotechnological challenge”) ‘Use of microorganisms for biofuel production” (December, 8th, 2016).

O. Bernard was invited to give a talk at the ALgoReso workshop related to the development of innovative photobioreactors (May, 12th, 2016).

O. Bernard was invited for a presentation at the Metabolism in Systems Biology (Lille, 24th of November, 2016) workshop organized by the BIOSS working group.

O. Bernard was invited for a talk at the Days of the SFR Condorcet (Namur, 5-6 july, 2016).

10.1.4. Scientific expertise

J.-L. Gouzé was in several evaluation committees or juries: Stic Amsud, Région Région Aquitaine- Limousin - Poitou Charentes, Université de Grenoble, Centrale-Supelec.

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

10.1.5. Research administration

J.-L. Gouzé is in the Inria committee supervising the doctoral theses, and a member of the scientific committee of Labex SIGNALIFE of the University of Nice-Sophia-Antipolis, and of COREBIO PACA. He is in the scientific committee of Académie 4 of UCA-Jedi. He is a member of the board of the SFBT (French Speaking Society for Theoretical Biology).

M. Chaves and J.-L. Gouzé were part of the committee for the selection of the 2016 Signalife PhD students.

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

M. Chaves is a member of the CLHSCT (local committee for the safety of working conditions)

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

S. Touzeau is an elected member of the scientific committee of the MIA department at INRA (2011–2016). She is a member of the steering committee of the metaprogramme SMaCH *Sustainable Management of Crop Health*, INRA (since 2016).

F. Grognard is a member of the NICE committee, which allocates post-doctoral grants and fundings for visiting scientists at Inria Sophia Antipolis. He is a member of the scientific committee of the doctoral school "Sciences de la Vie" at the University of Nice-Sophia Antipolis. Since 2015, F. Grognard is a member of the MBIA CSS (Specialised Scientific Commission), in charge of the research scientists evaluation at INRA. He is member of the steering committee of Academy 3, Space, Environment, Risk & Resilience of UCA-JEDI.

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

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

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

Bachelor: N. Bajeux (192h ETD) is ATER at IUT Nice Côte d'Azur of Université of Nice Sophia Antipolis, France.

Master: F. Grognard (33h ETD) and L. Mailleret (33h ETD), "Bio-Mathématiques", M1, 2nd year Engineering in Modelling and Applied Mathematics (eq. M1), Polytech'Nice, Université of Nice Sophia Antipolis, France.

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

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

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

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

Master: S. Touzeau (30.75h ETD), "Analyse de données", M1, 2nd engineering year in Génie Biologie, Polytech'Nice – Université Nice Sophia Antipolis, France.

Doctorat: M. Chaves gave courses at the Research School on “Modelling Complex Biological Systems in the Context of Genomics, advances in Systems and Synthetic Biology” (1.5h, Évry, March 2016) and the Summer School on “Modélisation formelle de réseaux de régulation biologique” (3h, Porquerolles, June 2016).

Doctorat: S. Touzeau (8h), “Mathematical modelling in animal and plant epidemiology”, CIMPA-Cameroun-CETIC research school *Mathematical and Computer Models in Epidemiology, Ecology and Agronomy*,Yaoundé, Cameroon, September 2016.

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

10.2.2. Supervision

HDR: F. Mairet, "Control theory applied to microorganism growth: from physiological insights to bioprocess management", December 7th, 2016.

PhD : C. Combe, "Quantitative and qualitative effects of light on the Growth of microalgae in dense cultures ", May, 9th, 2016, UPMC. Supervisors: A. Sciandra, S. Rabouille and O. Bernard.

PhD : E. Rousseau, ”Impact of genetic drift and selection on the durability of plant resistance to viruses" ”, May 27th, 2016, Univ. Nice Sophia Antipolis. Supervisors: F. Grognard, L. Mailleret, B. Moury, and F. Fabre (INRA Avignon).

PhD : G. Grimaud, "Modeling of the effect of temperature on phytoplankton: from acclimation to adaptation", June, 14th, 2016 Univ. Nice Sophia Antipolis. Supervisors: O. Bernard, F. Mairet and S. Rabouille.

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

PhD in progress : N. Bajeux, "Influence d’une densité dépendance dans les modèles impulsionnels de dynamiques des populations", since October 2013, Univ. Nice Sophia Antipolis. Supervisors: F. Grognard and L. Mailleret.

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

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

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

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

PhD in progress : C. Martinez von Dossow . "Modélisation et optimisation de consortia microalgues-bactéries", since February 2016, UPMC. Supervisors: O. Bernard, F. Mairet and A. Sciandra.

PhD in progress : L. Pereira. "Experimental and computational approaches to understanding the molecular origins of drug response heterogeneity, underlying resistance to cancer therapies", since October 2016, Univ. Nice Sophia Antipolis. Supervisors: M. Chaves and J. Roux (IRCAN, Nice).

PhD in progress : L. Chambon. “Control of models of genetic regulatory networks”. since October 2016, Univ. Nice Sophia Antipolis. Supervisor J.-L. Gouzé.

PhD in progress : C. Lopez-Zazueta. “Use of Perturbation Theory to optimize metabolic production of biofuels by microalgae.”, since January 2016, Univ. Nice Sophia Antipolis, supervisors O. Bernard and J.-L. Gouzé.

PhD in progress: S. Nilusmas, “Gestion durable des nématodes à galles en cultures maraîchères : modélisation et optimisation du déploiement des résistances et des pratiques agronomiques”, since December 2016, Univ. Nice Sophia Antipolis. Supervisors: S. Touzeau, C. Caporalino (ISA), V. Calcagno (ISA), P. Castagnone (ISA) and L. Mailleret.

Master theses and engineering internships supervision

M1: Ambre Vaisseix, "Effet de la température pour des cultures de microalgues sous serre", Université de Nantes

M1: Anais Bacquet, "Modélisation métabolique de Chlorella sorokiniana, en condition mixotrophe pour identifier des stratégies optimales de consommation de déchets organiques", Univ. Nice Sophia Antipolis.

Engineer: Jérome Grenier, "Développement et modélisation d’un système innovant de production de microalguessous forme de biofilm", Ecole Centrale de Paris

M2: Christina Kozia, "Dynamical representation and analysis of models of genetic regulatory networks", Univ. Nice Sophia Antipolis.

Engineer: Arthur Péré, "Évaluation in silico de la durabilité de résistances variétales avec interaction entre gènes par une approche de modélisation", INSA Lyon.

M2: Samuel Nilusmas, "Évolution de la virulence chez un nématode phytoparasite : déploiement optimal et robuste de plantes résistantes", Université Claude Bernard Lyon 1.

10.2.3. Juries

M. Chaves was reviewer for the PhD defense of Simona Catozzi "Retroactivity in signal transduction: a comparative study of forward and backward responses in signaling cascades", University of Nice Sophia Antipolis, December 15, 2016.

J.-L. Gouzé was reviewer for the PhD of Hafiz Ahmed “Modeling and synchronization of biological rhythms: from cells to oyster behavior”, University of Lille 1, September 22, 2016.

J.-L. Gouzé was reviewer for the PhD of Clément Aldebert, “Uncertainty in predictive ecology: consequence of choices in model construction ”, Univ Aix-Marseille, November 29, 2016.

J.-L. Gouzé was in the jury of the HDR of Francis Mairet, “ Control theory applied to microorganism growth: from physiological insights to bioprocess management ”, University of Nice Sophia Antipolis, December 7, 2016.

J.-L. Gouzé was in the jury of the PhD of Dominique Lamonica, “Capturer les interactions écologiques en microcosme sous pression chimique à travers le prisme de la modélisation”, Université Claude Bernard Lyon 1,April 8, 2016.

J.-L. Gouzé was in the jury of the PhD of Elsa Rousseau “Effect of genetic drift and selection on plant resistance durability to viruses”, University of Nice Sophia Antipolis, May 27, 2016. F. Grognard and L. Mailleret were invited members of this jury

O. Bernard was reviewer for the HDR of S. Tebbani "Contribution à l’étude des systèmes non linéaires incertains : application à la commande de systèmes biotechnologiques ", University of Paris-Sud, November 7th, 2016.

O. Bernard was reviewer for the PhD thesis of C. E. Robles Rodriguez " Modeling and optimization of bio-lipid production by oleaginous yeasts ", University of Toulouse, October 19th, 2016.

O. Bernard was in the PhD jury of J. Rumin "Non-GMO improvement of microalgae performances", University of Nantes, March, 16th, 2016.

O. Bernard was in the PhD jury of G. Grimaud, "Modeling of the effect of temperature on phytoplankton: from acclimation to adaptation", Univ. Nice, June 14th, 2016.

O. Bernard was in the PhD jury of C. Combe, "Quantitative and qualitative effects of light on the Growth of microalgae in dense cultures ", UPM, May 9th, 2016.

S. Touzeau is in the thesis committees of David Demory (UPMC, 2013–2016).

10.3. Popularization

The activities related to microalgae have generated many articles in national newspapers (Le Monde, Nice Matin, journal du CNRS,...) where ...), and broadcasts on national radio (Europe 1) and TV (France 2, France 3). Several articles were written by the team members explaining the hurdles and potential of microalgae.

M. Chaves was part of the jury for the PhD student contest "Ma thèse en 180 sec" (regional stage, April 2016, Nice).

Biocore, especially Stefano Casagranda and Lucie Chambon, was involved in the "Spring of Researchers" and in the "Fête de la Science".

P. Bernhard has given conferences in Lycée René Gosciny, in Drap on January 12th (Le nombre d'or: mythes et curiosités), in Lycée Alexandre Dumas, in Cavaillon on February 29th ("Game Theory") and in Lycée Costebelle, in Hyères on March 15th (Le nombre d'or: mythes et curiosités).

