RESEARCH CENTER

FIELD
Digital Health, Biology and Earth

Activity Report 2013

Section Dissemination

Edition: 2014-03-20

MODELING AND CONTROL FOR LIFE SCIENCES

ABS Project-Team

8. Dissemination

8.1. Scientific Animation

8.1.1. Organization of Schools and Courses

- **(Winter school Algorithms in Structural Bio-informatics)** Together with J. Cortès from LAAS / CNRS (Toulouse) and C. Robert (IBPC/CNRS), F. Cazals organized the winter school *Algorithms in Structural Bio-informatics* [4]. The goal of this winter school is to present state-of-the-art concepts, algorithms and software tools meant to model the flexibility of proteins, with a focus on methodological developments. The audience consisted of 30 PhD students and post-docs from all over the world.
- (**Statistical Learning Theory: a Short Course)** F. Cazals organized a mini-course by P. Grunwald, from the CWI. The details can be found at https://team.inria.fr/abs/statistical-learning-theory-a-short-course/.

8.1.2. Conference Program Committees

– F. Cazals was member of the following PC:

- Symposium on Geometry Processing.
- Computer Graphics International
- ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics
- International Conference on Pattern Recognition in Bioinformatics
- Computational Intelligence Methods for Bioinformatics and Biostatistics

8.1.3. Appointments

– F. Cazals was appointed as Panel expert for the 7th Framework Programme 7 from the EU, Information and Communication Technologies /

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master: F. Cazals, *Geometric and topological modeling with applications in biophysics*, 24h, Ecole Centrale Paris, France, 3rd year of the engineering curriculum in applied mathematics.

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

Graduate level: F. Cazals and C. Robert, *Analyzing conformational landscapes, with applications to the design of collective coordinates*, 6h, Winter school *Algorithms in Structural Bio-informatics*.

8.2.2. 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*, Univ. of Nice Sophia Antipolis. The thesis is co-advised by F. Cazals and P. Boudinot (INRA Jouy-en-Josas).

[4] http://algosb.sciencesconf.org/

AMIB Project-Team

7. Dissemination

7.1. Scientific Animation

7.1.1. French Community

Participants: Patrick Amar, Jérôme Azé, Julie Bernauer, Sarah Cohen-Boulakia, Alain Denise, Christine Froidevaux, Sabine Pérès, Yann Ponty, Mireille Régnier, Jean-Marc Steyaert.

The whole team is involved in GDR-BIM (Molecular Bioinformatics, http://www.gdr-bim.u-psud.fr/). J. Azé is the webmaster. A. Denise is a member of the Scientific Committee. Y. Ponty is animator of the *Structure et interactions des macromolécules* scientific axis. C. Froidevaux and S. Cohen-Boulakia participate to the subdomain *Knowledge Representation, Ontologies, Data Integration and Grids*.

A. Denise, Y. Ponty and M. Régnier participate into the subdomain Sequence Analysis and to COMATEGE subgroup of GDR- IM (Informatique Mathématique, http://www.gdr-im.fr/)

A. Denise, Y. Ponty, J.-M. Steyaert, and M. Régnier are involved in the ALEA working group (http://igm.univ-mlv.fr/~nicaud/webalea/ of the GDR-IM (Informatique Mathématique, http://www.gdr-im.fr/).

7.1.2. Seminars and visits

7.1.2.1. Amib seminars

We received in our weekly seminar: D. Saakian (A. Sinica, Taiwan), V. Reinharz (McGill), L. Tchertanov (ENS Cachan), H. Babou (Nantes), P. Ballarini (ECP), Nicolas Ferey (LIMSI), Van Du TRAN Thong (IGM), Ulf Leser (Humboldt U.), A. Zinoviev (Institut Curie, Paris), H.K. Hwang (Taipeh U.).

7.1.2.2. Other seminars

J. Bernauer presented her works at *International Conference on Biomolecular Dynamics: Experiment Meet Computation, KAUST, Saudi Arabia*.

R. Fonseca gave a talk at the Inria@SiliconValley Workshop BIS2013 in May in Stanford.

D. Iakovishina gave two talks at Institut Curie : at the weekly seminar of NGSand during the "Structural variants day" in december 2013.

7.1.2.3. International exchanges

J. Bernauer visited H. van den Bedem at SSRL (SLAC) and M. Levitt at Stanford University (USA). She visited the Huang group at HKUST (Hong-Kong).

M. Régnier and D. Iakovishina visited IoGene (Moscow).

7.1.3. Program Committee

P. Amar was a member of the steering committee and chair of the organizing committee for aSSB workshop, advances in Systems and Synthetic Biology, Nice (2013).

J. Bernauer was a member of ICBD 2013 program committee.

S. Cohen-Boulakia was member of the DILS 2013, SWEET 2013 and BDA 2013 program committees and she is member of the editorial board of the Journal on Data Semantics.

Ch. Froidevaux is a member of the editorial board of 1024, Bulletin de la Société Informatique de France, SIF.

Y. Ponty, M. Régnier, and J.-M. Steyaert served as PC members for BICOB 2013 (5th International Conference on Bioinformatics and Computational Biology, Honolulu, USA).

Y. Ponty served as PC member for ISMB/ECCB 2013 (21st International conference on Intelligent Systems for Molecular Biology/12th European Conference on Computational Biology).

M. Régnier co-organized MCCMB'13http://mccmb.belozersky.msu.ru/2013/.

F. d'Alché-Buc, Ch. Froidevaux and Y. Ponty were members of JOBIM 2013 program committee.

J. Bernauer organized IAMB workshop (Integrative Approaches for Modeling Biomolecular Complexes) in Nice in collaboration with McGill University (Canada) and Nice University.

A one day meeting on Cancer and Metabolism was organized at LIX by J.-M. Steyaert on October 4th.

7.1.4. Research administration

- J. Bernauer is member of the IDEX Paris - Saclay Groupe de travail Sciences du Vivant.
- J. Bernauer and C. Froidevaux are member of the Comité de Pilotage of the IDEX Paris - Saclay Institut transverse de Modélisation des Sciences du Vivant.
- A. Denise is a member of the Scientific Commission of the Inria-Saclay research center. He is deputy director of the computer science department at University Paris-Sud. He is member of the Academic Senate of the Paris-Saclay University.
- Ch. Froidevaux is the head of the Bioinfo group at LRI. She was a member of a hiring committee for a Full Professor position at Polytech Paris Sud, Orsay.
- Y. Ponty is an elected member of the *Comité national du CNRS* (6th section – Foundations of Computer Science and CID 51 –Bioinformatics).
- M. Régnier is a deputy-member of DIGITEO program committee.
- J.-M.Steyaert is a member of the Board of Administrators of Polytechnique.
- J.-M. Steyaert has contributed to the organization of a workshop in July 2013 to present currently running projects between AP-HP and Polytechnique. He serves in the selection committee of a MD from HP-HP for a yearly funded research position in the Polytechnique Research Center.

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.

J.-M. Steyaert organizes BIBS (M1 and M2) at Ecole Polytechnique. Ch. Froidevaux is co-heading the Master (M1 and M2) at the University Paris Sud. 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

Cycle Ingénieur Polytechnicien: J. Bernauer, Modal Bioinformatique, 18h, 2ème année, École Polytechnique, France

Cycle Ingénieur Polytechnicien: J. Bernauer, Algorithmes et Programmation INF421, 36h, 2ème année, Ecole Polytechnique, France

Cycle Ingénieur Polytechnicien: J. Bernauer, Modal Web Tablette INF441a, 36h, 2ème année, Ecole Polytechnique, France

Cycle Ingénieur Agro Paris Tech: J. Bernauer, Module AAB, cours invité, 3ème année, Agro Paris Tech, France

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

Master : J.-M. Steyaert, X cycle ingénieur INF582- Datamining, 35h, M1, Ecole Polytechnique, France

Master : J.-M. Steyaert, X cycle ingénieur BioINF588- Algorithms for Bioinformatics, 35h, M1, Ecole Polytechnique, France

Licence : J.-M. Steyaert, X cycle ingénieur Modal-BioInformatique, 45h, L3, Ecole Polytechnique, France

Master : J.-M. Steyaert, BIBS Algorithmique avancée et optimisation, 25h, M2, X-Orsay, M2, Ecole Polytechnique, France

Data Bases, 48h, M1 BIBS (Bioinformatics and BioStatistics), Paris-Sud University, France (C. Froidevaux)

Advanced Algorithmics, 48h, M1 BIBS (Bioinformatics and BioStatistics), Paris-Sud University, France (C. Froidevaux)

Integration and Analysis of heterogeneous data from the Web, 24h, M2 BIBS (Bioinformatics and BioStatistics), Paris-Sud University/École Polytechnique, France (J. Azé, S. Cohen Boulakia, C. Froidevaux)

Advanced Data Bases and Data Mining, 42h, M2 BIBS (Bioinformatics and BioStatistics), Paris-Sud University/École Polytechnique, France (S. Cohen Boulakia, C. Froidevaux).

