RESEARCH CENTER

FIELD
Digital Health, Biology and Earth

Activity Report 2014

Section Dissemination

Edition: 2015-03-24

ABS Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific Events Organisation

7.1.1.1. general chair, scientific chair

- F. Cazals co-organized, with C. Robert (IBPC/CNRS, Paris) and J. Cortés (LAAS/CNRS, Toulouse), the Winter School *Modeling Large Macromolecular Assemblies*, held in Sophia-Antipolis on 8-12 December 2014. The school featured lectures by Gerhard Hummer (Max Plack Institut fur Biophysik / Theoretical Biophysics, Frankfurt), Dmitri Svergun (European Molecular Biology Laboratory, Hamburg), Haim Wolfson (Tel Aviv University), and Riccardo Pellarin (UCSF / Institut Pasteur Paris), and FrédéricCazals. The event gathered 40 students from all over the world. See details at http://algosb2014.inria.fr/.

7.1.2. Scientific Events Selection

7.1.2.1. member of the conference program committee

F. Cazals was member of the following program committees:

- Symposium On Geometry Processing
- ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

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

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

7.2.2. Supervision

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

(PhD thesis, ongoing) A. Lheritier, *Scoring and discriminating in high-dimensional spaces: a geometric based approach of statistical tests*, University of Nice Sophia Antipolis. Advisor: F. Cazals.

(PhD thesis, ongoing) D. Agarwal, *Towards nano-molecular design: advanced algorithms for modeling large protein assemblies*, University of Nice Sophia Antipolis. Advisor: F. Cazals.

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

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

7.2.3. Juries

- Didier Devaurs, University of Toulouse, October 2014. Rapporteur on the PhD thesis *Extensions of Sampling-based Approaches to Path Planning in Complex Cost Spaces: Applications to Robotics and Structural Biology*. Advisor: Juan Cortés
- Juan Cortés, University of Toulouse, April 2014. Rapporteur on the Habilitation thesis *Algorithmics of motion: from robotics, through structural biology, towards atomic-scale CAD*.

AMIB Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific events organisation

7.1.1.1. General chair, scientific chair

Yann Ponty

PARC 2014 (PIMS Analytic RNA Combinatorics meeting), Simon Fraser University (Vancouver, Canada)

Christine Froidevaux and Adrien Rougny

Franco-Japanese Workshop 2014: "Logic Based Methods for Systems Biology". This workshop has been organized at PCRI (Orsay, France) from October 6th to October 8th, 2014. There were 14 participants coming from the following institutions: National Institute of Informatics (Tokyo, Japan), Yamanashi University (Yamanashi, Japan), Tokyo Institute of Technology (Tokyo, Japan), Inria AMIB (LRI, France), Institut de Recherche en Communication et Cybernétique de Nantes (Nantes, France), INRA - Centre de Val de Loire (Nouzilly, France) and Laboratoire d'Informatique de Paris 6 (Paris, France). This workshop took place in the context of a National Institute of Informatics (NII) Collaborative Research Project on "Food and Health with Information Technology".

7.1.2. Scientific events selection

7.1.2.1. Chair of conference program committee

Yann Ponty

CMSR 2014 (Computational Methods for Structural RNAs). Satellite event of ECCB'14 (Strasbourg, France).

Loïc Paulevé

SASB 2014 (5th international workshop on Static Analysis and Systems Biology), Munich (Germany)

7.1.2.2. Member of the conference program committee

Sarah Cohen-Boulakia

DILS 2014 (Data integration in the life sciences)

TAPP 2014 (Theory and Practice of Provenance)

SWEET 2014 (Int. sigmod Workshop on scalable workflow enactment engines and technologies)

Alain Denise

ECCB 2014 (European Conference on Computational Biology)

CARI 2014 (African Conference on Research in Computer Science and Applied Mathematics)

CMSR 2014 (Computational Methods for Structural RNAs). Satellite event of ECCB'14 (Strasbourg, France).

Sabine Peres

ECCB 2014 (European Conference on Computational Biology)

Yann Ponty

ECCB 2014 (European Conference on Computational Biology)

ISMB 2014 (International conference on Intelligent Systems for Molecular Biology)

BICOB 2014 (International Conference on Bioinformatics and Computational Biology)

BIOVIS 2014 (Symposium on Biological Data Visualization)

7.1.2.3. Reviewer

Yann Ponty

LATIN 2014 (Latin American Theoretical INformatics Symposium)

Loïc Paulevé

FORMATS 2014 (Formal Modelling and Analysis of Timed Systems)

7.1.3. Journal

7.1.3.1. Member of the editorial board

Sarah Cohen-Boulakia

Journal of Data Semantics (Springer)

Alain Denise

Mathematics of Bio-molecules, speciality of the journal Frontiers in Molecular Biosciences (Ed. Frontiers).

Technique et Science Informatiques (Ed. Hermès)

Yann Ponty

Mathematics of Bio-molecules, speciality of the journal Frontiers in Molecular Biosciences (Ed. Frontiers).

7.1.3.2. Reviewer

The members of the team reviewed numerous papers for numerous journals, including: Bioinformatics, BMC Bioinformatics, RNA, Nucleic Acids Research, 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, Theoretical Computer Science...

7.1.4. Team seminar

The team seminar, organized by Loïc Paulevé and Sabine Peres, hosted 10 talks delivered by invited speakers from multiple institutions in France and abroad, including:

Alexander Bockmayr (Freie Universität Berlin)

Jan Holub (CTU Prague)

Philippe Icard (BIOTICLA Caen)

Anne Siegel (IRISA)

Denis Thieffry (IBENS)

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 BIBS (Bioinformatique et Biostatistique) at Université Paris-Sud/École Polytechnique and the parcours d'Approfondissement en Bioinformatique at École Polytechnique. We are also involved in a student partnership with McGill University (partenariat France Quebec offering French and Canadian students co-supervised internships (short term -3 to 6 months- or long term -part of the PhD studies-). J.-M. Steyaert is involved in the development of an interdisciplinary cooperation between Polytechnique and AP-HP that will favor interships of Polytechnicians and Masters students in AP-HP operational services.

Ch. Froidevaux is a member of the Scientific Committee of the Computer Science Doctoral School of Paris-Sud University.

Ch. Froidevaux is co-heading the Master (M1 and M2) at the University Paris Sud. At Ecole Polytechnique, J.-M. Steyaert was in charge of M1 and M2 until october 2014. M. Régnier is now in charge. Most team members are teaching in this master.

J.Bernauer was appointed *Chargé d'enseignement* in the Computer Science Department of École Polytechnique (DIX) in 2013.

Master BIBS: J. Bernauer, Informatique théorique et Programmation Python, 20h, M2, Université Paris-Sud, France

Master BIBS: M. Régnier and J.-M. Steyaert, Combinatoire, Algorithmes, Séquences et Modélisation (CASM), 32h, M2, Université Paris-Sud, France

Master : M. Régnier, Basic Algorithms in Computational Biology, 4h, M2, MIPT, Russia.

Cycle Ingénieur Polytechnicien: M. Régnier, Modal Bioinformatique, 8h, 2ème année, École Polytechnique, France

7.2.2. Supervision

PhD

Adrien Guilhot-Gaudeffroy (co-supervised by Ch. Froidevaux, and J. Bernauer, AMIB and J. Azé LIRMM) has defended his PhD thesis (29/09/2014) https://hal.archives-ouvertes.fr/tel-01081605

PhD in progress

Mélanie Boudard, *Game theory and stochastic learning for predicting the three-dimensional structure of large RNA molecules*, Univ. Paris XI, Encadrant(els): D. Barth (Univ. Versailles), J. Cohen (CNRS, LRI) and A. Denise.

Bryan Brancotte, *Ranking biological and biomedical data: algorithms and applications*, Université Paris Sud, 01/10/2012, Encadrants: S. Cohen-Boulakia and A. Denise.

Alice Heliou, *Identification et caractérisation d'ARN circulaires dans des séquences NGS*, Ecole Polytechnique, Encadrants: Mireille Régnier et H. Becker

Amélie Heliou, *Game theory and conformation sampling for multi-scale and multi-body macromolecule docking* , Ecole Polytechnique, Encadrantes: J. Bernauer and J. Cohen

Daria Iakovishina, *A Combinatorial Approach to Assembly Algorithm*, Inria, Encadrante: Mireille Régnier

Vincent Le Gallic, *Design de structures secondaires avec contraintes de séquences : une approche globale fondée sur les langages formels*, Univ. Paris Sud. Encadrants: A. Denise and Y. Ponty

Cécile Pereira, *Nouvelles approches bioinformatiques pour l'étude à grande échelle de l'évolution des activités enzymatiques*, Univ. Paris XI, Encadrants: Olivier Lespinet and Alain Denise

Adrien Rougny, *Reasonings on biological knowledge to build and analyze signalling networks*, Univ. Paris Sud. Encadrante: Ch. Froidevaux

Antoine Soulé, *Evolutionary study of RNA-RNA interactions in yeast, Ecole Polytechnique*, Encadrants: J.-M. Steyaert and J. Waldispuhl (University McGill, Canada).

7.2.3. Juries

Expertise

S. Cohen-Boulakia acted as an external expert in the ERC Consolidator Grant, panel 'Computer Science and Informatics'

Y. Ponty is a member of the 'Comité National' (hiring/evaluation committee) of CNRS in computer science (section 6) and bioinformatics (cid 51); he acted as an external expert for the Emergence program of Ville de Paris, and for the JCJC program of ANR.

M. Régnier was a member of PES/PEDR attribution juries for INRIA and CNRS. She is a member of DIGITEO progam Committee and SDV working group in Saclay area. She acted as an external expert for regional initiatives.

A. Denise was a member of the HCERES evaluation committee of INRA MIAT Unit.

Hiring committees

Maitre de conferences, Paris Sud, 2014 Computer Science department: Sarah Cohen-Boulakia, Sabine Peres, Christine Froidevaux;

Professeur, Bordeaux, 2014, Computer Science department: Alain Denise;

CR2, INRIA-IDF: M. Régnier;

CR2, INRIA-RENNES: M. Régnier;

PhD juries

M. Folschette (Nantes U.) : M. Régnier;

N. Obeid (Toulouse U.): Ch. Froidevaux;

S. Videla (Rennes U.): Ch. Froidevaux;

R. Champeimont (Pierre et Marie Curie U.): A. Denise;

D. Symeonidou (Paris-Sud U.): A. Denise;

A. Jacquot (Paris-Nord U.): A. Denise;

HDR juries

Ch. Sinocquet (Nantes U.): Ch. Froidevaux

M. Smail (Nancy U.): Ch. Froidevaux

P. Amar (Paris-Sud U.) : A. Denise

A. Allauzen (Paris-Sud U.) : A. Denise

F. Tahi (Evry U.) : M. Régnier;

J. Bernauer (Paris-Sud U.) : Ch. Froidevaux, J.-M. Steyaert

7.3. Popularization

Y. Ponty authored the pop. sci. paper *Bio-algorithmique des ARN : petite promenade aux interfaces* [31] for *1024*, the journal of the French society of computer science (SIF).

BAMBOO Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. General chair, scientific chair

Cristina Vieira is director of the GDRE "Comparative genomics" since the GDRE was renewed in 2010. Marie-France Sagot co-organised the Colloquium *EMOTIONS 2014* (http://emotions2014.sciencesconf.org/) as well as the International School *ADDICTION 2014* (http://team.inria.fr/bamboo/en/events/school-addiction/). She is also since 2010 member and since 2014 Chair of the Steering Committee of the International Conference *LATIN* (http://www.latintcs.org/). She is since member of the Steering Committee of the *European Conference on Computational Biology* (*ECCB*).

8.1.2. Scientific events selection

8.1.2.1. Member of the conference program committee

Marie-France Sagot was a member of the program committee for the following international conferences in 2014: 22nd Annual International Conference on Intelligent Systems in Molecular Biology (ISMB), Prague Stringology Conference 2014 (PSC), 18th Annual International Conference on Research in Computational Molecular Biology (RECOMB), 12th RECOMB Comparative Genomics 2014 (RECOMB-CG), RECOMB Satellite Workshop On Massively Parallel Sequencing (RECOMB-SEQ), 14th Workshop on Algorithms in Bioinformatics (WABI).

8.1.2.2. Reviewer

Besides the above, various other members of BAMBOO have been reviewer for conferences. These include Christian Baudet, Laurent Bulteau, Vincent Lacroix, Arnaud Mary, Gustavo Sacomoto, and Blerina Sinaimeri.

8.1.3. Journal

8.1.3.1. Member of the editorial board

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*.

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

Susan Higashi was reviewer for *Algorithms for Molecular Biology*, and *Evolutionary Bioinformatics*. Vincent Lacroix was reviewer for *BMC Genomics*, *PLoS Computational Biology*, and *Methods*. Gustavo Sacomoto was reviewer for *Bioinformatics*, and *BMC Bioinformatics*. Fabrice Vavre was reviewer for *PLoS Biology*, *Genome Biology and Evolution*, *Applied and Environmental Microbiology*, *Journal of Applied Entomology*, *Symbiosis*, *Microbiology*, *Bulletin of Entomological Research*.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

The members of BAMBOO teach both at the Department of Biology of the University of Lyon (in particular within the MIV (Mathematics and Computer Science for the Life Sciences) specialty) and at the department of Bioinformatics of the Insa (National Institute of Applied Sciences). 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 École Normale Supérieure. 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. Vincent Lacroix is responsible for several courses both at the University (L2 Bioinformatics, L3 Advanced Bioinformatics) and at the Insa (M1: Gene Expression, M2:Introduction to Bioinformatics for Biochemists). He teaches 192 hours per year, except in 2013-2014 where he taught 120 hours as he had a partial sabbatical funded by Inria (through the ERC AdG Sisyphe grant). He teaches bioinformatics and statistics. Arnaud Mary who was recruited in October as an Associate Professor taught (and will teach) 150 hours in 2014-2015 (L1: mathematics; L2: bioinformatics; M1: data analysis; M1: computer science) as he has a one-year partial sabbatical as a recently recruited personnel of the University of Lyon. Fabrice Vavre taught approximately 20 hours in different Master 2 courses in Lyon, Poitiers and Amiens.

Alice Julien-Laferrière taught 114 hours of Applied Mathematics and Bioinformatics at the Department of Biology (undergraduate students), Hélène Lopez-Maestre and Laura Urbini taught each 32 hours of Mathematics and Statistics at the Department of Biology (undergraduate students). Two other PhD students taught more occasionally in 2012-2013: Gustavo Sacomoto taught 16 hours of graph algorithms at the Department of Biology (M1: Bioinformatics), and Mariana Ferrarini taught 23 hours at the Department of Biology (L3: Bioinformatics). The postdocs are also involved in teaching. Cecilia Klein taught 7 hours in 2014 at the IUT / University of Lyon 1, Blerina Sinaimeri taught 17 hours of graph algorithms at the University of Lyon 1 and INSA (M2), and Christian Baudet taught 24 hours of computer science at the University of Lyon 1 (L3) and the INSA (L1).

All members of the BAMBOO team are affiliated to the doctoral school E2M2 (Ecology-Evolution-Microbiology-Modelling).

8.2.2. Supervision

The following are the PhDs defended in BAMBOO in 2014.

Gustavo Sacomoto, University of Lyon 1, March 6, supervisors: P. Crescenzi (Univ. of Florence, Italy), V. Lacroix, and M.-F. Sagot.

Beatrice Donati, University of Lyon 1 and of Florence (Italy), November 12, supervisors: P. Crescenzi (Univ. of Florence, Italy) and M.-F. Sagot.

Pierre-Antoine Rollat-Farnier, University of Lyon 1, November 22, supervisors: L. Mouton, M.-F. Sagot, and F. Vavre.

Susan Higashi, University of Lyon 1, November 24, supervisors: S. Colella, C. Gautier, and M.-F. Sagot.

8.2.3. Juries

- H. Charles: Reviewer of the PhDs of Diana Stefan, University Joseph Fourier, France, and member of the jury for Nicolas Parisot (University Blaise Pascal, Clermont-Ferrand, France) and Sylvain Prigent (Inria/Irisa Rennes).
- M.-F. Sagot: Reviewer of the PhDs of Kimon Froussios, King's College, London, UK, and of Caroline Baroukh, University of Perpignan, Narbonne, France.
- F. Vavre: Member of the jury for the PhDs of: Myriam Badaoui, Université de Poitiers, France; Wen-Juan Ma, University of Groningen, The Netherlands. He was reviewer for the HDR of Olivier Duron, Université de Montpellier 2, France.

- C. Vieira: Member of the jury for the PhDs of: Maialen Sistiaga, Université du Pays Basque, Bilbao; Pierre-Antoine Rollat-Farnier, Université Lyon 1; Laetitia Delabaere, Université Lyon 1; Guillaume Minard, Université Lyon1; Yann Lesecque, Université Lyon1; Antoine Bridier-Nahmias, Paris VI; Abdelhakim Negoua, Université de Marrakech, Marrakech, Maroc. Reviewer of the PhDs of Frank Touret, EPHE, Lyon, and of Domitile Chaloppin, ENS Lyon. Member of the HDR jury of Abderrahman Khila, ENS Lyon.

BEAGLE Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific events organisation

7.1.1.1. general chair, scientific chair

- Guillaume Beslon is a member of the Comité National de la Recherche Scientifique (CoNRS), section 6 (computer science) and CID 51 (interdisciplinary commission, Bioinformatics, Biophysics, Biomathematics)
- Guillaume Beslon is a member of the direction committee of the Rhône-Alpes Institute of Complex Systems (IXXI)
- Hugues Berry is the President of the hiring committee for "young researchers" (CR2), Inria Grenoble Research Center, 2014.
- Hugues Berry is a Member of Inria's Evaluation Committee (Commission d'Evaluation)
- Hugues Berry is a Member of the Inria's Administrative Committee (Commission Administrative Paritaire)
- Eric Tannier is an elected member of the administration council of Inria.
- Hugues Berry is a Member of the Science Steering Committee of the Rhône-Alpes Complex Systems Institute (IXXI)
- Hugues Berry is Co-organizer (with M. De Pittà, BEAGLE) of the workshop "Computational Methods and Modeling of Astrocyte Physiology and Neuron-Glia Interactions", held as part of the conference OCNS (Organization for Computational Neuroscience) 2014 in Quebec, Canada, July 26-31, 2014.

7.1.2. Scientific events selection

7.1.2.1. member of the conference program committee

- Eric Tannier: Recomb Comparative Genomics 2014
- Christophe Rigotti: International Conference on Data Mining
- Christophe Rigotti: Workshop on Spatial Data Mining at the national conference EGC 2014
- Guillaume Beslon and Carole Knibbe: scientific committee of Alife'14 (New-York, July 2014)
- Carole Knibbe: ECCB 2014 (European Conference on Computational Biology)

7.1.2.2. reviewer

- Eric Tannier: LATIN 2014

7.1.3. Journal

7.1.3.1. member of the editorial board

- Hugues Berry: AIMS Biophysics (http://aimspress.com/aimsbpoa/ch/index.aspx/)
- Hugues Berry: the Journal of Complex Systems (www.hindawi.com/journals/jcs/)

7.1.3.2. reviewer

- Eric Tannier: BMC Bioinformatics, BMC Genomics, Theoretical Computer Science, Journal of Bioinformatics and Computational Biology.
- H. Soula: Biophysical Journal, Biosystems, Journal of theoretical Biology
- Carole Knibbe: Journal of Theoretical Biology

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Master : Eric Tannier, Computational Molecular Biology, 30heqTD, M2 ENS Lyon (responsabilité du module)

Master : Eric Tannier, Mathématiques et Informatique pour le Génome, 24heqTD, M1 INSA Lyon

Master : Eric Tannier, Mathématiques Discrètes, 8heqTD, M1 INSA Lyon

Doctorat : Eric Tannier, Comparative Genomics, 4heqTD, Ecole de Printemps d'Informatique Théorique, Oléron

Licence: Jonathan Rouzaud-Cornabas, Programmation Orienté Objet - C++, 48.5h, L3, INSA de Lyon, France

Master: Jonathan Rouzaud-Cornabas, Interface Homme-Machine, 42.75h, M1, INSA de Lyon, France

Master: Jonathan Rouzaud-Cornabas, Systèmes d'Exploitation Avancés, 59.87h, M1, INSA de Lyon, France

Licence: Christophe Rigotti, Imperative Programming, 39h L1 and 47h L2, Department 1er cycle of INSA-Lyon.

Licence: Christophe Rigotti, Object-Oriented Programming, 47h, L2, Department 1er cycle of INSA-Lyon.

Licence: Christophe Rigotti, Computer Simulation, 24h, L2, Department 1er cycle of INSA-Lyon.

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

Licence : Guillaume Beslon, architecture des ordinateurs, 150heqTD, INSA-Lyon

Master : Guillaume Beslon, informatique bioinspirée, 30heqTD, M2 INSA Lyon et M2 Lyon 1

Master : Guillaume Beslon, biologie computationnelle, 9heqTD, M2 INSA Lyon

Licence H. Soula Software Development L3 90h INSA LYON

Licence H. Soula Linear Algebra L3 45h INSA LYON

Licence H. Soula Biology Modelling L3 45h INSA LYON

Master H. Soula Numerical Optimization M1 12h

Master H. Soula Computational Biology M2 30h

7.2.2. Supervision

PhD: Jules Lallouette, Modélisation des réponses calciques de réseaux d'astrocytes: relation entre topologie et dynamiques, INSA Lyon, dec 4th 2014, H. Berry

PhD in progress: Alexandre Foncelle, Modeling the signaling pathway implicated in STDP: the role of endocannabinoid and dopamine signaling, 2014, H. Berry

PhD in progress: Sergio Peignier, Conception d'algorithmes de fouille de données exploitant des mécanismes inspirés de l'évolution, INSA de Lyon, started in September 2014, Christophe Rigotti and Guillaume Beslon.

PhD in progress: Alvaro Mateos Gonzalez, Anomalous subdiffusion equations as diffusion limits to integro PDEs with age structure. 2014. co-supervised by H. Berry (30%) with Vincent Calvez (EPI Numed) and Thomas Lepoutre (EPI Dracula).

PhD in progress: Ilya Prokin, Modeling and simulation of signal transduction in living cells: synaptic plasticity of basal ganglia neurons, 2013, H. Berry

PhD in progress : Magali Semeria, Modèles d'évolution de relations entre les gènes, 2012, Eric Tannier, Laurent Gueguen

PhD in progress : Wandrille Duchemin, Phylogénie des dépendances, dépendances des phylogénies, 2014, Eric Tannier, Vincent Daubin

PhD in progress : Yoann Anselmetti, Evolution de la structure des génomes même mal assemblés, 2014, Eric Tannier, Sèverine Bérard

PhD in progress : Priscila Biller, Phylogenies of artificial lineages, 2012, Joao Meidanis (1 year internship supervised by Eric Tannier)

PhD in progress: Arnaud Lefray, Information Flow Protection on Cloud Infrastructure, 2012, INSA CVL et ENS Lyon, Eddy Caron, Jonathan Rouzaud-Cornabas, Christian Toinard

PhD in progress : Charles Rocabert, modélisation de l'évolution de l'évolution, 2013, Guillaume Beslon, Carole Knibbe

PhD in progress : Yoram Vadée-le-Brun, évolution des réseaux de régulation, 2013, Guillaume Beslon, Jonathan Rouzaud-Cornabas

PhD : Bérénice Batut, Étude de l'évolution réductive des génomes bactériens par expériences d'évolution in silico et analyses bioinformatiques, soutenue le 21 novembre 2014, Guillaume Beslon, Carole Knibbe, Gabriel Marais, Vincent Daubin.

HdR : Hédi Soula, Signalisation en biologie computationnelle : de la membrane à l'individu, soutenue le 26 mai 2014.

PhD in progress M. Jacquier 'mathematical model of food intake and leptin resistance' 2012-2015 H. Soula and F. Crauste (Dracula)

7.2.3. Juries

- Guillaume Beslon reviewed the manuscript and participated to the defence committee of the HdR of Philippe Lopez, UPMC.
- Guillaume Beslon reviewed the manuscript and participated to the defence committee of the PhD of Colin Raeside, Université de Grenoble
- Eric Tannier reviewed the manuscript and participated to the defense committee of the Ph-D of Antoine Thomas, Inria Lille.
- H. Berry served in the PhD examination committee of Z. Chaker, "Rôle de la signalisation IGF dans la régulation de l'homéostasie tissulaire durant le vieillissement ", Univ. Paris Descartes, December 2014 (examiner)
- H. Soula was in the examination committee of J. Lalouette Modélisation des réponses calciques de réseaux d'astrocytes: relation entre topologie et dynamiques, INSA Lyon, dec 4th 2014
- Cacole Knibbe was a member of the recruiting committee of an assistant professor at INSA.

7.3. Popularization

- Guillaume Beslon published an interview on modeling in "la revue du progres".

BIGS Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. Member of the organizing committee

- Co-organizer of the Journée Fédération Charles Hermite - entreprises, on 2014/01/23, 150 participants and 44 compagnies coming mainly from Lorraine and few of them from Luxembourg (P. Vallois).
- Organizer of the meeting "Around Hidden Markov Chains", at Inria Grand-Est, on 2014/07/08 (P. Vallois).
- Co-organizer of the workshop "PL^{2}US", Nancy, January 2014 (C. Lacaux).
- Organizer of the weekly seminar of the Probability and Statistics group of the Institut Élie Cartan de Lorraine since October 2014 (R. Azaïs).

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

BIGS is a team whose composition included University staff only until October 2014. All members teach numerous courses, ranging from L1 to M2 levels.

- Samy Tindel (192h, Université de Lorraine)
- Thierry Bastogne (192h, Université de Lorraine).
- Sandie Ferrigno (192h, Université de Lorraine)
- Céline Lacaux (192h, Université de Lorraine)
- Jean-Marie Monnez (192h, Université de Lorraine)
- Aurélie Muller-Gueudin (192h, Université de Lorraine)
- Pierre Vallois (192h, University)
- Sophie Wantz-Mézières (192h, IUT)

8.2.2. Supervision

- PhD : Geoffrey Nichil, Provisionnement en assurance non vie pour des contrats à maturité longue et à prime unique - Application à la réforme Solvabilité 2, Université de Lorraine, 2014/12/19. Advisor : P. Vallois, S. Hermmann, M. de Calbiac.

8.2.3. Juries

- PhD comittee : Clémence Chamard-Jovenin, Modélisation du rôle d'ERα36 dans le contrôle de l'initiation et/ou la progression des tumeurs mammaires en réponse aux alkylphénvols, CRAN, Vandœuvre-lès-Nancy, 2014/11/18, examiner: A. Muller-Gueudin.
- PhD Raouf Fakhfakh on 2014/10/02 (Université de Sfax), contribution to the study of Cauchy-Stieltjes kernel families, referee: P. Vallois.
- PhD Raghid Zeineddine, 2014/12/01, Université de Lorraine, Sur des nouvelles formules d'Itô en loi, examiner: P. Vallois.
- PhD : Samuel Ronsin, Régularité et Représentations Localisées de Textures à Phases Aléatoires, MAP 5, Université Paris Descartes, 2014/12/15, examiner: C. Lacaux.

8.3. Popularization

- Fête de la Science, Nancy, École des Mines, 2014/10/17 (A. Muller-Gueudin, S. Tindel, P. Vallois).
- Forum Emploi Maths 4, December 2014 (C. Lacaux).
- Advisor of a group of students, "La main à la Pâte" project, Institut médico-éducatif (IME), Commercy, September-December 2014 (S. Ferrigno).
- Advisor of a group of pupils from Lycée Varoquaux, Tomblaine (Maths en Jeans) (P. Vallois).
- Publication of the short science popularization article “Les huîtres ont des oreilles” in the book “Brèves de maths – Mathématiques de la planète Terre”. Editions Nouveau Monde, 2014 (pages 214–215). Authors: Romain Azaïs, Raphaël Coudret and Gilles Durrieu.
- C. Lacaux is member of the *comité national universitaire (section 26)* (2011–2015).

BONSAI Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. general chair, scientific chair

- Proteomics for omics analysis, 2014/3/2, 35 people
- Integrative biology, 2014/17/12, 60 people

9.1.1.2. member of the organizing committee

- Polaris seminar series (M. Giraud)

9.1.2. Scientific events selection

9.1.2.1. member of the conference program committee

- RECOMB-seq (L. Noé, H. Touzet).
- ECCB'14 poster session (H. Touzet).
- SeqBio 2014 (H. Touzet).

9.1.2.2. reviewer

- Laurent Noé: AFL 2014.

9.1.3. Journal

9.1.3.1. reviewer

- Algorithms for Molecular Biology (L. Noé), Acta Biotheoretica (L. Noé), Bioinformatics (H. Touzet)

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

L. Noé, *Bioinformatics*, 54h, M1 (master "Génomique Protéomique", univ. Lille 1)

L. Noé, *Networks*, 42h, L3 (licence "Computer science", univ. Lille 1)

M. Pupin, M. Salson, *Introduction to programming (OCaml)*, 96h, L1 (licence "Computer science", univ. Lille 1)

M. Salson, *Coding and information theory*, 63h, L2 (licence "Computer science", univ. Lille 1)

J.-S. Varré *Web programming*, 36h, L2 (licence "Computer Science", univ. Lille 1)

J.-S. Varré *Programming with Caml*, 36h, L2 (licence "Sciences for Engineers", univ. Lille 1)

J.-S. Varré *Algorithms and Data structures*, 50h, L2 (licence "Computer science", univ. Lille 1)

J.-S. Varré, *System*, 36h, L3 (licence "Computer science", univ. Lille 1)

M. Salson, *C programming*, 42h, L3 (licence "Computer science", univ. Lille 1)

M. Pupin, M. Salson *Bioinformatics*, 100h, M1 (master "Biology and Biotechnologies", univ. Lille 1)

S. Blanquart, *Algorithms and applications in bioinformatics*, 24h, M1 (master "Computer Science", univ. Lille 1)

V. Leclère *Bioinformatics*, 50h, M2 (master "Transformation Valorisation Industrielles des Agro-ressources", univ. Lille 1)

M. Pupin, J.-S. Varré *Computational biology*, 30h, M2 (master "Modèles complexes, algorithmes et données", univ. Lille 1)

S. Blanquart, *Methods in phylogenetics*, 4h, M2 (master "Ecology Environment", univ. Lille 1)

M. Giraud, *Algorithms for RNA Analysis*, 12h, M2 (master "Bioinformatique et Modélisation", univ. Paris 6)

M. Salson, *Skeptical thinking*, 14h, M2 (master "journalist and scientist", univ. Lille1, ESJ)

J.-S. Varré, *ISN - Computer science for secondary school*, 20h, second-level teachers.

9.2.2. Supervision

PhD in progress: C. Vroland, Indexing data for microRNA and microRNA target site identification in genomes, 2012/10/01, H. Touzet, V. Castric (GEPV), M. Salson

PhD in progress: T. Rocher, Indexing VDJ recombinations in lymphocytes for leukemia follow-up, 2014/11/01, J.-S. Varré, M. Giraud, M. Salson

PhD in progress: P. Pericard, Methods for taxonomic assignation in metagenomics, 2013/11/01, H. Touzet, S. Blanquart.

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: Y. Dufresne, Modèles et algorithmes pour la gestion de la biodiversité des peptides non-ribosomiques et la mise en évidence de nouveaux peptides bioactifs, 2013/10/01, M. Pupin, L. Noé

PhD in progress: L. Siegwald, Bionformatic analysis of Ion Torrent metagenomic data, 2014/01/03, H. Touzet, Y. Lemoine (Institut Pasteur de Lille)

9.2.3. Juries

- Member of the thesis committee of Jérémie Gilliot (Université Lille 1, J.-S. Varré)
- Member of the thesis committee of Trong-Tuan Vu (Université Lille 1, J.-S. Varré)
- Member of the thesis committee of Audrey Vingadassalon (Université Paris Sud, V. Leclère)
- Member of the thesis committee of Safwan Saker (Université de Toulouse, V. Leclère)
- Member of the thesis committee of Valentin Wücher (Université Rennes 1, H. Touzet)
- Member of the thesis committee Susan Higashi (Université Lyon 1, H. Touzet)
- Member of the thesis committee of Mateusz Pawlik (Freie Universität Bozen, H. Touzet)
- Member of the tenure committee of Sylvie Hamel (UQAM, H. Touzet)
- Member of the national Inria CR1 hiring committee (M. Giraud)
- Member of the CR2 hiring committee of Inria Rocquencourt (M. Giraud)
- Member of the McF 27MC1727 committee (Université Pierre et Marie Curie, L. Noé)
- Member of the McF 27/64, poste 0916 committee (Université de Reims, M. Pupin)
- Member of the hiring committee McF of Université Lyon 1 (H. Touzet)

9.2.4. Administrative activities

- National representative (*chargée de mission*) for the Institute for Computer Sciences (INS2I) in CNRS [0]. She is more specifically in charge of relationships between the Institute and life sciences (H. Touzet)

[0] CNRS: National Center for Scientific Research

- Member of the Inria evalution commitee (M. Giraud)
- Member of the Inria local committee for scientific grants (A. Ouangraoua)
- Member of the Inria local committee for technology development (M. Pupin)
- Member of the Gilles Kahn PhD award national commitee (H. Touzet)
- Member of the national ANR evaluation committe CES19 (H. Touzet)
- Member of CSS MBIA (mathematics, bioinformatics and artificial intelligence) at INRA (H. Touzet)
- Member of the executive council of the IFB, Institut Français de Bioinformatique, (M. Pupin)
- Member of CUB Inria Lille Nord Europe (S. Blanquart).
- Head of PPF bioinformatics – University Lille 1 (H. Touzet)
- Head of Bilille, Lille bioinformatics platform (M. Pupin)
- Head of IFB-NE (pôle Nord-Est de l'Institut Français de Bioinformatique), a cluster of 4 bioinformatics platforms (M. Pupin)
- Member of UFR IEEA council (M. Pupin)
- Member of UFR Biologie council (V. Leclère)
- Head of the GIS department (Statistics and Computer Sciences) of Polytech'Lille (S. Janot)
- Head of the master "Transformation Valorisation Industrielles des Agro-ressources", univ. Lille 1 (V. Leclère)
- Head of the master "Modèles complexes, algorithmes et données", univ. Lille 1 (J.-S. Varré)
- Member of the ProBioGEM Laboratory council (V. Leclère)
- Member of the ProBioGEM scientific committee (V. Leclère)
- Member of the scientific operational committee of Xperium, Univ. Lille 1 (V. Leclère)
- Member of the LIFL Laboratory council (L. Noé, H. Touzet)
- Head of the thematic group "Modeling for Life Sciences" of CRIStAL and member of the scientific council of CRIStAL (J.-S. Varré)

9.3. Popularization

- We made seven presentations, using dedicated "genome puzzles" in high schools during the "Science week" to popularize bioinformatics.
- During a whole day in June we made presentations on bioinformatics with our "genome puzzles" to several groups of high school students.
- V. Leclère has created a demonstration stand for Xperium, part of the Learning center Innovation of Lille 1 University.

DYLISS Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events selection

8.1.1.1. Members of conference program committee

- ICGI International Conference on Grammatical Inference [F. Coste, Reviewer and member of Steering Committee].
- PRIB International Conference on Pattern Recognition in Bioinformatics [A. Siegel].
- Program committee of Semantic Web Applications and Tools for Life Sciences (SWAT4LS 2014) [O. Dameron].

8.1.2. Journal

8.1.2.1. Member of editorial board

- Academic editor: Plos One [J. Bourdon]

8.1.2.2. Reviewer

- F. Coste: Theoretical Computer Science.
- O. Dameron: Bioinformatics, Cancer informatics, Journal of Biomedical Informatics, Journal of Biomedical Semantics.
- A. Siegel : Nature, Bulletin of the Belgium Math. Society, BMC Systems Biology.