CARMEN Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. Member of the Organizing Committees

- 6th international conference on "Computational Surgery," Bordeaux, May 2016 (Y. Coudière).
- The annual workshop of IHU Liryc, Bordeaux, October 2016 (Y. Coudière).

N. Zemzemi organized a mini-symposium intitled "Imaging and inverse modeling" in PICOF 2016, from 01/06/2016 to 03/06/2016. Autrans, France.

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

- 6th international conference on "Computational Surgery," Bordeaux, May 2016 (Y. Coudière).
- CARI 2016 (N. Zemzemi)

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

M. Potse: associate editor of Frontiers in Cardiac Electrophysiology.

9.1.3.2. Reviewer - Reviewing activities

M. Potse: Heart Rhythm, IEEE Transactions on Biomedical Engineering, Medical & Biological Engineering & Computing, Journal of Electrocardiology.

Y. Coudière: Journal of computational and applied mathematics, PLOS ONE, SMAI Journal of Computational Mathematics

N. Zemzemi: Inverse Problems, Europace, Inverse Problems in Science and Engineering

9.1.4. Invited Talks

M. Bendahmane: Université Qadi Ayyad, IST d'Essaouira (Morocco), April 2016

M. Bendahmane: University of Oslo (Norway), October 2016.

Y. Coudière: University of Ottawa (Canada), February 2016.

N. Zemzemi gave a course in the CIMPA research school: "Modelling and simulating the electrical activity of the heart Direct and Inverse problems". From 04/10 to 10/10 2016. Tunis, Tunisia.

N. Zemzemi: Course on the electrophysiology modelling: Forward and Inverse problems.Ecole doctorale de mathématique. Faculté des sciences de Tunis. From 10/01/2016 to 15/01/2016. Tunis, Tunisia.

M. Potse gave an invited presentation titled "Visualization of 3D Lead Fields" at the 43rd International Congress on Electrocardiology.

9.1.5. Leadership within the Scientific Community

M. Potse is council member of the International Society of Electrocardiology.

9.1.6. Scientific Expertise

Y. Coudière:

- ATER committee for Université de Bordeaux
- Reviewer PhD Thesis of P.-L. Colin, Université Lille 1, 27/06/2016
- Reviewer HDR Thesis of M. Sermesant, Université de Nice Sophia-Antipolis, 09/06/2016
- SNF (Swiss National Science foundation)

9.1.7. Research Administration

Y. Coudière:

- Scientific responsability of the IMB (CNRS UMR 5251) team "Calcul Scientifique et Modélisation," 60 persons.
- Responsible for the scientific communication (*Chargé de mission à l'animation scientifique*) of the IMB

N. Zemzemi: Administration of the Inria associated team Epicard (section 8.4.1.1).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

DUT : P. E. Bécue, Introduction to modelling and Principal Component Analysis, 43 hours, level N/A, IUT Orsay, France

DUT : P. E. Bécue, Object Oriented Programming with java, 9 hours, level N/A, IUT Orsay, France

9.2.2. Supervision

PhD : A. Davidović, "Multiscale Mathematical Modeling of Structural Heterogeneities in Cardiac Electrophysiology," Université de Bordeaux, 9 December 2016, supervised by Y. Coudière.

PhD in progress: P. E. Bécue, "Modélisation et simulation numérique de l'électrophysiologie cardiaque à l'échelle microscopique," started 1 October 2014, supervised by F. Caro, M. Potse, and Y. Coudière.

PhD in progress: C. Douanla Lontsi, "Schémas d'ordre élevé pour des simulations réalistes en électrophysiologie cardiaque," started 1 November 2014, supervised by Y. Coudière.

PhD in progress: A. Gérard, "Modèles numériques personnalisés de la fibrillation auriculaire," started 1 September 2015, supervised by Y. Coudière.

9.2.3. Juries

M. Bendahmane was a jury member (*rapporteur*) for the PhD thesis of Jamila Lassoued (*Université de Tunis*).

9.3. Popularization

The Carmen team has responded to a call of Cap'Maths in 2014 on dissemination and popularization of mathematics destined for young pupils, the general public, and (future) mathematical professionals. For this project, G. Ravon and Y. Coudière developed a *serious game* called Heart Attack. The game is destined for middle and high school students as an introduction to mathematical modeling. The principal goal of the game is to illustrate the notion of numerical modeling in medical research, and in particular in cardiac rhythmology. The player takes the role of a scientist having developed a numerical model for the electrical activity of the heart and tries to learn how to prevent an arrhythmia. A secondary goal is to teach about the electrical activation mechanism of the heart.

Integrating scientific simulations in an interactive website is challenging because of the constraints imposed by a web-based framework. As a result of this project we have learned a great deal about such developement and about the collaboration with professional web developers.

DRACULA Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. Member of the Organizing Committees

- International conference “LyonSysBio” (Lyon Systems Biology), Lyon (France), 17 - 18 November 2016 (http://lyonsysbio2016.sciencesconf.org/?lang=en). Co-organizers: Fabien Crauste and Olivier Gandrillon.
- Regular SeMoVi Rhone-Alpes seminar in biological modeling (http://www.biosyl.org/news/semovi), 5 seminars organized in 2016, with one international lecturer each time. Co-organizer : Olivier Grandrillon and Fabien Crauste.
- Minisymposium: “Polymer dynamics models and applications to neurodegenerative disease”, the 11th AIMS Conference on Dynamical Systems, Differential Equations and Applications, 01 - 05 July 2016, Orlando, Florida, USA (http://www.aimsciences.org/conferences/2016/). Co-organizers: Laurent Pujo-Menjouet and Leon Tine.
- Summer School in Probability and PDE for Biology, July 2016 (held at the CIRM) http://scientific-events.weebly.com/1426.html. Co-organizers: Thomas Lepoutre.
- Workshop on complex systems of reaction-diffusion (https://www.ljll.math.upmc.fr/kibord/workshop_march_2016.html). Co-organizers: Thomas Lepoutre.

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

- International conference "LyonSysBio" (Lyon Systems Biology), Lyon (France), 17 - 18 November 2016 (http://lyonsysbio2016.sciencesconf.org/?lang=en). Co-organizers : Fabien Crauste and Olivier Gandrillon.

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

- Fabien Crauste: Computational and Mathematical Methods in Medicine (HPG).
- Laurent Pujo-Menjouet: Journal for theoretical Biology; Mathematical Modelling of Natural Phenomena.
- Mostafa Adimy: Journal of Nonlinear Systems and Applications; Chinese Journal of Mathematics.
- Olivier Gandrillon: BMC research Notes.

9.1.3.2. Reviewer - Reviewing Activities

- Fabien Crauste: Bulletin of Mathematical Biology; Discrete and Continuous Dynamical Systems Series B; Funkcialaj Ekvacioj (Functional Equations); Journal of Mathematical Biology; Journal of Biological Systems; Systems and Control Letters.
- Laurent Pujo-Menjeout: Journal of Mathematical Biology.
- Celine Vial: Comptes Rendus Mathematique (CRAS).
- Mostafa Adimy: Mathematical Methods in the Applied Sciences; Zeitschrift fuer Angewandte Mathematik und Physik (ZAMP)

9.1.4. Invited Talks

- Fabien Crauste: Workshop “French-Spanish Workshop on Evolution Problems”, Valladolid (Spain), May 16-17.
- Laurant Pujo-Menjouet: Marseille Monthly seminar Aix-Marseille Université, Institut de Mathématiques de Marseille (I2M).
- Mostafa Adimy: Workshop “French-Spanish Workshop on Evolution Problems”, Valladolid (Spain), May 16-17.
- Mostafa Adimy: Workshop “Modelling the Dissemination and Control of Arboviroses”, Polytechnic School, San Lorenzo (Paraguay), October 5-8.

9.1.5. Scientific Expertise

- Celine Vial: Member of CNU 26; Member of a comity for “Maître de conférences” Pierre et Marie Curie university.
- Celine Vial: Member of the jury of the agregation of mathematic in Tunisia.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Master: Fabien Crauste, Population Dynamics, 15h ETD, M2, UCBL, Lyon. Laurent:
- Licence: Laurent Pujo-Menjout, Bio-mathématiques et Modélisation, 10h ETD, L3, UCBL, Lyon.
- Licence: Laurent Pujo-Menjout, Analyse numérique, 72h ETD, L3, UCBL, Lyon.
- Licence: Laurent Pujo-Menjout, Equations différentielles et aux dérivées partielles, 72h ETD, L3, UCBL, Lyon.
- Licence: Laurent Pujo-Menjout, Analyse I : les réels et les fonctions, 72h ETD, L1, UCBL, Lyon.
- Licence: Laurent Pujo-Menjout, Mathématiques Appliquées - Equations Différentielles, 18h ETD, L2, UCBL, Lyon.
- Licence: Laurent Pujo-Menjout, Equations Différentielles ordinanires and Modélisation, 54h ETD, L3, INSA, Lyon.
- Master: Laurent Pujo-Menjout, Modélisation en biologie et médecine, 7.5h ETD, M1, UCBL, Lyon.
- Master: Laurent Pujo-Menjout, Systèmes dynamiques, 78h ETD, M1, UCBL, Lyon.
- Master: Laurent Pujo-Menjout, Gestion de projet en ingénierie mathématique, 3h ETD, M1, UCBL, Lyon.
- Master: Laurent Pujo-Menjout, Equations aux Différences, 29h ETD, M1, INSA, Lyon.
- Master: Mostafa Adimy, Reaction-diffusion and age-structured equations with application to biological populations, 45h ETD, M2, School of Applied Mathematics (EMAp), FGV, Rio de Janeiro, Brazil.