Initiation to Research, 6h, M2 BIBS (Bioinformatics and BioStatistics), Paris-Sud University, France (C. Froidevaux)

Software Engineering for Bioinformatics, 48h, M2 BIBS (Bioinformatics and BioStatistics), Paris-Sud University/École Polytechnique, France (P. Amar)

Modelling and Simulation of Biological Processes, 24h, M2 BIBS (Bioinformatics and BioStatistics), Paris-Sud University/École Polytechnique, France (P. Amar)

Biological Networks and Systems Biology, 9h, M1 BIBS (Bioinformatics and BioStatistics), Paris-Sud University/École Polytechnique, France (P. Amar)

RNAomics and RNA Bioinformatics, 12h, M2 BIBS (Bioinformatics and BioStatistics), Paris-Sud University/École Polytechnique, France (A.Denise)

Theoretical Computer Science, 30h, M2 BIBS (Bioinformatics and BioStatistics), Paris-Sud University/École Polytechnique, France (A.Denise)

7.2.2. Supervision

HdR : Patrick Amar, Contributions à l'étude de la dynamique des systèmes biologiques et aux systèmes de calcul en biologie synthétique, Paris Sud University, 19/12/2013

PhD : Jiuqiang Chen, Designing scientific workflows following a structure and provenance -aware strategy, Université Paris Sud, Defended on 10/10/2013, S. Cohen-Boulakia and C. Froidevaux.

PhD in progress : Mélanie Boudard, Game theory and stochastic learning for predicting the three-dimensional structure of large RNA molecules , 15/10/2012, D. Barth (Univ. Versailles), J. Cohen (CNRS, LRI) and A. Denise.

PhD in progress : Marc Bouffard, Étude de circuits logiques moléculaires et détection de portes logiques dans un réseau métabolique, Université Paris Sud, 01/10/2013, P. Amar and F. Molina.

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

PhD in progress: Adrien Guilhot-Gaudeffroy, Modelling and scoring of protein-RNA complexes, 01/10/2011, J. Azé, J. Bernauer, C. Froidevaux.

PhD in progress: Daria Iakovishina, A Combinatorial Approach to Assembly Algorithms, 01/11/2011, M. Régnier.

PhD in progress : Adrien Rougny, Raisonnements sur des connaissances biologiques pour la construction et l'analyse des réseaux de signalisation, 01/10/2013, C. Froidevaux.

PhD in progress : Antoine Soulé, Evolutionary study of RNA-RNA interactions in yeast, 01/09/2013, J.-M. Steyaert and J. Waldispühl (University McGill, Canada).

PhD in progress : Bo Yang, Bioinformatics approaches for studying the relations between RNA structure and pre-messenger RNA splicing, 01/10/2011, A. Denise and Fu Xiangdong (Wuhan University, China)

PhD in progress : Cong Zeng, Identification of structural motifs in messenger RNAs, 01/10/2011, A. Denise

7.2.3. Juries

- HDR
  - Ch. Froidevaux was a reviewer for an HDR (Montpellier).
  - J.-M. Steyaert served as a jury member for Hubert Lincet HDR defence (Caen).
- PhD
  - P. Amar served as a referee for Laurent Crepin's PhD defence (Brest University).
  - Ch. Froidevaux served as a referee for a PhD thesis in Rennes and was a member of the committee for J. Leblay.
  - M. Régnier served as a referee for O. Abdou Arbi's PhD defence (Rennes University).
- Funding agencies
  - ANR 2012-2013, SIMI2, J. Bernauer and S. Cohen-Boulakia
  - UEFISCDI 2011-2013 (Research Council Romania), Y. Ponty
- Selection committees
  - Cnrs CR/DR: *comité national* (Section 6 and CID 51), Y. Ponty.
  - Inria CR2/CR1 committee: Saclay, J. Bernauer;
  - Maitre de conférence: Paris-Sud, Computer science department, S. Cohen-Boulakia and J. Azé.
  - Maitre de conférence: Bordeaux I, A. Denise.
  - Ingénieur de recherche: LIP6 UPMC (Paris), Y. Ponty.

– Chargés d'enseignement et Professeur : Ecole Polytechnique, M. Régnier et J.-M. Steyaert.

7.3. Popularization

- Outreach seminar at *Lycée Blaise Pascal* (Orsay, France) – Yann Ponty – Popular science seminar (2h), jointly organised by INRIA (Saclay) and Académie de Versailles.
- Unite ou café, Inria Saclay Popularization seminar, *Les briques de construction de la vie* , see: https://intranet.saclay.inria.fr/vie-du-centre/unithe-cafe/rencontres-2013/briques-construction-vie.

We also had the opportunity to be part of a few valorization related events. RNA structural studies were presented at the Rencontres Inria Industrie - Modélisation, simulation et calcul intensif in June 2013 http://www.inria.fr/centre/saclay/innovation/rii-modelisation-simulation-calcul-intensif/presentation. This led to an invitation at Sanofi Pharmacometry and Bioinformatics day in December 2013.

BAMBOO Project-Team

8. Dissemination

8.1. Scientific Animation

- Hubert Charles: He is director of studies of the "Bioinformatique et Modélisation (BIM)" track at the Insa-Lyon, co-director of the Biosciences Department of the Insa-Lyon, and co-director of the Doctoral School E2M2 of the Université Lyon 1.
- Marie-France Sagot: She is, since 2010, member of the Board of Directors of the ACM Special Interest Group on Bioinformatics, Computational Biology, and Biomedical Informatics (SIGBio). She is, since 2011, a member of the Scientific Advisory Board ("Conseil Scientifique (COS)") for the Inria Grenoble Rhône-Alpes Research Center. She is, since 2012, member of the Scientific Board of the French Society of Computer Science (SIF). She is, since 2012, in the Steering Committee of the Labex Ecofect of the University of Lyon.
- Fabrice Vavre: He was elected in 2012 member of the Section 29 of the CoNRS. He is, since 2012, in the Steering Committee of the Labex Ecofect of the University of Lyon.
- Alain Viari: Since 2011, he is a member of the Scientific Advisory Board ("Conseil Scientifique (COS)") for the Inria Grenoble Rhône-Alpes Research Center. Since 2012, he is Deputy Scientific Director at Inria responsible for the ICST for Life and Environmental Sciences. He thus represents Inria at several national instances related to Life Sciences and Health and is member of a number of scientific advisory boards (IMMI (Institut de Microbiologie et Maladies Infectieuses / Aviesan); IRT (Institut de Recherche Technologique) BioAster; Genopôle-Evry). Since 2013 he is also the French coordinator of the Bioinformatics working group in the U.S.-France Joint Commission on Science and Technology Cooperation.
- Cristina Vieira: She is director of the GDRE "Comparative genomics" since the GDRE was renewed in 2010.

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 2012-2013 where he taught 96 hours as he had a partial sabbatical funded by Inria (through the ERC AdG Sisyphe grant) for one semester. He teaches bioinformatics and statistics.

Two PhD students in BAMBOO were able to teach by applying to a monitorat (mentoring program – 64 hours per year). Cecilia Klein taught 64 hours in 2012-2013 at the Department of Biology (L2: Bioinformatics). Two other PhD students taught more occasionally in 2012-2013: Gustavo Sacomoto taught 12 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. Blerina Sinaimeri thus taught 8 hours of graph algorithms, Lilia Brinza 40 hours of bioinformatics at the Insa, and Christian Baudet taught 12 hours of bioinformatics at the University.