8.1.3. Participation to council and advisory boards

- Scientific Advisory Board of GDR BIM " Molecular Bioinformatics"[J. Nicolas].
- Member of SCAS (Service Commun d'Action Sociale) of Univ. Rennes 1 [C. Belleannée].
- Member of the IRISA laboratory council [F. Coste].
- Member of the Inria Rennes center council [A. Siegel].
- Member of the the Operational Legal and Ethical Risk Assessment Committee (COERLE) at Inria.
- Scientific Advisory Board of Biogenouest [J. Bourdon, J. Nicolas, A. Siegel].
- Expertise for ANR call [A. Siegel]
- Expertise for national call "Biologie des systèmes appliqués au Cancer" [A. Siegel]
- Expertise for ARP "MERMED : Adaptation aux changements environnementaux en mer Méditerranée : quelles recherches et quels partenariats ?" [website] [A. Siegel]
- Recruitment committees: assistant professor (LRI, Orsay) [A. Siegel, F. Coste], assistant professor (Univ. Rennes) [F. Coste], professor (Univ. Bordeaux) [A. Siegel].

8.1.4. Organization of local meetings

- **Seminar** A weekly seminar of bioinformatics is organized within the laboratory. Attendees are member of the symbiose team, biologists from Brittany and computer scientists from the laboratory. [website].
- Organization of Irisa department "Data and knowledge management"'s seminar [F. Coste].
- **Workshop. Théorie des réseaux booléens et ses applications en biologie** A one-week workshop on boolean networks was organized in Nice in Nov. 2014. It gathered 20 researchers in bioinformatics, computer science and mathematics about several aspects of boolean networks properties [website]

8.2. Teaching - Supervision - Juries

8.2.1. Course and track responsibilities

F. Coste is coordinator of the track "From Data to Knowledge: Machine Learning, Modeling and Indexing Multimedia Contents and Symbolic Data" of the Master by research in Computer Science (2nd year), University of Rennes 1, France.

F. Coste is coordinator of the course “Extracting knowledge from symbolic data sequences” of the Master by research in Computer Science (2nd year), University of Rennes 1, France.

8.2.2. Teaching

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

Licence: C. Belleannée, bureautique et C2i, 40h, L1 informatique, Rennes1, France.

Licence: G. Garet, Algorithmique, 22h, L3 informatique, Rennes1 France.

Licence: G. Garet, Analyse de données, 12h, L3 Miage, Rennes1 France.

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

Licence: O. Dameron, C2i niveau 2, 2.5h, Univ. Rennes 1, France.

Licence: V. Picard, Probability theory, 24h, L3, ENS Rennes, France

Licence: C. Galiez, Bureautique, 16h, L1 informatique, Rennes1 France

Master: C. Bettembourg, principes de programmation et d’algorithmique, 18h, M1 bioinformatique et génomique, Univ. Rennes 1, France.

Master: C. Belleannée, Préférences Logique et contraintes, 32h, M1 informatique, Rennes1 France

Master: G. Collet, Programmation Python, 20h, M1 BioInformatique, Univ. Rennes 1, France

Master: O. Dameron, gestion de projets en informatique, 29.5h, M1 bioinformatique et génomique, Univ. Rennes 1, France.

Master: O. Dameron, principes de programmation et d’algorithmique, 12.5h, M1 bioinformatique et génomique, Univ. Rennes 1, France.

Master: O. Dameron, initiation systèmes et réseaux, 4h, M1 bioinformatique et génomique, Univ. Rennes 1, France.

Master: O. Dameron, techniques de recherche documentaire, 2h, M1 bioinformatique et génomique, Univ. Rennes 1, France.

Master: O. Dameron, Bases de mathématiques, probabilités et statistiques, 3h, M1 santé publique, Univ. Rennes 1, France.

Master: C. Galiez, Compilation, 48h, M1 informatique, Rennes1 France

Master: V. Picard, Formal methods for safe development, 16h, M1, Univ. Rennes 1, France

Master: V. Picard, Agrégation de mathématiques option D, 15h, M1, ENS Rennes/Univ. Rennes 1, 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, modélisation des connaissances et bio-ontologies, 36h, M2 bioinformatique et génomique, Univ. Rennes 1, France.

Master: O. Dameron, organisation des oraux de stages, 8h, M2 bioinformatique et génomique, Univ. Rennes 1, France.

Master: O. Dameron, E-santé et réseaux hospitaliers, 8h, ESIR3, Univ. Rennes 1, France.

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

Doctorat: A. Siegel, Tilings and Symbolic Dynamics, 8h, School "Representing streams II" at Lorentz center, Leiden, Netherlands.

Doctorat: J. Nicolas, Answer Set programming, 6h, Ecole Doctorale Matisse, Univ. Rennes 1, France

8.2.3. Supervision

PhD : Gaëlle Garet, *Discovery of enzymatic functions in the framework of formal languages*, 16 Dec. 2014,, supervised by J. Nicolas and F. Coste. [10].

PhD : Sylvain Prigent, *Complétion combinatoire pour la reconstruction de réseaux métaboliques, et application au modèle des algues brunes Ectocarpus siliculosus*, 14 Nov. 2014, supervised by A. Siegel and T. Tonon (UMR 7150, station biologique de Roscoff) [11]

PhD : Santiago Videla, *Reasoning on the response of logical signaling networks with answer set programming*, 7 Jul. 2014, supervised by A. Siegel and T. Schaub (Potsdam univ) [12].

PhD : Valentin Wucher, *Modeling of a gene network between mRNAs and miRNAs to predict gene functions involved in phenotypic plasticity in the pea aphid*, 3 Nov. 2014, supervised by J. Nicolas and D. Tagu (Inra).[13]

PhD in progress : Aymeric Antoine-Lorquin, *Modèles grammaticaux au service de l'identification de marqueurs de régulation génétique dans les séquences biologiques*, started in Oct. 2013, supervised by C. Belleannée

PhD in progress : Clovis Galiez, *Syntactic modelling of protein structure.*, started in Oct. 2012, supervised by F. Coste and J. Nicolas.

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 : Vincent Picard, *Analyse dynamique d'algorithmes et dynamique symbolique pour l'étude de modèles semi-quantitatifs en biologie des systèmes*, started in Sept. 2012, supervised by A. Siegel and J. Bourdon.

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

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.

8.2.4. Juries

- *Member of Ph-D thesis jury*. M. Folschette, Ecole Centrale Nantes [A. Siegel, rapporteure]. B. Le Gloannec, Univ. Orléans [A. Siegel, présidente]. J. Scicluna, Université de Nantes [F. Coste].

8.2.5. Seminars

- V. Picard. *Multivariate Normal Approximation for the Stochastic Simulation Algorithm: limit theorem and applications*. I3S MDSC Seminar. Sophia Antipolis, France (May. 2014)
- A. Siegel. *modelling and integrating heterogeneous information about the response of a biological system with ASP*. LRI, Orsay, France (Jun. 2014)
- A. Siegel. *AuReMe Integrative method for Automatic Reconstruction of Metabolic network*. LINA, Nante, France (Jul. 2014)
- A. Siegel. *Modéliser et intégrer des informations hétérogènes sur la réponse d'un système biologique*. Séminaire interdisciplinaire MEB, Marseille, France (Oct. 2014)
- G. Collet. *Genome Assembly on a Raspberry Pi*. fOSSa 2014 (Nov. 2014)
- A. Siegel. *Méthodes de programmation logique (ASP) pour apprendre et contrôler la réponse de réseaux de signalisation*. Workshop "Théorie des réseaux booléens et ses applications en biologie", Nice, France (Nov. 2014)
- A. Siegel. *Reconstruire un réseau métabolique à partir de différentes sources d'informations et données*. Journée scientifique BioGenOuest - Axe Analyse structurale et métabolomique, Nantes, France (Dec. 2014)

- A. Siegel. *Modéliser et intégrer des informations hétérogènes à large-échelle sur la réponse d'un système biologique*. Journées biologie intégrative, Lille, France (Dec. 2014)
- O. Dameron *OWL model of eligibility criteria compatible with partially-known information*. Institut des Systèmes Complexes, Paris, France (Dec. 2014)
- V. Picard. *Multivariate Normal Approximation for the Stochastic Simulation Algorithm: limit theorem and applications*. LIFL Biocomputing Seminar. Lille Univ, France (Dec. 2014)
- O. Dameron *Knowledge-based selection of candidate metabolic networks*. Séminaire Biosticker, LINA Nantes France (Dec. 2014)

8.2.5.1. Internships

- Internship, from April until June 2014. Supervised by G. Collet. Student: Efflam Lemaillet. Subject: Méthode de comparaison de protéines sans alignement.
- Internship, from April until June 2014. Supervised by F. Coste. Student: Francisco Dorr. Subject: Compressing (genomic) sequences by grammar inference.
- Internship, from April until June 2014. Supervised by O. Dameron and N. Theret. Student: DominiqueMias-Lucquin. Subject: Analysis of TGF-β signalling network trajectories
- Internship, from April until June 2014. Supervised by O. Dameron and G. Collet. Student: LoïcBourgeois. Subject: Metabolic pathway representation in RDF : converting Reactome into BioPAX
- Internship, from Feb. until June 2014. Supervised by J. Nicolas. Student: Hugo Bazille. Subject: Protein design: a NP-hard problem in bioinformatics
- Internship, from March until Sep. 2014. Supervised by C. Belleannée. Student: Malo Le Boulch. Subject:
- Internship, from March until June 2014. Supervised by C. Belleannée. Student: Lea Flechon. Subject: Identification in silico du site de fixation à l'ARNm de la protéine PTBP1 : découverte de motifs par utilisation d'un outil existant via des données CLIP-seq publiques
- Internship, from April until June 2014. Supervised by V. Picard and A. Siegel. Student: Thibault Etienne. Subject: Simulation stochastique quantitative pour la modélisation de systèmes écologiques
- Internship, from January until June 2014. Supervised by A. Siegel and N. Theret. Student: Victorien Delannée. Subject: Modélisation du métabolismes des xénobiotiques de type amines hétérocycliques aromatique (AHA)
- Internship, October 2014. Supervised by F. Coste. Ph D. student: Meriem Zekri. Subject: Modelling GPCR proteins with Protomata-Learner

8.3. Popularization

- *Revue Math/info Tangente* Nous avons participé à un numéro spécial de cette revue destinée aux lycées avec un article de bioinformatique sur les langages des molécules du vivant illustrant l'intérêt de la modélisation par langages formels dans ce cadre. [*J. Nicolas, C. Belleannée, F. Coste*] [41]
- *Rencontre Inria Industrie* "Bio-informatique et outils numériques pour les produits de santé" Lyon (Feb. 2014) [*F. Coste, A. Antoine-Lorquin, A. Siegel, S. Videla*]
- *FrenchTech Rennes* Popularization of genome assembly on a Raspberry Pi at a FrenchTech event in Rennes (Dec. 2014) [*G. Collet*].
- *Bioinfo-fr.net* Bioinfo-fr.net is a french web site where researchers, engineers and students talks about bioinformatics. We have written 6 articles for this web site on diverse subjects: metabolic networks, genome assembly, phylogenetics, network visualization. [*G. Collet, S. Prigent, O. Dameron*]. [more info].
- *Fête de la science (LINA, Nantes)* During the 17th of october, 250 students discovered bioinformatics, genome assembly, metabolomics and algorithmic by practicing games and tutorials made by our team with the help of Julien Gras, Erwan Delage and Stephanie Noguet (LINA) [*J. Bourdon, D. Eveillard, Y. Guitton*].
- *Organization of Sciences en Cour[t]s*. Popularization Festival where PhD students explain their thesis via short films. [*S. Prigent, C. Bettembourg, G. Garet*] [more info].
- *GNU/Linux Magazine* Article "La bioinformatique avec Biopython", Hors-série 73, pp 84–97. 2014. [*O. Dameron*] [40]

GENSCALE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. general chair, scientific chair

- Workshop on Computational Optimization (WCO14), Warsaw, Poland, Sep 7-11, 2014 [A. Mucherino, co-chair]

9.1.2. Scientific events selection

9.1.2.1. member of the conference program committee

- International Workshop on Algorithms for Computational Biology (ACB 2014) [D. Lavenier]
- IEEE International Conference on Bioinformatics and Biomedicine (BIBM 2014) [D. Lavenier]
- European Conference on Computational Biology (ECCB'14) [D. Lavenier]
- International Conference on Field Programmable Logic (FPL 2014) [D. Lavenier]
- 4th Annual RECOMB Sattelite Workshop on Massively Parallel Sequencing (RECOMB-Seq 2014) [D. Lavenier, P. Peterlongo]
- International Conference on ReConFigurable Computing and FPGAs (ReConFig 2014) [D. Lavenier]
- IX Southern Programmable Logic Conference (SPL2014) [D. Lavenier]
- Many Faces of Distances (MFD14) [A. Mucherino]
- SeqBio 2014: Workshop on string algorithms [C. Lemaitre]

9.1.2.2. reviewer

- IWOCA 2014 [P. Peterlongo]

9.1.3. Journal

9.1.3.1. reviewer

- Advances in Bioinformatics [D. Lavenier]
- Algorithms for Molecular Biology [D. Lavenier]
- Bioinformatics [D. Lavenier]
- BMC Bioinformatics [D. Lavenier]
- BMC Genomics [D. Lavenier, F. Legeai]
- Briefing in Bioinformatics [D. Lavenier]
- Frontiers in Bioengineering and Biotechnology [P. Peterlongo]
- IEEE Transactions on Computational Biology and Bioinformatics [D. Lavenier]
- INS, CAMWA (Elsevier), ITOR (Wiley) , IJNS (World Scientific)[A. Mucherino]
- Integrative Biology [D. Lavenier]
- International Journal of Computer Science [P. Peterlongo]
- Journal of the Brazilian Computer Society [R. Andonov]
- Plos One [D. Lavenier]
- Nucleic Acids Research [D. Lavenier, P. Peterlongo]

9.1.4. Invited talks

- P. Peterlongo, Gen2Bio, Saint-Malo, France, Apr. 2014. Title: SNPs discovery.
- D. Lavenier, Los Alamos National Lab, New Mexico, USA, June 2014. Title: GATB: Genome Assembly and Analysis Tool Box.
- A. Mucherino, BAS, Sofia, Bulgaria, June 2014.
- D. Lavenier, Asprom seminar, Paris, France, Sept. 2014. Title: Parallel computation in genomics.
- P. Peterlongo, R-SYST, Inra, Rennes, France, Oct. 2014. Title: Comparing and combining multiple metagenomic datasets.

9.2. Administrative duties

- Member of the administrative council of ISTIC [R. Andonov]
- ANR Evaluation Committee Generic Call [R. Andonov]
- Member of the Scientific Council of Computational Biology Institute of Montpellier [D. Lavenier]
- Permanent expert for the MEI (International Expertise Mission), French Research Ministry [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 Agro-ecosystems Arthropods) [D. Lavenier]
- Member of the steering committee of The GenOuest Platform (Bioinformatics Platform of BioGenOuest) [D. Lavenier]
- Member of the local Inria CORDIS committee for PhD grants [C. Lemaitre]
- Representative of the environmental axis of UMR IRISA [C. Lemaitre]
- Inria center referee of Scientific mediation [P. Peterlongo]
- Member of the redaction committee Ouest Inria [P. Peterlongo]
- Recruitment committees: 1 professor [D. Lavenier], 2 assistant professors [C. Lemaitre, P. Peterlongo], 1 engineer (IE) [F. Legeai, chair]
- Scientific Responsible for International Relationships at ISTIC [A. Mucherino]
- Member of "Commission Affaires Internationales" at University of Rennes 1 [A. Mucherino]
- AGOS first secretary [P. Peterlongo]

9.3. Teaching - Supervision - Juries

9.3.1. Teaching

Licence : C. Lemaitre, Statistics for biology, 11h, L3, Univ. Rennes 1, France

Licence : D. Lavenier, Architecture and System, 30 h, L3, ENS Rennes, France.

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

Licence : A. Mucherino and R. Andonov, Graph Algorithms, 90h, L3, Univ. Rennes 1, France.

Master : A. Mucherino and R. Andonov, Operational Research, 95h, M1, Univ. Rennes 1, France.

Master : R. Andonov, Advanced Algorithms, 15h, 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 : D. Lavenier, Intensive Computation of Genomic Data, 15 h, M1, ESEO Angers, France.

Master : D. Lavenier, Project, 12 h, M1, ENS Rennes, France.

Master : C. Lemaitre, P. Peterlongo, Text algorithmics for Bioinformatics, 43 h, M1, Univ. Rennes 1, France.

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

9.3.2. Supervision

PhD in progress : Mathilde Le Boudic-Jamin, *Structure et comparaison d'objets 3D: applications aux structures protéiques*, Univ. Rennes 1, started in October 2011, supervised by R. Andonov

PhD in progress : F. Moreews, Bioinformatics workflows, 01/2012, D. Lavenier and S. Lagarrigue

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

9.3.3. Juries

- *President of Ph-D thesis jury*. Anne Jeannin-Girardon, Université de Bretagne Occidentale, Brest [D. Lavenier]
- *Member of Ph-D thesis juries*. Germano Abud de Rezende, UNICAMP, Campinas, Sao Paulo, Brazil [A. Mucherino].
- *Referee of Ph-D thesis*. Guillaume Martin, Montpellier AgroSup, [D. Lavenier]
- *Member of Ph-D thesis committees*. J. Boutte, University of Rennes [D. Lavenier], P. Nouhaud, University of Rennes [C. Lemaitre and F. Legeai], C. Mercier, University of Grenoble [C. Lemaitre], S. Guizard, University of Tours [C. Lemaitre], A. Radulescu, university of Nantes [P. Peterlongo], H. Lopez, University of Lyon [C. Lemaitre], V Wucher, university of Rennes [F. Legeai], D. Eoche-Bosy, University of Rennes [F. Legeai], A. Marchant, University Paris XI [F. Legeai].

IBIS Project-Team

8. Dissemination

8.1. Editorial, animation, and reviewing activities

Eugenio Cinquemani

Type	Journal, conference, agency
Associate editor	European Control Conference (ECC) 2015
Member PhD committee	Marianna Rapsomaniki (School of Medicine, University of Patras, Greece)
Member PhD advisory committee	Artemis Llamosi (Université Paris Descartes)

Hidde de Jong

Type	Journal, conference, agency
Member editorial board	Journal of Mathematical Biology
Member editorial board	ACM/IEEE Transactions on Computational Biology and Bioinformatics
Member editorial board	Biosystems
Member program committee	CMSB 15, MEMICS 14, HSB 14, ISMB/ECCB 14
Member scientific advisory board	Microbiology and Food Chain Department, Inra
Member review and selection committees	International Human Frontier Science Program (HFSP)
Member evaluation committee	AERES evaluation of MIAj and MIG laboratories, INRA, Jouy-en-Josas, 2014
Member recruitment committee	Junior research scientists, INRA
Member recruitment committee	Assistant professor, INSA de Lyon
Member HDR committee	Grégory Batt (Université Paris Descartes)
Member PhD committee	Kyrill Batmanov (Université de Lille I)
Member organization committee	BEeSy Conference on Perspectives in Environmental and Systems Biology (Grenoble, 2015)
Project reviews	BBSRC

Johannes Geiselmann

Type	Journal, conference, agency
Member recruitment committee	Assistant professor, INSA de Lyon
Member PhD committee	Thomas Esquerré (Université de Toulouse, INSA), Peng Liu, (Institut Pasteur, Paris), Elisa Brambilla (ENS Cachan)
Member PhD advisory committee	Xuejiao Jiang (INSA de Lyon)
Member scientific committee	ARC1, Rhône-Alpes region
Member organization committee	BEeSy Conference on Perspectives in Environmental and Systems Biology (Grenoble, 2015)
Project reviews	ANR

Stephan Lacour

Type	Journal, conference, agency
Member PhD advisory committee	Alexandre Duprey (Université de Lyon)

Delphine Ropers

Type	Journal, conference, agency
Member organization committee	SeMoVi (Séminaire de Modélisation du Vivant)
Member recruitment committee	Assistant professor, INSA de Lyon (twice)
Member PhD committee	Anna Zhukova (Université de Bordeaux)
Member PhD advisory committee	Alice Julien-Laferrière (Université de Lyon), Martin Wannagat (Université de Lyon)

8.2. Administrative activities

Eugenio Cinquemani is member of the Comité des Utilisateurs des Moyens Informatiques (CUMI) and of the Commission des Emplois Scientifiques at Inria Grenoble - Rhône-Alpes.

Hidde de Jong is member of the working group on International Relations of the Conseil d'Orientation Scientifique et Technique (COST) of Inria.

Johannes Geiselmann is member of the scientific council of the Department of Biology at Université Joseph Fourier.

Yves Markowicz is director of the BSc department at Université Joseph Fourier.

François Rechenmann is CEO of Genostar. In addition, he has been commissioned by the Director of Inria Grenoble - Rhône-Alpes to help and to coach PhD students, in the research center, who encounter problems of various sorts during their thesis.

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

Delphine Ropers represents Inria Grenoble - Rhône-Alpes in the scientific board of IXXI, the Complex Systems Institute in Lyon (http://www.ixxi.fr). She is also member of the Commission de Formation Permanente and Référente Chercheurs at Inria Grenoble - Rhône-Alpes.

8.3. Seminars, presentations, and PhD thesis defenses

Eugenio Cinquemani

Title	Event and location	Date
Modeling and analysis of population systems with applications to molecular biology	Tutorial at HYCON2 workshop at European Control Conference (ECC 14), with G. Ferrari-Trecate and J. Lygeros, Strasbourg	June 2014
Modelling cellular heterogeneity of gene expression in yeast : The mixed-effects approach	CWI-Inria workshop, Paris	September 2014
Modelling dynamics and regulation of gene expression from fluorescent reporter data: Two challenges in two biological scenarios	Seminar at School of Medicine, University of Patras (Greece)	November 2014
Towards real-time control of gene expression at the single cell level: a stochastic control approach	Presentation at 12th international conference on Computational Methods for Systems Biology (CMSB 2014), Manchester (UK)	November 2014

Hidde de Jong

Title	Event and location	Date
Genetic Network Analyzer: modélisation et simulation qualitative de réseaux de régulation	Demo at Rencontre Inria-Industrie Bio-informatique et outils numériques pour les produits de santé, Lyon	February 2014
Analysis and identification of bacterial regulatory networks using real-time gene expression data	Invited presentation at Journée régionale Bioinformatique, Toulouse	June 2014
The analysis of global regulatory networks in bacteria using models and experiments	Invited presentation at International Workshop on Hybrid Systems Biology (HSB 2014), Vienna (Austria)	July 2014
Dynamic optimisation of resource allocation in microorganisms	Presentation at International Symposium on Mathematical Theory of Networks and Systems (MTNS 2014), Groningen (the Netherlands)	July 2014
Analysis and identification of bacterial regulatory networks using real-time gene expression data	Invited presentation at Colloque Biologie Synthétique & Systémique (BioSynSys), Toulouse	July 2014
Numerical simulation of piecewise-linear models of gene regulatory networks using complementarity systems	Presentation at International Symposium on Mathematical Theory of Networks and Systems (MTNS 2014), Groningen (the Netherlands)	July 2014

Johannes Geiselmann

Title	Event and location	Date
Global regulation and the control of growth rate in Escherichia coli	Invited seminar SeMoVi, Lyon	January 2014
Regulation of gene expression in E. coli: global effects and specific regulations	Seminar at Centre de Biologie Integrative, Toulouse	March 2014
Systems biology of E. coli	University of Trondheim (Norway)	May 2014
Control of gene expression in E. coli	Journée Recherche, UJF	October 2014

François Rechenmann

Title	Event and location	Date
Genostar	Demo at Rencontre Inria-Industrie Bio-informatique et outils numériques pour les produits de santé, Lyon	February 2014

Delphine Ropers

Title	Event and location	Date
Global control of gene expression in *Escherichia coli*	Seminar at MAP laboratory, Lyon	March 2014
Complex regulatory networks in bacteria	Seminar at Institute of Food Research, University of Norwich (UK)	
Complex regulatory networks in bacteria: How bacteria face the unexpected	Invited presentation at the winter school Multi-scale modelling of biological systems, INSA, Toulouse	December 2014

Diana Stefan

Title	Event and location	Date
Identification structurelle et paramétrique des réseaux de régulation bactériens	PhD thesis defense, Université Joseph Fourier, Grenoble	June 2014

Valentin Zulkower

Title	Event and location	Date
A quantitative study of the regulation of cAMP-dependent promoters in *E. coli*	Presentation at workshop PTS50, Göttingen (Germany)	September 2014

8.4. Popular science writing

The members of IBIS are actively involved in the dissemination of research results in systems biology and bioinformatics to a wider, non-specialist audience. In the context of the Math C2+ initiative for high-school students, François Rechenmann has given the presentation "Algorithmes et génomes : analyse informatique de l'information génétique".

8.5. Teaching

Four members of the IBIS team are either full professor, associate professor or assistant professor at the Université Joseph Fourier or the Université Pierre Mendès-France in Grenoble. 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

Subject	Year	Location	Hours
Identification of dynamical models of genetic networks	5	INSA de Lyon	4
Statistics for biologists	4	Master Approches Interdisciplinaires du Vivant, Centre de Recherches Interdisciplinaires/Université Paris Descartes	20
Modelling and identification of metabolic networks	4	Master PHELMA, INP Grenoble	4

Hidde de Jong

Subject	Year	Location	Hours
Modeling and simulation of genetic regulatory networks	5	INSA de Lyon	20
Modeling and simulation of genetic regulatory networks	5	ENS Paris	8

Nils Giordano

Subject	Year	Location	Hours
Modeling and simulation of genetic regulatory networks	5	ENS Paris	8
Microbiologie	2	Université Joseph Fourier	32
Génétique des Populations	2	Université Joseph Fourier	30
Microbiologie	2	Université Joseph Fourier	32
Introduction à la bioinformatique	2	Université Joseph Fourier	12

Delphine Ropers

Subject	Year	Location	Hours
Modeling and simulation of genetic regulatory networks	4	Université Joseph Fourier	7.5
Modeling and simulation of genetic regulatory networks	5	INSA de Toulouse	4
Modeling in systems biology	4	Master PHELMA, INP Grenoble	16

François Rechenmann is preparing a MOOC on the subject "Algorithmes et génome", which is due to appear in 2015. Hidde de Jong organized with Daniel Kahn a module on the modeling of genetic and metabolic networks at INSA de Lyon. Delphine Ropers organizes a module on the mathematical modeling of biological systems at PHELMA, INP Grenoble.

LIFEWARE Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. General chair, scientific chair

- François Fages was co-Chair of BPPC'14, Fifth International Workshop in Bin Packing and Placement Constraints, associated to CPAIOR'14, Cork Ireland, May 2014.

9.1.1.2. Member of the organizing committee

- François Fages was member of the organizing committee and session co-chair of SFC'14, the 44ième Congrès de la Société Francophone de Chronobiologie, ESPCI ParisTech, Oct. 29-31 2014.

9.1.2. Scientific events selection

9.1.2.1. Chair of conference program committee

- François Fages was co-PC-Chair of FMMB'14, First International Conference on Formal Methods for Macro Biology, joint to ICSB'14, Noumea, Nouvelle Calédonie, September 2014.

9.1.2.2. Member of the conference program committee

- François Fages was member of the program committees of :
  - CMSB'14, Twelth International Conference on Computational Methods in Systems Biology – Nov. 17-19, Manchester, 2014.
  - WCB'14 10th Workshop on Constraint-based methods for Bioinformatics, associated to CP, Lyon France, September 2014.
  - VEMDP'14 The 1st International Workshop on Verification of Engineered Molecular Devices and Programs – An affiliated workshop of CAV 2014 hosted in Vienna, Austria on July 17, 2014.
  - HSB'14 Third workshop Hybrid Systems Biology – Vienna Summer of Logic, July 23-24, 2014.
  - CHR'14 11th International Workshop on Constraint Handling Rules — Vienna Summer of Logic, July 18, 2014.
- Grégory Batt was member of the program committee of HSB'14, the third workshop on Hybrid Systems Biology – Vienna Summer of Logic, July 23-24, 2014.

9.1.2.3. Reviewer

- Grégory Batt was member of the review panel of ERASynBio, an ERA-NET from the seventh framework program for the development and coordination of synthetic biology in the European research area (Lisbon, Jan 2014).
- François Fages was reviewer for the Luxembourg National Research Fund.

9.1.3. Journal

9.1.3.1. Member of the editorial board

- François Fages is member of
  - the Editorial Board of the Computer Science area of the Royal Society Open Science journal since 2014
  - the Steering Committee of the international conference series Computational Methods in Systems Biology since 2008
  - the Editorial Board of the journal RAIRO OR Operations Research since 2004

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Lifeware is affiliated to the Doctoral school of Mathematical Science of the University Paris Diderot, and to the interdiciplinary Doctoral school "Frontières du Vivant" of the University Paris Descartes.

The following courses have been given by members of Lifeware:

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

Master: Interdisciplinary Master in Life Science at the Ecole Normale Supérieure, Paris. Denis Thieffry (coordinator), Grég ory Batt (6h).

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

Master: *Computational Biology* at Master Approches Interdisciplinaires du Vivant (AIV), Grégory Batt (coordinator, 48h).

Master: *Statistics* at Master Approches Interdisciplinaires du Vivant (AIV), Valentina Peschetola (24h).

Grégory Batt has been selected to participate to the first workshop on Teaching Through Research of the Leadership Program, organised by the Centre for Research and Interdisciplinarity under the auspice of the "learning science" UNESCO chair (April 2014, Paris).

9.2.2. Supervision

HDR: Grégory Batt, *Design, optimization and control in systems and synthetic biology*, Université Paris Diderot, March 7, 2014. Jury: Vincent Danos (Edinburgh U), Frédéric Devaux (Paris5 U), Hidde de Jong (Inria), Olivier Gandrillon (CNRS), Mustafa Khammash (ETHZ), and Reiner Veitia (Paris7).

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

PhD: Xavier Duportet, *Developing new tools and platforms for mammalian synthetic biology: from the assembly and chromosomal integration of large genetic circuits to the engineering of artificial intercellular communication systems*, Université Paris Descartes (Oct. 2010), Paris, Dir. Grégory Batt and Ron Weiss (MIT), Nov 14, 2014. Jury: Grégory Batt, Diego di Bernardo (Tigem), Tim Lu (MIT), Didier Mazel (Pasteur), Franck Molina (CNRS), Reiner Veitia (Paris 7), and Ron Weiss

PhD: David Fournier, *Metro Regenerative Braking Energy Optimization through Rescheduling: Mathematical Model and Greedy Heuristics Compared to MILP and CMA-ES*, Université Paris Diderot, Paris (Oct 2011), Dir. François Fages and Denis Mulard (General Electric), 27 Nov 2014. Jury: Thierry Benoist (Innovation24), Xavier Delorme (Ecole des Mines de Saint Etienne), Roberto Di Cosmo (U. Paris-Diderot), François Fages, Narendra Jussien (Telecom Lille), Denis Mulard (General Electric).

PhD in progress : Steven Gay, *Subgraph Epimorphisms: Theory and Application to Model Reductions in Systems Biology*, Université Paris Diderot, Paris (Oct 2009), Dir. François Fages and Sylvain Soliman, defense in March 2015

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

PhD in progress : Artemis Llamosi, Université Paris Diderot, Paris, Nov 2012, Dir. Grégory Batt and Pascal Hersen

PhD in progress : Thierry Martinez, *Execution models for Constraint Programming: kernel language design through semantics equivalence*, Université Paris Diderot, Paris (Oct 2009), Dir. François Fages, Defense in March 2015

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

9.2.3. Juries

- HDR Pascal Hersen, Université Paris-Diderot, Examiner: François Fages
- PhD Adrien Basso-Blandin, Université d'Evry, November 2014, Examiner: François Fages
- PhD Benjamin Gyori, National University of Singapore, October 2014, Reviewer: Grégory Batt
- PhD Santiago Videla, Université de Rennes, July 2014, Reviewer: Grégory Batt
- PhD Alejandro Vignoni, Universitat Politecnica de Valencia, May 2014, Reviewer: Grégory Batt

9.3. Popularization

- Grégory Batt has been an invited speaker at the citizen science workshop Worldviews and Values in Synthetic Biology, Paris, June 2014.
- Grégory Batt had a stand at *Rencontres Inria Industries*, Lyon, May 2014.
- Xavier Duportet has been invited to speak at the *4th Congreso del Futuro* (Santiago, Chili), together with renown change makers (*e.g.* J. Rifkin, T. Piketty)
- Xavier Duportet is the cofounder and president of Hello Tomorrow, an international non-profit organization to promote technology entrepreneurship, with hubs in more than 80 cities worldwide and organizing one of the largest global startup competition.
- Xavier Duportet is the vice president of *Osons La France*, a forum to promote scientific innovation (Grand Palais, Paris, Dec 2014).
- Xavier Duportet has been featured in *Le Monde, L'Obs, Europe1, L'Opinion (2x), SoonSoonSoon, L'Atelier*, and *Widoobiz*.
- François Fages gave an invited talk at *Forum des Lauréats en Informatique et Mathématiques Appliquées*, Collège de France, Paris, Dec 2014.
- François Fages gave an invited talk at *Deuxième Journée Biologie et Mathématiques sur la Montagne*, Collège de France, Paris, Oct 2014.
- Artémis Llamosi is the co-foundeur and general secretary of the OpenLab, and organizer of related events on product industrialization. He provides scientific expertise to hosted startups.

Our research has also been presented at many scientific venues, in invited talks at the

- 21st European Conference on Artificial Intelligence, ECAI'14 (Prague, Aug 2014, François Fages),
- 10th International Conference on Distributed Computing and Internet Technology ICDCIT'14 (Bhubanesvar, Feb 2014, François Fages),

contributed talks

- in LyonSysBio conference (Nov. 2014, François Bertaux),
- International Workshop on Image-based Systems Biology (Jena, Sept. 2014, Szymon Stoma),

invited seminars

- Irisa Rennes and LISBP Toulouse (Grégory Batt),

and posters at

- the Systems Biology of Human Diseases workshop (Harvard, June 2014, François Bertaux),
- q-bio summer conference (Santa Fe, Aug. 2014, François Bertaux),
- Stochastic Biology (IST Austria, May 2014, François Bertaux),
- Image Bioinformatics (Leuven, Oct. 2014, Szymon Stoma),
- European Conference on Computational Biology (Strasbourg, Sep 2014, Denis Thieffry, Pauline Traynard),
- International Conference on Systems Biology (Melbourne, Sep 2014, François Fages, Pauline Traynard).

MAGNOME Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Journal

9.1.1.1. Member of the editorial board

Pascal Durrens is :

member of the editorial board of the journal ISRN Computational Biology

expert in Genomics for the Fonds de la Recherche Scientifique-FNRS (FRS-FNRS), Belgium

David Sherman is :

member of the editorial board of the journal Computational and Mathematical Methods in Medicine

9.1.1.2. Reviewer

Pascal Durrens and David Sherman reviewed numerous papers for international journals, including BMC Genomics, Nucleic Acids Research, and Genome Biology and Evolution.