9.2.2. Supervision

- PhD: Abdennasser Chekroun, “Équations différentielles et aux différences à retard pour des modèles de dynamique des cellules souches hématopoïétiques”, Université Lyon, until March 2016, encadrant: Mostafa Adimy.
- PhD: Marine Jacquier, “Mathematical modeling of the hormonal regulation of food intake and body weight : applications to caloric restriction and leptin resistance”, Université de Lyon, until February 2016, encadrants: Fabien Crauste, Mostafa Adimy and Hedi Soula.
- PhD in progress: Simon Girel, “Multiscale modelling of the immune response”, Université Lyon, since September 2015, encadrant: Fabien Crauste.
- PhD in progress: Aurélien Canet, “Contribution à l’étude de la quantification de la réponse d’une tumeur solide après un traitement par radiothérapie”, Université Lyon, since January 2016, encadrants: Larry Bodgi, Nicolas Foray and Laurent Pujo-Menjouet.

- PhD in progress : Loïs Boullu, Modélisation de la mégacaryopoïèse et applications aux maladies liées â la production des plaquettes, Université Lyon 1, October 2014, Laurent Pujo-Menjouet and Jacques Bélair (co-tutelle avec l'Université de Montréal).
- PhD in progress: Manaf Ahmed, "Probabilistic and statistical study of the spatiotemporal dependence; application to environment", since october 2013, encadrants: C. Vial, V. Maume-Deschamps and P. Ribereau.
- PhD in progress: Mélina Ribaud, "Robustness in multi-objective optimization for the design of rotating machine", since september 2015, encadrants: C. Vial, C. Helbert and F. Gillot.
- PhD in progress : Loïc Barbarroux, modélisation mathématique de la réponse immunitaire chez un individu en vue d'optimiser des stratégies de vaccination, Université de Lyon 1, since October 2013, Mostafa Adimy and Phillipe Michel.
- PhD in progress : Apollos Besse, The role of tumor-immune interaction in combined treatments for chronic myeloid leukemia, Université Lyon 1, since October 2014, Samuel Bernard and Thomas Lepoutre.
- PhD in progress : Alvaro Mateso Gonzales, Models for anomalous diffusion, ENS Lyon, since October 2014, Thomas Lepoutre, Hugues Berry and Vincent Calvez (Alvaro is not member of Dracula team).
- PhD in progress : Flavien Duparc, Etude d'un modèle mathématiques de régulation de l'hémoglobine chez les patients dialysés, Université Lyon 1, since October 2014, Mostafa Adimy and Laurent Pujo-Menjouet.
- PhD in progress : Ulysse Herbach, Modèles graphiques probabilistes pour l'inférence de réseaux de gènes, Université Lyon 1, since October 2015, Olivier Gandrillon, Thibault Espinasse (ICJ) and Anne-Laure Fougères (ICJ).
- PhD in progress : Arnaud Bonnafoux, Vers une inférence automatique de réseaux de gènes dynamiques à partir de « mégadonnées » temporelles discrètes acquises sur cellules uniques, Université Lyon 1, since November 2015, Olivier Gandrillon (CIFRE with the COSMO company).
- HDR: Laurent Pujo-Menjouet, "Étude de modèles mathématiques issus de la biologie du cycle cellulaire et de la dynamique des protéines", Université Lyon, Decembre 2016.

9.2.3. Juries

- Mostafa Adimy was reviewer and member of the PhD of Benjamin Conti (Université d'Aix Marseille), "Équations de réaction-diffusion dans un environnement périodique en temps Applications en médecine".
- Mostafa Adimy was member of the PhD of Abdennasser Chekroun (Université de Lyon 1), "Contribution à l'analyse mathématique d'équations aux dérivées partielles structurées en âge et en espace modélisant une dynamique de population cellulaire".
- Mostafa Adimy was member of the PhD of Youssef Bourfia (Université de Marrakech and Université Pierre et Marie-Curie), "Modélisation et Analyse de Modèles en Dynamique Cellulaire avec Applications à des Problèmes Liés aux Cancers".
- Mostafa Adimy was member of the HDR of Laurent Pujo-Menjouet (Université de Lyon 1), "Etude de modèles mathématiques issus de la biologie du cycle cellulaire et de la dynamique des protéines".
- Fabien Craute was reviewer and member of the PhD of Ana Jarne Munoz (Université de Bordeaux), "Modeling the effect of exogenous Interleukin 7 in HIV patients under antiretroviral therapy with low immune reconstitution".
- Fabien Craute was reviewer and member of the PhD of David Granjon (Université Pierre et Marie Curie et Université de Lausanne), "Modeling of Calcium Homeostasis in the Rat and its perturbations".

- Celine Vial was member of the PhD of Zahraa Salloum (Université de Lyon 1), “Maximum de vraisemblance empirique pour la détection de changements dans un modèle avec un nombre faible ou très grand de variables”.

9.3. Popularization

- Fabien Crauste : Conference “Grippe saisonnière, épidémie, pandémie : quel apport des mathématiques ?” Université Ouverte, Bibliothèque de Lyon, March 30, 2016.
- Laurent Pujo-Menjouet : Conference “Mathématiques et relations amoureuses : les jeux de l’amour et sans le hasard ?” Université Ouverte, Bibliothèque de Lyon, February 3, 2016.

M3DISIM Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. Member of the organizing committees

Philippe Moireau

P. Moireau, Member of the CEMRACS-2016 organizing committee

M. Genet, Member of the GIENS-2017 organizing committee

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Editorial Boards

D. Chapelle, Member of the editorial board of journal *Computers & Structures*

D. Chapelle, Member of the editorial board of journal *ESAIM: M2AN*

9.1.2.2. Reviewer - Reviewing Activities

J-M. Allain, Reviewer for "Journal of the Royal Society Interface", "Physica D" and "Journal of the Mechanical Behavior of Biomedical Materials".

R. Chabiniok, reviewer for "Journal of Biomechanical Engineering and Computational" and "Mathematical Methods in Medicine".

M. Genet, reviewer for "Journal of Elasticity".

S. Imperiale, reviewer for "Journal of Computational Physics" and "Journal of Differential Equations".

9.1.3. Invited Talks

J.-M. Allain, "Caractérisation in vitro de tissus mous à l'échelle microscopique", Colloque Mecamat, Aussois.

J.-M. Allain, "Multiscale characterization of skin biomechanics", Workshop constitutive behaviour of soft tissue, Manchester, UK.

R. Chabiniok, "Biophysical modeling of cardiac function for clinical applications" at University Southwestern, Dallas, Texas (Seminar series of Biomedical Engineering Department, and at regular clinical echocardiography meeting of Dept. of Pediatrics, UT Southwestern Medical Center).

D. Chapelle, seminar at CEMRACS-16.

M. Genet, "Modélisation et simulation en biomécanique cardiaque", Département de Génie Mécanique, École Normale Supérieure de Cachan.

9.1.4. Leadership within the Scientific Community

J.-M. Allain, Member of Society of Experimental Mechanics and of Biophysical Society

J.-M. Allain, Member of the Academic Council of Université Paris-Sacaly, France

D. Chapelle, Member of the board of directors of the VPH Institute

9.1.5. Research Administration

J.-M. Allain, Responsability of the teaching experimental center (mechanics), 32h, Ecole Polytechnique, France

J.-M. Allain, Scientific Advisory Board, chair BioMecAM, ENSAM, Paris, France

D. Chapelle, VP research of Inria Saclay-Ile-de-France

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Bachelor: J.-M. Allain, co-supervision of the new program for the Polytechnique Bachelor, 15h, Ecole Polytechnique, France

Bachelor: F. Caforio, "Math 255 – Differential calculus for physics (mathematical analysis in two and three dimensions)", 42h, (L2), Université d'Orsay, France

Bachelor: M. Genet, "MEC431 – Modélisation et Simulation en Mécanique Industrielle", 32h, (L3), École Polytechnique, France

Bachelor: M. Genet, "MEC431 – Mécanique des Milieux Continus", 16h, (L3), École Polytechnique, France

Bachelor: S. Imperiale, "MA102 – Analyse pour les EDP", 24h, (L3), ENSTA ParisTech, France

Bachelor: S. Imperiale, "MA104 – Analyse complexe", 12h, (L3), ENSTA ParisTech, France

Bachelor: P. Moireau, "MA103 – Introduction aux EDP et à leur approximation numérique", 14h, (L3), ENSTA ParisTech, France

Master : J.-M. Allain, "Computational fluid dynamics", 36h, (M1), Ecole Polytechnique, France

Master : J.-M. Allain, "Cellular Motility", 32h, (M2), Ecole Polytechnique, France

Master: D. Chapelle, "Biomechanical Modeling of Active Tissues", 23h, (M2), Université Paris-Saclay, France

Master : M. Genet, "MEC551 – Plasticité & Rupture", 18h, (M1), École Polytechnique, France

Master: S. Imperiale, "MA2610 Calcul Scientifique – Mécanique des solides", 6h, (M1), Central/Supelec, France

Master: S. Imperiale, "Simnum – Programmation C++", 18h, (M1), ENSTA ParisTech, France

Master: S. Imperiale, "MAP-Ann1 – La méthode des éléments finis", 12h, (M1), ENSTA ParisTech, France

Master: P. Moireau, "MAP-Ann1 – La méthode des éléments finis", 21h, (M1), ENSTA ParisTech, France

Master: P. Moireau, "MAP 431 – Analyse variationnelle des équations aux dérivées partielles", (M1), Ecole Polytechnique, France

Master: P. Moireau, "Biomechanical Modeling of Active Tissues", 12h, (M2), Université Paris-Saclay, France

Master: P. Moireau, "Méthodes et problèmes inverses en dynamique des populations", 24h, (M2), UPMC, France

9.2.2. Supervision

HdR : Philippe Moireau, Observers for data assimilation – Applications to cardiac modeling, Université Paris-Saclay, November 28th

PhD : Bruno Burtschell, Mechanical modeling and numerical methods for poromechanics – Application to myocardium perfusion, Université Paris-Saclay, September 30th, supervisors: D. Chapelle and P. Moireau

PhD in progress : Aurora Armiento, Inverse problems and data assimilation methods applied to protein depolymerisation, started: Nov 2013, supervisors: M. Doumic and P. Moireau

PhD in progress : Federica Caforio, "Modélisation mathématique et numérique de la propagation d'ondes élastique dans le coeur", started: Nov 2015, supervisors: D. Chapelle and S. Imperiale

PhD in progress : Florent Wijanto, Modélisation multi-échelle des fibres de collagènes, started: Sept 2015, supervisors:, Jean-Marc Allain and Mathieu Carruel

PhD in progress : Arthur Le Gall, “Application of biomechanical heart modeling in hemodynamic monitoring of increased risk patients during aneshesia using clinical data”, started: Nov 2016, supervisors: Dominique Chapelle, Etienne Gayat, Radomir Chabiniok

PhD in progress : François Kimmig, “Multi-scale modeling of muscle contraction”, started: Sept 2016, supervisors: Dominique Chapelle, Matthieu Caruel

9.2.3. Juries

J.-M. Allain, Reviewer for Laure Laforgue’s PhD Thesis, LiPhy Grenoble.