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

8.2.2. Supervision

The following is the PhD defended in BAMBOO in 2013.

PhD: Cecilia Klein, University of Lyon 1, November 12, supervisors A. T. Vasconcelos and M.-F. Sagot.

8.2.3. Juries

M.-F. Sagot: Reviewer of the HDR of Andrei Zinovyev (ENS Paris), and of the PhD of Kalle Karhu (University of Helsinki, Finland).

C. Vieira: Reviewer of the PhD of Jonathan Grandaubert (University Paris 11), member of the PhD committee of Eugenia Pessia (University of Lyon), reviewer of the HDR of Karine Alix (AgroParisTech).

BEAGLE Project-Team

8. Dissemination

8.1. Scientific Animation

- Guillaume Beslon is a member of the "Comité National de la Recherche Scientifique" (CoNRS), in 6th section (Computer Science) and in the 51st section (interdisciplinary section in bioinformatics, biomathematics and biophysics).
- Guillaume Beslon is co-director of the Institut Rhône-Alpin des Systèmes Complexes (IXXI) since 2007 (the institute is directed by two persons from different disciplines – G. Beslon and P. Jensen – who exchange their roles between director and vice-director every two years. G. Beslon was vice-director for the 2011-2013 period. He was director for the previous period).
- Guillaume Beslon served as an expert for the AERES evaluation of a laboratory and a master program
- Guillaume Beslon served as an expert for the University of Windsor (Canada)
- Guillaume Beslon is a member of the Institut de Génomique Fonctionnelle de Lyon Scientific Advisory Board since 2011.
- Guillaume Beslon is member of the "Conseil de Laboratoire" of the UMR CNRS 5205 LIRIS.
- Guillaume Beslon is a member of the scientific committee of the 2014 EMBO conference "Experimental Approaches in Ecology and Evolution using Yeast and Other Species".
- Guillaume Beslon was chairman of the 2013 edition of Evolyon.
- Carole Knibbe and Guillaume Beslon are members of the program committee of the "Alife'14" Conference.
- Hugues Berry is a member of Inria's Evaluation Committee (CE).
- Hugues Berry was a member of hiring committees for Inria researcher positions, 2013 (Inria Centers of Lille and Sophia-Antipolis).
- Hugues Berry is a member of the steering committee of IXXI, the Rhône-Alpes Institute for Complex Systems.
- Hugues Berry co-organized, with V. Calvez, (EPI Numed) the conference "Mathematical modeling in cell biology" in Lyon, March 25-29, 2013 (http://mathbio2013.sciencesconf.org/resource/page?id=3), mainly funded by the "laboratoire d'excellence" MILYON ("Mathématique et Informatique Fondamentale de Lyon").
- Hugues Berry was a member of the Evaluation committee for the INSERM call for funding on Cancer ("Plan Cancer"), subfield: Systems Biology.
- Hugues Berry was a member of the organization committee of the annual CNRS-INRA thematic school "EIEFB: Ecole interdisciplinaire d'échanges et de formation en biologie", Berder Island (Morbihan, France), since 2008 (http://biophysique.mnhn.fr/berder2013/).
- Hugues Berry is editor for the "Journal of Complex Systems" (http://www.hindawi.com/journals/jcs/).
- Hugues Berry was reviewer for the conferences ISBI (IEEE International Symposium on Biomedical Imaging) 2014, UCNC (Unconventional Computation and Natural Computation) 2013 and HPCS (International Conference on High Performance Computing and Simulation) 2013.
- Hugues Berry was a member of the SPECIF committee, that awards each year the Gilles Kahn award, for the best French PhD in Computer Science, 2013.
- Christophe Rigotti is member of the Scientific Council (C.S.) of INSA Lyon.

- Christophe Rigotti co-chaired and co-organized the EGC satellite workshop FOSTA on spatiotemporal data mining, January 2012, Toulouse.
- Christophe Rigotti was a member of the Program Committee of the EGC satellite workshop FST/CERGEO on spatial and temporal data, January 2014, Rennes.
- Eric Tannier co-organized the international conference “RECOMB Comparative Genomics” in October 2013, in Lyon.
- Eric Tannier co-organized the international conference “Models and Algorithms for Genome Evolution” in August 2013 in Montreal, Canada and co-edited a book published in the "Computational biology" series of Springer [37].
- Eric Tannier and Guillaume Beslon are members of the committee of the Semovi Rhône-Alpes regular seminars.
- Eric Tannier was a member of the Program Committee of Recomb satellite workshop on comparative genomics, Lyon 2013.
- Eric Tannier was a member of the Program Committee of SeqBio-13, Paris 2013.
- Eric Tannier was a member of the Program Committee of WABI 2013.
- Eric Tannier was reviewer for the conferences BSB 2013, ICCT 2013 and LATIN 2014.
- In 2013, the members of the team were reviewers for several journals including *Theoretical Computer Science, SIAM Journal on Discrete Mathematics, Bull Math Biol, J Theor Biol, Mol Syst Biol, BMC Syst Biol, Communications in Nonlinear Science and Numerical Simulation, ISRN Computational Biology, Journal of Bioinformatics and Computational Biology, BioSystems, Journal of Biodiversity and Conservation, Frontiers in Synaptic Neuroscience, Data Mining and Knowledge Discovery, Knowledge and Information Systems, Data and Knowledge Engineering.*

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Note that due to his sabbatical stay in Berkeley, Hédi Soula had no teaching assignment in 2012-2013.

Licence: Guillaume Beslon, Computer Architecture, 100h, L3, Computer Science Department of INSA-Lyon.

Licence: Guillaume Beslon, Project Management, 20h, L3 and M1, Computer Science Department of INSA-Lyon.

Licence: Guillaume Beslon, Backstage management and organization, 20h, L3, Humanities Department of INSA-Lyon.

Licence: Carole Knibbe [5], Procedural Programming, 133h, L2

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

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

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

Master: Guillaume Beslon, Bio-inspired computing, 30h, M2, Computer Science Department of INSA-Lyon and Artificial Intelligence master program of Université Lyon 1.

Master: Guillaume Beslon, Computational Biology, 10h, M2, Bioinformatics and Modeling Department of INSA-Lyon.

Master: Guillaume Beslon, Digital genetics, 2h, M2, Interface Physics-Biology master program at Ecole Normale Supérieure de Lyon (ENS-Lyon).

[5] Carole Knibbe has a “délégation Inria” for the 2013-2014 period. The teaching indicated here is for the 2012-2013 period.

Master: Guillaume Beslon, Introduction to Modeling, 20h, M2, Master of Complex Systems at Ecole Normale Supérieure de Lyon (ENS-Lyon).

Master: Carole Knibbe, Scientific methodology, 24h, M2, Artificial Intelligence master program of Université Lyon 1.

Master: Carole Knibbe, Bio-inspired computing, 14h, M2, Artificial Intelligence master program of Université Lyon 1.

Master: Carole Knibbe, Modeling and simulation in Biology and Medicine, 12h, M2, Complex Systems master program of Ecole Normale Supérieure de Lyon.

Master: Eric Tannier, Computational Biology, 24h, M2, Ecole Normale Supérieure de Lyon.

Master: Eric Tannier, Discrete Mathematics, 8h, M1, Bioinformatics and Modeling Department of INSA-Lyon.

Master: Eric Tannier, Mathématiques et Informatique pour le génome, 26h, M1, Bioinformatics and Modeling Department of INSA-Lyon.

Master: Eric Tannier, Bioinformatique, 24h, M1, ISBM Monastir, Tunisie.

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

8.2.2. Supervision

PhD: Gaël Kaneko, Analyse et modélisation de la stochasticité de l'expression génique dans des cellules eucaryotes, INSA de Lyon, defended on September 26th, 2013, co-supervised by G. Beslon and O. Gandrillon (CGPhiMC, UMR CNRS 5534, Lyon).

PhD: Stephan Fischer, Modélisation de l'évolution de la taille des génomes et de leur densite´ en gènes par mutations locales et grands réarrangements chromosomiques, INSA de Lyon, defended on December 2nd, 2013, co-supervised by C. Knibbe, G. Beslon and S. Bernard (Inria Dracula team and Institut Camille Jordan, UMR CNRS 5208, Lyon).