9.2. Teaching - Supervision - Juries

9.2.1. Supervision

PhD: Anna Zhukova, "Knowledge-based generalization for metabolic models," 2011-4, Sherman

PhD: Razanne Issa, "Analyse symbolique de données génomiques," 2010–, Sherman

9.2.2. Juries

David Sherman was a member of the juries of:

PhD: Anna Zhukova, "Knowledge-based generalization for metabolic models," December 18, 2014

HDR: Sofian Maabout, "Contributions à l'optimisation de requêtes multidimensionnelles," December 12, 2014

9.3. Popularization

David Sherman works with Didier Roy and Pierre-Yves Oudeyer of the Flowers project-team to develop tools and courseware for helping elementary school students explore robotics. David has developed software for communicating between the Scratch 2 visual programming language and the Thymio-II educational robot, and examples for use in the classroom.

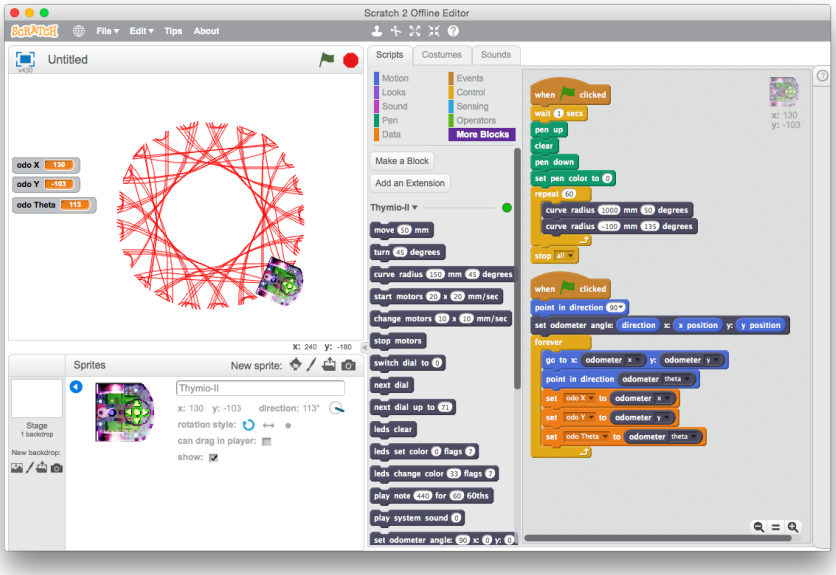

Figure 4. Piloting the Thymio-II robot with Scratch 2

MORPHEME Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific events organisation

7.1.1.1. general chair, scientific chair

Laure Blanc-Féraud was General Program chair of the conference IEEE ISBI 2014 in Beijing.

7.1.1.2. member of the organizing committee

Eric Debreuve was member of the organizing committees of ICIP 2014 (International Conference on Image Processing) as Area chair and of EUSIPCO 2015 (European Signal Processing Conference) as Area chair.

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

7.1.2. Scientific events selection

7.1.2.1. responsable of the conference program committee

Laure Blanc-Féraud was General Program chair of the conference IEEE ISBI 2014 in Beijing.

7.1.2.2. member of the conference program committee

Eric Debreuve was member of program committee of RFIA 2014 (congrès national sur la Reconnaissance des Formes et l'Intelligence Artificielle).

Xavier Descombes was associated editor for the conference ICIP 2014.

Laure Blanc-Féraud was associate editor of the workshop on New Computational Methods in Inverse Problems - NCMIP 2014 (NCMIP) in ENS Cachan.

Grégoire Malandain was an associate editor for the conference ISBI 2015.

7.1.2.3. reviewer

Eric Debreuve was reviewer for ISBI 2014 (International Symposium on Biological Imaging).

Xavier Descombes was reviewer for ISBI 2014, ICIP 2014 ,ICASSP 2014.

Laure Blanc-Féraud was reviewer the conferences ISBI 2014, ICIP 2014 ,ICASSP 2014.

7.1.3. Journal

7.1.3.1. member of the editorial board

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

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

7.1.3.2. reviewer

Eric Debreuve was reviewer for IEEE Transactions on Medical Imaging, Journal of Mathematical Imaging and Vision (Springer), Journal of Computational Physics (Elsevier), Pattern Recognition (Elsevier).

Xavier Descombes was reviewer for IEEE TMI, IEEE IP, ...

7.1.4. Scientific animation

Xavier Descombes is associated member of IEEE BISP (Biomedical Imaging Signal Processing), member of the Scientific Committee of the competitivness pole Optitech, expert for the MESR within the CIR program. He was in the jury of a MdC recruitment jury in Paris V and in the committee for Transverse master fellowship at Inria CRI-SAM.

Laure Blanc-Féraud is director of GdR 720 ISIS of CNRS. She is member of the IEEE BISP (Biomedical Imaging Signal Processing) Technical Committee, she is member of the scientific steering committee of ANR for Defi 7 on "société de l'information et de la communication), she was part of the group of the SNR (national research strategy) for defining the strategy of the MENESR concerning the défi 7, she was member of the scientific council of Institute INS2I of CNRS, invited member of the scientific council of Institute INSIS of CNRS (till september 2014), member of "bureau du comité des projets" Inria SAM (till july 2014). She is part of the scientific committee of laboratory GreyC (UMR CNRS 6072) and of "'Institut des Technologies Avancées en sciences du Vivant" (ITAV, USR CNRS 3505). She is part of the evaluation committee of ONERA DTIM department. She is expert member of the Italian Ministry for Education.

Grégoire Malandain is member of the IEEE/EMB Technical Committee on Biomedical Imaging and Image Processing (BIIP). He is an invited member of the Scientific Committee of the MIA department of INRA. From september the 1st, he is the head of the committee "Comité de suivi doctoral" of the Inria CRI-SAM.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

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

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

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

DUT: Marine Breuilly, Télécommunications: Initiation à la mesure du signal, 64h Eq. TD, niveau DUT 1ère année, IUT de Nice Côte d'Azur , France

DUT: Marine Breuilly, Acquisition et codage de l'information, 6h Eq. TD, niveau DUT 1ère année, IUT de Nice Côte d'Azur , France

Master: Eric Debreuve, Inverse problems in image processing, 28.5h Eq. TD, master 2, Université de Nice Sophia Antipolis, France.

Master: Eric Debreuve, Basis of image processing, 13h Eq. TD, master 2, Université de Nice Sophia Antipolis, France.

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

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

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

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

Master : Xavier Descombes, Support Vector Machines, 3h Eq. TD, Niveau M2, ENSHEEIT, France.

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

Master: Emmanuel Soubies, Imagerie Numérique, 6h Eq.TD, Master 2 ISAB, Université de Nice Sophia Antipolis, France.

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

Master: Caroline Medioni, Microscopie appliquée à la biologie, 20h Eq. TD, Niveau M2, Université de Nice Sophia Antipolis, France.

License: Caroline Medioni, Microscopy and Cell Biology courses, 20h, Niveau L3, Université de Nice Sophia Antipolis, France.

License: Alexis Zubiolo, Introduction to Computer Science, 18h Eq. TD, L1, Université de Nice Sophia Antipolis, France.

License: Alexis Zubiolo, Web Programming, 48h Eq. TD, L1, Université de Nice Sophia Antipolis, France.

7.2.2. Supervision

PhD: Alejandro Mottini, Axon Morphology Analysis: from Image Processing to Modelling, Nice Sophia Antipolis university, defended october the 30th, Xavier Descombes (advisor), Florence Besse (co-supervisor).

PhD in progress: Lola Baustista, Fluorescence confocal microscopy image restoration, 1st november 2013, Laure Blanc-Féraud.

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

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

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

PhD in progress, Alexis Zubiolo, Statistical Machine Learning for Automatic Cell Classification, 1st october 2012, Eric Debreuve (advisor).

7.2.3. Internships

Manon Linder: 4th year of Institut Supérieur des BioSciences, Quantitative comparison of micro-vasculatures, Supervisor: G. Malandain.

Emmanuelle Poulain: M1 Paris VI. Image segmentation using graph cut and MPP. Supervisor: X. Descombes.

7.2.4. Juries

Florence Besse participated as referee to the PhD thesis committee of Alejandro Mottini (Nice Sophia Antipolis university)

Laure Blanc-Féraud participated as chair to the PhD thesis committee of A. Drogoul (JAD of UNS), as reviewer of the HDR of Hervé Carfantan (Toulouse University) and PhD thesis of Makhlad Chahid (Bordeaux university).

Eric Debreuve participated as reviewer to the PhD thesis committee of A. Emilien (Bordeaux university)

Xavier Descombes was in the jury of A. Mottini PhD defense at University of Nice Sophia Antipolis. He was reviewer for two PhD dissertation in France (S. Rigaud at Rennes University and J. Gul Mohammed at Paris VI university) and for one PhD dissertation in England (D. Nam at Bristol University).

Grégoire Malandain participated as chair to the PhD thesis committee of J. Legrand (ENS Lyon), as reviewer to the PhD thesis of G. Brunel (Montpellier 2 univ.), and as reviewer to the HdR of F. Rousseau (Strasbourg univ.).

7.2.5. Participation to workshops, conferences, seminars, invitations

- Florence Besse made an oral presentation on "Imp promotes axonal remodeling by regulating profilin mRNA during brain development" during the EMBO workshop on neuronal remodeling (March 2014, Ein-Gedi, Israel).

- Caroline Medioni made an oral presentation on "mRNA transport and axonal remodeling" during the Neuronal network days (June 2014, Paris, Institut du Fer à Moulin)
- Caroline Medioni made an oral presentation on "Live imaging of mRNA transport and axonal remodeling using two photon microscopy" during the Journée CoRéBio in Marseille (November 2014, CIML, Luminy).
- Caroline Medioni and Grégoire Malandain organized a pratical on "Imaging axonal regrowth: from data acquisition to image treatment" during the microscopy school MIFOBIO (October 2014, Seignosse, France).
- Grégoire Malandain gave a lecture on "registration methods for multimodal imaging" during the microscopy school MIFOBIO (October 2014, Seignosse, France).
- Grégoire Malandain gave a lecture on "Towards population studies in embryogenesis: a cell-to-cell mapping method for ascidian embryos" at a Colloquium Centre Blaise Pascal-Laboratoires Joliot-Curie (november 2014, ENS, Lyon).

7.3. Popularization

Eric Debreuve was invited to give a presentation for the seminar series "Café-in", Inria CRI SA-M, November 2014.

SERPICO Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. Member of the organizing committee

Charles Kervrann was member of the organizing committee of the international Quantitative BioImaging 2015 (QBI) conference, Institut Pasteur, January 2015 (180 participants).

Perrine Paul-Gilloteaux was member of the organizing committees:

- Second edition of the European Bio-Image analyst Symposium: EUBIAS Taggathon workshop organized on the 8th and 9th of December 2014 for the creation of a webtool biii.info referencing bio image analysis workflows (20 participants invited over 2 days), and of the EuBIAS community meeting for bio-image analysts on the 5th and 6th of January (118 participants).
- Microscopy school MiFoBio'2014 (Seignosse, October 2014): Organization of advanced modules and round tables with Alain Dieterlen (Laboratoire MIPS-uha Mulhouse).

Patrick Bouthemy was member of the "commité de pilotage" for the organization of RFIA'2014.

Frédéric Lavancier is 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.

9.1.2. Scientific events selection

9.1.2.1. Member of the conference program committee

Charles Kervrann: Associated editor for the conference ISBI'2015, PC member for ISBI'2014, member of scientific committee of "Journées d'Imagerie Optique Non-Conventionnelle" (JIONC'2014).

Patrick Bouthemy: Area chair for the conference ICIP'2014, PC member for ICPRAM'2014.

Thierry Pécot: Associated editor for the conference ISBI'2015.

9.1.2.2. Reviewer

Charles Kervrann: reviewer for ICIP'2014, ICASSP'2014, SSVM'2015, RFIA'2014, EUSIPCO'2014, EMMCPRV'2015.

Patrick Bouthemy: reviewer for ECCV'2014, ISBI'2014, ISBI'2015, RFIA'2014.

Perrine Paul-Gilloteaux: reviewer for ISBI'2015, expert for the project evaluation in the framework of France-Brazil cooperation COFECUB (Comité Français d'Évaluation de la Coopération Scientifique et Universitaire avec le Brésil).

9.1.3. Journal

9.1.3.1. Member of the editorial board

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 (publication in 2015).

9.1.3.2. Reviewer

Charles Kervrann: reviewer in 2014 for Bioinformatics, Digital Signal Processing, IEEE Transactions on Image Processing, Journal Mathematical Imaging and Vision, Medical Image Analysis, Traitement du Signal.

Patrick Bouthemy: reviewer in 2014 for IEEE Transactions on Image Processing, IEEE Transactions on Medical Imaging, Medical Image Analysis.

Frédéric Lavancier : reviewer since September 2014 for Bernoulli, Climate Dynamics, Metrika, Statistics and Probability Letters.

Perrine Paul-Gilloteaux: reviewer for PLoS One.

9.1.4. Participations in seminars, invitations, awards

Charles Kervrann was invited to give a talk entitled "Tracking and motion analysis in fluorescence microscopy" at the microscopy school MiFoBio'2014 (Seignosse, October 2014), "Localization, classification and estimation of membrane dynamics in TIRFM image sequences" at the Quantitative BioImaging 2015 (QBI 2015) (Institut Pasteur, Paris January 2015), "Patch-based methods and algorithms for breaking the signal-to-noise ratio in fluorescence microscopy" at the Max-Planck Institute Munich (Biochemistry Department, Martinsried, Germany, December 2014), "Conditional Random Fields for tubulin-microtubule segmentation in cryo-electron tomography" at the special session on Electron Microscopy, Image Processing Problems and Applications in Biology: From Structure to Dynamics of the IEEE International Conference on Image Processing (ICIP'2014) (Paris, October 2014), "Approximate Bayesian computation, stochastic algorithms and non-local means for complex noise models" at the special session on Photon-Limited Image Reconstruction of the IEEE International Conference on Image Processing (ICIP'2014) (Paris, October 2014).

Frédéric Lavancier was invited to give a talk entitled "Inference for union of interacting discs" at JSTAR, Rennes, October 2014.

Thierry Pécot was invited to give a talk entitled "Space-time representation imaging and cellular dynamics of molecular complexes and Mobyle platform", at EuBIAS meeting, Institut Curie, Paris in January 2015 and at the BioGenouest meeting - Imaging Platforms on February 2014.

Thierry Pécot and Charles Kervrann organized a practical on "Image processing methods for motion analysis of particles" for microscopy school MiFoBio'2014 (Seignosse, October 2014).

Perrine Paul-Gilloteaux was invited to give a talk entitled "Microscopy images life cycle management in biology: knowledge mining from an image database" at the INRA seminar "Open Data" on the Curie image data base including development realized in collaboration with SERPICO for automatic processing on clusters from the database (Saint Martin des Combes, December 2014).

Perrine Paul-Gilloteaux (with F. Waharte) organized a practical on "Molecular dynamics in microscopy based on fluorescence image correlation" for microscopy school MiFoBio'2014 (Seignosse, October 2014).

9.1.5. Responsibilities

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).

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.

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.

President of AFRIF (Association Française pour la Reconnaissance et l'Interprétation des Formes) and member of the board of the GRETSI (Groupement de Recherche en Traitement du Signal et des Images).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Charles Kervrann:

Master: From BioImage Processing to BioImage Informatics, 5 hours, coordinator of the module (30 hours), Master 2 Research IRIV, Telecom-Physique Strasbourg & 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, Hoai Nam Nguyen), 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.

9.2.2. Supervision

PhD defense: Philippe Roudot (May 2014), Lifetime estimation of moving vesicles in FLIM microscopy, started in October 2010, supervised by Charles Kervrann and Francois Waharte (UMR 144 CNRS-Institut Curie, STED team) (ese [9]).

PhD defense: Denis Fortun (July 2014), Optical flow computing, aggregation methods and statistical methods: application to time-lapse fluorescence microscopy, started in October 2010, supervised by Charles Kervrann and Patrick Bouthemy (see [8]).

PhD in progress: Antoine Basset, Event detection and recognition in video-microscopy and applications in cell biology, started in October 2012, supervised by Patrick Bouthemy and Charles Kervrann in collaboration with Jérôme Boulanger and Jean Salamero (UMR 144 CNRS-Institut Curie, STED team).

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 company).

PhD in progress: Vincent Briane, Statistical methods and models for image registration, 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, started in October 2014, supervised by Patrick Bouthemy.

PhD in progress : Christophe Biscio, Statistical aspects of determinantal point processes, started in October 2012, supervised by Frédéric Lavancier.

9.2.3. Juries

Member of a jury for the recruitment of an assistant professor: University of Paris Descartes (Section CNU 26) [C. Kervrann].

Referee of Habilitation thesis: B.M. Jedynak (University of Lille) [Patrick Bouthemy].

Chair of Habilitation jury: O. Le Meur (University of Rennes 1) [Patrick Bouthemy].

Referee of PhD thesis: F.Z. Benamar (University of Picardie and University Mohammed V Agdal Rabat, supervised by D. Aboutajdine and E.M. Mouaddib [Patrick Bouthemy], P R. Kumar (University of Nice Sophia-Antipolis, supervised by M. Thonnat and G. Charpiat) [P. Bouthemy], S. Rigaud (Universiy of Pierre et Marie Curie, supervised by D. Rococeanu and L.J. Hwee) [P. Bouthemy], M. Maggioni (Tampere University of Technology, supervised by A. Foi) [C. Kervrann], J. Gul-Mohammed (Universiy of Pierre et Marie Curie, supervised by T. Boudier) [C. Kervrann], G. Trigui (University of Paris Sud, supervised by B. Dubreucq and A. Trubuil) [C. Kervrann].

Chair of PhD thesis juries: P.-H. Conze (Insa Rennes, supervised by L. Morin and P. Robert) [C. Kervrann], B. Delabarre (PhD, committee president, University of Rennes 1, supervised by E. Marchand) [P. Bouthemy], N. Morsli (Université de Grenoble, supervised by J.-F. Coeurjolly) [F. Lavancier]

VIRTUAL PLANTS Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. general chair, scientific chair

- Yann Guédon was the chair of the Agropolis workshop: Modeling plant development from the cellular to the organ scale (Montpellier, March 27-28th).

8.1.1.2. member of the organizing committee

- Christophe Godin is a member of the scientific board of the FSPM series of conferences.
- Christophe Godin is co-organizing with Patrick Lemaire the "interdisciplinary spring school on plant and animal morphogenesis", gathering students and professors during one week of lectures, debates and practicals.

8.1.2. Scientific events selection

8.1.2.1. member of the conference program committee

- Sarah Cohen-Boulakia is member of the following PC Conferences : SIGMOD 2015, ICDE 2015, DILS 2014 (Data integration in the life sciences), BPM 2015 (Business Process Management) and PC Workshops : TAPP (Theory and Practice of Provenance) 2014 and 2015, Sweet 2014 (Int. sigmod Workshop on scalable workflow enactment engines and technologies), BeyondMR 2015 (ICDT workshop on Algorithms and Systems for MapReduce and Beyond).

8.1.2.2. reviewer

- Frédéric Boudon was referee for papers submitted to the Eurographics conference.
- Christophe Godin was referee for papers submitted to the SIGGRAPH conference.

8.1.3. Journal

8.1.3.1. member of the editorial board

- Sarah Cohen-Boulakia is member of the Editorial board of the Journal of Data Semantics (Springer)
- Christophe Godin is an associate editor of the journal Frontiers in Plant Sciences
- Christophe Godin was a guest editor of the special issue of Annals of Botany on Functional-Structural Models of Plants (FSPMs).

8.1.3.2. reviewer

- Frédéric Boudon was referee for papers submitted to Computers and Electronics in Agriculture, Agronomy and JZUS-C (Computers and Electronics).
- Yann Guédon reviewed a paper for the Journal de la Société Française de Statistique.
- Christophe Pradal reviewed a paper for the Journal Annals of Botany.
- Christophe Godin reviewed papers for PNAS, PLoS Computational Biology, Annals of Botany and reviewed a book on mathematical models of plant growth.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

- Master Computer Science: Frédéric Boudon, Christophe Godin, Christophe Pradal, Benjamin Gilles [ICAR, LIRMM] and Loïc Barthe [IRIT, Toulouse], Geometric modelling, 30h, M2, University Montpellier 2, France.
- Master Biostatistics. Jointly with Montpellier 1, Montpellier 2 Universities and Agro-Montpellier. Yann Guédon teaches the stochastic modeling course http://www.agro-montpellier.fr/um2/um1/masterbiostatistique. This involves 21h of M2 classes.
- Christophe Godin gave a class of Master 2 on 'Phyllotaxis' in the Master of Biology at the University of Montpellier 2 (M2 - 4h).
- Christophe Godin and Yann Guédon participated to the module iPlant in the Master of bioinformatic and biomathematics (University Cheikh AntaDiop, Dakar, Sénégal) (M2 - 12h).
- Christophe Godin participated to an "Ecole Jeunes Chercheurs" organized by the Doctoral School SEVAB in Toulouse on "multiscale modeling of biological systems", 2h.
- Christophe Godin gave a series of 4 lectures on modeling in plant biology (10 hours) during 1 week at the Ecole of Physics des Houches on integrated structural cell biology.

8.2.2. Supervision

- PhD : Mathilde Balduzzi, *"Geometric modeling of plant canopy from 3D scanner images: Combined use of 3D information and reflected intensity for meshing"*, Montpellier 2 University, 24 Nov. 2014, C. Godin.
- PhD : Jonathan Legrand, *"Vers une compréhension multi-échelle du développement floral: des réseaux auxiniques aux patrons de la dynamique cellulaire"*, ENS Lyon, 7 Nov. 2014, A. Boudaoud, Y. Guédon.
- PhD : Pierre Fernique, *"A statistical modeling framework for analyzing tree-index data"*, Montpellier 2 University. 10 Dec. 2014, Y. Guédon, J.-B. Durand.
- PhD : Maryline Lièvre, *"Analyse et modélisation multi-échelle de la croissance foliaire chez Arabidopsis thaliana: mise au point et test d'un pipeline d'analyses permettant une analyse intégrée du développement de la cellule à la pousse entière"*, Montpellier SupAgro, 15 Dec. 2014, C. Granier, Y. Guédon.
- PhD in progress : Léo Guignard, *"Segmentation, visualization and mechanical modeling of embryonic development in the ascidian"*, Montpellier 2 University, C. Godin, P. Lemaire.
- PhD in progress : Guillaume Garin, *"Développement d'un cadre générique de modélisation du couple plante – agent pathogène dans OpenAlea et d'une méthodologie de transfert vers un Outil d'Aide à la Décision"*, ANRT Ciffre ITK, C. Robert, B. Andrieu, C. Pradal, C. Fournier.
- PhD in progress : Jean-Philippe Bernard, *"Adaptive mechanical model of early flower development based on 4D imaging"*, Montpellier 2 University, C. Godin, B. Gilles.
- PhD in progress : Beatriz Moreno Ortega, *"Analysis and modeling of metabolic and hormonal controls of lateral root growth during their ontogeny. Application to the impact of water stress on the root architecture"*, Montpellier SupAgro, B. Muller, Y. Guédon.
- PhD in progress : Sixtine Passot, *"Adaptation of millet root architecture : Phenotyping and spatio-temporal analysis of growing root systems"*, Montpellier 2 University, L. Laplaze, Y. Guédon.

8.2.3. Juries

- Yann Guédon was a member of the Jurys of his PhD students Pierre Fernique, Maryline Lièvre and Jonathan Legrand
- Frédéric Boudon was a member of the jury of the PhD defense of Jonathan Legrand, ENS Lyon.
- Christophe Godin was a member of the Jury of his PhD student Mathilde Balduzzi
- Christophe godin was a member of the Jury of the Habilitation (HDR) of Géraldine Morin ()

8.3. Popularization

- Christophe Godin and Frédéric Boudon presented the Secret Code of Flowers in the context of an Inria initiative at the Science Festival in October.
- Christophe Godin gave two classes on Fractals in science at Lycée Pompidou (Castelnau-Le-Lez).
- Yann Guédon gave a class about the analysis of plant architecture for high-school students "Math C2+" organized by Montpellier 2 University.

ARAMIS Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

O. Colliot acts as an expert for the World Health Organization (WHO) panel for setting research priorities in the field of dementia.

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

F. De Vico Fallani gave invited talk at the Workshop "Controversies in EEG source analysis" - Key Lab of Neuroinformation of the Ministry of Education, Chengdu, China (August 2014).

F. De Vico Fallani gave invited talk "6th Congress of Society Research Cerebellum", IRCCS Fondazione Santa Lucia, Rome, Italy (April 2014).

F. De Vico Fallani acts as an expert for the Research Foundation - Flanders, Belgium.

S. Durrleman acted as an expert for INdAM Fellowships in Mathematics cofounded with Marie Curie Actions and for ANEP (Spanish National Agency for Scientific Evaluation (ANEP)) CONEX Program

S. Durrleman gave an invited presentation at the workshop “comprendre et analyser les phénomènes temporels” of the conference RFIA (Reconnaissance des Formes et Intelligence Artificielle) Rouen, (July 2014)

S. Durrleman gave an invited presentation at the workshop “Statistical challenges in Neurosciences” at Warwick University, UK (September 2014)

S. Durrleman gave an invited presentation at the workshop “Spatiotemporal Image Analysis for Longitudinal and Time-Series Image Data” of the MICCAI Conference, Boston, USA (September 2014)

M. Chavez gave an invited presentation at the “Mediterranean School of Complex Networks” Salina, Italy (June 2014)

M. Chavez gave an invited seminar at the Universitat Pompeu Fabra, Barcelona, Spain (February 2014)

M. Chavez gave an invited seminar at the Universitat Politecnica de Cataluna, Terrasa, Spain (February 2014)

9.1.1. Scientific events organisation

9.1.1.1. General chair, scientific chair

F. De Vico Fallani is publicity chair for the IEEE BIoMS Workshop, University "Roma TRE", Rome, Italy 2014

F. De Vico Fallani acted as chairman for 3rd congress of the Society for Research on the Cerebellum, IRCCS F. Santa Lucia, Rome, Italy 2014.

S. Durrleman was co-chair of the 2nd MICCAI Workshop on Deep Brain Stimulation Methodological Challenges (DBSMC), Boston, USA, 2014

S. Durrleman was co-chair of the 3rd International MICCAI Workshop on Spatiotemporal Image Analysis for Longitudinal and Time-Series Image Data (STIA), Boston, USA, 2014

9.1.2. Scientific events selection

9.1.2.1. Member of the conference program committee

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

S. Durrleman was member of the program committee of the 6th International Workshop on Biomedical Registration (WBIR), London, 2014

9.1.2.2. Reviewer

O. Colliot acted as a reviewer for the conference Medical Image Computing and Computer Aided Intervention (MICCAI) .

9.1.3. Journal

9.1.3.1. Member of the editorial board

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

9.1.3.2. Reviewer

During the past year the members of the team acted as reviewers for numerous journals:

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

F. De Vico Fallani acted as a reviewer for IEEE TBME, IEEE TNRSE, Hum Brain Mapp, Neuroimage, Plos Comp Bio, J Neurosci Meth, Brain Topolography, Clin Neurophisiology, Plos One, Scientific Reports.

S. Durrleman acted as a reviewer for Medical Image Analysis, Neuroimage, IEEE Trans. Medical Imaging (TMI), IEEE Trans. Image Processing (TIP), Image and Vision Computing, International Journal of Computer Vision (IJCV), Annals of Applied Statistics, Journal of Computational and Applied Mathematics, SIAM Journal on Imaging Sciences, Journal of Alzheimer's disease.

M. Chavez acted this year as a reviewer for IEEE TBME, PLoS Comput Biol, PLoS One, J Royal Soc Interface, Phil Trans Royal Soc B, and Neurosc Behav Rev.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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

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

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

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

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

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

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

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

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

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

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

PhD school: Fabrizio De Vico Fallani, "Data analysis and modeling in cognitive and clinical neuroscience" - 3hours - Faculty of Psychology and Educational Sciences, Ghent, Belgium.

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

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

Engineering school: Dominique Hasboun, 3 hours, ENSEA

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

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

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

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

Medical school: Didier Dormont organizes and participates 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

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

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

9.2.2. Supervision

PhD in progress : Claire Cury, Analyse statistique de la variabilité anatomique de l’hippocampe à partir de grandes populations, Université Pierre et Marie Curie, Started in 2011, advisor: Olivier Colliot

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

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

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

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

Visiting PhD student (Janvier - April 2014): Johann Heinz Martinez, Characterization of functional interactions between neural oscillations from EEG recordings, Universidad Politecnica de Madrid, Spain. Responsable: Mario Chavez

Visiting PhD student (September - November 2014): Anton Giulio Maglione, Functional brain connectivity during neuroaesthetics experimental paradigms, Universita Sapienza, Roma, Italy. Responsable: Mario Chavez

Master 2: Kevin Roussel, Morphométrie de la structure interne de l'hippocampe en IRM 7 Tesla, Université Pierre et Marie Curie, Mar-Sept 2014, advisor: Olivier Colliot

Master 2: Evgeny Zuenko, Segmentation des hypersignaux de la substance blanche chez le sujet âgé : amélioration de la méthode WHASA et évaluations sur plusieurs cohortes, Université Paris Sud, Mars-Aout 2014, advisor: Marie Chupin

Master 2: Kanza Dekkiche, Cartographie de susceptibilité magnétique (CSM): Optimisation et comparaison entre méthodes sur des données multicentriques, Université Nice Sophia Antipolis, Mar-Aout 2014, advisor: Marie Chupin

End-of-course internship: Maxime Corduant, Interface graphique interactive pour la segmentation automatisée des sous régions de l'hippocampe humain in-vivo en IRM à très hauts champs, ENSIIE, Mar-Sept 2014, advisor: Marie Chupin

End-of-course internship: Fanny Grosselin, MATLAB graphical interface for statistical analysis of physiological recordings from monitoring of human respiratory states, Université Paris Est Cre´teil Val-de-Marne, March - August 2014, advisor: Mario Chavez

End-of-course internship: Guillaume Ruffin, Utilisation de la géométrie Riemannienne pour la caractérisation de la dynamique épileptique chez l'homme, Université Paris Est Créteil Val-de-Marne, March - August 2014, advisor: Mario Chavez

End-of-course internship: Antoine Latrille, Données Syndromiques et Forçages Climatiques en Epidémiologie, ESIEE-Paris, March - August 2014, advisor: Mario Chavez

9.2.3. Juries

Olivier Colliot participated, as referee, to the PhD committee of Jonathan Young (University College London), 2014 (supervisors: Sébastien Ourselin and John Ashburner).

Olivier Colliot participated, as examiner, to the PhD committee of Pierre Besson (Université de Lille), 2014 (supervisor: Louise Tyvaert).

Olivier Colliot participated, as examiner, to the PhD committee of Hao Xu (Ecole Polytechnique), 2014 (supervisors: Stéphanie Allassonnière and Bertrand Thirion).

Fabrizio De Vico Fallani participated, as referee, to the PhD committee of Jonas Chatel-Goldman (Université de Grenoble), 2014 (supervisor: Marco Congedo, Jean-Luc Schwartz and Christian Jutten).

Fabrizio De Vico Fallani participated, as examiner, to the PhD committee of Aude Costard (Université de Grenoble), 2014 (supervisor: Olivier Michel, Patrice Arby, Sophie Achard and Pierre Borgnat).

Fabrizio De Vico Fallani participated, as referee, to the PhD committee of Guillame Lio (Université de Lyon 1), 2014 (supervisor: Philippe Boulingez).

Stanley Durrleman participated, as examiner, to the PhD defense of J. Fishbaugh (University of Utah), 2014 (supervisor: Guido Gerig).

Mario Chavez participated, as referee, to the PhD committee of Alessio Cardillo (Universidad de Zaragoza, Saragose, Spain), 2014 (supervisor: Jesus Gardenes).

Mario Chavez participated, as referee, to the PhD committee of Rafael Romero-Garcia (Universidad Pablo de Olavide, Seville, Spain), 2014 (supervisor: Jose Luis Cantero).

9.3. Popularization

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

The team coordinates the activity of the FreeBorn consortium which aims at promoting the interaction and visibility of the French research teams working on brain connectivity and network theory: https://sites.google.com/site/fr2eborn/

ASCLEPIOS Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. general chair, scientific chair

- **N. Ayache** organized a new course on the "Personalized Digital Patient" at Collège de France for the annual chair on "Informatics and Computer Sciences". He gave 9 lectures and invited 26 lecturers including H. Delingette and X. Pennec from the Asclepios team.

8.1.1.2. member of the organizing committee

- **X. Pennec** was co-organizer of the MICCAI workshop STIA'14 (Spatio-Temporal Image Analysis for longitudinal and time series image data), which was held at Cambridge, MA (USA) on September 18;
- **M. Sermesant** was a co-chair of the MICCAI 2014 Workshop Statistical Atlases and Computational Models of the Heart and a co-organiser of the UCL Centre for Cardiovascular Imaging and Inria Asclepios Project collaborative workshop: Translational Applications of Cardiovascular Models.

8.1.2. Scientific events selection

8.1.2.1. member of the conference program committee

- **X. Pennec** was program committee member of the MICCAI 2014 conference (Cambridge, MA, USA), area chair for ICPR 2014 conference (Stockholm, Sweden), and area chair of the International Symposium on Biomedical Imaging (ISBI'15).
- **H. Delingette** was program committee member of the RFIA 2014 conference, the conference on Virtual Reality Interactions and Physical Simulation (VRIPHYS'14), the International Symposium on BioMedical Simulation (ISBMS 2014).

8.1.2.2. reviewer

- **H. Delingette** was reviewer for the International Symposium on Biomedical Imaging (ISBI'12), the conference on Virtual Reality Interactions and Physical Simulation (VRIPHYS'14), the International Symposium on BioMedical Simulation (ISBMS 2014), the conference on Medical Image Computing and Computer Assisted Intervention(MICCAI 2014), the European Conference on Computer Vision (ECCV 2014).
- **M. Sermesant** was a reviewer for the MICCAI 2014 and EMBS conferences.
- **X. Pennec** was reviewer for the sixth Workshop on Non-Rigid Shape Analysis and Deformable Image Alignment (NORDIA'14); the workshop on computational diffusion MRI (CDMRI'14); the MICCAI 2014 Workshop on Medical Computer Vision (MCV'14); the 6th International Workshop on Biomedical Image Registration (WBIR'2014); the 24th biennial international conference on Information Processing in Medical Imaging (IPMI 2015).

8.1.3. Journal

8.1.3.1. member of the editorial board

- **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.

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

- **N. Ayache** is Associated Editor of *IEEE Transactions on Medical Imaging*[0] and a member of the editorial board of the following journals: *Medical Image Technology* (Japanese journal) and *Journal of Computer Assisted Surgery* (Wiley).
- **H. Delingette** is a member of the editorial board of the journal *Medical Image Analysis* (Elsevier).
- **I. Strobant** is editorial coordinator for *Medical Image Analysis*, Elsevier (since october 2001) and editorial assistant for *IEEE Transactions on Medical Image Analysis*, (since october 2001).
- **X. Pennec** is a member of the editorial board of the journal *Medical Image Analysis* (Elsevier), of the *International Journal of Computer Vision* (Springer), of the SIAM *Journal on Imaging Sciences (SIIMS)*, and of the *Journal of Mathematical Imaging and Vision (JMIV)*.

8.1.3.2. reviewer

- **H. Delingette** was 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, The Visual Computer, Expert Review of Medical Devices, Journal of Fluids and Structures.
- **X. Pennec** was reviewer for the following journals : International Statistical Review (ISR), Medical Image Analysis (MedIA), IEEE Transactions in Medical Imaging (TMI), NeuroImage (NIMG), Symmetry, a chapter of a Springer book, IEEE Transactions on Pattern Analysis (PAMI), Int. journal of Computer Vision (IJCV), Journal of mathematical imaging and vision (IJCV), SIAM journal on Imaging Sciences (SIIMS).
- **M. Sermesant** was reviewer for the following journals: Nature Scientific Reports, Journal of the American College of Cardiology, IEEE Transactions on Medical Imaging, Medical Image Analysis, International Journal for Computer Assisted Radiology and Surgery, Computers in Biology and Medecine.