P. Moireau, Reviewer for Stefano Pagani’s PhD Thesis, Politecnico di Milano.

9.3. Popularization

D. Chapelle, Debate on “Data sciences and personalized medicine” at Cité des Sciences (also on web-TV), Oct 9th

D. Chapelle, Roundtable in workshop “Mathématiques Oxygène du Numérique" (UPMC, Oct 21st)

MAMBA Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

Pierre-Alexandre Bliman: Chairman of the Conference on Mathematical Modeling and Control of Communicable Diseases, Fundação Getulio Vargas, Rio de Janeiro (RJ), Brazil, January 11-15, 2016
Marie Doumic: Chair at the Summer School PDE and Probability for Life Sciences, CIRM, Luminy, July 4-8, 2016.

9.1.1.2. Member of the Organising Committees

Luis Almeida, Benoît Perthame and Nicolas Vauchelet: Co-organisers of the "Second meeting on mathematical modeling and control in epidemic spread", Laboratoire Jacques-Louis Lions, UPMC, Paris, May 23, 2016
Jean Clairambault: co-organiser of the mini-symposium "Heterogeneity, evolution and drug resistance in cancer", ECMTB, Nottingham, England, July 12, 2016
Marie Doumic: co-organiser of the workshop on "Models in Cancer Therapy", WPI, Vienna, 1-2 july, 2016; mini-symposium organisation at the ECMTB, Nottingham, England, July 2016; mini-course and chair at CIMPA school in Moka, Mauritius, December 2016
Dirk Drasdo: co-coordinator of the modelling workpackage in ANR RHU project iLITE (coordinator: Jean-Charles Duclos-Vallée, Paul Brousse Hospital, Villejuif)
Dirk Drasdo: member of the scientific leadership team of the Liver Systems Medicine grant composed of three subprojects and three junior research groups, each subproject composed of about 10 PIs

9.1.2. Scientific Events Selection

9.1.2.1. Chair of Conference Program Committees

Pierre-Alexandre Bliman: Program chairman of the 1st meeting of the STIC AmSud project MOSTICAW, Asunción, Paraguay, October 5–9 2016

9.1.2.2. Member of the Conference Program Committees

Pierre-Alexandre Bliman: Member of the Conference Editorial Board of European Control Association (EUCA), actuating for 15th European Control Conference, Aalborg, Denmark, June-July 2016

9.1.2.3. Reviewer

Pierre-Alexandre Bliman: Reviewer for the 55th IEEE Conference on Decision and Control, Las Vegas, USA, December 2016.
Dirk Drasdo: member of the reviewing committee for foundation of "Einstein Center for Regeneration in Compromised Patients Medicine", Berlin, April 2016

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Dirk Drasdo is member of the boards of *TheScientificWorldJOURNAL* and *Royal Society open science* (UK) and was guest editor for *PloS Comput. Biol.* (2016)
Benoît Perthame is member of the boards of *Communications in PDEs, M3AS, NoDEA, Mathematical Medicine and Biology*

9.1.3.2. Reviewer - Reviewing Activities

Pierre-Alexandre Bliman: Reviewer for the journals *Automatica, IET Control Theory & Applications, Memórias do Instituto Oswaldo Cruz*
Jean Clairambault: Reviewer for the journals *Evolutionary Applications, Bulletin of Mathematical Biology, Mathematical Modelling of Natural Phenomena, Journal of Inorganic and Organometallic Polymers and Materials, Journal of Theoretical Biology, British Journal of Cancer, PLoS Computational Biology, BMC Cancer*
Marie Doumic: Reviewer for the journals *Inverse Problems, Analytical Biochemistry, European Journal of Applied Mathematics, Bull. of Math. Biology, Comm. in Math. Sciences*
Dirk Drasdo: Reviewer for *Nature, Scientific Reports* and other journals
Nicolas Vauchelet: Reviewer for Transaction AMS, SIAM J. Numer. Anal., M3AS, J. Optim. Theory Appl., Math. Reviews

9.1.4. Invited Talks and Courses

Luis Almeida: EMS (European Mathematical Society) Diderot Mathematical Forum, Paris, March 15, 2016
Luis Almeida: IWorkshop "Models in cancer therapy", WPI, Vienna, Austria, July 1-2, 2016
Luis Almeida: Master course on Reaction-Diffusion Equations Arising in the Mathematical Modelling of Population Dynamics, Univ. Verona, October 2016
Pierre-Alexandre Bliman: Keynote speaker at the International conference on Digital Sciences and Technologies for Health, Paris, France, June 10, 2016
Pierre-Alexandre Bliman: Seminars at UMR ESPACE-DEV, Université de Guyane, Cayenne, France, December 2016
Pierre-Alexandre Bliman: Seminars at Laboratoire de Mathématiques et Dynamique de Populations, Université Cadi Ayyad, Marrakesh, Morocco, December 2016
Jean Clairambault: 2h course at the Winter School and Workshop "Nonlocal aspects in mathematical biology", Bedlewo, Poland, January 27, 2016
Jean Clairambault: French-Serbian Novi Sad Oncology Congress, Novi Sad, Serbia, March 18-19, 2016
Jean Clairambault: Journées du département ONCO, Nantes, May 3-4, 2016
Jean Clairambault: Workshop "Le cancer en équations", Rabat, Morocco, May 5-6, 2016
Jean Clairambault: First Waterloo University - Sorbonne Universités Seminar, Waterloo, Ontario, Canada, May 9-11, 2016
Jean Clairambault: 3h course at the BIOMAT Summer school "Cell dynamics and polymerization", Granada, Spain, June 1-3, 2016
Jean Clairambault: 4.5h course at the CIMPA Summer school "Mathematical modeling in Biology and Medicine", Santiago de Cuba, June 14-15-16, 2016
Jean Clairambault: Workshop "Models in cancer therapy", WPI, Vienna, Austria, July 1-2, 2016
Jean Clairambault: International conference "Mathematical models in biology and medicine", Moscow, October 31-November 3, 2016
Jean Clairambault: 4h course at the Winter school "Mathematical Models of Tumour and Disease", Jiaotong University, Shanghai, December 5-6-7-8, 2016
Jean Clairambault: Workshop on mathematical biology, Jiaotong University, Shanghai, December 10, 2016
Jean Clairambault: Workshop on Mathematical Modelling and Computation in Medicine/Biology, Tsinghua International Mathematics Forum (TSIMF), Sanya, Hainan, China, December 12-16, 2016
Marie Doumic: Plenary Speaker at the Diderot Mathematical Forum, March 15; seminar at the Polish Academy of Sciences (Warsaw), March 2016
Marie Doumic: 3h course at the BioMat2016 Conference in Granada, Spain, 1-3 June 2016; seminar in Orsay, June 16, 2016
Marie Doumic: Workshop on fragmentation processes, November 17, Villetaneuse; workshop on "Recent contributions of women in PDEs", Vienna, November 28-30, 2016
Marie Doumic: 4.5h course at the CIMPA Winter school, Moka, Mauritius, December 4-16, 2016
Dirk Drasdo: Workshop OPENTOX Basel, March 2016

Dirk Drasdo: Workshop Biomath/Bioinfo/BioStat of Cancer, Lyon, June 2016
Dirk Drasdo: CMBBE (14th international Symposium on Computational Methods in Biomechanics and Biomedical Engineering), Tel Aviv, September 2016
Benoît Perthame: Seminar, University of Chicago, January 2016
Benoît Perthame: Distinguished lecture, Hong Kong Polytechnic University, February 2016
Benoît Perthame: Seminar, Basel, Switzerland, March 2016
Benoît Perthame: Seminar, Padova, April 2016
Benoît Perthame: Course in mathematical biology, Edmonton, Alberta, Canada, May 2016
Benoît Perthame: Course on "Kinetic equations for cell motility", Porto Ercole, Italy, June 2016
Benoît Perthame: Conference in honour of Peter Markowich's 60th birthday, Beijing, July 2016
Benoît Perthame: Conference on "Kinetics and quantum dynamics", Shanghai, July 2016
Benoît Perthame: Course on "Adaptive evolution", Valparaiso, September 27-30, 2016
Benoît Perthame: Conference on "SCL with rough fluxes", Mittag-Leffler Institute, Stockholm, September 12-15, 2016
Benoît Perthame: Seminar, ETH Zürich, October 18-19, 2016
Benoît Perthame: Conference in honour of Peter Markowich's 60th birthday, KAUST, Saudi Arabia, October 31-November 3, 2016
Benoît Perthame: Conference on "Networks and collective behaviours", Seoul, November 7-10, 2016
Benoît Perthame: Courses, Analysis school, Cotonou, Benin, December 5-9, 2016
Camille Pouchol: Winter School and Workshop "Nonlocal aspects in mathematical biology", Bedlewo, Poland, January 27, 2016
Camille Pouchol: International conference "Mathematical models in biology and medicine", Moscow, October 31-November 3, 2016
Nicolas Vauchelet: 4h course at Imperial College, London, October 2016, UK
Nicolas Vauchelet: 3h course at the CIMPA Summer school "Mathematical modeling in Biology and Medicine", Santiago de Cuba, June 2016, Cuba
Nicolas Vauchelet: INdAM Workshop "Interactions between Analysis and Innovative Algorithmics", Rome, May 2016, Italy