PhD in progress: Bérénice Batut, Study of reductive evolution of bacterial genomes using bioinformatic analyses and in silico evolutionary experiments, INSA de Lyon, started in October 2011, co-supervised by C. Knibbe, G. Beslon and G. Marais (LBBE, UMR CNRS 5558, Lyon).

PhD in progress: Charles Rocabert, Modélisation de l'évolution des microorganismes bactériens par des approches de simulation informatique, INSA de Lyon, started in Novembre 2013, co-supervised by G. Beslon and C. Knibbe.

PhD in progress: Yoram Vadee Le Brun, Evolution expérimentale in silico de réseaux de régulation génétique, INSA de Lyon, started in September 2013, superviser by G. Beslon.

PhD in progress: Magali Semeria, Biologie évolutive des systèmes, Université Lyon 1, started in September 2012, co-supervised by E. Tannier and L. Gueguen (LBBE, UMR CNRS 5558)

PhD in progress: Jules Lallouette, Transport dans les reseaux complexes : le cas des réseaux mixtes neurones-cellules gliales, INSA de Lyon, started in October 2011, supervised by H. Berry.

PhD in progress: Ilia Prokin, Computational Systems Biology of Signal Transduction in Living Cells: Synaptic Plasticity of Basal Ganglia Neurons, INSA de Lyon, started in October 2013, supervised by H. Berry.

Master internship: Ewy Yang, Détection phylogénétique de co-évolution de gènes, March-August 2013, supervised by E. Tannier

Master internship: Charles Rocabert, Evolution de la stochasticité de l'expression génique, from February 2013 to June 2013, supervised by G. Beslon

Master internship: Sylvain Devaux, Development of a computer game to teach evolution of antibiotic resistance, from October 2013 to February 2014, supervised by G. Beslon

Master internship: Maxence Dolle, Simulation of biochemical reactions in non-homogeneous media, from May 2013 until Aug 2013, co-supervised by G. Beslon and H. Berry

Master internship: Osama Khalil, Computational systems biology of signal transduction in living cells, from Feb 2013 until May 2013, supervised by H. Berry

Master internship: Amanda Lo Van, Modélisation basée sur l'individu de circuits génétiques simples, from Feb 2013 until Jun 2013, supervised by H. Berry

Master internship: Alvaro Mateos Gonzalez, Analysis of a Jump-Renewal Equation for Intracellular Subdiffusion, from Apr 2013 until Aug 2013, supervised by V. Calvez (Inria Numed) 66% and H. Berry 33%

Master internship: Duc Thanh Phan, Clustering of DNA intervals based on descriptors computed from epigenetic profiles, from Feb 2013 until Jul 2013, co-supervised by C. Rigotti and Marion Leleu (Ecole Polytechnique Fédérale de Lausanne).

8.2.3. Juries

- Guillaume Beslon reviewed the HDR manuscript and participated to the HDR defense committee of Philippe Lopez, Univ. Paris 6 Pierre et Marie Curie, December 2013.
- Guillaume Beslon participated to the PhD defense committee of Guenola Drillon, Univ. Paris 6 Pierre et Marie Curie, March 2013.
- Guillaume Beslon reviewed the PhD manuscript and participated to the PhD defense committee of Guillaume Chérel, Univ. Paris 6 Pierre et Marie Curie, 2013.
- Guillaume Beslon reviewed the PhD manuscript and participated to the PhD defense committee of Thomas Garcia, Ecole Normale Supérieure de la rue d'Ulm, Paris, December 2013.
- Guillaume Beslon reviewed the PhD manuscript and participated to the PhD defense committee of Jean-Marc Montanier, Univ. Paris Sud, 2013.
- Hugues Berry reviewed the PhD manuscript and participated to the PhD defense committee of G. Detorakis, "Cortical Plasticity, Dynamic neural fields and self-organisation", Nancy, October 2013.
- Hugues Berry reviewed the PhD manuscript and participated to the PhD defense committee of Visou ADY, "Développement et plasticité des connexions des cellules de Purkinje", Paris Descartes University, November 2013.
- Eric Tannier reviewed the PhD manuscript and participated to the PhD defense committee of Thi Hau NGuyen from the University of Montpellier 2, on October 3, 2013.
- Eric Tannier reviewed the PhD manuscript and participated to the PhD defense committee of Guenola Drillon from the University of Paris 6, on March 25, 2013.
- Eric Tannier participated to the HDR defense committee of Nicolas Thierry-Mieg, from University of Grenoble 1, January 25, 2013.
- Christophe Rigotti reviewed the PhD manuscript and participated to the defense committee of Winn Voravuthikunchai, PhD, Univ. Caen Basse Normandie, 2013.
- Christophe Rigotti participated to the HDR defense committee of Nicolas Méger, HDR, Univ. de Savoie, Annecy, 2013.

8.2.4. Invited talks

- Guillaume Beslon was an invited speaker at the workshop "Games in evolution", Ecole Normale de la rue d'Ulm, Paris, December 2013.
- Guillaume Beslon was an invited speaker of the Dyliss/Genscales groups, May 2013, Rennes, France.
- Hugues Berry was an invited speaker at the workshop "Complex Network Dynamics", March 25-26, 2013, Montpellier, France.

- Hugues Berry was an invited speaker at the workshop " Control of Self-Organizing Nonlinear Systems", August 28-30, Wittenberg (Berlin), Germany.
- Hugues Berry was an invited speaker at the workshop "BioImage Informatics", 8-9 July 2013, Curie Institute, Paris, France.
- Carole Knibbe was an invited speaker at the Evolyon workshop, November 21st 2013, Lyon.
- Carole Knibbe was an invited speaker at a FINOVI mini-symposium, June 20th 2013, Lyon.
- Christophe Rigotti gave an invited talk on "Spatiotemporal data mining" during "The Meetings of Digital Technologies" organized by ANR at the Cit ´e des Sciences et de l'Industrie, April 2013, Paris. Work in collaboration with N. Meger, C. Pothier, R. Andreoli, F. Lodge, M.-P. Doin, C. Lasserre and R. Jolivet.
- Christophe Rigotti gave an invited talk on "GFS-pattern extraction in satellite image time series: application to the monitoring of Mount Etna", Atelier Mesure de Déformations par Imagerie Spatiale, October 2013, Autrans. Work in collaboration with F. Lodge, N. Meger, L. Gueguen, C. Pothier, R. Andreoli, M.-P. Doin and M. Datcu.
- Hédi Soula was invited an invited speaker in the Seminar Sessions of ETHOS Rennes in December 2013.
- Eric Tannier was a keynote speaker at the IBC (Computational Biology Institute) in Montpellier in 2013.
- Eric Tannier was invited by the "Laboratoire d'Informatique Fondamentale" in Marseille for a talk in March 2013.

8.3. Popularization

- E. Tannier participated to large audience conferences at the Université Populaire de Lyon in Febuary 2013, giving three lectures on scientific revolutions.
- E. Tannier is a co-author of an article to the large audience journal "Pour la science" [32].

BIGS Project-Team

9. Dissemination

9.1. Scientific Animation

- Journée Identification de systèmes biologiques, 11 April 2013, within the framework of the MACS network. Organizer: Thierry Bastogne.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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

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

Note: An innovative teaching program specialized in Biocybernetics (L3,M1,M2) has been proposed by Thierry Bastogne and started in Sep. 2013 at the Faculté des Sciences et Technologies.

9.2.2. Supervision

PhD: Jean Baptiste Tylcz, Identification et contrôle de systèmes biologiques. Application à la thérapie photodynamique, Université de Lorraine, 4 décembre 2013. Advisors: T. Bastogne and E. Bullinger (U. de Liège).

PhD : Romain Bar, Développement de méthodes d'analyse de données en ligne, Université de Lorraine, 29 novembre 2013. Advisor : J-M. Monnez.

PhD : Benoît Lalloué, Méthodes d'analyse de données et modèles bayesiens appliqués au contexte des inégalités socio-territoriales de santé et des expositions environnementales, Université de Lorraine, 6 décembre 2013. Advisors : J-M. Monnez and S. Deguen.