8.1.4. Invited Lectures

We only list invited talks here. Please refer to general references for regular participation in conferences with a submission process.

- **Nicholas Ayache** gave the following invited lectures:
  - Inaugural lecture at Collège de France on 10 April 2014 entitled "From Medical Images to the Digital Patient"
  - Keynote lecture at the ICIP 2015 conference (Oct. 28 2014)
  - Keynote lecture at Sanofi (Nov. 28 2014)
  - Invited lectures at the "Forum of Laureates" (Dec. 11 2014).
- **Hervé Delingette** gave the following invited lectures:
  - at the *Deformable Object Manipulation international workshop* held in Lyon (Japan).
  - at the Medical Imaging Summer School in Favignana (Italy)
  - at a Seminar in College de France within the chair "Informatique et sciences numériques" of Nicholas Ayache on the personalized digital patient, Paris, May 6th, 2014.
  - the Summer School on Medical Simulation in Lyon (France).
- **Xavier Pennec** gave the following invited lectures:
  - séminaire de théorie du contrôle, Univ. Toulon, Decembre 11, 2014.
  - Int. workshop on Geometry of Information and Optimization (GIO), Bordeaux, December 4-5, 2014.
  - Geometrical Models in Vision workshop, semester on Geometry, Analysis and Dynamics on Sub-Riemannian Manifolds, Institut Henry Poincarré, Paris - October 22nd-24th, 2014.

[0] http://www.ieee-tmi.org/

- the Medical Imaging Summer School (MISS'14) in Favignana (Italy), July 2014.
- Symposium on Statistical Shape models & Applications (Shape 2014), Delémont, Swiss, June 11-13 2013. Keynote speaker.
- Seminar at College de France within the chair "Informatique et sciences numériques" of Nicholas Ayache on the personalized digital patient, Paris, May 13, 2014.
- MICCAI PC Workshop, Cambridge, MA, USA, May 16, 2014.
- Séminaires du Laboratoire de Mécanique, Lille Univ., March 20 2014.

- **Maxime Sermesant** gave invited lectures at the Frontiers Conference on Pediatrics and Congenital Heart Diseases, at the European Society of Cardiovascular Magnetic Resonance, and the opening lecture at the Science and Technology Department Day of Bordeaux University.

8.1.5. Other Scientific Animation Activities

- **Nicholas Ayache** a member of the "Comité de la Recherche Biomédicale en Santé Publique (CRBSP)" of the Nice hospitals since 2008. He was invited to Tokyo, Japan in February 2014 to evaluate a national program on "Computational Anatomy" funded by the MEXT.
- **Xavier Pennec** is a member of the MICCAI Society Board of Directors, of the Doctoral follow-up Committee (CSD) at Inria Sophia Antipolis, and in charge of the relationships of Inria-Sophia with the Nice University Hospital (CHU). In 2014, he was a member of the jury of the Vienna Science and Technology Fund (WWTF) for their 2014 call on imaging.
- **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. He was an evaluator for the integrated European project ARTREAT, for the National Commission for Scientific and Technological Research of the Government of Chile (CONICYT). He was involved in the redaction of the application of the Unversité Cote d'Azur to the IDEX bid.
- **M. Sermesant** acted as an evaluator for the the Natural Sciences and Engineering Research Council of Canada (NSERC). He is a member of the Medical Simulation Working Group of Aviesan and of the CCC (local committee in charge of the selection of funding for courses and conferences organisation). He organized two hackfests for the medInria software.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master : H. Delingette and X. Pennec, Introduction to Medical Image Analysis, 34h course, Master 2 MVA, ENS Cachan, France

Master : H. Delingette and X. Pennec, Advanced medical Imaging, 29h course, Master 2 MVA and École Centrale de Paris, France

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

8.2.2. Supervision

8.2.2.1. PhD defended in 2014

1. Erin Stretton, *Simulation of patient-specific glioma models for therapy planning*. Nice Sophia-Antipolis University, November 2014.
2. Hugo Talbot, *Simulation of Radiofrequency ablation of cardiac cells*. University of Lille, July 2014. [[1]]

8.2.2.2. Current PhDs

1. Chloé Audigier, *Modeling radio-frequency ablation for the planning of abdominal tumors resection*, Nice Sophia-Antipolis University. Started in April 2012.

2. Thomas Benseghir, *3D/2D Coronary Registration for Interventional Cardiology Guidance*, Nice Sophia-Antipolis University. Started in March 2012.
3. Rocio Cabrera Lozoya, *Radio frequency ablation planning for cardiac arrhythmia treatment through biophysical modelling and machine learning approaches*, Nice Sophia-Antipolis University. Started in February 2012.
4. Nicolas Cordier, *Simulation and Analysis and Simulation of Brain Tumors Images*, University of Lille. Started in February 2012.
5. 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.
6. Vikash Gupta, *Diffusion tensor imaging of the brain: towards quantitative clinical tools*, Nice Sophia-Antipolis University. Started in November 2011.
7. Mehdi Hadj Hamou, *Biophysical modeling of the anatomical evolution of the brain*, Nice Sophia-Antipolis University. Started in September 2012.
8. Bishesh Khanal, *Modeling the atrophy of the brain in Alzheimer's disease*, Nice Sophia-Antipolis University. Started in November 2012.
9. Loic Le Folgoc, *Biophysical Personalization of Cardiac Models based on Machine Learning*, Nice Sophia-Antipolis University. Started in June 2012.
10. Jan Margeta, *Indexation of time-series 4D cardiac MR images*, Ecole des Mines de Paris. Started in March 2011.
11. Nina Miolane, *Geometric Statistics in Computational Anatomy: Template Estimation and Subspace Learning in Manifolds, Lie groups and Stratified Spaces*, Nice-Sophia Antipolis University. Started in November 2013.
12. Hugo Talbot, *Simulation of Radiofrequency ablation of cardiac cells*, University of Lille. Started in September 2010.
13. Anant Vemuri, *Augmented reality for image-guided surgery*, Nice-Sophia Antipolis University. Started in 2012.
14. Marc-Michel Rohé, *Analyse statistique spatio-temporelle des formes, déformations, flots et propriétés physiologiques du cœur*, Nice-Sophia Antipolis University. Started in 2014.
15. Sophie Giffard-Roisin, *Non-invasive Estimation of Cardiac Electrophysiological Parameters*, Nice-Sophia Antipolis University. Started in 2014.
16. Roch Mollero, *Uncertainty quantification in personalized electromechanical models. Application to cardiomyopathies and obesity*, Nice-Sophia Antipolis University. Started in 2014.
17. Thomas Demarcy, *Segmentation and anatomic variability of the cochlea and other temporal bone structures from medical images*, Nice-Sophia Antipolis University. Started in 2014.

8.2.2.3. Masters Thesis

1. Sophie Giffard-Roisin, *Evaluation of Personalised Canine Electromechanical Cardiac Models*. MVA Master, ENS Cachan. From April 2014 to August 2014.
2. Clair Vandersteen, *New concepts in mini-invasive cochlear implantation surgery applied to a surgical virtual planification*. Surgical Sciences Master, Medicine faculty Créteil Paris XI. From november 2013 to october 2014.

8.2.3. Juries

N. Ayache was co-supervisor of the Phd thesis of E. Stretton (École des Mines de Paris).

Hervé Delingette was co-supervisor of the Phd theses of E. Stretton (École des Mines de Paris) and H. Talbot (Université de Lille I), reviewer in the PhD thesis committee of Blandine Romain (Ecole Centrale de Paris), of Jordan Bano (Université de Strasbourg), of Petru-Stefan Manescu (Université de Lyon), of Mathieu Bailet (Université Joseph Fourier de Grenoble) and examinor in the PhD thesis committee of Elisa Schenone (Université Paris VI), Xavier Faure (Université de Lyon I), and Ahmed Yureidini (Université Lille I).

Maxime Sermesant was examinor in the PhD thesis committee of H. Talbot (Université de Lille I).

8.3. Popularization

Maxime Sermesant gave 2 presentations in 2014 about research and medical imaging in local high schools (Lycée Tocqueville in Grasse and Lycée Saint Exupéry in Saint Raphaël).

ATHENA Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. General chair, Scientific chair

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

9.1.1.2. Member of the organizing committee

- 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) .

9.1.2. Scientific events selection

9.1.2.1. Member of the conference program committee

- M. Clerc is member of the conference programme committee of International Conference on Basic and Clinical Multimodal Imaging (BACI2015), and of the award committee of the IEEE EMBC conference on Neural Engineering (NER2015).
- T. Papadopoulo is member of the conference programme committee for the national conference GRETSI 2015.

9.1.2.2. Reviewer

- R. Deriche serves several international conferences (Isbi, MICCAI, ISMRM...).
- T. Papadopoulo served the international conferences: ISBI 2014, ISBI 2015, NER 2015, VISAPP 2015.
- M. Clerc served as reviewer for the international conferences: EMBC 2014, ICASSP 2014.

9.1.3. Journal

9.1.3.1. Member of the editorial board

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

9.1.3.2. Reviewer

- R. Deriche serves several international journals (NeuroImage, IEEE Transactions on Medical Imaging, Magnetic Resonance in Medicine, JMIV, Medical Image Analysis Journal,...).

- In 2014, T. Papadopoulo served as a reviewer for the journals TBME, PMB, Frontiers In Neuroscience.
- In 2014, M. Clerc served as a reviewer for the Proceedings of the IEEE, Physiological Measurement

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Master: R. Deriche, Variational approaches and Geometrical Flows for 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: M. Clerc and T. Papadopoulo, *Inverse Problems in Brain Functional Imaging*, 36 ETD, M2 "Computational Biology and Biomedicine", 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 for brain functional imaging*, 24 ETD, M2, Mathématiques, Vision et Apprentissage, ENS Cachan, France.
- PhD: M. Clerc gave a course in a workshop dedicated to the OpenViBE software at the 6th International Brain Computer Interface Conference in Graz, September 2015.

9.2.2. Supervision

- PhD in progress: Kai Dang, “Modeling and characterizing electrical conductivity for cochlear implantation”, started Dec. 2013, Université Nice Sophia Antipolis. Supervisor: Maureen Clerc.
- PhD in progress: Rutger H.J. Fick, “Microstructure Recovery via dMRI”, started Oct. 2013, Université Nice Sophia Antipolis. Supervisor: Rachid Deriche.
- PhD in progress: Gabriel Girard, “fMRI & dMRI”, started Sept. 2012, Supervisors: Rachid Deriche & Maxime Descoteaux (University of Sherbrooke, CA).
- PhD in progress: Mouloud Kachouane, “Invariants and biomarqueurs in dMRI”, started Oct. 2012, Supervisors: Rachid Deriche & L. Boumghar (USTHB, Algiers).
- PhD in progress: Thinhinane Megherbi, “HARDI & High Order Tensors”, started Sept. 2011, Supervisors: Rachid Deriche & L. Boumghar (USTHB, Algiers)
- PhD in progress: Marco Pizzolato, “Diffusion & Perfusion MRI : From bench to bedside” started Dec. 2013, Université Nice Sophia Antipolis. Supervisor: Rachid Deriche.
- PhD in progress: Sebastian Hitziger, “MEEG signal processing”, started Nov. 2011, Supervisors: Théodore Papadopoulo & Maureen Clerc.
- 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 October 2013, Supervisor: Theo Papadopoulo.
- Master: Lucas Drevillon, ISEN Brest, Élève Ingénieur Master 2 - Majeur: Technologies Biomédicales. Supervised by D. Wassermann.
- Master: Atousa Setoodegan, Université Nice Sophia Antipolis, Memoire Master 2. Supervised by D. Wassermann.
- Master: Aymeric Reshef, ENS Cachan, Memoire Master 2, Mathématiques / Vision / Apprentissage. Supervised by D. Wassermann & William Wells III (Harvard Medical School / MIT).
- Master: Asya Metelkina, Université Nice Sophia Antipolis, Memoire Master 2, Supervised by M. Clerc.

- Master: Christos Papageorgakis, Université Nice Sophia Antipolis, Memoire Master 2, Supervised by T. Papadopoulo.
- Master: Alicia Malé, Télécom Physique Strasbourg, Memoire Master 2, Supervised by T. Papadopoulo.

9.2.3. Juries

- Rachid Deriche participated in the PhD juries of H.T. Nguyen (Neurospin, Saclay), C. Herold (Telecom ParisTech), Lars Lau Rakêt (CS Dept. University of Copenhaguen), C.Y. Sun (Insa, Lyon), S. Razakarivony (Caen Basse Normandie Univ.)
- Rachid Deriche participated in the HDR juries of J.P Da Costa (Université de Bordeaux).
- Demian Wassermann participated in the PhD Jury of V. Siless (Parietal EPI - Inria Saclay / Neurospin CEA, Orsay).
- Maureen Clerc participated in the PhD jury of Alexandre Fouchard (mi-parcours, CEA-LETI, Grenoble).

DEMAR Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. General chair, scientific chair

D. Guiraud is the conference chair of IEEE EMBS Neural Engineering Conference to be held in Montpellier in April 2015.
D. Andreu is co-organizer of the working group on Control Architectures of Robots of the french GdR Robotique.
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/

8.1.1.2. Member of the organizing committee

M. Hayashibe and P. Fraisse organized Workshop on Human Motion Modeling and Human-inspired Motor Control together with Emel Demircan, Oussama Khatib (Stanford Univ.) at IEEE HUMANOIDS 2014, Madrid, Spain.

8.1.2. Scientific events selection

8.1.2.1. Chair of conference program committee

C. Azevedo Coste is program chair of IEEE EMBS Neural Engineering Conference to be held in Montpellier in APril 2015.

8.1.2.2. Member of the conference program committee

Daniel Simon was member of the RTNS'14 (Real Time Networks and Systems) and ETFA'14 (Emerging Technologies and Factory Automation) int. conference program commitees

8.1.2.3. Reviewer

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

8.1.3. Journal

8.1.3.1. Member of the editorial board

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

8.1.3.2. Reviewer

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

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master: Mitsuhiro Hayashibe, Neuroprotheses II (module coordinator),EMG signal processing and its use for rehabilitation, 6h, Master STIC pour la Santé , Univ. Montpellier 2, France;

Master: Mitsuhiro Hayashibe, Modele et Regulation, Identification and Control in Biomechanics (module coordinator), 6h, Master STIC pour la Santé , Univ. Montpellier 2, France;

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

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

8.2.2. Supervision

HDR

HdR: Christine Azevedo Coste, "Assistance fonctionnelle : exploiter les fonctions résiduelles du système sensori-moteur déficient", Université Montpellier 2, 14/02/2014

PhD

PhD: Abir Ben Khaled, "Distributed real-time simulation of numerical models : application to powertrains", IFPEN, May 27th 2014, D. Simon and M. Ben Gaid (IFPEN)

PhD: Alejandro Gonzàlez de Alba, "Versatile whole-body center of mass identification for balance assessment in home rehabilitation", Université Montpellier 2, Dec. 11, M. Hayashibe and P. Fraisse

PhD: Hélène Leroux,"Méthodologie de conception d'architectures numériques complexes: du formalisme à l'implémentation en passant par l'analyse, préservation de la conformité. Application aux neuroprothèses", Université Montpellier 2, Oct. 28th 2014, D. Andreu and K. Godary

PhD: Zhan Li, "Real-time EMG-Feedback Torque Prediction and Muscle Activation Control toward New Modality in FES", Université Montpellier 2, Dec. 8, M. Hayashibe and D. Guiraud

PhD in progress: Yacine Berranen, "Modélisation volumique du muscle avec représentation des fonctions physiologiques", Oct. 2011, D. Guiraud, M. Hayashibe and B. Gilles

PhD in progress: Wafa Tigra, "Vers la commande intuitive d'une neuroprothèse dédiée à la préhension chez le sujet tétraplégique", Sept. 2013, C. Azevedo and D. Guiraud.

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

PhD in progress: Maedeh Aram, "Online optimization for functional electrical stimulation of hemiplegic patients", Aug. 2014, K. Mombaur (Heidelberg Univ., Germany) and C. Azevedo.

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

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

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

PhD in progress: Mariam Abdallah, "Système d'acquisition de signaux bioélectriques multicanal, programmable et implantable", Oct. 2012, G. Cathébras and F. Soulier.

Engineers

David Andreu supervised Guillaume Magro. "Spécification et prototypage d'un contrôleur de SEF implantable". Industrial Informatics Engineer, Inria Expert Engineer contract (3 years contract, Inria).

David Andreu supervised Thibaut Possompes. "HILECOP development". Computer engineering, Inria Research Engineer contract (4 month contract, Inria).

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

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

David Andreu supervises Arthur Hiairrassary on "Development of a stimulation real-time controller", Industrial Informatics Engineer, Research Engineer (2 years contract, UM2).

Christine Azevedo Coste supervises Benoît Sijobert on "SENSBIO project development", IJD Engineer, Research Engineer (2 years contract, Inria).

Engineers internships

David Andreu supervised Arthur Hiairrassary on "Architecture logicielle temps-réel d'un contrôleur de SEF implantable", Engineer final internship, from March. 2014 to Sep. 2014.

David Andreu supervised Charles Bernard on "Conception et implémentation de fonctions sur un dispositif de Stimulation Electrique Fonctionnelle", Licence Professionnelle internship, from Feb 2014 to Jun 2014.

David Andreu supervised Pascal Wagner on "Conception et Implémentation d'une solution de communication avec un dispositif médical actif", Licence Professionnelle internship, from Feb 2014 to Jun 2014.

Karen Godary and David Andreu supervised Lila Kaci on "Etude de la gestion d'exception dans un modèle formel au coeur de dispositifs médicaux", Master internship, from March 2014 to July 2014.

David Andreu supervised Amandine Pantel on "Contribution à la conception et l'implémentation d'une solution de communication avec un dispositif médical actif, et à son interface d'exploitation", Engineer student, CPE Lyon, from June 2014 to September 2014.

Christine Azevedo Coste and Benoît Sijobert supervised Jennifer Denys on "La détection des épisodes de freezing dans la maladie de Parkinson", MASTER M2, Technologie pour la Santé, from March to July 2014.

Christine Azevedo Coste and Lionel Lapierre (EXPLORE, LIRMM) supervised Geoffrey Gicquel on "Mobile Platform for Parkinson Disease Walk Analysis", DUT Génie Electrique et Informatique, St Etienne, from April to June 2014.

Daniel Simon and David Andreu supervised Samy Lafnoune on "Contrôle d'ordonnancement dans un système de stimulation électrique distribué", Master2 Robotique UM2 internship from Apr. to Sep. 2014.

8.2.3. Juries

D. Simon was member of the PhD defense of Yiming Zhan (Univ. Rouen, Apr. 17)

D. Simon was member of the PhD defense of Abir Ben Khaled (Univ. Grenoble, May 27)

D. Simon was member of the PhD defense of Maissa Abdallah (Univ. Nantes, June 18).

Christine Azevedo Coste was reviewer of Antoine Marin PhD thesis defense "Le mouvement Segmentaire au service du déplacement dans la marche : analyse couplée des deux niveaux", Thesis, Université Rennes 2.

Christine Azevedo Coste was examiner of Alejandro Gonzalez de Alba PhD thesis defense "Estimation des paramètres du centre de masse corps complet : vers l'évaluation de l'équilibre pour une application de rééducation à domicile.", Thesis, Université Montpellier 2.

Christine Azevedo Coste was member of the committee for Inria CR2 competition (Monbtbonnot Center).

David Andreu was examiner of Zhan Li PhD thesis defense "Real-time EMG-Feedback Torque Prediction and Muscle Activation Control toward New Modality in FES". Thesis, Université Montpellier 2.

GALEN Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. Member of the organizing committee

- Blaschko, Matthew: Co-Organizer of Learning and inference in discrete graphical models tutorial, in conjunction with IEEE Computer Vision and Pattern Recognition (CVPR).
- Kokkinos, Iasonas: Co-Organizer of BASes for Images and Surfaces (BASIS) tutorial, in conjunction with IEEE Computer Vision and Pattern Recognition (CVPR).
- Paragios, Nikos: (i) Co-Organizer of Bayesian and grAphical Models for Biomedical Imaging (BAMBI) workshop, in conjunction with the Medical Image Computing and Computer Assisted Intervention (MICCAI), (ii) Co-Organizer of the Learning and inference in discrete graphical models tutorial, in conjunction with IEEE Computer Vision and Pattern Recognition (CVPR).

9.1.2. Scientific events selection

9.1.2.1. Member of the conference program committee

- Blaschko, Matthew: Neural Information Processing Systems (NIPS), British Machine Vision Conference (BMVC), Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP).
- Kumar, Pawan: Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP).
- Paragios, Nikos: IEEE Computer Vision and Pattern Recognition (CVPR), Medical Image Computing and Computer Assisted Intervention (MICCAI).

9.1.2.2. Reviewer

- Argyriou, Andreas: Neural Information Processing Systems (NIPS).
- Blaschko, Matthew: Artificial Intelligence and Statistics (AISTATS), Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR), IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- Kokkinos, Iasonas: European Conference on Computer Vision (ECCV), IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Neural Information Processing Systems (NIPS), Artificial Intelligence and Statistics (AISTATS), Asian Conference on Computer Vision (ACCV).
- Kumar, Pawan: European Conference on Computer Vision (ECCV), Advances in Neural Information Processing Systems (NIPS).
- Paragios, Nikos: European Conference on Computer Vision (ECCV).

9.1.3. Journal

9.1.3.1. Editor-in-Chief

- Paragios, Nikos: Computer Vision and Image Understanding Journal (CVIU).

9.1.3.2. Member of the editorial board

- Kumar, Pawan: Computer Vision and Image Understanding (CVIU).
- Kokkinos, Iasonas: Image and Vision Computing Journal (IVC), Guest Editor Special Issue on Generative Models in Computer Vision - Computer Vision and Image Understanding Journal (CVIU).

- Paragios, Nikos: Medical Image Analysis Journal (MedIA), SIAM Journal on Imaging Sciences, Guest Editor Special Issue on Discrete Graphical Models in Biomedical Image Analysis - Medical Image Analysis Journal (MedIA).

9.1.3.3. Reviewer

- Kokkinos, Iasonas: International Journal of Computer Vision (IJCV), IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI), IEEE Transactions on Image Processing (T-IP), Image and Vision Computing (IVC), Computer Vision and Image Understanding (CVIU).
- Kumar, Pawan: IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI), Computer Vision and Image Understanding (CVIU).
- Paragios, Nikos: International Journal of Computer Vision (IJCV), IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI), IEEE Transactions on Medical Imaging (T-MI).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Masters

Blaschko, Matthew

- Master: Foundations of Machine Learning, 36, M1, Ecole Centrale Paris, FR
- Master: Structured Prediction, 24, M2, Ecole Centrale Paris, FR

Kokkinos, Iasonas

- Master: Machine Learning for Computer Vision, 24, M2, Ecole Normale Superieure-Cachan, FR
- Master: Introduction to Deep Learning, 24, M2, Ecole Centrale de Paris, FR
- Master: Introduction to Signal Processing, 36, M1, Ecole Centrale de Paris, FR
- Master: Introduction to Computer Vision, 36, M1, Ecole Centrale de Paris, FR

Kumar, Pawan

- Master: Introduction to Discrete Optimization, 12, M2, Ecole Centrale de Paris, FR
- Master: Discrete Optimization and Learning, 12, M2, Ecole Normale Superieure-Cachan, FR

Paragios, Nikos

- Master: Advanced Mathematical Models in Computer Vision, 24, M2, Ecole Normale Superieure-Cachan, FR

E-learning

MOOC: Coursera

Pedagogical resources : Kumar, Pawan & Paragios, Nikos, Discrete Inference and Lerning in Artificial Vision, M2, https://www.coursera.org/course/artificialvision

9.2.2. Supervision

- HdR : Matthew Blaschko, Advances in Empirical Risk Minimization for Image Analysis and Pattern Recognition, École Normale Supérieure de Cachan, 7 novembre 2014
- PhD in progress : Puneet Kumar Dokania, Learning to Rank with Missing and High-Order Information, 2012-2015, M. Pawan Kumar
- PhD in progress : Diane Bouchacourt, Large Scale Diverse Learning for Structured Output Prediction, 2014-2017, M. Pawan Kumar

- PhD in progress: Haithem Boussaid, Efficient Inference and Learning in Graphical Models for Multi-organ Shape Segmentation, 2011-2015, I. Kokkinos
- PhD in progress: Stavros Tsogkas, Learning structured mid-level representations for object recognition, 2011-2015, I. Kokkinos
- PhD in progress: Siddhartha Chandra, Efficient Learning and Optimization for 3D Visual Data, 2013-2016, Iasonas Kokkinos, Pawan Kumar
- PhD in progress: Stefan Kinauer, Surface-based representations for high-level vision tasks, 2013-2016, Iasonas Kokkinos.
- PhD in progress : Wacha Bounliphone, Statistical tools for Imaging-Genetics data integration, 2013-2016, Matthew Blaschko & Arthur Tenenhaus
- PhD in progress : Jiaqian Yu, Structured Prediction Methods for Computer Vision and Medical Imaging, 2014-2017, Matthew Blaschko
- PhD in progress : Eugene Belilovsky, Structured Output Prediction on Large Scale Neuroscience Data, 2014-2017, Matthew Blaschko
- PhD in progress : Stavros Alchatzidis, Message Passing Methods, Parallel Architectures & Visual Processing, 2011-2014, Nikos Paragios
- PhD in progress : Enzo Ferrante, 2D-to-3D Multi-Modal Deformable Image Fusion, 2012-2015, Nikos Paragios
- PhD in progress : Vivien Fecamp, Linear-Deformable Multi-Modal Deformable Image Fusion, 2012-2015, Nikos Paragios
- PhD in progress : Evgenios Kornaropoulos, Diffusion Coefficient: a novel computer aided biomarker, 2010-2013, Nikos Paragios
- PhD in progress : Maxim Berman, Learning Higher Order Graphical Models, 2014-2017, Nikos Paragios
- PhD in progress : Hariprasad Kannan, Efficient Inference on Higher Order Graphs, 2014-2017, Nikos Paragios
- PhD in progress : Huu Dien Khue Le, Graph-based Visual Perception : Theories and Applications, 2014-2017, Nikos Paragios

9.2.3. Juries

- **Matthew Blaschko**
  - **PhD Thesis Participation**: K. Gkirtzou - FR (PhD).
  - **Grant Reviewing Services**: European Research Council (ERC).
- **Iasonas Kokkinos**
  - **PhD Thesis Participation**: N. Dimitriou - GR (PhD).
  - **Grant Reviewing Services:** Swiss National Science Foundation.
- **Kumar, Pawan**
  - **PhD Thesis Participation**: K. Park - Australia (PhD), G. Lin - Australia (PhD).
- **Paragios, Nikos**
  - **PhD Thesis Participation**: M. Blascho - FR (PhD), D. Fortun - FR (PhD), A. Gastounioti - GR (PhD), B. Romain - FR (PhD), J. Tang - CA (PhD), J. Weissenberg - CH (PhD).
  - **Grant Reviewing Services:** Agence National de la Recherche, Austrian Research Council, Danish Research Council, Dutch Research Council, European Research Council, Israel Research Foundation, Swiss National Science Foundation.

9.3. Popularization

- **Blaschko, Matthew**
  - **Presentations**: Third School on Machine Learning and Knowledge Discovery in Databases (BR), Computer Vision and Pattern Recognition Tutorial (US), KU Leuven (BE), Machine Learning Challenge MICCAI Workshop (US), Agence Nationale de la Recherche (FR)
- **Kokkinos, Iasonas**
  - **Presentations**: Imagenet workshop (in conjunction with ECCV, CH), TTI-Chicago (USA), KTH University (SE), Dagstuhl Seminar on Shape Analysis (DE).
- **Kumar, Pawan M.**
  - **Presentations**: University of Oxford (UK), Ecole des Ponts (FR), Swedish AI Society Workshop (SAIS '14, SE), Xerox Research Center Europe (XRCE) (FR).
- **Paragios, Nikos**
  - **Presentations**: Reconnaissance de Formes et l'Intelligence Artificielle (RFIA'14, FR), Medical Imaging Summer School (MISS'14, IT), International Conference on Pattern Recogntion (ICPR'15, SE), Algorithmic issues for Inference in Graphical Models (AIGM'14, FR), University of Patras (GR), Swiss Federal Institute of Technology in Zurich (ETHZ) (CH).

MNEMOSYNE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Collective responsibilities

- F. Alexandre is member of the Inria Evaluation Committee; 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 local Inria committee for invited professors, 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 member of the Inria Evaluation Committee; Responsible of the local Inria committee for invited professors
- Thierry Viéville is in charge, at the Inria national level, of the institute science outreach actions and depends on the Direction de la Recherche for this part of his work.

8.1.2. Scientific events organisation

8.1.2.1. general chair, scientific chair

Organization of a scientific day common to Inria and the Next Generation Internet Foundation, about bodyware, Bordeaux, May 12 (N. Rougier).

8.1.2.2. member of the organizing committee

F. Alexandre participated to the organization of the workshop Bordeaux Computational Biology and Bioinformatics, Bordeaux, Nov. 25-26 ; of the Braincamp on Innovation and Cognitive Sciences, Paris, March 21.

All the permanent members of the team participated to the organization of LACONEU 2014, the third Summer School in Computational Neuroscience, in Valparaiso, Chile, from 13 to 31 Jan. 2014.

8.1.3. Scientific events selection

8.1.3.1. member of the conference program committee

Member of the program committee of SAB, ICANN (F. Alexandre)

8.1.3.2. reviewer

Reviewing for the Conicyt (Chile), the ANR, the FRM (Foundation for Medical Research), the Hospital of Rennes (F. Alexandre)

8.1.4. Journal

8.1.4.1. reviewer

Reviewer for PlosOne, Frontiers in Neurorobotics, Cognitive Computation, Applied Intelligence (F. Alexandre)

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Many courses are given in 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.

All the permanent members of the team gave lectures at LACONEU 2014, the third Summer School in Computational Neuroscience, in Valparaiso, Chile, from 13 to 31 Jan. 2014.

F. Alexandre gave a tutorial at the summer school on Robotics and Social Interactions (May 19-23), Moliets et Maa (France) and was an invited speaker to the Sino-French International Workshop on Computational Neuroscience in Shanghai (June); to the scientific day Inria/Fing on Bodyware (May 12); to the NeuroSTIC conference (July, 1-2, Cergy).

8.2.2. Juries

We participate to many juries each year.

8.3. Popularization

For a multi-disciplinary team as Mnemosyne, science popularization is not 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 half-time involved in popularization actions both at a concrete level (including on Mnemosyne subjects) and at the methodological level. This explains the amount of references to these external subjects in this document.
- Nicolas Rougier: Invited talk on “The role of the body in human cognition” in the 13^{th} Forum des Sciences Cognitives, Paris, March 2014; Participation to a round-table meeting on the digital society at the Futur en Seine festival; Article in Linux Mag on scientific visualization [21]
- PhD students participated to the regional exhibition Aquitec (C. Héricé and Maxime Carrere) and to “Fête de la Science” C. Héricé).

NEUROMATHCOMP Project-Team

7. Dissemination

7.1. Promoting Scientific Activities

7.1.1. Scientific events organisation

7.1.1.1. general chair, scientific chair

Olivier Faugeras is the General Chair of the 1st International Conference on Mathematical Neuroscience, to be held in Antibe-Juan les Pins, June 8-10 2015.

7.1.1.2. member of the organizing committee

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

7.1.2. Scientific events selection

7.1.2.1. responsable of the conference program committee

Bruno Cessac has organized the symposium "FROM STATISTICAL PHYSICS TO NEURONAL NETWORKS DYNAMICS" in Sophia Antipolis, November 6th 2014.

7.1.2.2. member of the conference program committee

Pascal Chossat is a member of the program committee of the 1st International Conference on Mathematical Neuroscience, to be held in Antibe-Juan les Pins, June 8-10 2015.

Pierre Kornprobst was a member of the program committee of the 22nd International Conference on Pattern Recognition (ICPR) and of the 8th International Conference on Bio-inspired Information and Communications Technologies (formerly BIONETICS).

7.1.2.3. reviewer

Bruno Cessac was a reviewer for the Netherlands Organisation for Scientific Research (NWO) and for the Journal of Mathematical Biology.

7.1.3. Journal

7.1.3.1. member of the editorial board

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

7.1.3.2. reviewer

Bruno Cessac was a reviewer for the Journal of Mathematical Biology.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Licence: Pierre Kornprobst, Modélisations mathématiques, 24h, Université Nice Sophia Antipolis, France.

Licence 2 : Rodrigo Cofre, Traitement du signal, 50h, L2, Université Nice Sophia Antipolis, France.

Licence 3 : Hassan Nasser, Electronique numérique, 36h, L3, Université Nice Sophia Antipolis, France

License 3 : Hassan Nasser, Microprocesseurs, 28h, L3, Université Nice Sophia Antipolis, France

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

Master 2: Romain Veltz, *Mathematical Methods for Neuroscience*, 24h, M2, ENS Paris, France.

Summer school: Bruno Cessac, *Neural Networks Dynamics.*, 3h, Lecture given in the LACONEU School 2014, Jan 2014, Valparaiso, Chile.

Researchers: Bruno Cessac, *Mean-Field Models in neuroscience* [42], 6h, Lecture given in the Mathemacs workshop organized at Inria Sophia, 14-16 May 2014.

7.2.2. Supervision

PhD : Hassan Nasser, “Analysis of large scale spiking networks dynamics with spatio-temporal constraints: application to Multi-Electrodes acquisitions in the retina”, Université de Nice, defence 14-03-14, supervised by Bruno Cessac.

PhD : Rodrigo Cofre, “Neuronal Networks, Spike TrainsStatistics and Gibbs Distributions. Dynamical Systems”, Université de Nice, defence 05-11-14, supervised by Bruno Cessac.

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

PhD in progress: Kartheek Medathati, « Perception du mouvement et attention: Des neurosciences à la vision artificielle», defence planned in 2016, co-supervised by Pierre Kornprobst and Guillaume S. Masson (Institut de Neurosciences de la Timone, UMR 6193, CNRS, Marseille, France).

7.2.3. Juries

Bruno Cessac. Reviewer of Jules Lalouette’s thesis, "Modélisation des réponses calciques de réseaux d’astrocytes : relations entre topologie et dynamiques" (supervision Hugues Berry). INSA Lyon, 05-12-14.

Pierre Kornprobst. Reviewer of Julian Quiroga Sepulveda’s thesis "Scene flow from RGDB Images". Université de Grenoble, France, 07-11-2014.

Pierre Kornprobst. Jury member of Hassan Nasser’s Thesis, "Analysis of large scale spiking networks dynamics with spatio-temporal constraints: application to Multi-Electrodes acquisitions in the retina", Université Nice Sophia Antipolis, France, 14-03-2014.

NEUROSYS Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. Organizing committee membership:

- openVibe Workshop as a satellite event of the international conference on Brain-Computer Interfaces on September 15th, 2014 in Graz (with BrainProduct, TMSi, g.tec) (L. Bougrain & G. Serrière)
- BCI competition, IEEE Neural Engineering Conference , Montpellier, 2015 (L. Bougrain).