9.1.5. Scientific Expertise

Pierre-Alexandre Bliman: Member of the Scientific committee of the ANR program "Environnement, pathogènes et maladies émergentes ou ré-émergentes - One health"
Pierre-Alexandre Bliman: Expert for the Belgium agency FNRS, for the Dutch agency NWO
Pierre-Alexandre Bliman: Reviewer for the European PhD Award on Control for Complex and Heterogeneous Systems
Pierre-Alexandre Bliman: Member of the National network of specialists of Zika and related diseases (Rede Nacional de Especialistas em Zika e doenças correlatas, RENEZIKA), Health Ministry of Brazil
Pierre-Alexandre Bliman: Member of the Brazilian National Institute for Science and Technology (INCT)
Jean Clairambault: Expert for Belgian FNRS, for the Moffitt Center (Tampa, FL), for the University of Yaoundé (Cameroon), for the BBSRC (UK), for the ERC (Consolidator Grant 2016), for the Royal Society of Edinburgh
Dirk Drasdo: Member of the program committee for SBMC 2016 (Conference on Systems Biology of Mammalian Cells) in Munich

9.1.6. Research Administration

Luis Almeida: Member of the bureau of CID 51 of the Comité National de la Recherche Scientifique
Luis Ameida: in charge of the Major MathBio of the speciality "Mathematics of modelling", M2 level, UPMC
Jean Clairambault: member of the bureau of the IPV (Interfaces pour le Vivant) doctoral funding programme of UPMC, representative of ED 386 (since 2014)
Jean Clairambault: member of the expert group of ITMO Cancer, representative of Inria (since 2008)
Marie Doumic: member of the selection committee for an assistant professor position in Grenoble

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Pierre-Alexandre Bliman: *Análise*, Escola de Matemática Aplicada, Fundação Getulio Vargas, Rio de Janeiro, Brazil (60 h)
Pierre-Alexandre Bliman: *Introdução à Teoria do controle*, Escola de Matemática Aplicada, Fundação Getulio Vargas, Rio de Janeiro, Brazil (60 h)
Marie Doumic: Master course on inverse problems and applications in population dynamics (24 h)
Dirk Drasdo: Master M2, Mathematical biology, on "Agent-based models of tissue organization", from January 2016 to April 2016 at Paris VI (Mathematics department, in 10 units per semester, total 24h)

9.2.2. Supervision

9.2.2.1. PhD defences in 2016

- PhD defence: François Bertaux, " Cell-based multi-scale modeling for systems and synthetic biology: from stochastic gene expression in single cells to spatially organized cell populations" [1], UPMC, June 2016, supervision by G. Batt (Lifeware, Inria Saclay) and D. Drasdo
- PhD defence: Youssef Bourfia, "Modélisation et Analyse de Modèles en Dynamique Cellulaire avec Applications à des Problèmes Liés aux Cancers" [2], Cadi Ayyad University, Marrakesh, December 28, 2016, supervision by M. Adimy (Lyon), J. Clairambault and H. Hbid (Marrakesh)
- PhD defence: Géraldine Cellière: "Multi-scale modeling of drug and detox-metabolism in liver" [3], Ecole du Vivant, Univ. Paris-Diderot, July 2016, supervision by D. Drasdo
- PhD defence: Casimir Emako, "Study of two-species chemotaxis model" [4], March 17, 2016, supervision by L. Almeida and N. Vauchelet
- PhD defence: Sarah Eugène, "Stochastic modelling in molecular biology: a probabilistic analysis of protein polymerisation and telomere shortening" [5], September 30, 2016, supervision by M. Doumic and Ph. Robert (Inria Paris, RAP team)

9.2.2.2. Ongoing PhD theses

- PhD in progress: Aurora Armiento, "Inverse problems for aggregation kinetics", UPMC, begun September 2013, supervision by M. Doumic and Ph. Moireau (Inria Saclay, M3DISIM team)
- PhD in progress: Noémie Boissier (since November 2013), supervision by D. Drasdo and I. Vignon-Clementel
- PhD in progress: Walid Djema, "Analysis of an AML model enabling evaluation of polychemotherapies delivered in the case of AML which have a high level of Flt-3 duplication (Flt-3-ITD)", supervision by C. Bonnet (DISCO, Saclay), J. Clairambault, and F. Mazenc (DISCO, Saclay)
- PhD in progress: Adrian Friebel, "Software of image processing and analysis of liver tissue at histological scales.", supervision by D. Drasdo and S. Hoehme
- PhD in progress: Ghassen Haddad, "Optimisation of cancer treatments: application to bladder cancer", UPMC in co-tutela with ENIT Tunis, begun October 2015, supervision by J. Clairambault and S. Ben Miled (Tunis)
- PhD in progress: Shalla Hanson, "Modelling evolution of interactions between cancer and immune cells in solid tumours", UPMC in co-tutela with Duke University, begun October 2015, supervision by J. Clairambault and M. Reed (Duke)
- PhD in progress: Hugo Martin, "New structured population models for bacterial growth", begun October 2016, supervision by M. Doumic in co-tutela with Pierre Gabriel (Versailles)
- PhD in progress: Mathieu Mézache, begun October 2016, , "Oscillatory dynamics in protein aggregation", supervision by M. Doumic in co-tutela with Human Rezaei (INRA)
- PhD in progress: Johannes Neitsch, "Growth and regeneration modeling based on an agent-based model with deformable cells", (since June 2011) supervision by D. Drasdo and P. Van Liedekerke

- PhD in progress: Pastor Pérez-Estigarribia, Universidad Nacional de Asunción, Paraguay, supervision by C. Schaerer and P.-A. Bliman
- PhD in progress: Camille Pouchol, "Modelling interactions between tumour cells and adipocytes in breast cancer", UPMC, begun September 2015, supervision by J. Clairambault, M. Sabbah, and E. Trélat
- PhD in progress: Antonin Prunet, UPMC, begun October 2014, supervision by L. Almeida and M. Sabbah
- PhD in progress: Andrada Quillas Maran, "Modelling early leukaemogenesis", UPMC, begun March 2014, supervision by J. Clairambault, F. Delhommeau and B. Perthame
- PhD in progress: Martin Strugarek, "Structured population dynamics for transmissible diseases", UPMC, begun October 2015, supervision by N. Vauchelet and B. Perthame
- PhD in progress: Cécile Taing, UPMC, begun October 2014, supervision by A. Lorz and B. Perthame

9.2.2.3. Graduate thesis defences in 2016

- Graduate thesis defence: Bettina D'Avila Barros, Escola de Matemática Aplicada, Fundação Getulio Vargas, Brazil, advisor P.-A. Bliman
- Graduate thesis (ENSAE 2nd year internship) defence: Hicham Janati [46], Malakoff, France, December 2016, supervision by J. Clairambault and M. Doumic
- Graduate thesis defence: Tales Amazonas Rands, Escola de Matemática Aplicada, Fundação Getulio Vargas, Brazil, advisor P.-A. Bliman

9.2.3. Juries

- Luis Almeida: Casimir Emako, UPMC 17/03/2016
- Luis Almeida (reviewer): Perrine Berment, Univ. Bordeaux 06/07/2016
- Luis Almeida: Thibault Liard, UPMC 04/11/2016
- Pierre-Alexandre Bliman: Hafiz Ahmed, Université de Lille, 22/09/2016
- Pierre-Alexandre Bliman: Youssef Bourfia, Université Cadi Ayyad, Maroc & UPMC, 28/12/2016
- Jean Clairambault (reviewer): Douglas Friesen, University of Edmonton, remote defence committee member, 23/02/2016
- Jean Clairambault: Tiphaine Obara, Nancy, 07/10/2016
- Jean Clairambault: Youssef Bourfia, Université Cadi Ayyad, Maroc & UPMC, 28/12/2016
- Marie Doumic (reviewer): Etienne Baratchart, Université de Bordeaux, 2016
- Marie Doumic: Casimir Emako, UPMC, 2016
- Marie Doumic: Sarah Eugène, UPMC, 2016
- Dirk Drasdo: François Bertaux, UPMC, 2016
- Dirk Drasdo: Geraldine Cellière, Ecole du Vivant, Univ. Paris-Diderot, 2016
- Benoît Perthame (reviewer): Thierry Pichard, Université de Bordeaux
- Benoît Perthame: Vincent Renault, UPMC
- Benoît Perthame: Julien Chevalier, Université de Nice-Sophia Antipolis
- Benoît Perthame: Thibault Balois, LPS-ENS
- Nicolas Vauchelet: Casimir Emako, UPMC, March 2016
- Nicolas Vauchelet: Pierre-Louis Colin, Université Lille 1, June 2016

9.3. Popularisation

Marie Doumic: Invited talk in the "Science et société" dissemination conference (http://www.iecl.univ-lorraine.fr/Cycle-Conferences-Sciences-et-Societe/lanceur.php?action=accueil) in Nancy, May 26, 2016
Nicolas Vauchelet : talks for Animath (http://www.animath.fr/) in two high schools : Lycée Racine and Lycée Notre-Dame de Bourg-la-Reine, March 2016

MONC Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. Member of the Organizing Committees

Thierry Colin was in the organizing committee of the *6th International Conference in Computational Surgery and Dual Training* in Bordeaux. The whole team (particularly A. Collin and C. Poignard) was involved in the organization of this event.