PhD: Rémi Bonidal, Sélection de modèle par chemin de régularisation pour les machines à vecteurs support à coût quadratique, Université de Lorraine, 19 juin 2013. Advisors: Y. Guermeur and S. Tindel.

9.2.3. Juries

- PhD : Ilham Ben Abbes, Développement d'un nouveau modèle dédié à la commande du métabolisme glucidique appliqué aux patients diabétiques de type 1, Supélec Rennes, 28 juin 2013. Referee: T. Bastogne.
- HDR: Landy Rabehasaina, Contribution à quelques problèmes de premier passage et de ruine multidimensionnels; Lien avec les réseaux de files fluides, Université de Franche Comté, 3 décembre 2013. Referee: P. Vallois.

BONSAI Project-Team

8. Dissemination

8.1. Scientific Animation

- The team actively participates in the national GDR *Bioinformatique moléculaire*. H. Touzet has been a member of the executive committee since 2007. In this context, she coorganized a two-day workshop, called Seqbio, in Montpellier in November 2013
- We organize a regular pluridisciplinary seminar on bioinformatics, whose audience is composed of researchers in biology and bioinformatics. In the last twelve months, we proposed three events: *Metagenomics* (110 participants), *Phylogenomics* (52 participants) and *Structural bioinformatics* (30 participants)
- We organized in Lille, with our collaborator Tilmann Weber from Universität Tüebingen, an international workshop on "Bioinformatics tools for NRPS discovery" in July. The schedule included introducing lectures by invited speakers which are key scientists in the field and practical sessions. It gathered 30 scientists from all the continents.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Our research work finds also its expression in a strong commitment in pedagogical activities at the University Lille 1. For several years, members of the project have been playing a leading role in the development and the promotion of bioinformatics (more than 400 teaching hours per year). We are involved in several graduate diplomas (research master degree) in computer science and biology (*master biologie-santé, master génomique et protéomique, master biologie-biotechnologie*) in an Engineering School (Polytech'Lille), as well as in permanent education (for researchers, engineers and technicians).

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

M. Salson, *Coding and information theory*, 36h, L2 (licence "Computer science", univ. Lille 1)

J.-S. Varré *Programming with Caml*, 55h, L2 (licence "Sciences for Engineers", univ. Lille 1)

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

L. Noé, *Networks*, 36h, L3 (licence "Computer science", univ. Lille 1)

L. Noé, *System*, 36h, L3 (licence "Computer science", univ. Lille 1)

M. Pupin, *Databases*, 36h, L3 (licence "Computer science", univ. Lille 1)

M. Pupin, *Professional project*, 18h, L3 (licence "Computer science", univ. Lille 1)

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

S. Janot, *Introduction to programming*, 50h, first year of engineering school (L3) (Polytech'Lille, univ. Lille1)

S. Janot, *Introduction to databases*, 30h, first year of engineering school (L3) (Polytech'Lille, univ. Lille1)

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

L. Noé, *Individual project*, organiser, M1 (master "Computer science", univ. Lille 1)

M. Pupin, *Introduction to programming (JAVA)*, 30h, M1 (master "Mathématiques et finance", univ. Lille 1)

M. Salson, J.-S. Varré, *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)

S. Janot, *Databases*, 12h, second year of engineering school (M1) (Polytech'Lille, univ. Lille1)

S. Janot, *Introduction to artificial intelligence*, 25h, second year of engineering school (M1) (Polytech'Lille, univ. Lille1)

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

M. Pupin, *Practical bioinformatics*, 35h, M2 (master "Génomique Protéomique", univ. Lille 1)

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

J.-S. Varré, *ISN - Computer science for secondary school*, 30h, second-level teachers.

8.2.2. Supervision

- HDR: *Maude Pupin*, Modèles bio-informatiques pour les peptides non-ribosomiques et leurs synthétases. Defense in December 2013 [2].
- PhD : *Evguenia Kopylova*, New algorithmic and bioinformatic approaches for the analysis of data from next-generation sequencing, Université Lille 1, co-directed by H. Touzet and L. Noé. Thesis defended in December 2013 [1].
- PhD in progress : *Christophe Vroland*, microRNA repertoire and target evolution: developing efficient indexing techniques and comparison between close plant species, Université Lille 1, co-directed by H. Touzet, M. Salson from BONSAI and V. Castric ("Genetics and evolution in plants" laboratory).
- PhD in progress : *Pierre Péricard*, high-throughput sequencing : taxonomic assignation of metaomic sample reads, Université Lille 1, co-directed by H. Touzet and S. Blanquart.
- PhD in progress : *Yoann Dufresne*, Models and algorithms to analyse and predict non-ribosomal peptides, Université Lille 1, co-directed by M. Pupin and L. Noé.

8.2.3. Juries

- Member of the thesis committee of Natalia Golenetskaya (Université Bordeaux 1, J.-S. Varré)
- Member of the habilitation committee of F. Jossinet (Université de Strasbourg, H. Touzet) and C. Lhoussaine (Université Lille 1, H. Touzet)

8.2.4. Administrative activities

- National representative (*chargée de mission*) for the Institute for Computer Sciences (INS2I) in CNRS [9]. She is more specifically in charge of relationships between the Institute and life sciences (H. Touzet)
- Member of the Inria evalution commitee (M. Giraud)
- Member of the Inria local committee for scientific grants (H. Touzet)
- Member of the Gilles Kahn PhD award commitee (H. Touzet)
- Member of ITMO Genetics, Genomics and Bioinformatics of AVIESAN (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)
- Head of PPF bioinformatics – University Lille 1 (H. Touzet)
- Head of Bilille, Lille bioinformatics platform (M. Pupin)

[9] CNRS: National Center for Scientific Research

- 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)
- Head of the GIS department (Statistics and Computer Sciences) of Polytech'Lille (S. Janot)
- Member of the LIFL Laboratory council (L. Noé, H. Touzet)
- We made two public science presentations (leukemia and high-throughput sequecing, M. Duez, M. Giraud, M. Salson, and transcript comparisons, A. Ouangraoua)
- This year, we did not have a significant activity in high schools due to schedule constraints during the "week of science". We plan to relaunch this activity in 2014.

DYLISS Project-Team

8. Dissemination

8.1. Scientific Animation

8.1.1. Administrative functions: scientific committees, journal boards

- Scientific Advisory Board of GDR BIM " Molecular Bioinformatics"[J. Nicolas].
- Member of the IRISA laboratory council [F. Coste]
- Member of the Inria Rennes center council [A. Siegel]
- Scientific Advisory Board of Biogenouest [J. Bourdon, J. Nicolas, A. Siegel].
- Expertise for AERES (LIFL, LRI) [J. Nicolas, A. Siegel] & ANR (programme blanc) [A. Siegel]
- Academic editor: Plos One [J. Bourdon]
- Ecole Normale recruitment jury [A. Siegel]
- Recruitment committees: junior researcher (Inra) [J. Nicolas], assistant professor (Univ. Rennes) [A. Siegel], assistant professor (Univ. Montpellier) [O. Dameron].
- Reviewer: Advances in Mathematics [A. Siegel], Algorithms for Molecular Biology [F. Coste], American Medical Informatics Association conference [O. Dameron], Bioinformatics [O. Dameron], BMC Bioinformatics [O. Dameron, A. Siegel], Briefings in Bioinformatics [O. Dameron], Bulletin of the Belgium Math. Society [A. Siegel], Computers in Biology and Medicine [F. Coste], Journal of Biomedical Semantics [O. Dameron], Machine Learning [F. Coste], Semantic Web Applications and Tools for Life Sciences workshop [O. Dameron].
- Member of SCAS (Service Commun d'Action Sociale) of Univ. Rennes 1 [C. Belleannée]

8.1.2. Meetings

- **Workshop on Integrative-Omics** A workshop was organized in Pucon, south Chile, in December 2013. The workshop gathered about 40 scientists from Chile, France and Germany. Nine invited lectures were given about the modeling of biological systems and data with various computational approaches (MILP, ASP, graph complexity, probabilistic and stochastic approaches). 15 young scientist talks were also given in complement to the lectures [website].
- **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].