8.1.2. Scientific events selection

8.1.2.1. Conference program committee membership:

IEEE International Conference on Systems, Man, and Cybernetics (SMC2014 [0]) special sessions on Brain-Machine Interfaces, October 5-8, San Diego (L. Bougrain)

8.1.2.2. Reviewer:

Programme H2020 (L. Buhry)

8.1.3. Journal

8.1.3.1. Editorial board membership:

Journal of Proteomics & Computational Biology (A. Hutt)

8.1.3.2. Reviewing activities:

Nonlinearity, Neurocomputing, Neural Computation, Journal of Computational Neuroscience, SIAM Journal of Applied Dynamical Systems, Journal of Mathematical Neuroscience, Frontiers in Neurology, Biological Cybernetics, Physical Review E, Physical Review Letters, Journal of Neuroscience, PLoS One, IEEE Transctions on Biomedical Engineering (A. Hutt); Neural Computation, Journal of Computational Neuroscience, Journal of Neural Engineering, Neurocomputing,CCSP (Circuits, Systems & Signal Processing) (L. Buhry)

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Engineer school : L. Bougrain, *Artificial Intelligence*, 109h, (3rd year) Telecom Nancy, France

Engineer school : L. Bougrain, *Brain-Computer interfaces*, 4.5h, (3rd year) Supelec, France

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

Licence: L. Buhry, *Programmation Python*, 37h en équivalent TD, niveau L1 MIASHS, University of Lorraine

Licence : L. Buhry, *IA et Résolution de problèmes*, 25h en équivalent TD, niveau L3 MIASHS, University of Lorraine

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

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

[0] http://smc2014.org

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

Master : L. Buhry, *Algoritmique pour l'intelligence artificielle (IA)*, 31h en équivalent TD, niveau Master 1 SCA (Sciences Cognitives et Applications), University of Lorraine

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

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

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

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

Master : L. Bougrain, *Machine learning*, 18h, Master of computer science (2st year), University of Lorraine, France

Master : L. Bougrain, *Human factors*, 30h, Master of computer science (1st year), University of Lorraine, France

Master : A. Hutt, *Pépites Algorithmiques*, 9h, niveau M1, École des Mines Nancy

8.2.2. Supervision

PhD in progress : Meysam Hashemi, *A cortico-thalamic model to describe the power spectrum of EEG under anaesthesia*, May 2012, A. Hutt

PhD in progress : Mariia Fedotenkova, *Detection of EEG-signal features for pain under general anaesthesia*, November 2013, A. Hutt

PhD in progress : Cecilia Lindig-Leon, *Multilabel classification for a 3D control of a robotic arm using band-specific EEG markers associated with a motor task*, November 2013, L. Bougrain and A. Hutt

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

Spring-Summer 2014 internship: Francesco Giovannini (Laure Buhry)

Summer 2014 internship: Sébastien Rimbert, *Immobility and anesthesia* (L. Bougrain)

Summer 2014 internship: Thomas Tassone *Client-server solution using ØMQ to allow a communication between OpenViBE and the API of the JACO robotic arm* (L. Bougrain)

8.2.3. Juries

- PhD defense of Cornelia Petrovic, University of Muenster, January 31 2014, reviewer and committee member (Axel Hutt)
- Recruitment of permanent Inria junior researchers (CR2) at Inria Sophia-Antipolis (Axel Hutt).

8.2.4. Commitees

- Member of the CDT (Commission de Développement Technologique) at Inria Nancy–Grand-Est (Laure Buhry)
- Member of the IES committee (Commission Information et Edition Scientifique) at Inria Nancy–Grand-Est (Laurent Bougrain)
- Member of Inria committee COST-GTRI to evaluate Inria Associate Teams (Axel Hutt).

8.3. Popularization

- TV interview for France 3 Lorraine, April 7 2014 (L. Buhry)

- Interview for the "Interstices" podcast, May 22 2014 (L. Buhry)
- Brain week: Comment lire dans les pensées d'autrui ? 12 March 2014, central hospital, Nancy (L. Bougrain)
- Exhibit on *controlling a robotic arm using EEG* at Researchers' Film Festival, June 10-15, 2014, Parc de la Pépinière, Nancy (L. Bougrain)
- Computational neuroscience, Inria Scientific Days, June 2014 (Laure Buhry)
- OpenViBE, Inria Scientific Day, June 2014, Lille (L. Bougrain)
- Is it really statistically significant? « Dynamics of neural circuits » NETT workshop, March 2014, Florence (L. Bougrain)
- Multiclass approaches to identify motor imageries, LAGIS sem., Jun. 2014, Lille (L. Bougrain)
- *Additive noise in neural populations on multiple scales*, Bernstein Center for Computational Neuroscience, Berlin, July 2014 (A. Hutt)
- *Modelling neural population activity under anaesthesia*, Humboldt University Berlin, July 2014 (A. Hutt)
- *Pattern storage and transient dynamics in heterogeneous neural fields in the context of cognition*, 3rd International Conference on Neural Field Theory (ICNFT), Reading, June 2014 (A. Hutt)
- *Additive noise tunes the stability in nonlinear delqyed systems*, Conference on Random Dynamics and Stochastic Numerics, Mannheim, June 2014 (A. Hutt)
- *Additive noise tunes the stability in nonlinear systems*, Inhomogeneous random systems, Paris, January 2014 (A. Hutt)
- *Additive noise in neural populations on multiple scales*, Fluctuations in Population Biology, Epidemiology and Evolution, Leiden, August 2014 (A. Hutt)

PARIETAL Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. Member of the organizing committee

- Gaël Varoquaux: PRNI, Euroscipy
- Philippe Ciuciu: ISBI

9.1.2. Scientific events selection

9.1.2.1. Member of the conference program committee

P.Ciuciu: ICASSP 2014, Associate Editor of the BISP (Bio Imaging Signal Processing) section

9.1.2.2. Reviewer

- Bertrand Thirion: IEEE ISBI, IPMI, MICCAI, IEEE PRNI, MLINI, NIPS
- Gaël Varoquaux: IPMI, MICCAI, IEEE PRNI, MLINI
- Philippe Ciuciu: MICCAI, IEEE ICASSP, IEEE ISBI, EUSIPCO, IEEE EMBC, IEEE PRNI

9.1.3. Journal

9.1.3.1. Member of the editorial board

- Bertrand Thirion: Frontiers in Neuroscience, Brain Imaging Methods
- Gaël Varoquaux: NeuroImage, Frontiers in NeuroInformatics and Frontiers in Brain Imaging methods
- Philippe Ciuciu: Frontiers in Neuroscience, Brain Imaging Methods

9.1.3.2. Reviewer

- Bertrand Thirion: Medical Image Analysis, IEEE Transactions on Medical Imaging, NeuroImage, Human Brain Mapping, PNAS, Nature Neuroscience.
- Gaël Varoquaux: HBM, MedIA, TMI, Frontiers in NeuroInformatics, Frontiers in Brain Imaging methods, Trends in cognitive science
- Philippe Ciuciu: SIAM Journal on Imaging Science, IEEE Trans Image Processing, IEEE Trans Medical Imaging, Proceedings of the IEEE, Signal Processing, NeuroImage, Journal of Neuroscience Methods, Plos One, MAGMA, Human Brain Mapping, Journal of Neural Systems, Journal of Neuroscience.

9.1.4. Scientific workshop

Bertrand Thirion took part to the CCC Brain workshop, Washington DC, Dec. 3-5.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Gael Varoquaux

- Stat Course cogmaster (3×3H)
- Python course Inria Rocquencourt et Rennes: 8Hrs each time
- Optimization tutoral at Euroscipy: 2H
- Scikit-learn tutorial at Scipy: 4H
- Functional connectivity course at OHBM: 30mn
- MSR TechDays 2014 : Scikit-Learn: Machine Learning en Python (2H)

Bertrand Thirion

- Master MVA, Imagerie fonctionnelle cérébrale et interface cerveau machine, 12h + 3h, M2, ENS Cachan, France.
- Functional connectivity course at ISMRM: 30mn
- Machine learning course, cortical mapping course at OHBM: 2×30 mn.

Philippe Ciuciu

- Master 2 Biomedical Engineering Université Paris V & Télécom Paris-Tech
- Master 2 Imagerie Médicale Université Paris-Sud

9.2.2. Supervision

PhD defense:

- Viviana Siless: July 8th, *Multi-modal registration of T1 brain image and geometric descriptors of white matter tracts*.
- Nicolas Zilber: March 10th, *ERF and scale-free analyses of source-reconstructed MEG brain signals during a multisensory learning paradigm.*
- Hao Xu: March 31st, *Probabilistic atlas statistical estimation with multimodal datasets and its application to atlas based segmentation*.

9.2.3. Juries

Bertrand Thirion was reviewer in the following PhD thesis committees:

- Mathieu Ruiz
- Ben Cassidy, university of South Wales, Australia
- Kasper Winther Andersen, April 22nd, DTU, Denmark

He was Examiner in the following PhD thesis committee:

- Hugo Raguet, Sept 22nd, Université Paris Dauphine.

9.3. Popularization

- Bertrand Thirion has taken part to the *Autour de la question* broadcast program on Feb. 24th.
- Bertrand Thirion co-authored the popularization paper : "Le décodage cérébral : exemple de la vision" in Clefs CEA, issue 62.
- Gaël Varoquaux gave a tutorial on scikit learn at the Microsoft Tech Days (February).

POPIX Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Journal

9.1.1.1. Member of the editorial board

Bertrand Maury is Associate Editor of *M2AN*

9.1.1.2. Reviewer

POPIX members reviewed articles for *Bioinformatics*, *Journal of Statistical Software*, *Computational Biology and Chemistry*, *European Journal of Clinical Pharmacology*, *Ecological Modelling*, *Scientia Iranica*, *Computers in Biology and Medicine*, *Communications in Mathematical Sciences*, *SIAM journal of Scientific Computing*, *Computational Statistics and Data Analysis*, *Statistical Sciences*.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Masters: Astrid Decoene, Elements finis et optimisation sous contraintes, Master EDPCS, Paris-Sud University.

Licence: Astrid Decoene, Licence Sciences Technologie Santé, mention mathématiques, Paris-Sud University.

Masters: Marie-Anne Poursat, Coordinator of the Mathematical Engineering course, Paris-Sud University

Masters: Marc Lavielle, Modèles Mixtes et Approche de Population, 24 hours, Paris-Sud University.

Masters: Bertrand Maury, Finite element method and optimization, modeling of the respiratory system, Paris-Sud University.

Masters: Bertrand Maury, Computational Fluid Dynamics, Numerical Analysis and Optimization, Ecole Polytechnique.

Miscellaneous: Marc Lavielle, Population approach and Mixed effects models: PAGE meeting 2014 (Alicante, Spain); University of Manchester (UK); University of Buffalo (USA).

9.2.2. Supervision

- Célia Barthélémy, was a PhD student working under the supervision of Marc Lavielle. She decided to stop her PhD in September 2014.
- Bertrand Maury co-supervises several PhD students: J. Fouchet-Incaux, A. Preux, G. Le Poultier, L. Lacouture, C. Etchegarai.
- Astrid Decoene co-supervises the PhD thesis of L. Lacouture.

9.2.3. Juries

- Marc Lavielle was referee for the HDR of Nicolas Savy (Toulouse 3) and the PhD of Charlotte Baey (ECP)
- Marc Lavielle was member of the jury for the HdR of Rémi Choquet (Montpellier 2) and for the PhD of Claire Christophe (Toulouse 3) and Nicklas Hartung (Marseille).

9.3. Popularization

- Marc Lavielle was invited to give a talk for the "Olympiades des Mathématiques" in Cachan
- Marc Lavielle was invited to participate to the "Nuit des Sciences" at ENS and give a talk about statistics and GMO.

SHACRA Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. ISBMS 2014

The 6th International Symposium on Biomedical Simulation 2014 (for detailed information, http://www.isbms.org) took place in Strasbourg on the $16-17^{th}$ October. Stéphane Cotin and all the team in Strasbourg organized the conference with help from the IHU Strasbourg. The conference was followed by a "SOFA Day". This event was a real success: 65 persons attended the conference and participants gave very positive feedback for both ISBMS conference and "SOFA Day".

8.1.2. Scientific events organisation

8.1.2.1. General chair, scientific chair

- Stéphane Cotin was member of the HCERES (Haut Conseil de l'évaluation de la recherche et de l'enseignement supérieur).

8.1.3. Scientific events selection

8.1.3.1. Chair of conference program committee

Stéphane Cotin was chair of ISBMS 2014 (6th International Symposium on Biomedical Simulation).

8.1.3.2. Member of the conference program committee

- Stéphane Cotin was:
  - members of the organizing committee of the 6th ISBMS conference,
  - member of the organizing committee of the 2nd workshop MICCAI DBSMC (Deep Brain Stimulation Methodological Challenges),
  - scientific member of the 3rd Workshop Francophone M-DBS (Modèles en Stimulation Cérébrale Profonde) - Planning, Implantation et Evaluation Post-opératoire.
- Christian Duriez was co-chair of:
  - EuroHaptics 2014 in Paris,
  - VRIPHYS 2014.
- Jeremie Dequidt was PC member of:
  - AFIG'2014,
  - ISBMS 2014.
- Alexandre Bilger was member of the organizing committee of the 2nd workshop MICCAI DBSMC (Deep Brain Stimulation Methodological Challenges),
- All members of the team SHACRA were involved in the organization of the ISBMS conference.

8.1.3.3. Reviewer

- Stéphane Cotin has been reviewer for:
  - MICCAI,
  - IPCAI.
- Christian Duriez has been reviewer for:
  - EuroHaptics 2014,
  - VRIPHYS 2014,

  - IROS 2014,
  - ICRA 2014,
  - ISBMS 2014,
  - SIGGRAPH ASIA 2014.
- Jeremie Dequidt has been reviewer for:
  - EuroHaptics 2014,
  - VRIPHYS 2014,
  - MICCAI 2014.

8.1.4. Journal

8.1.4.1. Member of the editorial board

- Stéphane Cotin was:
  - editor of the proceeding of the 6th International Symposium, ISBMS 2014, Strasbourg, France, October 16-17, 2014, Lecture Notes in Computer Science, Vol. 8789 (Theoretical Computer Science and General Issues) - Bello, Fernando, Cotin, Stéphane (Eds.),
  - editor for Information processing in computer-assisted interventions, IJCARS. 2014; 9(5): 755–757 (Dean Barratt,corresponding author Pierre Jannin, Gabor Fichtinger, and Stephane Cotin).
- Christian Duriez was editor of the proceedings EuroHaptics 2014.

8.1.4.2. Reviewer

- Stéphane Cotin has been reviewer for:
  - Media,
  - and IJCARS.
- Christian Duriez has been reviewer for:
  - the international journal CVIU (Computer Vision and Image Understanding),
  - IEEE Transaction on Haptics (3 papers),
  - ACM Transaction on Medical Imaging,
  - The Visual Computer Journal.
- Jeremie Dequidt has been reviewer for:
  - the French journal REFIG,
  - he international journal CMPB (Computer Methods and Programs in Biomedicine),
  - ACM Transaction on Medical Imaging,
  - the international journal MedIA (Medical Image Analysis)
- Hugo Talbot has been reviewer for the IBBWIO journal.

8.2. Teaching - Supervision - Juries - Invited Talks - Events

8.2.1. Teaching

- Christian Duriez teached:
  - FEM (32h) at the ICAM school in Lille,
  - real-time simulation (20h - Image Visualization and Interaction MASTER 2 Lille1).
- Jeremie Dequidt teached:
  - Programming in C (44h - Polytech Lille),
  - Advanced Programming (14h - Polytech Lille),

  - Introduction to Android (6h - Polytech Lille),
  - Computation Theory (24h - Polytech Lille),
  - Collision Detection (4h - Master2 Univ Lille 1).
- Alexandre Bilger was the supervisor of an intern at Tohoku University,
- Zhifan Jiang teached:
  - Programming in C (32h - Polytech Lille),
  - Introduction to Database (17.76h Polytech Lille).

8.2.2. Supervision

- Séphane Cotin supervised:
  - PhD : Alexandre Bilger, *Patient-Specific Biomechanical Simulation for Deep Brain Stimulation*, Université des Sciences et Technologie de Lille - Lille I, December 2014,
  - PhD : Hugo Talbot, *Interactive Patient-Specific Simulation of Cardiac Electrophysiology*, Université des Sciences et Technologie de Lille - Lille I, July 2014,
  - PhD : Ahmed Yureidini, *Robust Blood Vessel Surface Reconstruction for Interactive Simulations from Patient Data*, Université des Sciences et Technologie de Lille - Lille I, May 2014,
  - PhD in progress : Christoph Paulus (co-supervision),
  - PhD in progress : Rosalie Plantefève (co-supervision).
- Christian Duriez supervised:
  - PhD : Guillaume Kazmitcheff, *Minimal Invasive Robotics dedicated to Otological Surgery*, Université des Sciences et Technologie de Lille - Lille I, June 2014,
  - PhD (co-supervision) : Alexandre Bilger, *Patient-Specific Biomechanical Simulation for Deep Brain Stimulation*, Université des Sciences et Technologie de Lille - Lille I, May 2014,
  - PhD in progress : Julien Bosman,
  - PhD in progress : Frédérick Largililière,
  - PhD in progress : Zhifan Jiang.
- Jeremie Dequidt co-supervised the PhD in progress of Nazim Haouchine.

8.2.3. Juries

- Stéphane Cotin was in the examination committee of:
  - the PhD of Elsa Flechon (as president of the jury),
  - the PhD of Christian Herlin (as reviewer).
- Stéphane Cotin participated in the evaluation of LIRIS lab (December 2014).
- Christian Duriez was member of the jury of:
  - the PhD of Hugo Talbot (as invited member),
  - the PhD of Coralie Escande (as reviewer),
  - the PhD of Xavier Faure (as reviewer),
  - the PhD of Achille Melingui (as president of the jury).
- Jeremie Dequidt was
  - invited member in the PhD jury of Ahmed Yureidini,
  - jury member of the Android Competition for EESTEC

8.2.4. Invited talks

Séphane Cotin has been invited speaker:

- at the Advanced Laparoscopy and Computer Vision group (ISIT, UMR 6284 CNRS, Clermont Ferrand, France),
- at winter school (Medical Robotics, March 2014, Strasbourg, France),
- at summer school (July 2014, Design and Development of Medical Training Systems, Lyon, France).

Christian Duriez has been invited speaker:

- at JRL (AIST Lab) Tsukuba in October 2013,
- at BIRDS Workshop in February 2014,
- at Festo Company in march 2014,
- at ICRA workshop on Soft Robots in June 2014.

8.2.5. Special events

This year, Stéphane Cotin, team leader of the team, became research director DR1 and Christian Duriez got a position of research director during the competitive evaluation of spring 2014. Congratulations to them !

Christian Duriez also created a new research team: DEFROST working around the soft robotics: model, simulation, control and software.

Jeremie Dequidt was the team Leader of RBQT (from Polytech Lille), which has been involved in two major competitions (German Open Cup and World Cup in Brazil). Jeremie was also nvolved in the organization of the robotic competition for primary schools (CREP: *Coupe de Robotique des Ecoles Primaires) which has gathered more than 300 kids in Polytech Lille.

8.3. Popularization

8.3.1. Talk at College de France

Our project leader Stéphane Cotin made a talk at the College de France entitled "*Simulation en médecine : présent et futur*". This was done the 17th June 2014 in the scope of the Informatic chair, led by Nicholas Ayache.

8.3.2. Journée Francaise de Radiologie, JFR

The SHACRA team was par of the JFR 2014 event in Paris from the 18th to the 20th October. Hugo Talbot and Rosalie Plantefève presented their work and the project developed by the team.

8.3.3. Interaction Healthcare

The company Interaction Healthcare organized an event on the 3rd of April 2014 taking place in Paris. With this conference, the company aimed at promoting the field of serious games and virtual simulation training. At this occasion, Hugo Talbot presented the latest version of the training simulator for electrocardiology: “Electrophysiology simulation for RF-ablation of ventricular arrhythmia”.

8.3.4. IHU Scientific Days

At the occasion of the IHU Scientific days, we visited the IHU Strasbourg and a talk was done by Stéphane Cotin.

8.3.5. Visit to the Mentice company

In december 2014, the training simulator for electrocardiology inteventions was presented to the Mentice company in Göteborg (Sweden). This was the opportunity to discuss our mutual technologies and compare our simulators.

8.3.6. Euratechnologie

The team presented simulations in the Inria showroom at Euratechnologie in Lille all year long. This was the opportunity to get very positive and interesting feedback from visitors.

SISTM Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. Member of the organizing committee

BMW (Bordeaux Modeling Workshop), a two days workshop was organized (with 30 participants).

8th French Clinical Epidemiology Conference EPICLIN

9.1.2. Scientific events selection

9.1.2.1. Member of the conference program committee

RT is a member of the scientific committee of IWHOD International Workshop on HIV Observational Databases from 2013,

9.1.3. Journal

9.1.3.1. Member of the editorial board

Lifetime Data Analysis (DC)

Stat Surveys (DC)

Journal de la Société Française de Statistique (DC)

9.1.3.2. Reviewer

The members of the team reviewed numerous papers for the following international journals :

AIDS (RT)

Biometrical (BL)

Biometrics (DC)

Annals of applied Statistics (DC)

Briefings in Bioinformatics (RG)

Health Services and Outcome Methodology (DC)

Information Science (RG)

International Jounral of Epidemiology (DC)

Journal of Multivariate Analysis (RG)

Journal of the Royal Statistical Society: Series A (DC)

Machine Learning (RG)

Neurocomputing (RG)

Statistics in Medicine (MA, DC, RT)

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master : MA teaches in the two years of the Master of Public Health at ISPED, Univ. Bordeaux, France. Furthermore, she is head of the first year of the master.

Master : DC, teaches occasionnaly in the Biostatistics specialty of the second year of the Master of Public Health.

Master : RG, teaches in the two years of the Master of Public Health.

BL teaches at the School of Mathematics and Physics (The University of Queensland, Australia).

Master : RT, 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.

E-learning

MA is head of the first year of the e-learning program of the Master of Public Health, and teaches in it.

RG teaches in the first year of the e-learning program of the Master of Public Health.

RT 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.

9.2.2. Supervision

PhD in progress : Ana Jarne, *Modélisation d'interventions sur le système immunitaire pour le traitement et les vaccins contre le VIH*, from Nov 2012, co-directed by Daniel Commenges & Rodolphe Thiébaut

PhD in progress : Boris Hejblum, *Analyse integrative de données de grande dimension appliquée à la recherche vaccinale*, Oct 2011, co-directed by Rodolphe Thiébaut & François Caron

PhD in progress : Marie-Quitterie Picat, *Analyse des biomarqueurs dans les troubles immunologiques des maladies du système immunitaire*, from Nov 2012, directed by Rodolphe Thiébaut

PhD in progress : Perrine Soret, *Modélisation de données longitudinales en grande dimension*, from Oct 2014, directed by Marta Avalos

Master internship : Damien Chimits, *Analyse par groupe de gènes de données longitudinales d'expression génique*, from Mar 2014 to Sep 2014, co-directed by Rodolphe Thiébaut & Boris Hejblum

Master internship : Edouard Lhomme, *Modélisation de la dynamique de la réponse immunitaire précoce au vaccin VIH*, from Mar 2014 to Sep 2014, directed by Rodolphe Thiébaut

Master internship : Mélanie Née, *Consommation médicamenteuse et risque d'accident de la route : exploration par simulation de schémas d'études épidémiologiques applicables à partir des données médico-administratives*, from Mar 2014 to Sep 2014, co-directed by Marta Avalos & Ludivine Orriols

Master internship : Chloé Pasin, *Modelling the immune response to HIV vaccine*, from Feb 2014 to Sep 2014, directed by Rodolphe Thiébaut

9.2.3. Juries

Members of the team were involved in 6 PhD juries, 2 professorships and 2 HDR.

VISAGES Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. General chair, scientific chair

- C. Barillot co-Chair of Miccai 2014, Boston MA - Sept 14-18 2014

9.1.2. Scientific events selection

9.1.2.1. Chair of conference program committee

- C. Barillot Program Committee Chair of Miccai 2014, Boston MA - Sept 14-18 2014

9.1.2.2. Member of the conference program committee

- C. Barillot was area chair of SPIE Medical Imaging: Image Processing, IEEE ISBI, TPC member of ESMRMb.

9.1.2.3. Reviewer

- O. Commowick was TPC member of MICCAI'2014, IEEE ISBI'2014.

9.1.3. Journal

9.1.3.1. Member of the editorial board

- C. Barillot is member of Editorial Boards of IEEE Transactions on Medical Imaging, Medical Image Analysis, Current Medical Imaging Reviews, ISRN Signal Processing and is Editor-in-Chief of Frontiers in ICT: Computer Image Analysis.

9.1.3.2. Reviewer

- IEEE TIP (CB), IEEE TMI (OC, PM), Medical Image Analysis (CB, SP, OC), NeuroImage (CB, OC), Neuroimage clinical (CB), Computer Methods and Programs in Biomedicine (CB), Comput. Med Im & Graph (CB), Comp Meth & Prog in Biomed (CB), IEEE Signal Proc. Let. (CB), Sensors (CB), Magnetic Resonance in Medicine (EC), Plos-ONE (CB, EC), IJICT (CB), IJSISE (CB), IJCVR (CB), Journal of Mathematical Imaging and Vision (PM), Neurobiology of Aging (IC).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Teaching on 3D Medical Imaging (visualization, segmentation, fusion, management, normalization) in the following tracks:

Master 2 SIBM, University of Angers-Brest-Rennes: 26h (*C. Barillot, O. Commowick, S. Prima, I. Corouge, E. Bannier, J.-Y. Gauvrit*):

C. Barillot is responsible for one semester.

J.-Y. Gauvrit is the coordinator for the Master.

Master 1 SIBM, University of Rennes: 5h (S. Prima)

Ecole Supérieure d'Ingénieur de Rennes (ESIR): 60h in medical imaging (P. Maurel)

Other topics:

Ecole Supérieure d'Ingénieur de Rennes (ESIR): 60h in general image processing (P. Maurel) and 60h in algorithmics and complexity (P. Maurel)

ENS Cachan-Bretagne: 24h in introduction to image processing (P. Maurel)

9.2.2. Supervision

PhD Hrishikesh Deshpande, Dimensionality Reduction and Statistical Learning for Computational Modeling of Natural Evolution of Brain Pathologies, Inria, from December 2012, Christian Barillot, Pierre Maurel

PhD Renaud Hédouin, Biomarker discovery in brain imaging by using diffusion MRI, Inria/Inserm, from November 2013, Christian Barillot, Olivier Commowick

PhD Yogesh Karpate, Quantitative analysis of MRI in Multiple Sclerosis in the context of the clinically isolated syndroma, INSERM, from December 2011, Christian Barillot, Olivier Commowick

PhD Lea Itmi, Quantitative Analysis Of Arterial Spin Labeling MRI For Robust Parametric Information Of Perfusion Maps, Inria / Siemens, from Mar 2014, Christian Barillot, Pierre Maurel

PhD 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 Hélène Raoult, “Angio-RM morphologique et dynamique sans injection de produit de contraste dans l’exploration des pathologies neurovasculaires”, CHRU Rennes, Nov. 2011, defended in October 2014, Elise Bannier, Jean-Yves Gauvrit

9.2.3. Juries

- C. Barillot: PhD, Reviewer, Maxime Taquet, University of Louvain, Jan 2014
- C. Barillot: PhD, President, Celine Louarpe, Univ. Pierre et Marie Curie, Jan 2014
- C. Barillot: PhD, Reviewer, Viviana Siless, Université Paris Sud, July 2014
- C. Barillot: HDR, President, François Rousseau, June 2014
- C. Barillot: PhD, Reviewer, Zehan Wang, Imperial College, London, Nov. 2014
- C. Barillot: PhD, Reviewer and President, Erin Stretton, Mines Paris-Tech, Nov. 2014
- C. Barillot: PhD, President, Aurélie Emilien, Univ. of Bordeaux, Dec. 2014

9.3. Popularization

- Conférence/débat public "Le partage de données d’imagerie en santé: Noeud FLI-IAM", Journées Françaises de Radiologie
- Conférence/débat public "Les biomarqueurs d’imagerie" College de France
- Conférence/débat public Technoférence "E-santé", Pole Image et Reseaux
- Exposition Stand démonstration Inria, Journées Françaises de Radiologie
- Presse écrite "Equipe de recherche Visages et ses projets innovants", Revue CAPITAL
- Site web de vulgarisation "Projet Hemisfer", lettre d’information Emergences Inria
- Site web de vulgarisation : reportage photo Serimedis/inserm
- Site web de vulgarisation Emergence Inria: http://emergences.inria.fr/emergences-2014/newsletter-n30/L30-SHANOIR

ANGE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. Member of the organizing committee

N. Seguin was a member of the organizing committee of "Mathematical Hydrodynamics 2014" which took place in Paris in June.

As a member of EGRIN, A. Mangeney co-organised the 2nd summer school which took place at domaine de Chalès from June, 30. to July, 3.

9.1.2. Involvement in the mathematical community

E. Godlewski is a member of the board of AMIES.

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

Y. Penel is a member of the commission Popularisation of the French society for Applied and Industrial Mathematics (SMAI).

9.1.3. Journal

9.1.3.1. Reviewer

Member	Journal	Others
E. Godlewski	Numerische Mathematik, Computational and Applied Mathematics, ESAIM:M2AN, Journal of Difference Equations	
A. Mangeney	Physics of Fluids, Proceedings of the Royal Society A, Landslides, Journal of Geophysical Research, Journal of Fluid Mechanics, Earth Surface processes and Landforms and Bulletin of Volcanology	
Y. Penel	Journal of Scientific Computing	

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master's degree (M2) : A. Mangeney and J. Sainte-Marie, Dynamique des Ecoulements gravitaires et tsunamis, 40 hours (lectures and programming classes), Univ. Paris Diderot Paris 7

Master's degree (M2) : E. Godlewski and J. Sainte-Marie, Models and numerical methods for free surface flows, 20 hours (lectures), Univ. Pierre et Marie Curie Paris 6

Master's degree (M2) : E. Godlewski, Numerical methods for nonstationary PDEs, 18 hours (example and example classes), Univ. Pierre et Marie Curie Paris 6

Master's degree (M2) : C. Guichard, Numerical methods for nonstationary PDEs, 18 hours (example and example classes), Univ. Pierre et Marie Curie Paris 6

Master's degree (M1) : A. Mangeney, Géologie de l'Environnement, 31 hours (lectures and programming classes), Univ. Paris Diderot Paris 7

Master's degree (M1) : N. Seguin, Mathematics, Numerical Analysis and Algorithmics, 72 hours (lectures, example and programming classes), Univ. Nantes

Engineering school (2nd year) : Y. Penel, Numerical Analysis applied to financial issues, 15 hours (lectures), EFREI

Bachelor's degree (L3) : C. Guichard, Numerical linear algebra, 72 hours (example and programming classes), Univ. Pierre et Marie Curie Paris 6

Engineering school (1st year) : Y. Penel, Partial Differential Equations, 15 hours (example classes), École Centrale Paris

Bachelor's degree (L2 and L3) : C. Guichard, Introduction to Scilab, 36 hours (programming classes), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L2)] : Y. Penel, Integration in 2 and 3 dimensions, 24 hours (lectures), Univ. Pierre et Marie Curie Paris 6

Bachelor's degree (L1) : N. Seguin, Mathematics for Biology and Chemistry, 50 hours (example classes), Univ. Nantes

Bachelor's degree (L1) : N. Aïssiouene, Calculus, 48 hours (example classes), Univ. Pierre et Marie Curie Paris 6

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

9.2.2. Supervision

PostDoc in progress : Vivien Desveaux, *Méthodes d'assimilation de données dans le cadre de la surveillance des agressions biologiques et chimiques*, supervised by J. Sainte-Marie (in collaboration with M. Boulakia), from Nov. 2014

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

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

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 Oct. 2014

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

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

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

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

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

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 Oct. 2014

PhD in progress : 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), from 2013

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

M2 internship : Chen Cheng, *Modélisation numérique de l'érosion en rivière : un schéma de relaxation pour le modèle de Saint-Venant Exner*, ENSTA, supervised by E. Audusse, Spring 2014

M2 internship : Do Minh Hieu, *Numerical Analysis For Quasi Geostrophic Flows*, Univ. Paris 13, supervised by E. Audusse and Y. Penel (in collaboration with S. Dellacherie and P. Omnes), Spring 2014

M2 internship : Antoine Haddon, *Interprétation cinétique et schémas à grands pas de temps pour le système de Saint-Venant*, Univ. Pierre et Marie Curie Paris 6, supervised by E. Audusse, Y. Penel and J. Sainte-Marie, Summer 2014

M2 internship : Ethem Nayir, *Analyse mathématique d'un modèle hyperbolique pour les écoulements à surface libre*, Univ. Pierre et Marie Curie Paris 6, supervised by E. Audusse and Y. Penel, Summer 2014

9.2.3. Juries

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

09/10/14, HdR : A. Mangeney : Frédéric Cappa (Univ. Nice, *Le rôle des fluides dans la mécanique des failles et des glissements de terrain*)

17/10/14, PhD : N. Seguin (referee) : Arnaud Duran, (Univ. Montpellier 2, *Numerical simulation of depth-averaged flow models: a class of Finite Volume and discontinuous Galerkin approaches*

09/12/14, PhD : E. Godlewski (president) : Mathieu Girardin (Univ. Pierre et Marie Curie Paris 6, *Méthodes numériques tout-régime et préservant l'asymptotique de type Lagrange-Projection. Application aux écoulements diphasiques en régime bas Mach*)

09/12/14, PhD : A. Mangeney : Nadège Langet (IPG Strasbourg), *Détection et caractérisation massives de phénomènes sismologiques pour la surveillance d'évènements traditionnels et la recherche systématique de phénomènes rares*)

9.3. Popularisation

2014 : E. Audusse intervened in a secondary school (Pontault Combault) for "Maths en Jeans".

2014 : P. Ung presented his PhD topic in a high school (Lycée Duhamel Du Monceau, Pithiviers). This intervention was an initiative of "Centre-Science" (Orléans) in the context of a doctoral training.

26–28/11/14 : M. Parisot and Y. Penel ran the stand of the French mathematics community (SFdF, SMAI, SMF) at the Onisep part of the European exhibition for Education.

12/12/2014 : E. Audusse gave a talk at Bobigny for Mathematic Park entitled "Maths and Natural Hazards".

Alongside these events, the web platform TsunaMaths developed by E. Audusse, R. Hamouda and J. Sainte-Marie was presented at the exhibition on the occasion of "Mathematics of Planet Earth" (December 2012-December 2013) at the Deutsches Tecknikmuseum (Berlin). It was also a part of the Nims-Imaginary exhibition at Seoul (Aug. 13-20, 2014) on the occasion of ICM2014.

CASTOR Project-Team

9. Dissemination

9.1. Teaching - Supervision - Juries

9.1.1. Teaching

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

Master: D. Auroux, Optimisation, 45h, M1, Université de Nice Sophia Antipolis, France

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

Master: J. Blum, Optimization, 30h, M1 Erasmus Mundus, Université de Nice Sophia Antipolis, France

Master: J. Blum, Optimisation et controle, 30h, M2, 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 numérique - EDP, 66h, M1, Polytech Nice Sophia Antipolis, France

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

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

Ecole d'ingénieur/Master: B. Nkonga, Calcul Parallèle, 24h, M2, Polytech Nice Sophia, France

Licence: A. Sangam, Analyse, 40h, L1, Université de 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 Element, 25h, M1, Université de Nice Sophia Antipolis, France

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

9.1.2. Supervision

PhD: Giovanni Ruggiero, Une étude comparative de méthodes d'assimilation de données pour des modèles océaniques, Université de Nice Sophia Antipolis, 13 mars 2014, J. Blum et Y. Oumières

PhD: Jeaniffer Vides, Schémas de type Godunov pour la modélisation hydrodynamique et magnéto-hydrodynamique, Université de Nice Sophia Antipolis, 21 octobre 2014

PhD in progress : Pierre Cargemel, "Déraffinement adaptatif de maillages non structurés pour une simulation efficace des procédés EOR", September 1st 2012, Hervé Guillard.