9.1.2. Journal

9.1.2.1. Reviewer - Reviewing Activities

- S. Benzekry - biomathematical modeling journals: Journal of Theoretical Biology, Mathematical Biosciences, Bulletin of Mathematical Biology, Theoretical Biology and Medical Modeling, Mathematical Biosciences and Engineering, Journal of Biological Informatics, Journal of Biological Systems, ESAIM:Proc, Mathematics and Computers in Simulation; and medical/biological journals about cancer: Clinical Pharmacokinetics, BMC Cancer
- A. Collin - Computer Methods in Applied Mechanics and Engineering.
- T. Colin - Too much to list...
- C. Poignard - SIAM Journal on Mathematical Analysis, IEEE Trans on Mag, J. Math. Biology, J. Theoretical Biology
- O. Saut - IEEE Trans. Med. Imaging, PLOS Computational Biology, PLOS One, Medical Image Analysis, Nature Comm.

9.1.3. Invited Talks

- Sébastien Benzekry:
  - Integrated Mathematical Oncology Department, Moffitt Cancer Center, Tampa, Florida, USA.
  - Department of Genetics, Roswell Park Cancer Institute, Buffalo, NY, USA.
  - Mathematics Department Colloquium, Ryerson University, Toronto, Canada.
  - Metronomics @ Mumbai, Mumbai, India.
- Thierry Colin:
  - Second French-Korean congress, July 2016, Bordeaux.
  - Treatment optimization for glioblastomas, Ocotber 2016, Cuenca, Spain.
  - Keio University Hospital, Japan,
  - Tokyo University of Science, Japan,
  - Osaka University, Japan.
- Olivier Saut: ALGORITMY 2016, Conference on Scientific Computing, Podbanske, Slovakia (http://www.math.sk/alg2016).

9.1.4. Leadership within the Scientific Community

- O. Saut is the head of the CNRS GDR 3471 Metice (http://metice.math.cnrs.fr).

9.1.5. Scientific Expertise

- S. Benzekry was a reviewer for research projects of the CETIC (Centre d'Excellence Africain en Technologies de l'Information et de la Communication) and for the Erwin Schroedinger-Fellowship of the Austrian Science Fund (FWF).
- O. Saut is an expert for the French Ministry of Research (for various programs including PHC and EGIDE programs).
- O. Saut was a reviewer for Research Career Development Fellowship program of Dublin City University.
- O. Saut is a reviewer for project proposals in IGSSE (International Graduate School of Science and Engineering), Technical University of Munich.

9.1.6. Research Administration

- C. Poignard is elected member of the Inria evaluation committee.
- O. Saut is a member of the Steering Committee of Labex TRAIL (http://trail.labex.u-bordeaux.fr).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: S. Benzekry, Equations différentielles ordinaires, 20h, ENSEIRB-Matmeca, France.

Master: T. Colin, Last year of Engineering school Enseirb-Matmeca: multiphysics modelling

Licence: T. Colin, First Year of the Engineering school of chemestry of Bordeaux, specilization in structures and composite material: basic mathematics.

Licence and Master: A. Collin did a full service as MdC at the Engineering school ENSEIRB-Matmeca.

Licence: Clair Poignard, Engineering school ENSCPB. L3 undergraduate course on numerical analysis (50h).

Licence: Clair Poignard, Engineering school ENSEIRB-Matmeca: undergraduate lecture on numerical analysis (18h).

Master : Olivier Saut, Outils Numériques pour la Mécanique, 20h, M1, ENSEIRB-Matmeca, France.

9.2.2. Supervision

- PhD : P. Berment, Mathematical modelling evaluating radiotherapy outcome for colorectal tumor with Pet Scan, Univ. Bordeaux, July 2016, Thierry Colin and Olivier Saut.
- PhD : E. Baratchart, Quantitative study of the dynamics and spatial aspects of metastatic development using mathematical models, Univ. Bordeaux, February 2016, S. Benzekry, Th. Colin and O. Saut.
- PhD in progress : M. Deville, Modeling of electroporation and gene transfection across tissue. Theoretical and numerical aspects., Sep 2014, C. Poignard and R. Natalini (IAC, CNR Roma).
- PhD : O. Gallinato, Invasive process modeling of the tumor metastatic cells, Univ. Bordeaux, C. Poignard and T. Suzuki (Osaka University). (PhD defended November 22, 2016)
- PhD in progress : T. Kritter, Primary tumors modelling with a view to the gliomas and adenocarcinomas study, Sep 2015, C. Poignard and O. Saut
- PhD : T. Michel, Analysis of mathematical growth tumor models, Univ. Bordeaux, C. Poignard and Th. Colin. (PhD defended November 18, 2016)
- PhD in progress : A. Perreti, Anti-angiogenic traitements modeling using medical imaging, Oct 2014, Th. Colin and O. Saut.
- PhD in progress : S. Corridore, 2016-2019, A. Collin and C. Poignard.
- PhD in progress : C. Perier, 2016-2019, B. Denis de Senneville and O. Saut.

- PhD in progress: C. Nicolò, Mathematical modeling of systemic aspects of cancer and cancer therapy, Oct 2016, S. Benzekry and O. Saut.

9.2.3. Juries

- O. Saut was a reviewer of the PhD of Matthieu Lê "Modélisation de la croissance de tumeurs cérébrales, application à la radiothérapie", Univ. Nice, Inria Sophia Antipolis, July 2016.

9.3. Popularization

- Popularization article in a special edition of the journal "Tangente" devoted to mathematics in medicine. (S. Benzekry).
- S. Benzekry was interviewed by the journal "Sciences et Avenir".
- A. Collin is an active member of "Femmes et Sciences" and gave several talks in this context (Printemps de la Mixité, talks in high schools...).
- O. Saut is a regular speaker at Entretien de l'Excellence (http://www.lesentretiens.org).
- O. Saut was a speaker at the "Forum des Métiers" in Collège Montaigne, Lormont.

MYCENAE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific Events Organisation

9.1.1.1. General Chair, Scientific Chair

Colloquium on Dynamical Systems and Applications, May 19th 2016

Thematic session co-organized by Jonathan Touboul and Khashayar Pakdaman within the framework of the CIRB

9.1.2. Scientific Events Selection

9.1.2.1. Member of the Conference Program Committees

Jonathan Touboul was member of the program committee of ICMNS 2016 (International Conference on Mathematical Neuroscience, Juan-les-Pins)

9.1.3. Journal

9.1.3.1. Member of the Editorial Boards

Jonathan Touboul participates in the editorial boards of *Plos One* and *Frontiers in neuronal circuits*

9.1.3.2. Reviewer - Reviewing Activities

Annals of Applied Probability, Journal of Statistical Physics, eLife, PloS Computational Biology, SIAM Journal on Applied Dynamical Systems, SIAM Journal on Discrete Mathematics, Bulletin of Mathematical Biology

9.1.4. Invited Talks

Invited plenary conference of Frédérique Clément at ICAR2016 http://www.icar2016.org 18th International Congress on Animal Reproduction (over 900 attendees). Multiscale mathematical modeling of the hypothalamo-pituitary-gonadal axis. Tours (France) June 26-30th 2016.

9.1.5. Scientific Expertise

Frédérique Clément belongs to the expert board of the BCDE (Cell Biology, Development and Evolution) ITMO (Multi OrganizationThematic Institute) of the French National Alliance for Life and Health Sciences Aviesan.

Jonathan Touboul has been reviewer for the ANR and European Research Council in 2016.

9.2. Teaching - Supervision - Juries

9.2.1. Supervision

PhD in progress : Richard Bailleul. Modeling of the developmental mechanisms underlying the formation of color and appendage patterns in birds, since September 2015. Université Pierre & Marie Curie (ED515), supervisors: Benoît Perthame, Marie Manceau and Jonathan Touboul (funded by the ERC starting grant of Marie Manceau)

PhD in progress: Yi Cui. Role of Pax6 in neurodevelopment: experiments and models, since September 2014, Université Pierre & Marie Curie (ED158), supervisors: Jonathan Touboul, Alain Prochiantz and Alessandra Pierani

PhD in progress: Frédérique Robin. Multiscale modeling of the morphodynamics in ovarian follicles, since October 2016, Université Pierre & Marie Curie (ED386), supervisors: Frédérique Clément and Romain Yvinec (INRA)

PhD: Tanguy Cabana. Limits of randomly connected networks and their dynamics. Defended on December14th 2016, Université Pierre & Marie Curie (ED386), supervisors: Raphaël Krikorian, Jonathan Touboul

PhD: Elif Köksal Ersöz. A mathematical study on coupled multiple timescale systems, synchronization of populations of endocrine neurons. Defended on December 13th, Université Pierre & Marie Curie (ED386), supervisors: Frédérique Clément and Jean-Pierre Françoise, with the involvement of Mathieu Desroches

PhD: Lucile Megret, Explosion of limit cycles : qualitative analysis, numerical simulations and models. Defended on November 25th, Université Pierre & Marie Curie (ED386), supervisors: Jean-Pierre Françoise and Frédérique Clément, with the involvement of Mathieu Desroches

HDR: Alexandre Vidal. From qualitative analysis of complex dynamics to parameter estimation in neuronal models. Université d'Évry-Val-d'Essonne – Université Paris-Saclay, December 14th 2016

9.2.2. Juries

Jonathan Touboul participated in the PhD committee of Takafumi Arakaki (ED3C, supervisors: D. Hansel and A. Leblois), in the selection committee for the hiring of a professor at Technische Universitat Berlin, as well as in the Bernstein Award for Computational Neuroscience committee.