8.1.3. Conference program committees

- JOBIM [F. Coste]
- CIBB Computational Intelligence Methods for Bioinformatics and Biostatistics & PRIB International Conference on Pattern Recognition in Bioinformatics [A. Siegel]
- Program committee of Semantic Web Applications and Tools for Life Sciences (SWAT4LS 2013) [O. Dameron].

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

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

Licence: C. Belleannée, Architecture des ordinateurs, 50h, L3 informatique, Rennes1 France.

Licence: C. Belleannée, Bases de données, 21h, L3 Miage par alternance, Rennes1 France .

Licence: G. Andrieux, TIC : Technologies de l'information et de la communication, 32h, L1, Univ. Rennes 1, 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, Scheme 14h, L1, INSA Rennes, France

Licence: V. Picard, Architecture et systèmes, 24h, L3, ENS Rennes/Univ. Rennes 1, France

Licence: V. Picard, Initiation Unix, 2h, L3, ENS Rennes, France

Licence: S. Prigent, learning PHP/SQL, 12h, L3 (3ème année ingénieur), Ensai, Rennes, France

Licence: S. Prigent, Database, 42h, L1, Ensai, Rennes, France

Licence: S. Prigent, An introduction to R, 9h, L1, Ensai, Rennes, France

Licence: V. Wucher, Introduction aux biostatistiques, 8h, L3 biologie, Rennes 1, France

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

Master: C. Belleannée, Architecture matérielle et interface au système, 28h, M2 informatique, Rennes1 France

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

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

Master: O. Dameron, gestion de projets en informatique, 49h, M1 bioinformatique et génomique, Univ. Rennes 1, France.

Master: O. Dameron, principes de programmation et d'algorithmique, 64h, 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, modélisation des connaissances et bio-ontologies, 36h, M2 bioinformatique et génomique, Univ. Rennes 1, France.

Master: O. Dameron, Bases de mathématiques, probabilités et statistiques, 65h, M1 santé publique, Univ. Rennes 1, France.

Master: O. Dameron, E-santé et réseaux hospitaliers, 7h, ESIR3, Univ. Rennes 1, France.

Master: C. Galiez, Compilation, 32h, M1 informatique, Rennes1 France

Master: G. Collet, Langage C, 8h, M1 Informatique, Univ. Rennes 1, France

Master: G. Collet, Analyse et Conception Objet, 14h, M1 MIAGE, Univ. Rennes 1, France

Master: V. Picard, Préparation à l'agrégation de mathématiques option D: épreuve de modélisation, 20h, L2, ENS Rennes/Univ. Rennes 1, France

Master: V. Picard, Aspects probabilistes en biologie des systèmes, 4h, M2, ENS Rennes/Univ. Rennes 1, France

Doctorat: A. Siegel, Programmation par ensemble-réponse (ASP) et application à la reconstruction et la correction de réseaux biologiques, 3h, Ecole thématique CNRS, Modélisation Formelle de Réseaux de Régulation Biologique, France

Doctorat: S. Videla, Answer Set Programming for Systems Biology, 10h, graduate course, Universidad de Chile, Chile.

8.2.2. Seminars

- A. Siegel. *Modeling the quantitative behaviors of biological systems*. IBISC laboratory. Evry (Jan. 2013).

- A. Siegel. *Extracting robust information from the confrontation of knowledge and observations on a biological system*. EBI, UK (Feb. 2013).
- S. Videla, *Learning Logic Models of Protein Signaling Networks with Answer Set Programming*. Brunel Univ (Feb. 2013).
- S. Videla. *(Boolean) Logic Models of Signal transduction Networks with Answer Set Programming*. Universidad de Chile (Apr. 2013).
- A. Siegel. *Extracting robust information from knowledge and observations on a biological system: a formal system framework.*. CIBB Computational Intelligence Methods for Bioinformatics and Biostatistics & PRIB International Conference on Pattern Recognition in Bioinformatics, keynote lecture. (Jun. 2013).

8.2.2.1. Internships

- Internship, from Jun. until Sep. 2013. Co-supervised by J. Nicolas, G. Garet. Student :Liantsoa Rasata Manantena. Subject: Characterization of enzyme family sequences : sulfatases
- Internship, from Jan. until Jun. 2013. Supervised by C. Belleannée. Student: Aymeric Antoine Lorquin. Subject: Identification in silico du site de fixation de la protéine CELF1, au moyen de pattern matching spécialisé.
- Internship, from Ap. until Jun. 2013. Supervised by O. Dameron. Student: Ayite Kougbeadjo. Subject: Analyse de réactions candidates pour la reconstruction de bases métaboliques basée sur les connaissances symboliques chez Ectocarpus Siliculosus
- Internship, from Apr. until Jun. 2013. Supervised by J. Nicolas and V. Wucher. Student: Lucas Le Lann. Subject: Analyse exploratoire d'un réseau d'interactions par extraction de composants analogues appliqué au puceron du pois..
- Internship, from Apr. until Jun. 2013. Supervised by G. Andrieux. Student: Jean Coquet. Subject: Modélisation du réseau d'activation du TGF-β

8.2.3. Supervision

PhD : Oumarou Abdou-Arbi *Etude de la variabilité des contributions de nutriments à un réseau métabolique : modélisation, optimisation et application en nutrition*, 30 Sept. 2013, supervised by A. Siegel and T. Tabsoba (Burkina-Faso) [11].

PhD : Geoffroy Andrieux, *Discrete approach modeling of biological signaling pathway*, 18 Jul. 2013, supervised by N. Théret (Inserm) and M. Le Borgne [12]

PhD : Andres Aravena, *Probabilistic and constraint based modelling to determine regulation events from heterogeneous biological data*, 13 Dec. 2013, supervised by A. Maass (CMM, University of Chile) and A. Siegel [13].

PhD : Charles Bettembourg, *Modélisation Méthodes sémantiques pour la comparaison inter-espèces de voies métaboliques : application au métabolisme des lipides chez l'humain, la souris et la poule*, 16 Dec. 2013, supervised by O. Dameron and C. Diot (Inra) [14].

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 : Gaëlle Garet, *Discovery of enzymatic functions in the framework of formal languages*, started in Oct. 2011, supervised by J. Nicolas and F. Coste.

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

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 : Sylvain Prigent, *Modélisation par contraintes pour le contrôle génomique et physiologique de l'adaptation des algues brunes à la salinité de l'eau*, started in Oct. 2011, supervised by A. Siegel and T. Tonon (UMR 7150, station biologique de Roscoff)

PhD in progress : Santiago Videla, *Applying logic programming to the construction of robust predictive and multi-scale models of bioleaching bacteria*, started in Nov. 2011, supervised by A. Siegel and T. Schaub (Potsdam univ).

PhD in progress : Valentin Wucher, *Modélisation d'un réseau de régulation d'ARN pour prédire des fonctions de gènes impliqués dans le mode de reproduction du puceron du pois*, started in Nov. 2011, supervised by J. Nicolas and D. Tagu (Inra)

8.2.4. Juries

- *Member of Ph-D thesis jury*. F. Nguema Ndong, univ. Poitiers [A. Siegel, présidente]. T. Jolivet, Univ. Paris Diderot [A. Siegel].

8.3. Popularization

- *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. [G. Collet, S. Prigent]. [more info].
- *Participation at Rennes* Village des Sciences *for French National Science day (*Fête de la Science*)*. Title : *Crazy random walks*. Description : Popularization Festival where researchers present scientific themes. [V. Picard]
- *Fête de la science (LINA, Nantes)* During the 24th of october, 250 students discovered bioinformatics, genome assembly and algorithmic by practicing games and tutorials made by our team with the help of Julien Gras and Marko Budinich (LINA) [J. Bourdon, D. Eveillard, G. Collet].
- *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].