PhD In progress : J. Costa, Modeling of Elms, Sep 2012 - July 2015, B. Nkonga

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 : C. Le Touze, “Etude du couplage entre modèles à phase séparée et modèles à phase dispersée pour la simulation de l’atomisation primaire en combustion cryotechnique”, September 1st 2011, Hervé Guillard.

9.1.3. Juries

Jacques Blum was referee in the PhD thesis jury of Ngoc Minh Trang Vu, Université Grenoble Alpes.

Jacques Blum was in the PhD thesis jury of Giovanni Ruggiero, Université de Nice Sophia Antipolis.

Boniface Nkonga was referee in the HDR jury of Marina Olazabal, Université de Bordeaux.

Boniface Nkonga was referee in the PhD thesis jury of Eliam Erichon, Université de Marseille.

Boniface Nkonga was referee in the PhD thesis jury of Pascal Jacq, Université de Bordeaux.

Boniface Nkonga and Hervé Guillard were in the PhD thesis jury of Jeaniffer Vides, Université de Nice Sophia Antipolis.

Richard Pasquetti was referee in the PhD thesis jury of Y. Eulalie, Université de Bordeaux, Bordeaux.

Richard Pasquetti was referee in the PhD thesis jury of R. Cheaytou, Université d’Aix-Marseille.

Richard Pasquetti was president of the PhD thesis jury of B. Bensiali, Marseille.

9.2. Popularization

Contribution of B. Nkonga to a Newspaper in the local Journal La Marseillaise www.lamarseillaise.fr/.../30371-90-mathematiciens-en-fusion-a-luminy

Contribution of B. Nkonga to the Iter interfaces news. http://www.itercad.org/Interfaces/Interfaces51.pdf

B. Nkonga and H. Guillard was organizers of the summer school CEMRACS 2014 on Numerical modeling of plasmas, July 21 - August 29, CIRM, Marseille

CLIME Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

- Marc Bocquet is a member of the INSU/LEFE MANU scientific committee.
- Marc Bocquet is a member of the Scientific Council of the CERFACS institute in Toulouse, France.
- Marc Bocquet is a member of the selection comittee of the Prix André Prud'homme of Météo et Climat (Société Météorologique de France).
- Isabelle Herlin is a member of the Scientific Council of CSFRS (High Council for Strategic Education and Research in France).
- Isabelle Herlin is a member of the program committee of DIGITEO, french research cluster in science and technology of information.
- Isabelle Herlin is a member of the Scientific Council of OSU-EFLUVE.
- Isabelle Herlin is a member of the Evaluation Committee at Inria.
- Isabelle Herlin is a member of the AERES Evaluation Committee of LISTIC.

9.1.1. Scientific events organisation

9.1.1.1. general chair, scientific chair

- Marc Bocquet: Ensemble session, Colloque national sur l'assimilation de données LEFE-MANU, Toulouse, 1-3 December 2014.

9.1.1.2. member of the organizing committee

- Vivien Mallet: seminar on "Uncertainty quantification and ensemble-based methods for geo-sciences", École normale supérieure, Paris, January 2014.

9.1.2. Scientific events selection

9.1.2.1. reviewer

- Isabelle Herlin: European Conference on Computer Vision (ECCV)
- Isabelle Herlin: International Conference on Image Processing (ICIP).

9.1.3. Journal

9.1.3.1. member of the editorial board

- Marc Bocquet is Associate Editor of the Quaterly Journal of the Royal Meteorological Society.

9.1.3.2. reviewer

- Vivien Mallet: Atmospheric Chemistry and Physics.
- Vivien Mallet: Environmental Modeling & Software.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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

Master "Nuclear Energy": Marc Bocquet, Vivien Mallet, Jean-Matthieu Haussaire; 12 hours; M2; École des Ponts ParisTech, Centrale Paris, INSTN; France.

Master SGE and 3rd-year class at École des Ponts ParisTech: Vivien Mallet; Air quality modeling; 9h; 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.

9.2.2. Supervision

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

PhD in progress: Ruiwei Chen, "Quantification d'incertitude en simulation des émissions du trafic routier", November 2014, Vivien Mallet.

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

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

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

PhD in progress: Raphaël Ventura, "Simulation numérique de la ville par couplage entre la modélisation et l'observation", September 2014, Vivien Mallet.

9.2.3. Juries

- Marc Bocquet, member, PhD thesis, Victor Winiarek, "Dispersion atmosphérique et modélisation inverse pour la reconstruction de sources accidentelles de polluants", 4 March 2014, University Paris-Est, Champs-sur-Marne, France.
- Marc Bocquet, reviewer, PhD thesis, Benjamin Ménétrier "Utilisation d'une assimilation d'ensemble pour modéliser des covariances d'erreur d'ébauche dépendantes de la situation météorologique à l'échelle convective", University Toulouse, 3 July 2014, Toulouse, France.
- Marc Bocquet, reviewer and chair, PhD thesis, Nabil BenSalem, "Modélisation directe et inverse de la dispersion atmosphérique en milieux complexes", École centrale de Lyon, 17 septembre 2014, Lyon, France.
- Marc Bocquet, member, PhD thesis, Vincent Loizeau, "La prise en compte d'un modèle de sol multi-couches pour la modélisation multi-milieux à l'échelle européenne des polluants organiques persistants", 20 November 2014, University Paris-Est, Champs-sur-Marne, France.
- Marc Bocquet, member, PhD thesis, Yin Yang, "Study of Variational Ensemble Methods for Image Assimilation", University Rennes 1, 16 December 2014, Rennes, France.
- Marc Bocquet, reviewer, PhD thesis, Antoine Berchet, "Quantification des émissions de méthane en sibérie par inversion atmosphérique à la méso-échelle", University Versailles Saint-Quentin-en-Yvelines, 19 December 2014, Paris, France.
- Isabelle Herlin, reviewer, Hector Simon Benavides Pinjosovsky, PhD thesis, "Assimilation variationnelle des données dans le modèle de surface continentale ORCHIDEE grâce au logiciel YAO", University Pierre and Marie Curie, 27 March 2014, Paris, France.

9.3. Popularization

- Marc Bocquet wrote a paper on "La prévision numérique du temps" in the journal "Revue de Technologie" meant for the teachers of vocational technical education.
- Victor Winiarek and Marc Bocquet wrote an internet contribution "de la radioactivité dans l'air", which was published in the general audience book "Brève de maths", Nouveau Monde éditions, Paris, 2014.

- Marc Bocquet and Mohammad Reza Koohkan wrote an internet contribution “Quand modèles numériques et mesures ne sont pas sur la même longueur d’onde”, which was also published in “Brève de maths”.
- Vivien Mallet took part to a one-day introduction to Inria research at Assemblée Nationale, as organized by the group “ Internet et société numérique”.
- Vivien Mallet introduced data assimilation at urban scale during the “rencontre Inria-industry” organized during the Futur-en-Seine digital festival.

COFFEE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Journal

8.1.1.1. SIAM J. Computational Math.

T. Goudon is founding editor of the SMAI J. of Computational Math.

FLUMINANCE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

Dominique Heitz

- Member of IRSTEA "Comité directeur des Systèmes d'Information"
- Responsible of the IRSTEA ACTA Team
- Reviewer for AIAA, Exp. in Fluids, Fluid Dynamics Research

Cédric Herzet

- Technical program committees of ICASSP 2014
- Project reviewer for the "Fond National de la Recherche Scientifique" (FNRS), Belgique
- Organizer of a monthly local seminar dedicated to sparse representations.
- Reviewing for ICASSP, IEEE trans. Signal Processing, IEEE Trans. Image Processing

Etienne Mémin

- invited speaker CIMI (Centre International de Mathématiques et d'Informatique - Trimestre EDP & Probabilités - Weather Forecast, jan. 2014
- Associate editor of the Journal of Computer Vision (IJCV)
- Associate editor of the journal of Image and Vision Computing (IVC)
- Reviewing for Tellus-A, IEEE Im. Proc., IEEE trans. Pat. Anal. Mach. Intel. , Im. Vis. Comp., Exp in Fluids, ICIP'14, Nonlinear Proc. in Geophysics., Journ. of Comp. Phys, Fluid Dynamics Research.
- 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 : Dominique Heitz, Mécanique des fluides, 30h, niveau L2 INSA Rennes

Master : Dominique Heitz, Mécanique des fluides, 25h, niveau M1, Dep GMA INSA Rennes

Master : Cédric Herzet, Analyse de données, Mastere de Statistiques et Econométrie, 10h, niveau M1, Université de Rennes I

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

PhD : Ioana Barbu, Tridimensional estimation of turbulment fluid velocity, Université de Rennes I, defended 15/12/2014, encadrants: Cédric Herzet, Etienne Mémin

PhD : Xuan Quy Dao, Fluid Flow control by visual servoing, Université de Rennes I, defended 16/12/2014, encadrant: Christophe Collewet

PhD : Yin Yuang, Study of variational ensemble methods for image assimilation, Université de Rennes I, defended 16/12/2014, encadrant: Etienne Mémin

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 : Cordelia Robinson, Variational assimilation for 3D wake reconstruction, started 01/10/2011, supervisors: Dominique Heitz, Etienne Mémin

9.2.3. Juries

Dominique Heitz

- Yin Yang, Study of variational ensemble methods for image assimilation, Université Rennes 1, Rennes, 16/12/2014, Examiner.

Cedric Herzet

- Ioana Barbu, Tridimensional estimation of turbulment fluid velocity, Université de Rennes I, 15/12/2014. Supervisor.

Etienne Mémin

- Emmanuelle Autret, Analyse des champs de température de surface de la mer à partir d'observations satellite multi-sources, 07/10/2014, President
- Ioana Barbu, Tridimensional estimation of turbulment fluid velocity, Université de Rennes I, 15/12/2014. Supervisor.
- Xuan Quy Dao, Fluid Flow control by visual servoing, Université de Rennes I, 16/12/2014, Examiner
- Denis Fortun, Aggregation framework and patch based image representation for optical flow, Université de Rennes I, 10/07/2014, President
- Gilles Tissot, Réduction de modèles et contrôle d'écoulement, Université de Poitiers, 02/10/2014, Examiner
- Yin Yang, Study of variational ensemble methods for image assimilation, Université Rennes 1, Rennes, 16/12/2014. Supervisor.
- Pascal Zille, Modèles multi-échelles pour l'analyse d'images : application à la turbulence, Université de Lyon, 07/11/2014, Examiner

9.3. Popularization

Etienne Mémin

- E. Mémin. Ou vont les nuages ?, Un jour, une brève, Mathématiques de la planète terre, (Brève)
- Invited paper in the journal "Revue francaise de photogrammetry et de Télédétection", Outils méthodologiques d'analyse d'images MSG : estimation du mouvement, suivi de masses nuageuses et détéction de fronts, with T. Corpetti, V. Dubreuil, E. Mémin, O. Planchon, C. Thomas.
- Invited paper in the journal de la Socieété Francaise de Statistique, Image data assimilation with filtering methods, with Anne Cuzol.

KALIFFE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. general chair, scientific chair

F. Filbet was in the scientific committee of "12e Colloque Franco-Roumain en Mathématiques Appliquées" which was organized in Lyon in august 2014.

8.1.1.2. member of the organizing committee

D. Le Roux was in the organizing committee of "12e Colloque Franco-Roumain en Mathématiques Appliquées" which was organized in Lyon in august 2014.
F. Filbet was in the organizing committee of "Journées Modélisation Mathématiques et Calcul Scientifique" at Vapré (Ecully) from 18-19 dec. 2014.

8.1.2. Journal

8.1.2.1. member of the editorial board

F. Filbet is a member of the editorial board of the journals Confluences Mathematicae and ESAIM-Proceedings.

8.1.2.2. reviewer

- F. Filbet served a a referee for J. Comp. Phys., SIAM, J. Sci. Comput., SIAM J. Num. Anal., Comm. Comput. Phys., J. Sci. Comput., Comp. Applied. Math.s, AMS Math. Comp.
- L.M. Rodrigues served as a referee for Arch. Ration. Mech. Anal., Comm. Math. Phys., Phys. D.
- D. Le Roux served as a referee for AGU Book Series, Communications in Numerical Methods in Engineering, Computer Methods in Applied Mechanics and Engineering, Computers and Fluids, International Journal for Numerical Methods in Fluids, Journal of Computational Physics, SIAM Journal on Scientific Computing, Mathematics and Computers in Simulation.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Our group is stronly involed on teachin activities at Polytech Lyon and at the Department of Mathematics (UCB Lyon).

Licence : M. Bergot (Numerical Analysis, Calculus, 192 h), S. Delcourte (Numerical Analysis, Calculus, 192 h), F. Filbet (Calculus, 52h), S. Delcourte and E. Fouassier (PDE, Analysis, Calculus, 192 h), L. M. Rodrigues (Numerical Analysis, Calculus, 192 h)

Master : F. Filbet (Kinetic Theory, PDE and numerical analysis, 36h), D. Le Roux (Fluid mechanics, PDE and numerical analysis, 36h).

F. Filbet is co-director of the PhD program in Computer Sciences and Mathematics of Lyon (ENS, INSA, ECL, UCBL, UFLL, UJML).

8.2.2. Juries

- F. Filbet was referee of 5 PhD for Univ. Paris Dauphine - Paris IX, Univ. P. & M. Curie - Paris VI, Univ. Paris Sud- Paris XI, Univ. Bordeaux, Univ. Kaiserslautern (Germany).
- D. Le Roux was in the « jury » of F. Marche (Université de Montpellier), E. Ngom, J. Demange (Université de Grenoble), M.M. Tuhan, K.T. Kouakou (Université Nangui Abrogoua, Abidjan, Côte d'Ivoire)

LEMON Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events selection

9.1.1.1. Member of the conference program committee

Fabien MARCHE is member of the scientific committee of Advances in Numerical modeling of Hydrodynamics, 2015.

9.1.2. Journal

9.1.2.1. Member of the editorial board

Vincent GUINOT : Journal of Hydroinformatics.

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

9.1.2.2. Reviewer

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

Vincent GUINOT : Journal of Hydrology and Journal of Hydroinformatics.

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

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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

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

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

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

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

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

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

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

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

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

F. Marche, Biomaths, 72h TD., L1, Université Montpellier 2, France

F. Marche, Analyse numérique des EDP, 24H CM, 12H TD, 15H TP., M1, Université Montpellier 2, France

F. Marche, Calcul scientifique avancé, 26H CM, M2R, Université Montpellier 2, France

A. Rousseau, Weather forecast and geophysical fluids, 10h, M2R, Labex CIMI, Toulouse, France

9.2.2. Supervision

PhD : Arnaud Duran, *Modeling, analysis and simulations of shallow water flows*, Université Montpellier II, December 2014, Fabien Marche.

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

9.2.3. Juries

Vincent GUINOT : HDR of C. Delenne (UM2), Section CNU 60, december 2014.

Antoine ROUSSEAU : CR2 competition in Inria Lille, spring 2014.

Antoine ROUSSEAU : Inria Research Position competition, campaign #1, spring 2014.

Antoine ROUSSEAU : Inria Research Position competition, campaign #2, summer 2014.

9.3. Popularization

Antoine ROUSSEAU is co-author of the book [16] (and blog) *Brèves de Maths* (Ed. Nouveau Monde, Nov. 2014)

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

Fête de la Science, Oct. 2014, Genopolys Montpellier (with Twitter reports on the national account @EnDirectDuLabo)

Fête de la Science, Oct. 2014, Centre International de Valbonne

Initiation à la recherche, Oct. 2014, Lycée Saint-Sernin, Toulouse

Antoine ROUSSEAU gave a public lecture for Inria staff *Café In'* in Inria Sophia, Dec. 2014

Antoine ROUSSEAU was invited to the *Société Informatique de France* annual workshop SIF 2014 to participate to a round table on scientific outreach

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

Arnaud Duran gave a public lecture for high school students at Collège Jean Bène (Pézénas, France), Feb 2014.

MAGIQUE-3D Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events selection

9.1.1.1. responsable of the conference program committee

Sébastien Tordeux was member of the program committee of the 7th International Conference on Mathematical Modeling (ICMM-2014) that was held in Yakutsk, Russia.

9.1.2. Journal

9.1.2.1. reviewer

Juliette Chabassier has been reviewer for SIAM Journal on Scientific Computing (SISC), Acta Acustica united with Acustica and the Journal of the Acoustical Society of America.

Victor Péron has been reviewer for ESAIM : Mathematical Modelling and Numerical Analysis, Journal of Computational and Applied Mathematics, Zentralblatt MATH.

Lionel Boillot has been reviewer for ESAIM Proceedings, Congrès SMAI 2013, Volume 45, September 2014

Marc Duruflé has been reviewer for ESAIM : Mathematical Modelling and Numerical Analysis

9.1.3. Administrative Activities

- Mohamed Amara is President of the Université de Pau et des Pays de l'Adour.
- Hélène Barucq is vice-chair of the Inria evaluation committee. She participated to the national jury of Inria competitive selection for Senior Researchers (DR2) and to the local jury of Inria competitive selection for Young Graduate Scientists (CR2) in Bordeaux. She participated to the selection committee for Research (Grant and Senior) Positions. She participated to the selection committee for a Professor position at the University of Rouen and at the University of Lille. She is member of the board of the Laboratory of Mathematics of Pau and of the research federation IPRA which are both under the administrative supervision of CNRS. She is the scientific head of the project DIP.
- Julien Diaz is elected member of the Inria evaluation committee. He participated to the local juries for Young Graduate Scientists (CR2) in Bordeaux and Lille. He participated to the selection committee for an Assistant-Professor position at the University of Toulouse. He is elected member of the CLHSCT (Comité Local Hygiène et Sécurité) of Inria Bordeaux Sud-Ouest and appointed member of the CDT (Commission de Développement Technologique), of the CUMI (Commission des Utilisateurs des Moyens Informatiques) and of the Center Committee of Inria Bordeaux Sud-Ouest.
- Sébastien Tordeux is elected member of the 26th section of the CNU (Conseil National des Universités). He is also responsible of the first year of the Master of Applied Mathematics of Pau University.
- 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 : Vincent Darrigrand, Initiation à la modélisation statistique, 21h eqTD, L2, UPPA, France

Licence : Vincent Darrigrand, Suites et fonctions d'une variable, 24.38h eqTD, L1, UPPA, France

Licence : Victor Péron, Mathématiques Appliquées, 15 Eq. TD, L1, UPPA, France

Licence : Victor Péron, Compléments d'analyse, 19,5 Eq. TD, L2, UPPA, France

Licence : Victor Péron, Calcul intégral, 19,5 Eq. TD, L3, UPPA, France

Licence : Victor Péron, Mathématiques pour les Sciences de la Matière, 19,5 Eq. TD, L2, UPPA, France

Master : Victor Péron, Analyse numérique fondamentale, 75 Eq. TD, M1, UPPA, France

Master : Victor Péron, Analyse, 28 Eq. TD, M1, UPPA, France

Master : Marc Duruflé, Outils informatiques pour le calcul scientifique, 80 Eq. TD, M1, Bordeaux INP, France

Master : Sébastien Tordeux, Analyse Numérique Fondamentale, 34 eqTD, M1, UPPA, FRANCE

Master : Sébastien Tordeux et Julien Diaz, Introduction aux phénomènes de propagation d'ondes, 60 eqTD, M2, UPPA, FRANCE

9.2.2. Supervision

PhD : Lionel Boillot, Contributions à la modélisation mathématique et à l'algorithmique parallèle pour l'optimisation d'un propagateur d'ondes élastiques en milieu anisotrope, UPPA, 12/12/2014, Hélène Barucq et Julien Diaz

PhD : Vanessa Mattesi, Propagation des ondes dans un milieu comprtant de petites hétérogénités: analyse asymptotique et calcul numérique , UPPA, 11/12/2014, Sébastien Tordeux

PhD : Florent Ventimiglia, Schémas numériques d'ordre élevé en temps et en espace pour l'équation des ondes du premier ordre. Application à la Reverse Time Migration, UPPA, 05/06/2014 Hélène Barucq and Julien Diaz.

PhD in progress : Julen Alvarez, hp-adaptive inversion of magnetotelluric measurements, October 2011, Hélène Barucq and David Pardo.

PhD in progress : Izar Azpiroz, Approximation des problèmes d'Helmholtz couplés sur maillages virtuels , October 2014, Hélène Barucq, Julien Diaz and Rabia Djellouli.

PhD in progress : Théophile Chaumont-Frélet, High Order Methods for Helmholtz Problems in Highly Heterogeneous Mediaitre, October 2012, Hélène Barucq and Christian Gout.

PhD in progress : Marie Bonnasse-Gahot, Simulation de la propagation d'ondes élastiques et visco-élastiques en régime harmonique par des méthodes Galerkin discontinues d'ordre élevé en maillage non-structuré adaptées au calcul haute performance, October 2012, Julien Diaz and Stéphane Lantéri (EPI Nachos, Inria Sophia Antipolis-Méditerranée).

PhD in progress : Aralar Erdozain, Fast inversion of 3D Borehole Resistivity Measurements using Model Reduction Techniques based on 1D Semi-Analytical Solutions, October 2013, Hélène Barucq, David Pardo and Victor Péron.

PhD in progress : Florian Faucher, Méthodes d'inversion sismique dans le domaine fréquentiel , October 2014, Hélène Barucq.

PhD in progress : Jérôme Luquel, RTM en milieu hétérogène par équations d'ondes élastiques, November 2011, Hélène Barucq and Julien Diaz.

PhD in progress : Vincent Popie, Détermination de l'impédance effective d'une plaque multiperforée, September 2012, Sébastien Tordeux and Estelle Piot

9.2.3. Juries

Victor Péron : Aliénor Burel (Université Paris-Sud XI) "Contributions à la simulation numérique en élastodynamique : découplage des ondes P et S, modèles asymptotiques pour la traversée de couches minces", July 4th 2014

9.3. Popularization

Juliette Chabassier has written a contribution for interstices, “Le piano rêvé des mathématiciens” (see https://interstices.info/jcms/ni_76925/le-piano-reve-des-mathematiciens)

Juliette Chabassier has contributed to “Visages des Sciences”, a series of postcards which are portraits of scientists.

MOISE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. general chair, scientific chair

- C. Prieur and L. Viry co-organized a research school on uncertianty quantification at Ecole de Physique des Houches (ASPEN 2013, 2014).

9.1.1.2. member of the organizing committee

- M. Nodet and E. Blayo (with S. Ricci, G. Desroziers and M. Bocquet) co-organised the Data Assimilation National Conference in Toulouse.

9.1.2. Scientific events selection

- C. Prieur was a member of the jury for the PhD prize Jacques Neveu.

9.1.2.1. member of the conference program committee

- M. Nodet and E. Blayo (with S. Ricci, G. Desroziers and M. Bocquet) co-organised (with others, see above) the program of the Data Assimilation National Conference in Toulouse.

9.1.2.2. reviewer

- M. Nodet is a reviewer for the international conference "Emerging Trends in Applied Mathematics : Dedicated to the Memory of Sir Asutosh Mookerjee", Calcutta February 12-14, 2014, proceedings of the conference from Springer.

9.1.3. Journal

9.1.3.1. reviewer

- E.Blayo: reviewer for Ocean Modelling, Monthly Weater Review, Nonlinear Processes in Geophysics.
- L. Debreu: reviewer for Ocean Modelling, Applied Mathematical Modelling.
- A. Vidard: reviewer for Ocean Modelling, Tellus A, Inverse problems, Monthly Weather Review
- M. Nodet: reviewer for the journals Esaim COCV and Non Linear Processes in Geophysics.
- E. Kazantsev: reviewer for the Journal of Comp. Phys., World Journal of Modelling and Simulation.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Licence : C. Prieur, Statistics for biologists, 113.5, niveau L2, Grenoble, FRANCE
- Licence : C. Prieur, Statistics, 52, niveau L1, Ensimag (Grenoble), FRANCE
- Licence : M. Nodet, Mathématiques pour l'ingénieur, 80h, L1, UJF Grenoble
- Licence : M. Nodet, Statistiques pour la biologie, 80h, L2, UJF Valence
- Master : M. Nodet, Inverse methods and data assimilation, 30h, M2, UJF Grenoble
- Master : C. Prieur, Stochastical approaches for uncertainty quantification, 27, niveau M2, Grenoble, France Laurent Debreu, Modélisation numérique de l'océan, 8h eq TP, M2, Université de Brest, FRANCE

- Doctorat : Laurent Debreu, Formation doctorale nationale Modélisation numérique de l'océan et de l'atmosphère, 24-28 novembre 2014, Grenoble, France. With T. Dubos (LMD/Ecole Polytechnique, Paris), G. Roullet (Brest University), F. Hourdin (LMD/CNRS, Paris)
- Doctorat : Eric Blayo, Arthur Vidard, Introduction to Data Assimilation, 20h,University of Grenoble, France

9.2.2. Supervision

- PhD : Pierre-Antoine Bouttier, Assimilation variationnelle de données altimétriques dans le modèle océanique NEMO : Exploration de l'effet des non-linéarités dans une configuration simplifiée à haute résolution , University of Grenoble, 2014, [1].
- PhD : Jérémie Demange, Schémas numériques d'advection et de propagation d'ondes de gravité dans les modèles de circulation océaniques, University of Grenoble, 21 octobre 2014, L. Debreu, P. Marchesiello.
- PhD : V. Chabot, Étude de représentations parci- monieuses des statistiques d'erreur d'observation pour différentes métriques. Application à l'assimilation d'images. UJF Grenoble, A. Vidard et M. Nodet [2]
- PhD in progress : Nelson Feyeux, Application du transport optimal pour l'assimilation de données images, novembre 2013, Arthur Vidard, Maëlle Nodet
- PhD in progress : Thomas Capelle, Calibration of LUTI models, octobre 2013, Peter Sturm, Arthur Vidard
- PhD in progress : Mehdi-Pierre Daou, Développement d'une méthodologie de couplage multi-modèles avec changements de dimension. Validation sur un cas-test réaliste en dynamique littorale, May 2013, E. Blayo and A. Rousseau
- PhD in progress : Rémy Pellerej, Assimilation de données pour les modèles couplés, octobre 2014, Arthur Vidard, Florian Lemarié
- PhD in progress : L. Gilquin, Uncertainty quantification for LUTI models, Oct. 2013, C. Prieur and E. Arnaud (STEEP)
- PhD in progress : P. Tencaliec, Oct. 2013, multivariate risk for Durance streamflow data, C. Prieur and A.-C. Favre (LTHE, hydrology lab in Grenoble)
- PhD in progress : S. Nanty, Uncertainty quantification for functional and dependent inputs, Oct. 2012, C. Prieur and C. Helbert (Centrale Lyon).
- PhD in progress : C. Pelletier, Etude mathématique et numérique de la formulation des modèles de climat global, Décembre 2014, E. Blayo, F. Lemarié, P. Braconnot

9.2.3. Juries

- E.Blayo
  - 21 janvier 2014 - PhD thesis of Mélanie Rochoux, Ecole Centrale de Paris (reporter)
  - 23 janvier 2014 - PhD thesis of Natacha Djath, University of Grenoble (president)
  - 2 jun 2014 - HDR thesis of Jean-Michel Brankart, University of Grenoble (president)
  - 2 octobre 2014 - PhD thesis of Pierre Jolivet, University of Grenoble (president)
  - 13 octobre 2014 - PhD thesis of Laurent Berenguer, University of Lyon 1 (examiner)
  - 28 nov 2014 - PhD thesis of Gildas Mainsant, University of Grenoble (president)
  - 8 dec 2014 - PhD thesis of Abdoulaye Samake, University of Grenoble (president)
- C. Prieur
  - 11 déc. 2014 — PhD thesis of Jeremy Chardon, Université Grenoble Alpes (president)
  - 26 nov. 2014 — PhD thesis of Stéphane Veys, Université Grenoble 1 (examiner)
  - 13 nov. 2014 — PhD thesis of Prashant Rai, Ecole Centrale de Nantes (president)

  - 28 nov. 2014 — PhD thesis of Henri Sohier, ONERA Toulouse (external reporter)
  - 13 oct. 2014 — PhD thesis of Philomène Favier, Irstea Grenoble (examiner)
  - 16 avr. 2014 — PhD thesis of Julie Oger, University François Rabelais, Tours (reporter)
- A. Vidard
  - 4 fev. 2014 —PhD thesis of Pierre-Antoine Bouttier, University of Grenoble (examinateur)
  - 16 dec. 2014 — PhD thesis of Yin Yang, University of Rennes (reporter)

9.3. Popularization

- 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 30 teachers of 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. As a director and as an animator of IREM, Ch. Kazantsev has participated at
  - the week of Mathematics, the 17 and 21 March 2014,
  - the festival "Remue-Méninges", Echirolles, 22-25 April 2014,
  - the internship MATHC2+ in June and in October 2014,
  - the "Journées Nationales de l'APMEP": presentation of two workshops with M. Gandit "Sky: between historical and simulated data",
  - the "Fête de la science" with workshops "28 nuances de sciences" and "Récréation mathématique pour tous".
- M. Nodet gave talks and made posters to explain how the "problem-based learning" (a special case of "active learning") approach was introduced in mathematics for Grenoble university undergraduates, see e.g. [75] and [61].
- M. Nodet (in collaboration with A. Rousseau and S. Minjeaud) wrote a chapter of an outreach book "Brèves de maths" [59].
- M. Nodet gave outreach talks about "mathematics for environmental modelling" in various occasions: for the Grenoble maths Olympiades awards, twice for the "Science Fair 2014" (one for undergraduate students, one for secondary school pupils), for a daily visit of highschool students at Valence university.
- M. Nodet supervises a maths club "Math en Jeans" for secondary school pupils at two schools around Grenoble, which consists in proposing open research subjects to the students and supervising them over the year, in collaboration with the teachers.
- E. Blayo gave several outreach talks, in particular for the inauguration of the Fédération Rhône-Alpes-Auvergne de Mathématiques (Lyon, February 28), for the ceremony of the Christian Le Provost prize of the French Academy of Science (Saint Brieuc, April 18), and for MathC2+ internships.

POMDAPI Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organization

M. Kern, with H. Ben Ameur (ENIT-Lamsin, Tunis), I. Ben Gharbia (IFPEN) and V. Martin (Université de Technologie de Compiègne) organized the Conference *Modeling and simulation in porous media*, 8-9 Dec 2014, Rocquencourt. The conference was held in honor of Jean Roberts and Jérôme Jaffré, and gathered 14 internationally recognized scientists. It was attended by about 60 participants. Talks can be found on the event web page http://mspm-jrjj2014.sciencesconf.org/.

M. Kern is Deputy Director of Maison de la Simulation, a joint project between CEA, CNRA, Inria, Université de Paris 11 and Université de Versailles-St-Quentin-en-Yvelines, focused on applications of high-end computing.

M. Kern is a member of the Scientific Committee of Orap (ORganisation Associative du Parallélisme).

M. Kern is a member of the Scientific Board of GDR Calcul.

M. Kern is a member of the jury and executive board of Label C3I.

J. E. Roberts is a member of the External Advisory Board for CFSES (Center for Frontiers of Subsurface Energy Security), University of Texas at Austin and SANDIA National Laboratories, Albuquerque, New Mexico.

J. E. Roberts is a member of the prize committee for the Interpore society.

J. E. Roberts is a member of the selection committee for recruiting professors in the department of maths of the University of Bergen, and a member of the national Norwegian committee for the promotion of professors.

M. Vohralík started to co-organize, from September 2013, together with Irène Vignon-Clementel from the project-team REO, the monthly *Modeling and Scientific Calculation Seminar* of the Inria Paris-Rocquencourt research center, see the web page https://iww.inria.fr/modelisation_et_calcul_scientifique/en/.

8.1.1.1. member of the editorial board

M. Vohralík is a member (from December 2013) of the editorial board of *SIAM Journal on Numerical Analysis*, see http://www.siam.org/journals/sinum/board.php.

8.1.1.2. reviewer

M. Kern was reviewer for the journals *Transport in Porous Media*, *Computational Geosciences* and *Mathematics and Computers in Simulation*.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Training: F. Clément, *Mise en œuvre de techniques numériques d'inversion de paramètres distribués*, 12 h, M2, LEME, Université de Paris 10, France.

Master: J. Ch. Gilbert, *Optimisation différentiable — Théorie et algorithmes*, 42 h, M1, Ensta ParisTech, France.

Master: C. Josz, *Optimisation différentiable — Théorie et algorithmes*, 30 h, M1, Ensta ParisTech, France.

Master: C. Josz, *Analyse convexe et optimisation non différentiable*, 6 h, M2, Ensta ParisTech, France.

Licence: C. Josz, *Analyse hilbertienne*, 24 h, L3, Université de Paris 1, France.

Master: M. Kern, *Éléments finis*, 30 h, M1, Mines ParisTech, France.

Master: M. Kern, *Problèmes inverses*, 26 h, M1, Mines ParisTech, France.

Master: M. Kern, *Écoulements dans la géosphère*, 18 h, M2, Master Modélisation et Simulation, Fondation de coopération scientifique du campus du plateau de Saclay.

Master: M. Vohralík, *A posteriori error estimates for efficiency and error control in numerical simulations*, 36 hours/year, M2, Laboratoire Jacques-Louis Lions (Université de Paris 6), France.

Master: M. Vohralík, *A posteriori error estimates for efficiency and error control in numerical simulations*, 36 hours/year, M2, Department of Numerical Mathematics, Charles University in Prague, Czech Republic.

8.2.2. Supervision

PhD: Viatcheslav Vostrikov, *Numerical simulation of two-phase multicomponent flow with reactive transport in porous media*, Université de Pau et des Pays de l'Adour, defended on December 15th, 2014, B. Amaziane and M. Kern.

PhD in progress: Sarah Ali Hassan, *A posteriori error estimates and stopping criteria for domain decomposition solvers with local time stepping*, November 2013, M. Vohralík.

PhD in progress: N. Birgle, *Écoulements souterrains, méthodes numériques, et calcul haute performance*, October 2012, J. Jaffré.

PhD in progress: F. Cheikh, *Identification de failles dans un milieu poreux par une méthode d'indicateurs*, December 2011, J. E. Roberts and H. Ben Ameur.

PhD in progress: C. Josz, *Optimisation globale des flux d'énergie dans un réseau de transport d'électricité*, May 2013, J. Ch. Gilbert.

PhD in progress: M. H. Riahi, *Identification de paramètres hydrogéologiques dans un milieu poreux*, December 2011, J. Jaffré and H. Ben Ameur.

8.2.3. Juries

M. Kern was part of the PhD thesis committee of *Feng Xing*, Université de Lille (December 2014).

M. Vohralík has been in the PhD thesis committee of *Karel Tůma*, Charles University in Prague, Czech Republic (April 4th, 2014).

8.3. Popularization

J. Ch. Gilbert has written the following page on Wikipedia.fr in 2014: Optimisation quadratique.

M. Kern participated in a meeting with high school students during the "Fête de la Science" (CNAM, Paris, October 3rd, 2014), and gave presentations on the theme "Mathematics and Simulation for Underground Water" to middle school and high school students.

SAGE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific committees and review of conferences

- J. Erhel is a member of the international advisory committee of the parallel CFD conferences (Trondheim, Norway, May 2014).
- J. Erhel was reviewer for the CARI conference.