9.3. Popularization

Jonathan Touboul has given a presentation in the framework of the "demi-heure de science" : Mathematical exploration of the brain activity (January 7th).

Frédérique Clément has given a 3h lecture on "Multiscale modeling of folliculogenesis in mammals" in the M2 master "Predictive & integrative animal biology" (PRIAM) of Université Paris-Saclay.

NUMED Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific Expertise

Emmanuel Grenier has been expert for an INSERM cancer call.

8.1.2. Research Administration

Emmanuel Grenier is member of the board of the LABEX Archimede (Marseille).

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Paul Vigneaux, Vincent Calvez and Emmanuel Grenier teach in L3, M1 and M2 at ENSL, including lectures on partial differential equations, modeling, analysis.

8.2.2. Supervision

Edouard Ollier and Mathilde Giacalone is supervised by Emmanuel Grenier, Arthur Marly by Paul Vigneaux and Alvaro Mateos Gonzalez by Vincent Calvez.

REO Project-Team

10. Dissemination

10.1. Promoting Scientific Activities

10.1.1. Scientific Events Organisation

10.1.1.1. Member of the Organizing Committees

- Matteo Aletti
  - Co-organizer of the monthly Junior Seminar of Inria Paris.
- Laurent Boudin
  - Member of the organizing and scientific committees of the "Recent advances in kinetic equations and applications" workshop, June 2016, Paris
  - Member of the organizing committee of the 5th "Forum Emploi Maths", December 2016, Paris
- Jean-Frédéric Gerbeau
  - Local organizing Committee of the SIAM conference on Parallel Processing 2016. Paris, France.
- Sanjay Pant
  - Organizing committee member, 5th International Conference on Computational and Mathematical Biomedical Engineering (CMBE) 2017
- I. Vignon-Clementel
  - Organized a minisymposium at the COSINE conference, May 25th-26th, Bordeaux, France
  - Organized a minisymposium at the ECCOMAS congress, June 4th-9th, Crete, Greece
  - Programme committee member, Computational and Mathematical Biomedical Engineering Conference
  - Conference steering committee, International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease, 2015-present

10.1.2. Scientific Events Selection

10.1.2.1. Reviewer

- Jean-Frédéric Gerbeau
  - Member of the Scientific Program Committee of the Millennium Science Initiative, a program of the Ministry of Economy of Chile.
  - Expert for Horizon2020 FET OPEN RIA Call 2015/2.
- Irene Vignon-Clementel
  - Expert for “Appel à projets générique”, ANR 2016.
- Marina Vidrascu
  - Expert for FONDECYT - Chile “Projects for Initiation in Research” 2016

10.1.3. Journal

10.1.3.1. Member of the Editorial Boards

- Jean-Frédéric Gerbeau

  - Editor-in-Chief of Mathematical Modelling and Numerical Analysis (M2AN), SMAI/EDP Sciences.
  - Series editor of “SEMA SIMAI Series”, Springer.
  - Member of the editorial board of Journal Advances in Computational Mathematics (ACOM), Springer
  - Member of the editorial board of International Journal for Numerical Methods in Biomedical Engineering (IJNMBE), Wiley.
  - Member of the editorial board of Communications in Applied and Industrial Mathematics, SIMAI/De Gruyter.
  - Member of the editorial board of Journal for Modeling in Ophthalmology, Kugler.
- Marc Thiriet
  - Member of the editorial board of Digital Medicine

10.1.4. Research Administration

- Laurent Boudin
  - Expert evaluator for ANVUR (VQR 2011-2014), Italy
  - Member of the Board of Mathematics Licence (EFU de Licence de mathématiques), UPMC
  - Member of the think-tank for third-year programs in Mathematics at UPMC.
  - Member of the IREM (Institutes for Research on Mathematics Teaching) Scientific Committee.
  - Member of the SMAI (French Society for applied and industrial mathematics) Teaching Committee.
- Muriel Boulakia
  - Supervisor of the teaching of mathematics at the engineer school Polytech Paris-UPMC
- Miguel Ángel Fernández Varela
  - Co-president of the Scientific Positions Commission, Inria Paris
- Jean-Frédéric Gerbeau
  - Service activity at Inria: Délégué Scientifique / Chairman of the project-teams’ committee of Inria Paris research center; Member of the Inria Evaluation Committee.
  - Service activity in other French institutions: member of the scientific committee of Labex NUMEV, Montpellier.
  - Service activity abroad: member of the Reference Committee of the PhD program Mathematical Models and Methods in Engineering (Politecnico di Milano, Italy).
- Céline Grandmont
  - Member of the Evaluation Committee Inria (2015–)
  - Head of the HCERES evaluation Jury of Imath lab. Toulon Univ.
- Marc Thiriet
  - Vice-President & Council Member of the International Society of Digital Medicine
- I. Vignon-Clementel
  - Organizing the monthly seminar at Inria Paris on “modeling and scientific computing”, now joint seminar "Rencontres Inria-LJLL en calcul scientifique" (until June 2016)
  - Committee member for PhD students at Inria "Commission consultative des doctorants", since July 2016.
  - Mediator between PhD students and their supervisors for Inria Paris-Rocquencourt

10.1.5. Conferences

- Matteo Aletti
  - Minisymposium talk, SIMAI2016, Sep 13-16, 2016 Milano, Italy
  - Minisymposium talk, ECCOMAS Congress 2016, Jun 5-10, 2016, Crete, Greece
  - Presentation at REVAMMAD (EU Marie Curie ITN) meeting, Jun 2016, Lincoln, UK
- Rodolfo Araya
  - Seminar, Laboratoire de Mathématiques de Besançon, Université de Franche-Comté, Besançon, May 26
  - Seminar, Groupe de Modélisation Mathématique, Mécanique et Numérique, Université de Caen Basse-Normandie, Jun 6
  - Minisymposium talk, The Mathematics of Finite Elements and Applications 2016 (MAFELAP 2016) conference, Jun 14-17, London, UK
- Chloé Audebert
  - Seminar, Journée interne du Laboratoire Jacques-Louis Lions, Nov 16, 2016, Paris, France.
  - Seminar, BioMécanique et BioIngénierie (BMBI), UTC, Nov 15, 2016, Compiègne, France.
  - Minisymposium talk,Word Congress on Computational Mechanics (WCCM), Jul 24-29, 2016, Seoul, Korea
  - Minisymposium talk, European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS), Jun 5-10, 2016, Crete Island, Greece
  - Open Brain in HPB Surgery, Club Innovation ACHBT, Jun 3-5, 2016, Carnac, France.
  - Congrès National d'Analyse Numérique (CANUM), May 9-13, 2016, Obernai, France
  - Talk, Saint-Antoine hospital, May 3, 2016, Paris, France
- Laurent Boudin
  - Seminar, Applied Mathematics, Department of Mathematics and Informatics, Univ. Novi Sad, Serbia, July 2016
- Muriel Boulakia
  - Workshop ANR IFSMACS, Toulouse, Nov 2016
  - Invited talk, Workshop Carleman estimates, unique continuation, University College of London, Nov 2016
  - Seminar LMAC, Compiègne, Oct 2016
  - Workshop Mathematics and Health, LJLL, UPMC, May 2016
  - Workshop ANR IFSMACS, Paris, Mar 2016
  - Seminar PDE, IECL, Nancy, Feb 2016
- Miguel Ángel Fernández Varela
  - Invited Speaker IWH Symposium on Simulation and Optimization of Extreme Fluids, Oct 2016, Heidelberg, Germany
  - Minisymposium talk, The Mathematics of Finite Elements and Applications 2016 (MAFELAP 2016) conference, Jun 14-17, London, UK
  - Invited Speaker, Workshop on geometrically unfitted finite element methods, Jan 6-8, 2016, London, UK
- Jean-Frédéric Gerbeau

  - Invited lecturer, CISM-ECCOMAS International Summer School (6 hours), June 2016, Udine, Italia.
  - Invited lecturer, "Numerical methods for PDEs", Institut Henri Poincaré (9 hours), Oct 2016, Paris, France.
  - Invited speaker, Workshop: Mathematical Modeling in Cardiovascular Healthcare, Oct 2016, Emory University, USA
  - Invited speaker, Workshop "Boundary layer and Fluid-Structure Interaction", Jan 2016, Bordeaux, France.
  - Invited speaker, 2d conference "Mathematical Modelling of Complex Systems", Dec 2016, Châtenay Malabry, France.
  - Seminar at Collège de France, Pierre-Louis Lions chair, May 2016, Paris, France.
  - Minisymposium talk, European Congress of Mathematics (ECM), July 2016, Berlin, Germany.
  - Minisymposium talk, World Congress of Computational Mechanics (WCCM), July 2016, Seoul, Korea.
  - Minisymposium talk, SIMAI conference, Sep 2016, Milan, Italy.
- Céline Grandmont
  - Invited Speaker IWH Symposium on Simulation and Optimization of Extreme Fluids, Oct 2016, Heidelberg, Germany
  - Seminar, Ecole Centrale, Apr 2016
  - Invited Speaker, Journées Jeunes Edépistes, Mar 2016, Bordeaux
  - Invited Speaker, Boundary Layers and Fluid-Structure Interactions, Jan 2016, Bordeaux
- Mikel Landajuela
  - Seminar, Séminaire d'analyse numérique, Université de Genève, Mar 8, 2016, Geneva, Switzerland
- Damiano Lombardi
  - Invited talk, ALGORITMY 2016, Mar 13-18, 2016, Podbaske, Slovakia
  - Invited talk, SIMAI 2016, Sep 13-16, 2016, Milano, Italy
  - Contributed talk, Workshop on Reduced Order Modeling, Nov 7-10, 2016, Institut Henri Poincaré, Paris
- Sanjay Pant
  - Contributed talk, The 12th World Congress on Computational Mechanics (WCCM XII), Jul 2016, Seoul, Korea
  - Contributed talk, 5th International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease, Jun 2016 , Orlando, Florida, USA
  - Contributed talk, Computational modeling in healthcare: Making confident predictions in a world of error and uncertainty, Apr 2016, Glasgow, UK
- Nicolas Pozin
  - Minisymposium talk, European Congress on Computational Methods in Applied Sciences and Engineering - ECCOMAS 2016, Jun 5-10, 2016, Creta, Greece
- Marc Thiriet
  - Invited Speaker, 6th Annual Academic Congress of Chinese Society of Digital Medicine and1st International Conference on Digital Medicine & Medical 3D Printing, Jun 17-19, 2016, Nanjing, China