GENSCALE Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Meeting organization and scientific animation

- **Seminar** A weekly seminar of bioinformatics is organized within the laboratory. Attendees are member of the ex-symbiose team (now teams Genscale, Dyliss and Genouest), biologists from Brittany and computer scientists from the laboratory. [web site: http://symbiose.irisa.fr/symbioseNextSeminars]
- **Conference** P. Peterlongo and D. Lavenier were organisation members of the Environmental Genomic Colloque, Rennes, 4,5,6 Nov. 2013. [web site:https://colloque.inra.fr/ge_rennes2013]

9.1.2. Conference program committees

- FPL'2013: 23nd International Conference on Field Programmable Logic and Applications [D. Lavenier]
- ICPADS'2013: 19th IEEE International Conference on Parallel and Distributed Systems [D. Lavenier]
- PBC'2013: Workshop on Parallel Computational Biology [D. Lavenier]
- Reconfig'2013: International Conference on ReConFigurable Computing [D. Lavenier]
- JOBIM'2013: French Colloqium in Biology, Mathematic anf Informatic [D. Lavenier, C. Lemaitre, P. Peterlongo]
- SeqBio 2013: Workshop on string algorithms [C. Lemaitre]
- DGA 2013: Workshop on Distance Geometry and Applications [R. Andonov, A. Mucherino]
- WCO 2013: 6th Workshop on Computational Optimization [R. Andonov, A. Mucherino]

9.1.3. Administrative functions: scientific committees, journal boards

- Member of the administrative council of ISTIC [R. Andonov]
- External evaluator for COST Action IC0805 on "Open European Network for High Performance Computing on Complex Environments" [R. Andonov]
- Member of evaluation committee AERES for LIGM [R. Andonov]
- Recruitment committees: 1 assistant professor [D. Lavenier], 1 professor [D. Lavenier]
- Member for PEPS-BMI program comittee (CNRS) [P. Peterlongo]
- 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 scientific council of the INRA BIPAA Platform (BioInformatics Platform for Agroecosystems Arthropods) [D. Lavenier]
- Member of the scientific council of The GenOuest Platform (Bioinformatics Platform of BioGenOuest) [D. Lavenier]
- Member of the local Inria CORDIS comittee for PhD grants [C. Lemaitre]
- Representative of the environnemental axis of UMR IRISA [C. Lemaitre]
- Inria center referee of Scientific mediation [P. Peterlongo]
- Member of the redaction committee Ouest Inria [P. Peterlongo]

- publication reviewing for Bioinformatics, BMC Bioinformatics, BMC Research Notes, Briefings in Bioinformatics, Plos One, Journal of Computational Chemistry, Optimization Methods and Software [D. Lavenier, R. Andonov]

9.1.4. Invited talks

- A. Mucherino gave an invited talk at DGA13, Manaus, Amazonas, Brazil, June 24–27, 2013
- D. Lavenier gave an invited talk at Inria-INRA days, Sophia Antipolis, September 11-12 2013
- D. Lavenier gave an invited talk at ORAP Meeting, Scalay, October 10 2013
- D. Lavenier gave an invited talk at X-meeting, Recife, Brazil, November 3-7 2013
- P. Peterlongo gave an invited talk at Colloque "Détection, Gestion et Analyse du Polymorphisme des Génomes Végétaux" of INRA EPGV, Lusignan, April 8-10 2013.
- P. Peterlongo gave an invited talk at Workshop "Storage, Search and Annotation of Multiple Similar Genomes", Bielefeld, December 9-10 2013.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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

Licence : C. Lemaitre, Statistics for biology, 10h, L3, Univ. Rennes 1, France

Licence: D. Lavenier, Architecture and System, 36h, MIT1, ENS Rennes

Licence : M. Le Boudic-Jamin, Preparation to C2I level 1 , 44h, L1, Univ. Rennes 1, France

Master : D. Lavenier, Intensive Computation of Genomic Data, 18h, ESEO, M1, Angers

Master : C. Lemaitre, P. Peterlongo, Text algorithmics for Bioinformatics, 46 h, M1, Univ. Rennes 1, France.

Master : C. Lemaitre, Dynamical systems for biological networks, 22h, M2, Univ. Rennes 1, France

Master : R. Andonov, A. Mucherino, Operations research, 95h, M1, Univ. Rennes 1, France.

Master : R. Andonov, Advanced algorithms, 15h, M1, Univ. Rennes 1, France.

Master : A. Mucherino, Initiation to systems and networks, 39h, M2, Univ. Rennes 1, France

Master : A. Mucherino, R. Andonov, P. Peterlongo, Sequence and structure algorithms, 36h, M2, Univ. Rennes 1, France

9.2.2. Supervision

PhD defense : Nicolas Maillet, *Comparaison de novo de données de séquençage issues de très grands échantillons métagénomiques»*[11], Univ. Rennes 1, defended on December 19th 2013, supervised by D. Lavenier and P. Peterlongo [online manuscript: http://tel.archives-ouvertes.fr/tel-00941922]

PhD defense : Guillaume Chapuis, *Exploiting parallel features of modern computer architectures in bioinformatics : Applications to genetics, structure comparison and large graph analyses*[10], Univ. Rennes 1, defended on December 18th 2013, supervised by D. Lavenier and R. Andonov [online manuscript: http://tel.archives-ouvertes.fr/tel-00912553]

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 : Erwan Scaon, *Modèles et algorithmes pour l'assemblage de novo de génomes à forte redondance*, Univ. Rennes 1, started in October 2012, supervised by D. Lavenier and C. Lemaitre

PhD in progress : François Moreews, *Environnement intégré de conception et d'exécution de workflows en bioinformatique: du prototypage au calcul intensif. Applications à la recherche de motifs de régulation dans les génomes*, Univ. Rennes 1, started in November 2012, supervised by D. Lavenier and S. Lagarigue

9.2.3. Juries

- *President of Ph-D thesis jury*. J. Lai, University of Rennes [D. Lavenier], O. Abdou-Arbi, University of Rennes 1 [R. Andonov]
- *Member of Ph-D thesis juries*. V. Silva Da Costa, Federal University of Rio de Janeiro (Brazil) [A. Mucherino]; R. Santos Alves, UNICAMP (Brazil) [A. Mucherino]; G. Chapuis, University of Rennes [D. Lavenier, R. Andonov]; Nicolas Maillet, University of Rennes [D. Lavenier, P. Peterlongo]; C. Yupeng, Nanyang Technological University, Singapor [D. Lavenier].
- *Member of Ph-D thesis comitees*. J. Boutte, University of Rennes [D. Lavenier]; A. Jeannin, University of Brest [D. Lavenier]; P. Nouhaud, University of Rennes [C. Lemaitre]; C. Mercier, University of Grenoble [C. Lemaitre]; S. Guizard, University of Tours [C. Lemaitre], A. Radulescu, university of Nantes [P. Peterlongo].

9.3. Popularization

- Participation to the event "A la découverte de la recherche" (presentation of the research activity to high school students) [C. Lemaitre, P. Peterlongo]
- Participation to the event "Professional Meeting" (talk: discovering bioinformatics), IUT Lannion [D. Lavenier]
- Production of a short movie of PhD subject popularization. [M. Le Boudic-Jamin] https://doctoriales2013.ueb.eu/content/posters

IBIS Project-Team

8. Dissemination

8.1. Editorial, animation, and reviewing activities

Eugenio Cinquemani

Type	Journal, conference, agency
Associate Editor	European Control Conference (ECC) 2014

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 13, IEEE BIBM 13, JOBIM 13, HSB 14
Member Scientific Advisory Board	Microbiology and Food Chain Department, Inra
Member Review and Selection Committees	International Human Frontier Science Program (HFSP)
Member Promotion Committee	Senior research scientists, Inra
Member PhD Committee	Mathieu Trauchessec (CEA/Metabolic Explorer and Université Joseph Fourier)
Member PhD Advisory Committee	Caroline Baroukh (Inria/Inra and Université de Montpellier 2)
Coordinator (with C. Ambroise and F. Molina)	Working group on Transcriptome, protéome, modélisation, inférence et analyse des réseaux biologiques of GDR CNRS 3003 Bioinformatique moléculaire
Advisor	Grenoble team for iGEM 2013 competition
Project reviews	ANR, IDEX Saclay, Institut Pasteur, CNRS, NWO

Johannes Geiselmann

Type	Journal, conference, agency
Member Scientific Council	Department of Biology, Université Joseph Fourier
Member PhD Committee	Khady Sall (CEA and Université Joseph Fourier)
Member PhD Advisory Committee	Xuejiao Jiang (INSA de Lyon)
Advisor	Grenoble team for iGEM 2013 competition
Project reviews	ANR, CNRS

Stéphane Pinhal

Type	Journal, conference, agency
Advisor	Grenoble team for iGEM 2013 competition
Co-organizer	Journée des doctorants du LAPM

Delphine Ropers

Type	Journal, conference, agency
Member Organization Committee	SeMoVi (Séminaire de Modélisation du Vivant)
Member PhD Committee	Claire Villiers (Université Joseph Fourier)
Advisor	Grenoble team for iGEM 2013 competition

8.2. Other 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 head of the Control of Gene Expression group in the Laboratoire Adaptation et Pathogénie des Microorganismes (UMR 5163) and adjunct-director of the laboratory.