8.1.2. Organization of workshops

- J. Erhel organized with Klaus Johannsen, from University of Bergen, the session "'High-performance computing, visualization and scientific workflow"', at the international conference "'Computational Methods in Water Resources (CMWR, Stuttgard, Germany, May 2014).
- G. Pichot organized two workshops in Rennes (April, 28-30, 2014 and June, 24-26, 2014) funded by the Brittany council (see 7.1.1) and Inria to prepare the Future and Emerging Technology (FET) Open proposal, called GEOPRISM, submitted in september 2014.
- G. Pichot organized with A. Fumagalli (Politecnico di Milano, Italy) a mini-symposium session (6 countries, 7 speakers) at the SIAM Annual Meeting AN14, within the SIAM Geosciences track, on *Modeling and Numerical Issues for fractured porous media.*.

8.1.3. Editorial Boards

- B. Philippe is one of the four chief-editors of the electronic journal ARIMA (revue Africaine de la Recherche en Informatique et Mathématiques Appliquées).
- B. Philippe is managing editor of the electronic journal ETNA (Electronic Transactions on Numerical Analysis).
- J. Erhel and G. Pichot are editors of the proceedings of Domain Decomposition XXI (LNCSE, Springer) [29]
- J. Erhel is member of the editorial board of ETNA.
- J. Erhel is member of the editorial board of ESAIM:Proceedings.

8.1.4. Steering committees

- J. Erhel is a member of the steering committee of the Réseau National des Systèmes Complexes.
- J. Erhel is the scientific coordinator of the website Interstices (since June 2012).
  See http://www.interstices.info.

8.1.5. Review of papers

- É. Canot was reviewer for the journals EABE, ASME-JHT.
- J. Erhel was reviewer for the journals ADWR, ETNA, SISC.
- M. Oumouni was reviewer for the journal JOMP.
- G. Pichot was reviewer for the journal ADWR.

8.1.6. Review of proposals

- J. Erhel was reviewer for proposals submitted to ACSPRF, ANR (ASTRID call), Shell-NWO-FOM.

8.1.7. Inria, IRISA and University committees

- É. Canot is member of the CLHSCT (Commité Local Hygiène Sécurité Conditions de Travail), of Inria-Rennes, from September 2010.
- J. Erhel was member of the Comité Technique d'Etablissement Public of Inria, until December 2014.
- J. Erhel was member of Conseil d'Administration of Inria, until December 2014.
- G. Pichot is responsible for the domain "environment" at IRISA.
- G. Pichot is member of the Conseil de département MAM of Polytech Lyon.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

- S. Khalfallah is teaching assistant (permanent position since September 2012) in mathematics at the University of Kairouan, Tunisia.
- L. Lenôtre is teaching assistant (contrat doctoral avec mission d'enseignement) in mathematics at the University of Rennes 1.
- É. Canot and J. Erhel: Master M2; title: Cours de modélisation et calcul scientifique; 12 hours; INSA, Rennes, France.
- É. Canot and G. Lecourt: Master M2; title: TP de modélisation et calcul scientifique; 12 hours; INSA, Rennes, France.
- É. Canot: Master M2; one week; ENIT, Tunis, Tunisia.

8.2.2. Supervision

PhD: S. Sabit, University of Rennes 1, May 2014, advisors J. Erhel with É. Canot.
PhD in progress: S. Khalfallah, University of Rennes 1 and University of Tunis, October 2009, co-advisors J. Erhel and A. ben Abda.
PhD in progress: L. Lenôtre, University of Rennes 1, October 2012, co-advisors A. Lejay (Inria Nancy) and G. Pichot, with J. Erhel.
PhD in progress: S. Mansour, University of Rennes 1 with LIU and AUB (Beiruth, Lebanon), January 2013, co-advisors É. Canot, M. Muhieddine and N. Nassif.
PhD in progress: L.-B. Nguenang, University of Yaoundé 1, October 2011, advisors E. Kamgnia with B. Philippe.
PhD in progress: M. ben Refifa, University of Tunis, October 2013, advisors Rachida Bouhlila with J. Erhel and É. Canot.

8.2.3. Juries

- PhD: S. Moufawad, University of Paris 6, Mathematics, December 2014. Reviewer J. Erhel.
- PhD: V. Vostrikov, University of Pau, Mathematics, December 2014. Reviewer and chair J. Erhel.
- PhD: S. Scialò, Politecnico di Torino, 2014. Reviewer G. Pichot.

8.3. Popularization

- J-R. de Dreuzy, J. Erhel and G. Pichot presented a poster entitled "Une eau souterraine très sollicitée", at Rencontres de la Transition Ecologique en Bretagne, January 2014 [39].
- J. Erhel gave a talk entitled "la terre se met aux maths", at lycée Descartes, Rennes, in March 2014 [38].
- J. Erhel participated in the panel on "Parle-t-on d'informatique comme on parle des autres sciences?", congrès SIF, Poitiers, France, Feb 2014
- The text "Henry Darcy et sa loi" from J. Erhel was published in the book brèves de maths [37]
- É. Canot, J. Erhel and L. Lenôtre, with M-O. Cordier, N. Lacaux, C. Lafon and J. Stainer, were in charge of the two stands Inria and Interstices at Village des sciences, Chartres de Bretagne, Sep 2014.
- J. Erhel and M-O. Cordier, with Espace des Sciences de Rennes, invited J.-P. Delahaye to celebrate the ten years of Interstices and to give a conference about the bitcoin, Rennes, October 2014.
- L. Lenôtre gave a talk at Conf'Lunch, Inria Rennes, December 2014.

STEEP Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events selection

9.1.1.1. member of the conference program committee

Peter Sturm was Associate Editor for the IEEE/RSJ International Conference on Intelligent Robots and Systems and member of the Program Committee of the German Conference on Pattern Recognition.

9.1.2. Journal

9.1.2.1. member of the editorial board

Peter Sturm is Associate Editor of the IEEE Transactions on Pattern Analysis and Machine Intelligence, the Journal of Mathematical Imaging and Vision, and the Image and Vision Computing Journal.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

E. Arnaud, Image processing, 18h, M2, University of Grenoble, France.

E. Arnaud, Statistics for biologist, 39h, L1, University of Grenoble, France.

E. Arnaud, Advising students on apprenticeship, 15h, M2, University of Grenoble, France.

P. Sturm, Computer vision, 13.5h, M2, University of Grenoble, France.

9.2.2. Supervision

PhD in progress:

Thomas Capelle, Research on optimization methods for setting up integrated models of transportation and land use, started in October 2013, P. Sturm and A. Vidard (MOISE)

Jean-Yves Courtonne, Analyse d'impacts environnementaux et aide à la décision sur des territoires locaux, du bassin d'emploi à la région, started in xxx, P.-Y. Longaretti and D. Dupré (CERAG)

Laurent Gilquin, Sensitivity analysis of a macroeconomic LUTI model, started in October 2013, E. Arnaud and C. Prieur (MOISE)

Anthony Tschirhard, Calibration and sensitivity analysis of a micro-simulation LUTI model, Oct 2012, E. Prados, E. Arnaud, P. Sturm

9.2.3. Juries

E. Prados, Reviewer of PhD thesis, Bruno Belin, University of Nantes angers Le Mans (title: "Conception interactive d'environnements urbains durables à base de résolution de contraintes").

P. Sturm, President of the AFRIF Thesis Award Committee (French Association for Research in Pattern Recognition and Interpretation)

P. Sturm, Reviewer of habilitation thesis, Xavier Savatier, Université de Rouen

P. Sturm, Reviewer of PhD thesis, Behrooz Nasihatkon, The Australian National University

P. Sturm, President of PhD thesis, Julian Quiroga, Grenoble University

P. Sturm, President of PhD thesis, Lilian Calvet, Université de Toulouse

TONUS Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events selection

9.1.1.1. Chair of conference program committee

Emmanuel Frénod : AIMS Conference - Special Session "Homogenization Based Numerical Methods - Madrid - 7 - 11 juillet, 2014

9.1.2. Journal

9.1.2.1. Member of the editorial board

Emmanuel Frénod : Chinese Journal of Mathematics and Discrete and Continuous Dynamical Systems - Series S from July 2014.
Emmanuel Frénod : invited editor to a special issue in DCDS-S, « Numerical Methods Based on Two-Scale Convergence and Homogenization », to appear in 2015.

9.1.2.2. Reviewer

Michel Mehrenberger for the journals: Journal of Computational Physics, Journal of Graphics Tools, Communications in Computational Physics, Electronic Journal of Qualitative Theory of Differential Equations, Applied Mathematics and Computation, Computer Physics Communications, Journal of Computational and Applied Mathematics.

Philippe Helluy for the journals: maths reviews, SINUM, IJFV, Computers and Fluids, International Journal for Numerical Methods in Fluids, ESAIM Procs, PIER Journal, Journal of Mechanical Science and Technology,

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence :
Philippe Helluy: Calcul scientifique, 69 h eq. TD, L2, Université de Strasbourg, France.
Laurent Navoret, Calcul scientifique, 65 h eq. TD, L3, Université de Strasbourg, France.
Michel Mehrenberger, Analyse Mathématique d'une variable réelle, 87.5 h eq. TD, L1, Strasbourg, France.
Michel Mehrenberger, Outils mathématiques, 26.25h eq. TD, L3, Strasbourg France.
Michaël Gutnic, Mathématiques pour les sciences du vivant, 60 h eq. TD, L1 Sciences du Vivant, Université de Strasbourg, France.
Michaël Gutnic, Statistiques pour les biologistes, 117 h eq. TD, L2 Sciences du Vivant, Université de Strasbourg, France.

Master:
Philippe Helluy, Préparation à l'agrégation, 24 h eq. TD, M2 Agrégation, Université de Strasbourg, France.
Laurent Navoret, Calcul scientifique, 31 h eq. TD, M2 Agrégation, Université de Strasbourg, France.
Michel Mehrenberger, TP Calcul Scientifique Agrégation S3, 28h eq. TD, M2 Agrégation, Strasbourg France.

Ingénieur :
Michaël Gutnic, Probabilités et Statistiques, 30 h eq. TD, Formation d'ingénieur en informatique en apprentissage, Institut des Techniques d'Ingénieur de l'Industrie, Centre de Formation d'Apprentis de l'Industrie, Conservatoire national des arts et métiers, France.

9.2.2. Supervision

PhD in progress : Thi Trang Nhung Pham, Méthodes numériques pour Vlasov, October 2012, Université de Strasbourg, Advisors: Philippe Helluy, Laurent Navoret.

PhD in progress : Thomas Strub, Résolution des équations de Maxwell tridimensionnelles instationnaires sur architecture massivement multicœur, October 2011, Université de Strasbourg, Advisor: Philippe Helluy.

9.2.3. Juries

Nicolas Besse was referee in the PhD defense committee of Christophe Steiner.

Philippe Helluy and Michel Mehrenberger were in the PhD defense committee of Pierre Glanc and of Christophe Steiner.

Emmanuel Frénod was member of the HdR defense committee of Evans Gouno, January 31, 2014.

Philippe Helluy was referee or in the defense committee of: T. Volkert, J. Karel, M. Etancelin, Y. Dugout, M. Mounier.

9.3. Popularization

Philippe Helluy has given a conference at the "Maison des sciences" in Strasbourg. This event is proposed for the formation of middle and high school teachers. The title of the conference was "Modèles mathématiques pour la météo".

BIOCORE Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events selection

9.1.1.1. member of the conference program committee

J.-L. Gouzé is a member of the program committee for the conference BIOMATH, held in Sofia (Bulgaria). He is in the editorial committee of the proceedings of the conference in honor of E. Benoit (La Rochelle 2013). O. Bernard is in the technical committee of the Computer Applied to Biotechnology (CAB) conferences. He is in the scientific committee of the French conference "Stic et Environnement".

9.1.1.2. reviewer

All BIOCORE members have been reviewers for the major 2014 conferences in our field: CDC, MTNS, IFAC World Congress,...

9.1.2. Journal

9.1.2.1. reviewer

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,...

9.1.3. Other animations

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

M. Chaves is the coordinator of ANR project GEMCO. Since September 2011, she is a member of the COST-GTRI (the Working Group on International Relations in 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 was in the Inria (Sophia) committee for the selection of new CR2 researchers (May 12-13) and in the Labex Signalife committee for the selection of new PhD students (June 16-17).

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

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.

S. Touzeau is an elected member of the scientific committee of the MIA departement at INRA (2011–2015). She is a member and a board member of the MBIA CSS (Specialised Scientific Commission), in charge of the research scientist evaluation at INRA (2011–2015). She is a member of the scientific committee of the INRA-ModStatSAP network "Modélisation et Statistique en Santé des Animaux et des Plantes". S. Touzeau was a member of 3 juries for the recruitment of junior research scientists at INRA in April–June: "Epidemiology and plant architecture" (1 position), "Epidemiology and modeling" (2 positions) and "Mathematics for the life sciences and environment" (3 positions). She participated in the panel of experts for the evaluation of the LIRIMA in September 2014.

9.2. Teaching - Supervision - Juries

9.2.1. 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.

Master: O. Bernard (4.5 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: F. Grognard (21h ETD) and L. Mailleret (21h ETD), “Bio-Mathématiques”, M1, 2nd year Engineering in Modelling and Applied Mathematics (eq. M1), Polytech’Nice, Université of Nice Sophia Antipolis, France.

Master: J.-L. Gouzé (9h ETD), M. Chaves (4.5h ETD), “Discrete and continuous approaches to model gene regulatory networks”, M2, Master of Science in Computational Biology, University of Nice - Sophia Antipolis, France.

Master: J.-L. Gouzé (18h ETD), M. Chaves (12h ETD) “Modelling biological networks by ordinary differential equations”, M1, 4th year students, Génie Biologie, Ecole Polytechnique University of Nice - Sophia Antipolis, France.

Master : S. Touzeau (17.25h ETD), “Analyse de données”, M1, 2nd engineering year in Génie Biologie, Polytech’Nice – Université Nice Sophia Antipolis, France.

PhD program: J.-L. Gouzé and M. Chaves (3h ETD), seminar course on “Introduction to mathematical modeling of biological networks”, to the students of the Labex Signalife PhD program, University of Nice - Sophia Antipolis, France.

O. Bernard together with F. Mairet and Q. Béchet supervised two projects for engineering school students. The first project involved 6 students of Ecole Nationale Supérieure des Mines de Paris (last year of engineering school, 1 week ("Combining photovoltaic panels and microalgae") and the second project involved 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.

9.2.2. Supervision

PhD : P. Hartmann, " Effect of hydrodynamics on light utilization in large scale cultures of microalgae ", UNS, defended May 14, 2014. Supervisors: O. Bernard and A. Sciandra. [13]

PhD : A. Carta, “Modelling, analysis and control for systems biology: application to bacterial growth models”, UNS, defended May 22, 2014. Supervisors: J.-L. Gouzé and M. Chaves.[12]

PhD : C. Baroukh, “Metabolic modeling under non-balanced growth. Application to microalgae for biofuels production”, U. Montpellier 2, defended October 10, 2014. Supervisors: J.-P. Steyer and O. Bernard.[11]

PhD : Natacha Go, “Modelling the immune response to the Porcine Respiratory and Reproductive Syndrome virus”, AgroParisTech, defended December 8, 2014. Supervisors: S. Touzeau & C. Belloc (BioepAR, INRA & Oniris Nantes) [90]

PhD : A. Lebon, “La compensation dans les interactions plantes insectes : modélisation, simulation et expérimentation", University of Montpellier 2, defended December 10, 2014. Supervisors : Y. Dumont (CIRAD), F. Grognard and L. Mailleret.

PhD in progress : G. Grimaud, "Controlled competition for the selection of microalgal species of interest ", since September 2011, UNS. Supervisor: O. Bernard and S. Rabouille.

PhD in progress : I. Belgacem “Controle de systèmes de régulation génétique”, since November 2011, UNS. Supervisor: J.-L. Gouzé.

PhD in progress : H. Bonnefond, "Experimental development of selection oriented photobioreactors", since september 2012, UNS. Supervisor: A. Sciandra and O. Bernard

PhD in progress : T. Morel Journel, “Où, quand, combien? Stratégies d’introduction d’organismes dans un environnement spatialement structuré”, since October 2012, UNS. Supervisors: T. Guillemaud, E. Vercken and L. Mailleret.

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

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

PhD in progress : N. Bajeux, "Influence d’une densite dépendance dans les modèles impulsionnels de dynamiques des populations", since October 2013, UNS. Supervisor: F. Grognard.

PhD in progress : S. Casagranda. “Analysis and control of cell growth models”, since November 2013, UNS. 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, UNS. Supervisors: M. Chaves and F. Delaunay (UNS, iBV).

9.2.3. Juries

O. Bernard was referee for the PhD of Cyril Marcilhac "Studies of the culture conditions of a complex ecosystem microalgae / bacteria: application to the development of an a process to extract and recover nutrients from the digestate", University of Rennes 1, Dec. 18, 2014.

O. Bernard was in the PhD jury of G. Bougaran "Co-limitation by nitrogen and phosphorus : study of the mechanisms in the microalgae *Tisochrysis lutea*", Nantes University, Oct. 22, 2014.

O. Bernard was in the PhD jury of T. Dinh. "Interval observers and positive observers", Paris-Sud University (Nov. 24, 2014).

O. Bernard was in the PhD jury of P. Hartmann, " Effect of hydrodynamics on light utilization in large scale cultures of microalgae ", UNS, May 14, 2014.

O. Bernard was in the PhD jury of C. Baroukh, “Metabolic modeling under non-balanced growth. Application to microalgae for biofuels production”, U. Montpellier 2, October 10, 2014.

S. Touzeau was in the PhD thesis jury of Natacha Go,“Modelling the immune response to the Porcine Respiratory and Reproductive Syndrome virus”, AgroParisTech, December 8, 2014.

M. Chaves and J.-L. Gouzé were in the PhD thesis jury of Alfonso Carta, “Modelling, analysis and control for systems biology: application to bacterial growth models,” University of Nice Sophia Antipolis, May 22, 2014.

J.L. Gouzé was referee for the PhD thesis of J.S. Nelva Pasqual. “ Exploration des réseaux d’interactions en écologie : de la structure vers la dynamique. Signification des analyses des matrices de communauté en écologie des estuaires”. Université Bordeaux 1.

F. Grognard and L. Mailleret were in the PhD jury of A. Lebon, “La compensation dans les interactions plantes insectes : modélisation, simulation et expérimentation", University of Montpellier 2, December 10, 2014.

O. Bernard is in the thesis committee of S. Bellini (University of Montpellier), G. Bougaran (University of Nantes), Valeria Villanova (University of Grenoble) and Sofiane Mazeghrane (University of Montpellier).

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

F. Mairet is in the thesis committee of Alessandro Solimeno (Universidad Politecnica de Catalunya).

9.3. Popularization

The activities related to microalgae have generated many articles in national newspapers (Le Monde.fr, Libération, Le Point.fr, ...), and broadcasts on national TV. Several articles were written by the team members to explain the hurdles and potential of microalgae [74]. A book [93] was also written with C. Gudin (formerly at CEA Cadarache) on the potential of microalgae. We also developed a Java applet for the simulation of microalgae growth and biological pest control. The aim of the applet is for the general public to understand the goals and difficulties of controlling such systems.

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

9.4. Conferences, invited conferences

Conferences cited in the bibliography are not repeated here.

O. Bernard was invited to give a conference on microalgae at Ecole Centrale de Paris (“Défi biotechnologie”) ‘Use of microorganisms for biofuel production” (November 27).

O. Bernard was invited to give a conference at University of Padova "Towards predicting microalgal productivity at large scale from lab experiments", June 26, and at University of Valparaiso "A new framework for metabolic modelling under non-balanced growth. Application to carbon metabolism of unicellular microalgae", March 26.

O. Bernard and F. Mairet gave a lecture (3h) on Modelling microalgal based processes at the 3rd French-Chilean Workshop on Bioprocess Modelling (March, Valparaiso, Chile)

F. Mairet gave a joint talk with Magali Ribot entitled Modeling of micro-algae biofilms at the 1st Symposium Physics of living matter: experiments and theoretical models (Nice, Dec. 18).

M. Chaves was invited to give a semi-plenary talk on “Predictive analysis for biological regulatory systems combining discrete and continuous formalisms,” at the Symposium on Mathematical Theory of Networks and Systems (MTNS’14) (July 7-11)

M. Chaves and J.-L. Gouzé organized an invited session on “Discrete and Continuous Formalisms in Systems Biology,” at MTNS’14 (July 7-11)

M. Chaves was invited to give presentations at the following meetings: 1st Lyon Control Day (Feb 27-28) and AANS (IEEE International Meeting on Analysis and Applications of Nonsmooth Systems) (Como, Italy, Sep. 10-12),

M. Chaves was invited to give seminars at the department of Mathematics at Imperial College (Mar 25) and at University of Aveiro (Dec 4).

P. Bernhard was invited to give epistemology talks at a small international workshop [42], and later in the seminar of the CIRED (Centre International de Recherches sur l’Environnement et le Développement, CNRS, Ecole des Ponts et Chaussées ParisTech, and Agro ParisTech).

CARMEN Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events selection

- Y. Coudiére member of the Scientific Commity for the international conference FCVA “Finite Volumes for Complex Applications", Berlin, juin 2014.”.
- From the 1st january 2014, Y. Coudière is in charge of the team CSM at the IMB.
- From september 2014, Y. Coudière is in charge of the Licence “Ingénérie Mathématiques” at the university of Bordeaux.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

License : S. Labarthe, *pre-BAC Analysis and Geometry*, 24 h eqTD.

License : S. Labarthe, *Introduction to analysis*, 48 h eqTD.

License : S. Labarthe, *Help for the redaction of a resume*, 21 h eqTD.

Engineering school: N. Zemzemi, *How to switch from a mathematical model to a numerical solution (examples with the cardiac activity of the heart in 2D)*, 28 h eqTD

Engineering school: F. Caro, *TER* 2nd year, 6h eqTD, ENSEIRB-MATMECA, IPB.

Engineering school: F. Caro, *Finite elements, variational formulation and Sobolev spaces*, 36h eqTD, Institut Galilée, Univ. Paris 13.

Engineering school: Y. Coudière, *TER* 2nd year, 6h eqTD, ENSEIRB-MATMECA, IPB.

Cursus Ingénieur: Y. Coudière, *project in scientific computing, F90* 1st year, 16h eqTD, ENSEIRB-MATMECA, IPB.

Master : Y. Coudière, « *Analyse numérique approfondie* », 36h eqTD, M2, Univ. Bordeaux.

8.2.2. Supervision

PhD in progress: A. Davidovic, Modelling the cardiac ventricular structural heterogeneities, started on October 2012, supervised by Y. Coudière and C. Poignard.

PhD in progress: G. Ravon, An inverse problem for cardiac optical mapping, started on October 2012, supervised by Y. Coudière and A. Iollo.

PhD in progress: J. Lassoued, Construction de methodes de reduction de modèle pour le problème d’estimation de parametres en electrophysiologie cardiaque, strted on october 2013, co-supervized by N. Zemzemi with Moncef Mahjoub, École Nationale d’Ingénieur de Tunis (Tunisia).

PhD in progress: W. Mbarki, Études thérique et numérique du couplage purkinje-myocarde en electrophysiologie cardiaque, started on october 2013, co-supervised by N. Zemzemi with Saloua Aouadi, Faculté des sciences de Tunis (Tunisia).

PhD in progress: P.E. Bécue, Numerical simulations for cardiac electrophysiology at the microscopic scale, started on october 2014, co-supervised by M. Potse with F. Caro, U. Bordeaux and Maison de la Simulation at Saclay.

8.2.3. Juries

- Y. Coudière, reviewer, PhD of Elisa Schenone, 26 Nov. 2014

- M. Potse, member, D Carlos Sánchez Tapia, Universidad de Zaragoza, Zaragoza, Spain, 23 June 2014.
- M. Potse, member, PhD Annabelle Collin, Univ. Pierre et Marie Curie, Paris VI; France, 6 Oct. 2014

8.3. Popularization

- G. Ravon and Y. Coudière obtained a financial support from Cap'Math for the game: "Heart Attack". It is destinated to middle and high school students to introduce mathematical modelling.
- S. Labarthe presented the work of the team at the June session of the Inria Bordeaux-Sud Ouest "Unithé ou café" scientific diffusion presentation.

DRACULA Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

9.1.1.1. Member of the organizing committee

- Conference "LyonSysBio" (Lyon Systems Biology), Lyon (France), 19 - 21 November 2014 (http://lyonsysbio.sciencesconf.org/?lang=fr). Co-organizers : Fabien Crauste and Olivier Gandrillon.
- 12ème Colloque Franco-Roumain de Mathématiques Appliquées, Lyon (France), 25 - 30 August 2014 (http://cfr2014.univ-lyon1.fr/). Co-organizer : Fabien Crauste.
- 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid (Spain), 7 - 11 July 2014 (http://www.aimsciences.org/conferences/2014/). Co-organizers of the session "Deterministic and stochastic models in biology and medicine" : Mostafa Adimy, Fabien Crauste and Laurent Pujo-Menjouet.
- Regular Semovi seminar series (http://www.biosyl.org/news/semovi), 5 seminars organized in 2014. Co-organizer : Olivier Grandrillon. BioSyL (http://www.biosyl.org) worshops organization. Co-organizer : Olivier Grandrillon.

9.1.2. Journal

9.1.2.1. Member of the editorial board

- Mostafa Adimy : Journal of Nonlinear Systems and Applications (JNSA); The Scientific World Journal; Chinese Journal of Mathematics.
- Fabien Crauste : Computational and Mathematical Methods in Medicine (HPG)
- Laurent Pujo-Menjouet : Mathematical modelling natural phenomena; Frontiers Mathematics and Computers in Simulation

9.1.2.2. Reviewer

- Fabien Crauste : Abstract and Applied Analysis, Computational and Applied Mathematics, Journal of Mathematical Biology, Journal of Theoretica Biology, Mathematical Biosciences and Engineering, Mathematical Methods in the Applied Sciences, Mathematical Biosciences.
- Laurent Pujo-Menjouet : ISRN Biomathematics, Mathematical Biosciences, Mathematical Biosciences and Engineering, Mathematics and Computers in Simulation, Mathematical Methods in the Applied Sciences, Zeitschrift fuer Angewandte Mathematik und Physik (ZAMP).
- Olivier Gandrillon : Gene, Journal of the Royal Society Interface, PLOS Computational Biology, BMC research notes.
- Phillipe Michel : Nonlinear Analysis, PLOS One
- Samuel Bernard : PLOS Computational Biology, Biophysical Journal, Journal of Theoretical Biology, PLOS One, BMC Systems Biology, Mathematics and Computers in Simulations.
- Thomas Lepoutre : Siam Journal of Mathematical Analysis, Numerical Methods in PDE, Journal of Mathematical Biology.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- Licence : Phillipe Michel, Analyse appliquée, 56h, L3, Ecole Centrale de Lyon.

- Licence : Phillipe Michel, Probabilités et statistique, 30h, L3, Ecole Centrale de Lyon.
- Licence: Samuel Bernard, Algèbre linéaire et matricielle, 45h, L3, INSA Lyon.
- Licence : Laurent Pujo-Menjouet, les réels et les fonctions, 36h, L1, Université Lyon 1.
- Licence : Laurent Pujo-Menjouet, suites et séries de fonctions, 36h, L1, Université Lyon 1.
- Licence : Laurent Pujo-Menjouet, Equations Différentielles, 18h, L2, Université Lyon 1.
- Licence : Laurent Pujo-Menjouet, Projet de l'étudiant de Licence, 14h, L2, Université Lyon 1.
- Licence : Laurent Pujo-Menjouet, Biomathématiques et modélisation, 10h, L3, Université Lyon 1.
- Licence : Laurent Pujo-Menjouet, Equations différentielles et aux dérivées partielles, 36h, L3, Université Lyon 1.
- Licence: Léon Matar Tine, Techniques mathématiques de base (TMB), 42h, L1, Université Lyon 1.
- Licence: Léon Matar Tine, Maths PMI-Analyse, 42h, L2, Université Lyon 1.
- Licence: Léon Matar Tine, Analyse Numérique, 36h, L3, Université Lyon 1.
- Master : Phillipe Michel, Algorithmes pour la décision en entreprise, 15h, M2, Ecole Centrale de Lyon.
- Master : Phillipe Michel, Méthodes variationnelles pour les EDP, 35h, M2, ECL, Ecole Centrale de Lyon.
- Master : Phillipe Michel, Systèmes embarqués collaboratifs, 14h, M1, Ecole Centrale de Lyon.
- Master: Mostafa Adimy, Dynamique des populations cellulaires, 20h, M2, Université Lyon 1.
- Master: Samuel Bernard, Dynamique des populations cellulaires, 20h, M2, Université Lyon 1.
- Master : Laurent Pujo-Menjouet, Modélisation en biologie et médecine, 8h, M2, Université Lyon 1.
- Master : Laurent Pujo-Menjouet, Gestion de projet en ingénierie mathématique, 3h, M1, Université Lyon 1.
- Master : Laurent Pujo-Menjouet, Systèmes dynamiques, 66h, M1, Université Lyon 1.
- Master : Laurent Pujo-Menjouet, Projet tutoré en Mathématiques, 3h, M2, Université Lyon 1.
- Master: Léon Matar Tine, Dynamique des protéine, 18h, M2, Université Lyon 1.
- Master: Thomas Lepoutre, Dynamique des protéine, 18h, M2, Université Lyon 1.

9.2.2. Supervision

- HdR : Fabien Crauste, Équations à retard et modèles de dynamiques de populations cellulaires, Université Lyon 1, December 2014.
- PhD in progress : Marine Jacquier, Contribution à l'étude de modèles à retards modélisant l'impact physiologique du comportement de prise alimentaire, Université Lyon 1, October 2012, Mostafa Adimy and Fabien Crauste.
- PhD in progress : Abdennasser Chekroun, Équations différentielles et aux différences à retard pour des modèles de dynamique des cellules souches hématopoïétiques, Université Lyon 1, October 2012, Mostafa Adimy.
- PhD in progress : Barbaroux Loic, modélisation mathématique de la réponse immunitaire chez un individu en vue d'optimiser des stratégies de vaccination, Université de Lyon 1, October 2013, Mostafa Adimy and Phillipe Michel.
- PhD in progress : Raouf El Cheikh, Multiscale modelling of the interaction between the cell cycle and the circadian clock, Université Lyon 1, October 2011, Samuel Bernard and Vitaly Volpert.
- PhD in progress : Apollos Besse, The role of tumor-immune interaction in combined treatments for chronic myeloid leukemia, Université Lyon 1, October 2014, Samuel Bernard and Thomas Lepoutre.

- PhD in progress : Flavien Duparc, Etude d'un modèle mathématiques de régulation de l'hémoglobine chez les patients dialysés, Université Lyon 1, October 2014, Mostafa Adimy 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).

9.2.3. Juries

- Mostafa Adimy was member and reviewer of the following PhD : Modou Lo (University of Saint-Louis, Senegal), February 2014; Jose Luis Avila Alonso (University of Paris-Sud XI), July 2014; Benjamin Aymard (University of Paris 6), October 2014; Mathieu Leroy-Lereêtre (University of Toulouse), October 2014.
- Mostafa Adimy was reviewer of the PhD of Ahmed Fadili (University of Agadir, Morocco), December 2014.
- Mostafa Adimy was reviewer of the HDR of Samir Fatajou (University of Marrakech, Morocco), November 2014.
- Mostafa Adimy was member of the juries : Fabien Crauste, HDR (University of Lyon), December 2014; Nathalie Eymard, PhD (University of Lyon), December 2014.

9.3. Popularization

- Fabien Crauste : Cycle "Mathématiques et médecine" de l'Université Ouverte "Grippe saisonnière, épidémie, pandémie : quel apport des mathématiques ?", 25 March 2014.
- Olivier Grandrillon : Participation in the café des sciences "La recherche en génétique, entre prouesses et promesses", in Lyon (Samedi 11 octobre)
- Samuel Bernard : Participation in Conférence à l'Université Ouverte “Garder le rythme, c'est garder la santé” and “L'âge de nos cellules par test nucléaire”, in Lyon.
- Thomas Lepoutre : Cycle "Mathématiques et médecine" de l'Université Ouverte.
- Thomas Lepoutre is one of the organizer of Mathalyon (Mathematcial exhibitions in highschool with 4 researchers, 20 days of intervention every year).
- Thomas Lepoutre : Intervention at Cité Scolaire Internationale (Highschool in Lyon) to explain what is a researcher's job.
- Laurent Pujo-Menjouet : Cycle "Mathématiques et médecine" de l'Université Ouverte "Le bonheur est dans le pré, les vaches folles aussi", 16 September, 2014.
- Laurent Pujo-Menjouet : supervising junior high school students for the "MathenJeans" program http://www.mathenjeans.fr (academic year 2014-2015).