  - Minisymposium talk, 16th International Society for Therapeutic Ultrasound (ISTU), Mar 14-16, 2016, Tel-Aviv, Israel
- Alexandre This
  - Seminar, Inria Paris Junior Seminar, Oct 18, 2016, Paris
- Eliott Tixier
  - Minisymposium talk, SIAM Conference on Uncertainty Quantification, Apr 5-8, 2016, Lausanne, Switzerland
- Irene Vignon-Clementel
  - Seminar, Paul Brousse Hospital, Nov 18th, Villejuif, France
  - Seminar, DKFZ, Nov 15th, Heidelberg, Germany
  - Invited talk, SimInhale workshop, Oct 17th-19th, Prague, Czech Republic
  - Invited talk, GRIC Journées Françaises de Radiologie, Oct 13th, Paris, France
  - Minisymposium talk, CMBBE conference, September 20th-22nd, Tel Aviv, Israel
  - Seminar, Dassault Systems, July 20th, Velizy-Villacoublay, France
  - Minisymposium talk, SIAM Conference on the Life Sciences, July 11th-14th, Boston, USA
  - Presentation for the Chinese Academy of Science, June 29th, Paris, France
  - Invited talk, Inria National Scientific Days, June 20th-22th, Rennes, France
  - Invited talk, International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease, June 9th-10th, Orlando, USA
  - Minisymposim Keynote, ECCOMAS congress, June 4th-9th, Crete, Greece
  - Minisymposium talk, COSINE conference, May 25th-26th, Bordeaux, France
  - Presentation, Demi-journée Math-Industrie, LJLL-UPMC, May 10th 2016, Paris, France
  - Invited Keynote, Computational modelling in healthcare: Making confident predictions in a world of error and uncertainty (workshop), April 26th 2016, Glasgow, UK
  - Minisymposium talk, UQ SIAM conference, EPFL, April 5th-8th, 2016, Lausanne, Switzerland
  - Invited talk, workshop: towards a unified framework for benchmarking multicellular models and modelling/simulation software, Leipzig University, March 14th-16th, 2016, Leipzig, Germany
  - Podium talk, The 8th International Bio-Fluids Symposium, February 12-14, 2016, CaltechTech, Pasadena, USA
  - Seminar, Department of Mechanical Eng., UC at Berkeley, Feb. 10th, 2016, Berkeley, USA
  - Seminar, HeartFlow company, Feb. 9th, 2016, Mountain View, USA

10.2. Teaching - Supervision - Juries

10.2.1. Teaching

Licence :

- Ludovic Boilevin-Kayl
  - Calculus, 60h, L1, UPMC
- Laurent Boudin
  - Introduction to series for signal theory, 18h, L2, UPMC

  - Shared studies supervision in mathematics licence for approximately 500 students, 48h, L2-L3, UPMC
- Muriel Boulakia
  - Scilab, 35h, L2, UPMC
  - Nonlinear systems and optimization, 35h, L3, Polytech'Paris
  - Hilbertian analysis, 50h, L3, Polytech'Paris
  - Oral tests in numerical analysis, 20h, L3, UPMC
- Miguel Ángel Fernández Varela
  - Analysis and Scientific Computing, 30h, L3, ENPC
- Jean-Frédéric Gerbeau
  - Numerical Analysis and Optimization, 32h, L3, Ecole Polytechnique.
- Céline Grandmont
  - Ordinary differential equations, 24h, L3, UPMC
- Damiano Lombardi
  - Numerical Methods, 48h, L3, Polytech'Paris
- Eliott Tixier
  - Linear algebra, 60h, L2, Polytech'Paris
- Irene Vignon-Clementel
  - Mathematics for biology, 54h, L1, Université de Versailles Saint Quentin
  - Numerical simulations of blood flow, 1h30, as part of the undergraduate "continuum mechanics", AgroParisTech

Master :

- Laurent Boudin
  - Basics for numerical methods, 36h, M1, UPMC
- Muriel Boulakia
  - Preparatory course for teaching admission examination "Agrégation", 15h, M2, UPMC
- Miguel Ángel Fernández Varela
  - Numerical methods for bio-fluids simulation, 9h, M2, Universidade de Vigo, Spain
- Irene Vignon-Clementel
  - Modélisation hémodynamique & simulation numérique comme outil pour la chirurgie, 1h, M2, Université Paris Sud
- Jean-Frédéric Gerbeau
  - Numerical methods in hemodynamics (20h), M2, UPMC / Univ Paris-Sud / Ecole Polytechnique.
  - Seminar for M2 students of the master "Math SV" (1h), M2, Univ Paris-Sud, December, 2015
  - Seminar for M2 students at Ecole des Mines (3h), Paris, February, 2015

10.2.2. Supervision

HdR : Irene Vignon-Clementel, *Blood and air flow multi-scale simulations based on real data*, defended on March 31, 2016

PhD in progress: Chloé Audebert, *Modeling of liver hemodynamics*, since October 2013. Supervisors: J.-F. Gerbeau & I. Vignon-Clementel.

PhD : Francesco Bonaldi, *Modélisation Mathématique et Numérique de Multi-Structures avec couplage Magnéto-Electro-Thermo-Elastique*, defended on July 6, 2016. Supervisors: F. Krasucki & M. Vidrascu

PhD : Mikel Landajuela, *Coupling schemes and unfitted mesh methods for fluid-structure interaction*, defended in March 29, 2016. Supervisor: M.A. Fernández Varela.

PhD in progress: Matteo Aletti, *Multiscale retinal vascular modeling*, since January 2014. Supervisors: J.-F. Gerbeau & D. Lombardi.

PhD in progress: Eliott Tixier, *Stem cells electrophysiology*, since September 2014. Supervisors: J-F. Gerbeau & D. Lombardi.

PhD in progress: Nicolas Pozin, *Multiscale lung ventilation modeling in health and disease*, since March 2014. Supervisors: C. Grandmont & I. Vignon-Clementel.

PhD in progress: Andrea Bondesan, *Kinetic and fluid models, numerical and asymptotic analysis*, since October 2015. Supervisors: L. Boudin, B. Grec & S. Martin.

PhD in progress: Ludovic Boilevin-Kayl, *Modeling of cardiac implantable devices*, since February 2016. Supervisors: J.-F. Gerbeau & M.A. Fernández Varela

PhD in progress: Alexandre This, *Fusion data/simulation for the assessment of mitral regurgitation*, since January 2016. Supervisor: J.-F. Gerbeau

PhD in progress: Chen-Yu Chiang, *Transport on biological systems and some applications*, since February 2016. Supervisor: M. Thiriet

10.2.3. Juries

- Laurent Boudin
  - PhD committee: Alexandra de Cecco, Université Paul Sabatier (referee), Anthony Preux, Université Paris-Saclay
- Muriel Boulakia
  - PhD committee: Andjela Davidovic, Inria Bordeaux Sud-Ouest; Ibtissem Ben Aïcha, Université d'Aix-Marseille
- Miguel Ángel Fernández Varela
  - PhD committee: Moctar Ndiaye, Université Paul Sabatier (president), Davide Baroli, Politecnico di Milano, Simone Brugiapaglia, Politecnico di Milano; Rocco M. Lancellotti, Politecnico di Milano (referee); Paolo Pacciarini, Politecnico di Milano
- Jean-Frédéric Gerbeau
  - PhD committees: Julien Sigüenza, Univ Montpellier (referee). Anna Tagliabue, Politecnico di Milano (referee).
  - Hiring committee: Inria Bordeaux (CR2); Inria Paris (CR2).
- Céline Grandmont
  - Hiring committee: Rennes Univ. (Professor position), Marseille Univ. (Professor position)
  - PhD committee: M. Ndiaye, Université Paul Sabatier (president), B. Polizzi, Univ. de Nice (referee), B. Burtschell, Ecole Polytechnique (referee), P. Jounieaux, UPMC (president)
  - Member of the «Agrégation» Jury in mathematics
- Marc Thiriet
  - PhD committee: M. Haddadi, Université Paris Est–Créteil (referee)
- Marina Vidrascu

  - PhD committee: F. Bonaldi, Université de Montpellier; M Hédi, Tunis El-Manar & UPMC; F. Cheick, Tunis El-Manar & UPMC
- Irene Vignon-Clementel
  - PhD committee: Gabrielle Fournet, CEA & Université Paris-Saclay (referee)

10.3. Popularization

- Céline Grandmont
  - Conference : "Filles et Maths : une équation lumineuse", 60 students secondary school level, Feb 2016
  - Popularization paper with J.-F. Gerbeau : "Maths, médecine et entreprises : des collaborations gagnantes", brochure Maths Société Express, 2016
  - Conference "Métier": Master 1 Maths students, UPMC, Nov 2016
- Irene Vignon-Clementel
  - Telerama, Interview (Richard Senejoux), Mar 10, 2016
  - Presentation, Inauguration of Inria Paris research center in presence of the Minister of Research and presidents of Universities, ANR, EPST, media, etc. Mar 10, 2016, Paris
  - High school conference, Mar 14, 2016, Lycée St François d'Assise, Montigny le Bretonneux