M3DISIM Team

8. Dissemination

8.1. Promoting Scientific Activities

Dominique Chapelle

- Member of the editorial boards of journals *Computers & Structures* and *M2AN*
- Program committee of conference "Functional Imaging and Modeling of the Heart 2015"
- Invited lecturer in workshops "Model Order Reduction and Data" (Jacques-Louis Lions Lab, Paris 6, 6–8 Jan.), and "Modeling and Simulation in Biomechanics" (Graz Univ., 15–17 Sept.)
- Member of the Academic Senate of FCS Paris-Saclay
- Member of the board of directors of the VPH Institute

Philippe Moireau

- Member of the Inria Saclay-Ile de France CR2 Jury
- Reviewer this year for Region Aquitaine Grants
- Reviewer of the PhD Thesis of Atte Alto on *Infinite Dimensional Systems: Passivity and Kalman Filter Discretization*

Sébastien Imperiale

- Reviewer in Inverse problem, SIAM journal on Numerical Analysis, Geophysics, Journal of Computational Physics

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Dominique Chapelle

Lectures on cardiac biomechanical modeling in Master's programs SIM (Univ. Créteil) and BME (Paris 5 and ParisTech)

Philippe Moireau

Bachelor's degree: "MA103 - Introduction aux EDP et à leur approximation numérique", 14h, M1, ENSTA ParisTech, France

Master's: "MA201 - La méthode des éléments finis", 14h classes , M2, ENSTA ParisTech, France

Master's: "Data assimilation module", 6h lectures, Paris VI University, France

Sébastien Imperiale

Master's: "MA201 - La méthode des éléments finis", 12h, M2, ENSTA ParisTech, France

Master's: "Simnum - Simulation numérique en C++", 36h, M1, ENSTA ParisTech, France

Annabelle Collin

Oral examination:"Algebra and Geometry", Paris 6 University, spring 2012

Bachelor's degre:"Multivariable Calculus", Paris 6 University, fall 2012

8.2.2. Supervision

PhD defended in October: Annabelle Collin, “Dimensional reduction and electro-mechanical coupling for the modeling of electrophysiology and muscle contraction”, UPMC, started September 2011, advisors D. Chapelle and J.-F. Gerbeau

PhD in progress: Bruno Burtshell, “Mechanical modeling and numerical methods for poromechanics: Applications to cardiac perfusion”, Ecole Polytechnique, started October 2013, advisors D. Chapelle and P. Moireau

8.2.3. Juries

Dominique Chapelle: member of PhD committees of J. Mullaert (Paris 6, 17 Dec.) and C. Dupont (Ecole Polytechnique, 18 Dec., chairman)

Philippe Moireau: member of PhD committee of A. Collin

8.3. Popularization

D. Chapelle interviewed for article in “Usine Nouvelle” on cardiac modeling

D. Chapelle invited at “Futur en Seine” event for presentation and debate on predictive systems

P. Moireau presentation for the Inria Direction of Financial Affairs on the “heart forecasting”

MAMBA Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Journal

9.1.1.1. member of the editorial board

- Scientific World Journal (Dirk Drasdo)

9.1.1.2. reviewer

- J. Clairambault in 2014 for PLoS Comp Biol, Seminars Canc Biol, Cancer Research, MMNP, Canc Cell Intnl, J Theor Biol, Bull Math Biol, J Math Biol, Future Medicine, Math BioSci, Math BioSci Eng, Non Linear Biomed Physics, Theor Biol Med Modelling
- M. Doumic in 2014 for Ann. IHP Non-Lin., Journal of Mathematical Biology, Proc. London Math. Society, habilitation of M. Ribot.
- D. Drasdo in 2014 for e.g. Nature, Bioinformatics, PLoS Comput Biol, habilitation of A. Zinovyev (Inst. Curie, habil. at ENS Rue d'Ulm), CaSyM Roadmap (Coordinating Action Systems Medicine: Implementation of Systems Medicine across Europe)

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: J. Clairambault, Modélisation de la croissance cellulaire et tissulaire, 2 h de cours magistral, L2 Parcours Médecine-Sciences UPMC, France

Master: J. Clairambault, Mathematical biology, M2 Mathématiques appliquées, 6 h de cours magistral (in English), UPMC, France

Master: J. Clairambault, Modélisation de l'optimisation thérapeutique en cancérologie, 4 h de cours magistral, M2 Pharmacologie, Rennes, france

Doctorat: J. Clairambault, Modélisation de la croissance cellulaire et tissulaire, 2 h de cours magistral, DESC Oncologie, UPMC, France

Summer/Winter schools: J. Clairambault, Winter school BIOMAT La Falda (Córdoba, Argentina), August 2014, 3 h of conference classes (en castellano)

Master: M. Doumic, course on inverse problems and applications in population dynamics (24 hours)

Master: D. Drasdo, Mathematical Biology, UPMC: "Agent-based models of tissue organisation" (24h)

9.2.2. Supervision

HdR: Nicolas Vauchelet, "Contributions mathématiques à l'étude de modèles décrivant le mouvement de particules confinées et de micro-organismes", UPMC, 08/12/2014

PhD: Hadjer Wafaâ Haffaf, "Analyse de l'agrégation des protéines dans les maladies neurodégénératives amyloïdes - Application aux maladies à prion", UPMC, defended 14/10/17, Marie Doumic

PhD in progress: Aurora Armiento, "Inverse problems for aggregation kinetics", begun September 2013, M. Doumic and P. Moireau (Inria Saclay, M3DISIM team)

PhD in progress: Sarah Eugène, "Stochasticity in nucleation dynamics", begun September 2013, M. Doumic and P. Robert (Inria Paris-Rocquencourt, RAP project-team)

PhD in progress: Adélaïde Olivier, “Nonparametric estimation of the division rate in branching process”, begun September 2012, M. Doumic and M. Hoffmann (Prof. Univ. Paris-Dauphine)

PhD in progress: Thibault Bourgeron, “Linear and nonlinear structured population models”, begun September 2012, M. Doumic and B. Perthame

PhD in progress: Ján Eliaš, “p53 intracellular spatio-temporal dynamics”, begun October 2012, J. Clairambault and B. Perthame

PhD in progress: Casimir Emako-Kazianou, L. Almeida and N. Vauchelet

PhD in progress: Antonin Prunet, begun October 2014, L. Almeida and A. Escargueil

PhD in progress: Andrada Maran, “Modelling early leukaemogenesis”, begun March 2014, J. Clairambault and B. Perthame

PhD in progress: Cécile Taing, begun October 2014, A. Lorz and B. Perthame

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

PhD in progress: Noémie Bossier (since November 2013), supervision by Dirk Drasdo and Irene Vignon-Clementel

PhD in progress: Géraldine Cellière (since October 2012), supervision by Dirk Drasdo, Andrei Zinovyev and Emmanuel Barillot (Institut Curie)

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

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

9.2.3. Juries

- J. Clairambault: José Luis Avila, PhD defence, 02/07/2014, Paris XI (Applied mathematics)
- J. Clairambault (Reviewer) : Hossein Ayoub, PhD defence, 04/07/2014, Bordeaux (Applied mathematics)
- J. Clairambault: Nathalie Eymard, PhD defence, 04/12/2014, Lyon (Applied mathematics)
- J. Clairambault: Niklas Hartung, PhD defence, 15/12/2014, Marseille (Applied mathematics)
- M. Doumic: H.W. Haffaf, PhD defence, 17/10/2014, UPMC (Applied mathematics)
- M. Doumic: N. Vauchelet, habilitation thesis, 8/12/2014, UPMC (Applied mathematics)
- M. Doumic: M. Ribot, habilitation thesis, 12/12/2014, UPMC (Applied mathematics)
- D. Drasdo: A. Zinovyev, habilitation thesis, 04/04/2014, ENS (Computational Biology)

9.3. Popularization in international bulletins

- Article Clairambault, J. “My personal journey in mathematical biology and medicine”. Society for Mathematical Biology Newsletter 28(1):11-12, January 2015 [27], http://www.smb.org/publications/newsletter/vol28no1.pdf
- Article Clairambault, J. “Perspectives on new and less new opportunities for mathematical biology as applied to biological and clinical medicine”. Society for Mathematical Biology Newsletter 27(2):14-15, May 2014 [26], http://www.smb.org/publications/newsletter/vol27no2.pdf

MASAIE Project-Team

7. Dissemination

7.1. Teaching - Supervision - Juries

7.1.1. Supervision

- PhD in progress: Mouhamadou Diaby, "Etude mathématique de l'évolution temporelle et spatiale de certaines épidémies. Applications à la Bilharziose (schistosomiase).", 2010, A. Iggidr.
- PhD in progress: Mamadou Lamine Diouf, "Modélisation, observation et contrôle de la propagation de certaines épidémies en Afrique Subsaharienne.", 2010, A. Iggidr.

MODEMIC Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organization

8.1.1.1. member of the organizing committee

C. Lobry has been coordinator of six one-week "Bernoulli" workshops (see 7.3.4.1).

F. Campillo was co-organiser of a workshop on "Stochastic Models for Biology", see Section 7.1.1 .

C. Casenave and F. Campillo were in the organizing committee of the meeting of the MIA [0] Division of INRA in March 2014, and have organized a session on "spatio-temporal models and methods".

8.1.2. Scientific events selection

8.1.2.1. reviewer

European Control Conference, IFAC World Congress, IEEE Conference on Decision and Control.

8.1.3. Journal

8.1.3.1. reviewer

Automatica, BioMath, Bulletin of Mathematical Biology, Computers and Mathematics with Applications, Differential Equations and Dynamical Systems, J. of Advances Research in Differential Equations, J. of Biological Dynamics, J. of Process Control, Math. Biosciences and Eng.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Engineering degree

A. Rapaport, "Introduction to modelling", 12 hours, 1st year, SupAgro Montpellier.

Master

F. Campillo, "Stochastic modelling of ecosystems", 20 hours, Master 2 in Biostatistics, Univ. Montpellier II.

A. Rapaport, "Practical Mathematics", 27 hours, Master 1 in Mathematics, Univ. Montpellier II.

PhD

F. Campillo and C. Fritsch, "Object oriented programming: probabilistic modeling and statistical numerics for biology", 20 hours, Doctoral lectures, Univ. Montpellier II.

C. Casenave and A. Rapaport, "Modelling for biology and ecology, mathematical and computational methods", 20 hours, Doctoral lectures, Univ. Montpellier II.

8.2.2. Supervision

Amine Charfi

PhD: Etude d'un procédé membranaire de traitement des eaux usées : effet des paramètres biotiques et abiotiques sur le colmatage de la membrane.

Univ. Carthage, Dec. 2014.

[0] http://www.mia.inra.fr/

Advisors: N. Ben Amar (ENIT-LAMSIN, Tunis) and J. Harmand.

Coralie Fritsch

PhD: Simulation et analyse de modèles individu-centrés d'écosystèmes bactériens pour des procédés biotechnologiques.

Univ Montpellier II, dec. 2014.

Advisors: F. Campillo and J. Harmand.

Walid Bouhafs

PhD in progress: Commande optimale des réacteurs biologiques séquentiels discontinus.

ENIT (Tunis), since 2010.

Advisors: N. Abdellatif (ENIT-LAMSIN, Tunis), F. Jean (ENSTA) and J. Harmand.

Sonia Hassam

PhD in progress: Réduction de modèles biotechnologiques : application à la digestion anaérobie.

Univ. Tlemcen, since 2011.

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

Amel Ghouali

PhD in progress: Analyse et commande optimale d'un bioréacteur de dépollution des eaux usée

cotutelle Univ Montpellier II/Univ. Tlemcen (Algeria), since Nov. 2011.

Advisors: J. Harmand and T. Sari (UMR ITAP, Montpellier).

Guilherme Pimentel

PhD in progress: Modélisation dynamique, analyse et supervision d'un réacteur membranaire.

cotutelle Univ. Montpellier II/Univ. Mons (Belgique), since Nov. 2011. Defense scheduled in Feb. 2015.

Advisors: A. VandeWouver (Univ. Mons) and A. Rapaport.

Victor Riqueleme

PhD in progress: Commande optimale pour la préservation de ressources hydriques exploitées.

cotutelle Univ. Montpellier II/Univ. Chile, since Sept. 2013.

Advisors: H. Ramirez (Univ. Chile) and A. Rapaport.

Alejandro Rojas-Palma

PhD in progress: Etude de quelques problèmes dans la modélisation et l'optimisation de bioprocédés.

cotutelle Univ. Montpellier II/Univ. Chile, since Sept. 2014.

Advisors: H. Ramirez (Univ. Chile) and A. Rapaport.

Yessmine Daoud

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

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

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

Mohsen Chebbi

PhD in progress: Modélisation stochastique de procédés membranaires de traitement des eaux usées.

ENIT (Tunis) , since sep. 2014.

Advisors: S. Toumi (ENIT, Tunis) and F. Campillo.

Oussama Hadj-Abdelkader

PhD in progress: Filtrage particulaire pour le chemostat.

Univ. Tlemcen, since sep. 2014.

Advisors: A. Hadj-Abdelkader (Univ. Tlemcen) and F. Campillo.

Zeyneb Khedim

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

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

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

Anne Bisson

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

Univ. Montpellier II, since Dec. 2014.

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

The team has supervised the MsC and Engineering School internships [49], [50], [51], [54], [56].

8.2.3. Juries

M. Abouzlam. "Optimisation d'un procédé de traitement des eaux par ozonation catalytique", Thèse de Doctorat, Univ. Poitiers, Jan. 2014 (referee : J. Harmand).

Y. Chen. "Inférence bayésienne dans les modèles de croissance de plantes pour la prévision et la caractérisation des incertitudes", Thèse de Doctorat, Ecole Centrale, Paris, Jun. 2014 (referee : F. Campillo).

H. Sedrakyan. "Comportement limite des systèmes singuliers et les limites de fonctions valeur en contrôle optimal", Thèse de Doctorat, Université Paris VI, Dec. 2014 (referee : T. Bayen).

G. François. "Optimisation en temps Réel : Optimiser les Performances des Procédés Chimiques malgré l'Incertitude et les Erreurs de Modélisation", Habilitation à diriger des recherches, Univ. Lorraine, Dec. 2014 (referee : A. Rapaport).

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

8.3. Popularization

Jointly with Inria project-team LEMON, MODEMIC has participated to the elaboration of a "serious" game for learning how to purify fast and well a water reservoir, in the scope of the international initiative Mathematics of Planet Earth and the french consortium Cap'Maths (see 5.1).

8.4. Institutional commitment

F. Campillo is member of the NICE Inria committee (long term invited scientists selection); deputy elected member of the Inria Scientific Council; member of the internal communication working group of Inria for the redesign of the national intranet; member the "support group to researchers" of Inria Sophia Antipolis.

J. Harmand is member of the steering committee of the Inra/MEM meta-program (Métagénomique des écosystèmes microbiens); member of the EA department of Inra; member of the "commissions scientifiques spécialisées" STEA-Inra.

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

MYCENAE Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

8.1.1.1. Member of the organizing committee:

- Kick-off Meeting of the GdR REPRO, April 7th, 2014
  F. Clément together with Olivier Kah (CNRS), Florian Guillou (INRA), Yves Combarnous (CNRS) and Joëlle Cohen-Tannoudji (University Paris VII).
- Second workshop "Biologie & Mathématiques sur la Montagne", October 28, 2014.
  J. Touboul together with : Gérard Berry (Collège de France), Amaury Lambert (UPMC), Alain Prochiantz (Collège de France)
- Workshop Multi-scale models, slow-fast differential equations, averaging in ecology and neuroscience, November 17-21, 2014
  M. Desroches, together with Olivier Faugeras (Inria Sophia-Antipolis Méditerrané), Claude Lobry (Nice University) and Tewfik Sari (IRSTEA), as a part of a thematic semester on mathematical ecology (July-December 2014), Bernoulli Centre of the EPFL (Lausanne, Switzerland).

8.1.2. Journal

8.1.2.1. Reviewer:

Electronic Journal of Probability, Physica D, Frontiers in Neuroscience, Journal of Statistical Physics, Mathematical Biosciences, Mathematics and Computers in Simulation, Nonlinear Dynamics, Nonlinearity, SIAM Journal on Applied Dynamical Systems, SIAM Journal on Applied Mathematics

8.1.3. Participation in committees and examination boards

8.1.3.1. F. Clément:

- member of the direction board of the GdR REPRO (Integrative and translational approaches of human and animal reproduction)
- appointed member of the scientific board of the BCDE (Cell Biology, Development and Evolution) ITMO (Multi OrganizationThematic Institute) of the French National Alliance for Life and Health Sciences http://www.aviesan.fr/en
- Inria Research Director open competitions (admission)
- Selection committee for the Assistant Professor position no 4240, 26-MC-0375 in Université Pierre & Marie Curie

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

M. Desroches

M1 course on "Mathematical and Computational Neuroscience" as part of the Master program in Bioinformatics (BIM) of the University Pierre et Marie Curie (UPMC, Paris)

This teaching has been organised over a five-week period (January-February 2014) with a total of 30 hours, including lectures, example classes and computer labs (2 hours per week each). This first half of the course was focused on an introduction to mathematical slow-fast models of spiking and bursting neurons using bifurcation theory, slow-fast dissection and numerical analysis (simulation and continuation) with the software package XPPAUT.

8.2.2. Supervision

Benjamin Aymard, Numerical study of multiscale non conservative transport equations modeling cell kinetics [14] , Université Pierre & Marie Curie, October 10th, 2014, supervisors: Marie Postel and Frédérique Clément.

Elif Köksal Ersoz, Synchronization of GnRH neurons: a multiscale mathematical study, since November 2013, Université Pierre & Marie Curie, supervisors: Frédérique Clément and Jean-Pierre Françoise, with the involvement of Mathieu Desroches.

Lucile Megret, Mathematical analysis of complex oscillations in models with multiple time scales, since October 2013, Université Pierre & Marie Curie, supervisors: Jean-Pierre Françoise and Frédérique Clément, with the involvement of Mathieu Desroches.

Kim Long Tran, Reduction and calibration of mutiscale models for structured cell populations, since October 2014, Université Pierre & Marie Curie, supervisors: Marie Postel and Frédérique Clément.

Luis Carlos García del Molino, Dynamics of randomly connected networks and spectral theory of random matrices, since September 2012, Université Denis Diderot, supervisor: Khashayar Pakdaman (Jacques Monod Institute), co-supervisor: Jonathan Touboul.

Cristóbal Quiñinao, Mean-field limits in non fully connected networks and noise-induced synchronization, since September 2012, Université Pierre & Marie Curie, supervisor: Benoît Perthame, co-supervisors: Stéphane Mischler (CEREMADE) and Jonathan Touboul.

8.2.3. Juries

J. Touboul: evaluation of the ENS Ulm PhD scholarships

8.3. Popularization

- M. Desroches is section-chief editor of the media gallery of DSWeb, a website dedicated to dynamical systems http://www.dynamicalsystems.org/pi/.
- Participation to the scientific popularization book “La Reproduction animale et humaine” [29]

NUMED Project-Team

8. Dissemination

8.1. Promoting Scientific Activities

8.1.1. Scientific events organisation

P. Vigneaux: ANR's ARP workshop Simulation of avalanches : modelling and numerics, in Seville (March 11-14) 2014. http://arpavalanche14.sciencesconf.org/

P. Vigneaux: 12th French-Romanian Conference on Applied Mathematics (August 25-30, 2014. Lyon) CFR2014: invited to organize the Special Session on Numerical Analysis.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

E. Grenier is professor at ENSL and teaches in L3 and agregation (PDE, Topology, Modeling).

P. Vigneaux is assistant professor at ENSL and teaches in M2 and agregation (Modeling, PDE).

V. Calvez teachs in M2 (modeling and PDE).

8.2.2. Supervision

- E. Bouin defended its thesis in novembre 2014 under the supervision of V. Calvez.

8.3. Popularization

V. Calvez is responsible of "Math à Lyon", a serie of conferences in high school.

E. Grenier gave a public conference in Nancy in november 2014 on "mathematics and drugs".

P. Vigneaux took part of a general book "Brèves de Maths - Mathématiques pour la planète Terre. Nouveau Monde" éditions. ISBN 9782365838962. Octobre 2014. 255p. Patronage de l'INSMI-CNRS, Inria, SMAI, SMF, SFdS

P. Vigneaux is a member of the board of "Images des Maths", a pedagogic website.

REO Project-Team

9. Dissemination

9.1. Promoting Scientific Activities

9.1.1. Scientific events organisation

- Matteo Aletti
  - Co-organizer of the monthly Junior Seminar of Inria Paris-Rocquencourt
- Laurent Boudin
  - Co-organizer of the M2S2 workshop (Mathematical Models for Social Sciences), with J.-P. Nadal
- Miguel Ángel Fernández Varela
  - Organizer of the CEA-EDF-Inria summer school on Numerical methods for interface problems in fluid and solids with discontinuities, Cadarache, France (with P. Massin and J. Segré), 2014
  - Organizer of the International workshop on numerical methods and applications in fluid-structure interactions, November 24-25, 2014, Grenoble, France (co-organized with G.-H. Cottet, J-F. Gerbeau and E. Maitre)
- Jean-Frédéric Gerbeau
  - Organizer of the International workshop on numerical methods and applications in fluid-structure interactions, November 24-25, 2014, Grenoble, France (with G.-H. Cottet, M. Fernández and E. Maitre)
- Jessica Oakes
  - Assistant Organizer for the 4th International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease
  - Student Forum Leader: International Society of Aerosol Medicine
- Sanjay Pant
  - Co-organizer of the 4th International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease, May 21rst-22nd, Rocquencourt, France
- Elisa Schenone
  - Co-organizer of the monthly Junior Seminar of Inria Paris-Rocquencourt
- I. Vignon-Clementel
  - Organizer of the monthly seminar at Inria Paris-Rocquencourt on “modeling and scientific computing”
  - Organizer of the 4th International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease, May 21rst-22nd, Rocquencourt, France. This event was coorganized with the School of Medicine, Stanford University & REO. It was a great success! Over 70 participants came from all over the world, from the USA and France, but also from as far as Japan, Turkey or Australia. Participants particularly liked the mixture of mathematics/engineering and clinical research presented in an understandable way for both communities. This fostered lively discussions after talks and at the poster session. Three young investigators received awards from the *Fondation Sciences Mathématiques de Paris*; one of them is Stephanie Lindsey, a visiting PhD student at REO from Cornell University. http://www.rocq.inria.fr/engfrontiersped

  - Organizer of the 5th general meeting of the Transatlantic Network of Excellence for Cardiovascular Research MOCHA, May 22nd-24th, Rocquencourt, France.

9.1.2. Journal editorial boards

- Jean-Frédéric Gerbeau
  - Editor-in-Chief of Mathematical Modelling and Numerical Analysis (M2AN).
  - Member of the editorial board of International Journal for Numerical Methods in Biomedical Engineering (IJNMBE).
  - Member of the editorial board of Communications in Applied and Industrial Mathematics.
- I. Vignon-Clementel
  - Review Editor of Frontiers in Pediatric Cardiology.

9.1.3. Conferences

- Chloé Audebert
  - Minisymposium talk, 11th World Congress on Computational Mechanics (WCCM XI), July 20-25, 2014, Barcelona, Spain.
  - PhD students seminar, Université Paris-Decartes, February 20th, 2014, Paris, France
  - Poster session, 4th International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease, Inria Paris-Rocquencourt, May 21-22, 2014, Paris, France
- Laurent Boudin
  - Invited speaker at Workshop "PDE models in social sciences", closure of Peter Markowich's chair at FSMP, Paris, France, January 2014.
  - Seminar, Numerical analysis and PDEs, LMPP, Univ. Lille 1, France, March 2014.
  - Seminar, Applied Mathematics, IMB, Univ. Bordeaux, France, March 2014.
  - Seminar, Mathematics and applications, Irmar, ENS Rennes, France, April 2014.
  - Invited speaker at Conference "Problems on kinetic theory and PDEs", Univ. Novi Sad, Serbia, September 2014.
  - Invited speaker at Workshop "Kinetic models for complex gases", Univ. Bordeaux, France, October 2014.
- Muriel Boulakia
  - Contributed talk, Hybrid Inverse Problems, Paris, February 2014
  - Contributed talk, LJLL-Shangaï Meeting, Paris, July 2014
  - Contributed talk, GDR Metice workshop, Paris, November 2014
- Miguel Ángel Fernández Varela
  - Invited plenary lecture, 12th Franco-Romanian conference on applied mathematics, Lyon (France) August 2014.
  - Minisymposium talk, 11th World Congress on Computational Mechanics (WCCM XI), July 20-25, 2014, Barcelona, Spain.
  - Seminar, University of Caen, October, 2014, France
- Benoit Fabrèges
  - Minisymposium talk, 11th World Congress on Computational Mechanics (WCCM XI), July 20-25, 2014, Barcelona, Spain.
  - Contributed talk, International workshop on numerical methods and applications in fluid-structure interactions, November 24-25, Grenoble, France, 2014.
- Justine Fouchet-Incaux

  - Contributed talk, CANUM, Carry-le-Rouet, France, April 2014.
  - Poster, IXème congrès de Physiologie, de Pharmacologie et de Thérapeutique, Poitiers, April 2014.
- Jean-Frédéric Gerbeau
  - Invited plenary lecture, ESCO 2014, Pilsen (Czech Republic), June 2014
  - Invited plenary lecture, CARI 2014, Saint-Louis (Senegal), October 2014
  - Invited lecture, International Symposium Modeling and Simulation of the Cardiovascular System, Heidelberg (Germany), February 2014
  - Invited seminar, Collège de France, June 2014
  - Invited lecture, Workshop GDR Mecabio, Paris, 2014
  - Invited lecture, Workshop on Model Order Reduction and Data, Paris, 2014
  - Minisymposium talk, 11th World Congress on Computational Mechanics (WCCM XI), July 20-25, 2014, Barcelona, Spain.
  - Minisymposium talk, 7th World Congress of Biomechanics (WCB), July 6-11, 2014, Boston, USA.
- Céline Grandmont
  - Seminar, Nancy Univ., april 2014.
  - Invited speaker, PhD student day, sept. 2014.
- Mikel Landajuela
  - Minisymposium talk, 11th World Congress on Computational Mechanics (WCCM XI), July 20-25, 2014, Barcelona, Spain.
  - Seminar, UCL/Inria Workshop on embedded interfaces, London, UK, February 25-26, 2014
  - Poster, International workshop on numerical methods and applications in fluid-structure interactions, Grenoble, France, November 24–25, 2014;
- Damiano Lombardi
  - Seminar scientific computing , IMB Bordeaux, september 25
  - GDR Metice, Paris, 19-11-2014,
  - International Workshop on Fluid Structure Interaction, 24 novembre 2014, Grenoble
- Jessica Oakes
  - Invited Seminar Talk at Technion - Israel Institute of Technology, Haifa Israel July 2014.
  - Seminar Talk at University of California Berkeley, Berkeley California USA, September 2014
  - Seminar Talk at Inria@SiliconValley Workshop, Paris France July 2014.
  - Poster and Podium Talk at the International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease. May 2014, Paris France.
  - Podium Talk at Second Aerosol Dosimetry Conference, October 2014. Irvine, California, USA.
  - Podium Talk at American Physics Society, Division of Fluid Dynamics, November 2014. San Francisco, California, USA
- Stephanie Lindsey
  - Contributed talk at "American Physical Society Division of Fluid Dynamics 67th Annual Meeting", November 23-25, 2014 San Francisco, California

  - Invited speaker, "4th International Conference on Engineering Frontiers in Pediatric and Congenital Heart", May 21-22, 2014 Paris, France
  - Invited speaker, Junior Seminar, Inria, January 22, 2014 Paris, France.
- Sanjay Pant
  - Contributed talk, Mathematics and Biology: 2nd Young Investigators International Workshop, Paris, France, April 3-4, 2014.
  - Poster, 4th International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease, Paris, France, May 21-22, 2014.
  - Contributed talk, 5th Annual Meeting of the Leducq Foundation Network of Excellence in Modeling of Single Ventricle Hearts Inria, Paris-Rocquencourt, France, May 22-24, 2014.
  - Minisymposium talk, 11th World Congress on Computational Mechanics (WCCM XI), July 20-25, 2014, Barcelona, Spain.
- Elisa Schenone
  - Poster, 4th International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease, Paris, May 21-22 201
  - Seminar, Inria-Rocquencourt Junior Seminar, Paris, June 17th 2014
  - Seminar, PhD students working group of Jacques-Louis Lions Laboratory of UPMC, Paris, March 21st 2014
- Marc Thiriet
  - Invited Speaker, CASTS-LJLL Workshop on Applied Mathematics and Mathematical Sciences. National Taiwan University, May 26 - 29, 2014
  - Keynote speaker, CompIMAGE'14, Sept. 3-5, Pittsburgh, USA
  - Invited Speaker, International Conference on Progress in Fluid Dynamics and Simulation, National Taiwan University, October 25-27, 2014
  - Miraucourt O, Génevaux O, Szopos M, Thiriet M, Talbot H, Salmon S, Passat N. s. 2014 IEEE International Symposium on Biomedical Imaging, Beijing, China, April 29 - May 2, 2014
  - M Thiriet, M Solovchuk, TWH Sheu, HIFU , CompIMAGE'14, Sept. 3-5, Pittsburgh, USA
  - Solovchuk M, Sheu TWH, Thiriet M, 1st Global Conference on Biomedical Engineering (GCBME 2014) and 9th Asian Pacific Conference on Medical and Biological Engineering (APCMBE 2014), Oct. 9-12, 2014, NCKU, Tainan **Young Investigator award**
  - Solovchuk M, Sheu TWH, Thiriet M,, International Conference on Progress in Fluid Dynamics and Simulation, National Taiwan University October 25–27, 2014
- Marina Vidrascu
  - Modeling and scientific computing seminar at Inria Paris-Rocquencourt on January 7th, 2014.
  - Minisymposium talk, 11th World Congress on Computational Mechanics (WCCM XI), July 20-25, 2014, Barcelona, Spain.
  - Seminar at Univ Compiègne, October 7th, 2014.
- Irène Vignon-Clementel
  - Invited talk, Navier-Stokes workshop "une equation lumineuse" , Ecole Polytechnique, March 12th, Palaiseau, France.
  - Invited talk, Institute of Child Health, University College London, April 3rd, London, UK.
  - Invited talk, Notocord workshop, Inria Paris-Rocquencourt, June 6th, 2014, France.

– Talk, Inria-Dassault System meeting, Oct. 29th, 2014, Paris, France .

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

DUT :

- Justine Fouchet-Incaux 1ère année: Mathématiques S1, 28h, IUT d'Orsay, département Mesures Physiques, Université Paris-Sud,
- Justine Fouchet-Incaux 2ème année: Mathématiques S4, 33h, IUT d'Orsay, département Mesures Physiques, Université Paris-Sud

Licence :

- Chloé Audebert
  - "Calculus" (72h), L1 - undergraduate, Université Paris 6 UPMC, France (1rst semester 2014-2015).
  - Numerical ressources for Small Private Online Classes (SPOC), L1 - undergraduate, Université Paris 6 UPMC, France.
- Laurent Boudin
  - Multivariable calculus and multiple integrals (114 h), L2, UPMC.
  - Shared studies supervision in mathematics licence for approximately 500 students (30h), L2-L3, UPMC.
- Muriel Boulakia
  - Scilab (35h), L2, UPMC
  - Hilbertian analysis (45h), L3, Polytech'Paris,
- Miguel Ángel Fernández Varela
  - Scientific computing, 30h, L3, École des Ponts ParisTech,
- Céline Grandmont
  - Numerical Analysis, 36 h, L3, UPMC
  - EDO, 24 h, L3, UPMC
- Damiano Lombardi
  - Linear Algebra TD, 32h, L1 Physique-Chimie, UP-SUD
- Irène Vignon-Clementel
  - Mathematics for biology, 64h ETD, L1 - undergraduate, Univ. de Versailles Saint Quentin

Master :

- Laurent Boudin
  - Basics for numerical methods (72h), M1, UPMC.
  - Studies supervision in mathematics master for 15 students (20h), M1, UPMC.
- Muriel Boulakia
  - Preparatory course for teaching admission examination Agrégation (60h), M2, UPMC,
- Jean-Frédéric Gerbeau
  - Numerical methods in hemodynamics (20h), M2, UPMC / Univ Paris-Sud / Ecole Polytechnique.
- Miguel Ángel Fernández Varela

  - Numerical methods in bio-fluids, 6h, M2, University of Vigo, Spain.
- Damiano Lombardi
  - Numerical Methods, 48h, Paris Polytech, M1 Robotique

Engineering schools:

- Irène Vignon-Clementel. Numerical simulations of blood flow, 1h30, as part of the undergraduate "continuum mechanics" class at AgroParisTech, France

9.2.2. Supervision

PhD: Grégory Arbia, *Multi-scale Modeling of Single Ventricle Hearts for Clinical Decision Support*, Univ Paris 6 UPMC, defended December 16, 2014. Supervisors: J-F. Gerbeau & I. Vignon-Clementel, [13].

PhD: Jimmy Mullaert, *Fluid-structure interaction*, Univ Paris 6 UPMC, defended on December 17 . Supervisors: M.A. Fernández Varela& Y. Maday, [14].

PhD: Elisa Schenone, *Inverse problems in electrocardiology*, Univ Paris 6 UPMC, defended on November 28. Supervisors: J-F. Gerbeau & M. Boulakia, [15].

PhD: Saverio Smaldone, *Numerical methods for cardiac hemodynamics*, Univ Paris 6 UPMC, defended on October 13, Supervisors: J-F. Gerbeau & M.A. Fernández Varela, [16].

PhD in progress: Chloé Audebert, *Modeling of liver hemodynamics*, since October 2013. Supervisors: J-F. Gerbeau & I. Vignon-Clementel.

PhD in progress: Justine Fouchet-Incaux, *Mathematical and numerical modeling of the human breathing*, since October 2011. Supervisors: C. Grandmont & B. Maury.

PhD in progress: Mikel Landajuela, *Coupling schemes and unfitted mesh methods for fluid-structure interaction*, since October 2012, Supervisor: M.A. Fernández Varela.

PhD in progress: Matteo Aletti, *Multiscale retinal vascular modeling* , since January 2014 Supervisors: J-F. Gerbeau & Damiano Lombardi.

PhD in progress: Eliott Tixier, *Stem cells electrophysiology*, since September 2014 2014. Supervisors: J-F. Gerbeau & Damiano 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: Stéphane Liwarek, *Air flow in the nasal cavity*, October 2010-September 2014. Supervisors: M.A. Fernández Varela & J-F. Gerbeau.

9.2.3. Juries and hiring committees

- Laurent Boudin
  - Member of the PhD committees of Galina Vinogradova (SciencesPo, december 2014)
- Muriel Boulakia
  - Hiring committee: UPMC and Univ. Paris-Diderot
- Jean-Frédéric Gerbeau
  - PhD committees: Guilhem Lepoultier, Univ. Orsay (referee), Liesbeth Taelman, Univ. Gand, Belgique (referee), Adela Puscas, Univ. Paris-Est (referee), Christophe Chnafa, Univ. Montpellier 2 (referee), Agnès Leroy, Univ. Paris-Est. (member)
  - Hiring committee: Univ Orsay, CR2 Inria Paris-Rocquencourt, CR1 Inria.
- Céline Grandmont
  - Hiring committee: Lyon Univ. (Assitant Professor position).
  - Head habilitation (HDR) committee: B. Mauroy, Nice univ.
- Marina Vidrascu

  - Member of the Hiring committee Perpignan (professor)
  - Member of the PhD committee of Claire Dupont and Jimmy Mullaert
- Irène Vignon-Clementel
  - Member of the PhD committee of Xiaofei Wang, UPMC, Oct. 17th
  - PhD referee of Alessia Baretta, LaBS, Politecnico di Milano, Italy, Oct 21rst.
  - Member of the PhD committee of Grégory Arbia, UPMC, Dec 16th.

9.3. Service activities

- Laurent Boudin
  - 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.
- Muriel Boulakia
  - Supervisor of the teaching of mathematics at the engineer school Polytech Paris-UPMC
- Jean-Frédéric Gerbeau
  - Service activity at Inria: Délégué Scientifique / Chairman of the project-teams' committee of Inria Paris-Rocquencourt research center; Member of the Inria Evaluation Committee; Member of the Inria International Chairs committee.
  - Service activity in other French institutions: member of the research committee of Sorbonne Universités; member of the scientific committee of the Faculty of Science, University Versailles Saint-Quentin; member of the scientific committee of Labex NUMEV, Montpellier.
  - Service activity abroad: member of the Reference Committee of the PhD program Mathematical Models and Methods in Engineering (Politecnico di Milano, Italy);
- Céline Grandmont
  - Member of the CNU 26 (2011–2015). Member of the CNU extended board.
- Marc Thiriet
  - President of thematic comittee CT3 (Biomedical Simulation and Applications to Health) of GENCI (Grand Equipement National de Calcul Intensif – National Large Equipement for Intensive Computation).
  - Member of Evaluation Groups of the Canadian Granting Agency NSERC 1501 (Genes, Cells and Molecules), 1502 (Biological Systems and Functions), 1504 (Chemistry), 1507 (Computer Science), 1508 (Mathematics and Statistics), 1511 (Materials and Chemical Eng.), and mainly 1512 (Mechanical Eng., both Solids and Fluids sections).
  - Member of Scientific Council of DiscInNet
- Marina Vidrascu
  - Member of the post-docs selection committee, Inria Paris-Rocquencourt
- Irène Vignon-Clementel
  - Member of the PhD grant committee, Inria Paris-Rocquencourt
  - Mediator between PhD students and their supervisors for Inria Paris-Rocquencourt

9.4. Popularization

- Matteo Aletti

  - presentation at "Incontro Neo-Laureati" (Conférance jeunes diplômes) at Politecnico di Milano
  - presentation about REVAMMAD project at ArtVerona
- Céline Grandmont
  - Popularization paper "Inspiration mathématique: la modélisation du poumon", in Mathématique l'explosion continue, edited by SFdS, SMAI, SMF.
  - Conference «Nuit des Sciences, ébulition», ENS Paris, june 2014
  - Conference «Mathematic Park a Bobigny», 300 students (high school level), oct. 2014
  - Conference «Filles et Maths: une equation lumineuse», 60 students, (high school level), oct. 2014.
- Irene Vignon-Clementel
  - Conference in High School Blanche de Castille, March 25th, Le Chesnay

SISYPHE Project-Team (section vide)