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

François Rechenmann is CEO of Genostar. Until 2013, he has been leader of the editorial committee of the Interstices website (http://interstices.info). 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. Moreover, he is head of the ICT service center at IAE.

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 at Inria Grenoble - Rhône-Alpes.

8.3. Seminars, presentations, and PhD thesis defenses

Eugenio Cinquemani

Title	Event and location	Date
On identifiability and identification of metabolic network models	Seminar GIPSA Lab, Grenoble	April 2013
Mixed-effects modelling of biochemical reaction networks: Two applications on two systems	BCM seminar, TIMC-IMAG, Grenoble	May 2013
State estimation for gene networks with intrinsic and extrinsic noise: Models and approaches on a case study	HYCON2-AD3 Workshop on Biological and Medical Systems, Paris	June 2013
Identification of biological systems	Seminar PhD school on Systems Biology, Bertinoro (Italy)	July 2013

Hidde de Jong

Title	Event and location	Date
Shared control of gene expression in bacteria by transcription factors and global physiological state	Invited talk at Network Biology Symposium, Institut Pasteur, Paris (France)	October 2013

Johannes Geiselmann

Title	Event and location	Date
Adaptation of bacteria to their environment: dominance of the global physiological state of the cell and only a minor role for specific transcription factors	Talk at conference of the French Society of Microbiology, Lille	February 2013
Synthetic biology, an emerging technology	Talk at conference Biologie de synthèse : potentiels et défis, Nimes	March 2013
Shared control of gene expression in bacteria by transcription factors and the global physiology of the cell	Talk at ESF Research Conference on Bacterial Networks, Pultusk (Pologne)	March 2013
The global physiological state controls bacterial regulatory networks: a new design paradigm for biotechnology	Talk at World Congress of Industrial Biotechnology, Nanjing (China)	April 2013
Growth rate and gene expression	Talk at ST-FLOW, University of Birmingham, Birmingham (UK)	September 2013
Growth-rate control in Escherichia coli	Talk at SynBio 2013, Heidelberg (Germany)	December 2013

Nils Giordano

Title	Event and location	Date
Dynamic optimisation of resource allocation in microorganisms	Poster presentation at Journée des doctorants du LAPM, Grenoble	October 2013

Stéphane Pinhal

Title	Event and location	Date
Inhibition de la croissance d'E. coli par l'acétate lors d'une croissance sur glucose	Poster presentation at Journée des doctorants du LAPM, Grenoble	October 2013

Delphine Ropers

Title	Event and location	Date
Mathématiques pour la biologie : quand les gènes jouent la montre	Programme 2012-2013 "Informatique au lycée" - Initiation, Villard-de-Lans	April 2013
Mathématiques pour la biologie : quand les gènes jouent la montre	Programme 2012-2013 "Informatique au lycée" - Approfondissement, Montbonnot	May 2013
Global control of gene expression in Escherichia coli	Keynote speaker at International Conference on Predictive Modelling in Food (ICPMF8), Paris	September 2013
Global control of gene expression in Escherichia coli	Invited talk at meeting ANR Stochagène	September 2013
Régulation globale et contrôle de la croissance chez E. coli	BEesy annual meeting, Saint Hugues de Biviers	November 2013

Diana Stefan

Title	Event and location	Date
Structural and parametric identification of bacterial regulatory networks A case study on the gene network regulating motility in E. coli	Poster presentation at Journée des doctorants du LAPM, Grenoble	October 2013

Valentin Zulkower

Title	Event and location	Date
Quantitative comparison of one-step and two-step models of gene expression	Oral presentation at Journées Ouvertes Biologie, Informatique et Mathématiques (JOBIM'13), Toulouse	July 2013
Carbon catabolite repression in E. coli	Poster presentation at EMS Autumn School on Computational Aspects of Gene Regulation, Bedlewo (Poland)	October 2013

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. François Rechenmann has been leader of the editorial committee of the Interstices (http://interstices.info). Interstices offers pedagogic presentations of research themes and activities in the computer science domain, including at its interface with life sciences. François Rechenmann also contributed an article to *Texte et documents dans la classe (TDC)* this year, in the special issue on "Les mathématiques de la terre".

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	5	Master Approches Interdisciplinaires du Vivant, Centre de Recherches Interdisciplinaires/Université Paris Descartes	20

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
Génétique Procaryote	2	Université Joseph Fourier	16
Génétique des Populations	2	Université Joseph Fourier	18

Stéphane Pinhal

Subject	Year	Location	Hours
Génétique microbienne	2	Université Joseph Fourier	34
Eau en sciences	1	Université Joseph Fourier	17

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

Diana Stefan

Subject	Year	Location	Hours
Project Signal, Image, Communication, Multimédia	3	INPG Phelma	36

Valentin Zulkower

Subject	Year	Location	Hours
Calcul matriciel	3	Polytech' Grenoble	41

Hidde de Jong organized with Daniel Kahn a module on the modeling of genetic and metabolic networks at INSA de Lyon. Delphine Ropers is preparing a module on the mathematical modeling of biological systems at PHELMA, INP Grenoble.

[1]

MAGNOME Project-Team

9. Dissemination

9.1. Scientific Animation

Pascal Durrens is :

leader of the "Comparative Genomics" theme and member of the Scientific Council of the LaBRI UMR 5800/CNRS.

responsible for scientific diffusion for the Génolevures Consortium.

member of the editorial board of the journal ISRN Computational Biology, and was reviewer for the journal BMC Genomics

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

David Sherman is :

president of the Commission de Jeunes Chercheurs, Inria Bordeaux Sud-Ouest

member for Bordeaux Sud-Ouest of Inria's Young Scientists Mission

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

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Anna Zhukova, J1MI2013 : Algorithmes et Programmes TD/TP, 30h, L2, Université Bordeaux, France

9.2.2. Supervision

PhD in progress: Anna Zhukova, "Knowledge engineering for biological networks," 2011–, Sherman

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

9.2.3. Juries

David Sherman was a member of the juries of:

Natalia GOLENETSKAYA, "Addressing scaling challenges in comparative genomics," U. Bordeaux, 2013-09-09

Boyang JI, "Comparative and Functional Genome Analysis of Magnetotactic Bacteria," U. Aix-Marseille, 2013-10-23

Andres ARAVENA, "Probabilistic and constraint based modelling to determine regulation events from heterogeneous biological data," U. Rennes, 2013-12-13

9.3. Popularization

Magnome participated in « UniThé ou Café » in the Inria Bordeaux – Sud-Ouest research center.

Anna Zhukova animated one of the Inria workshops at the 2013 "Fête de la Science"

David Sherman is a member of the Inria Bordeaux – Sud-Ouest's "Scientific Culture" committee, which organizes and proposes various scientific popularization actions.

MORPHEME Project-Team

7. Dissemination

7.1. Scientific Animation

- Florence Besse was co-organiser of the first Labex Signalife meeting, grant reviewer for ANR and reviewer for PLoS ONE, WIRES Developmental Biology.
- Xavier Descombes was reviewer for the conference ISBI 2013 and the journals IEEE TMI, IEEE IP,... He is associated editor of DSP (Digital Signal Processing), expert for the DRRT Provence Alpes Côte d'AZur and DRRT Paris Ile de France. He is member of the Scientific Committee of the competitivness pole Optitech, associate member of IEEE BISP (Biomedical Imaging Signal Processing) Technical Committee and member of the Scientific Committee of Labex SIGNALIFE. Xavier Descombes was in the jury of an AAP Cancer call for project launched by INSERM. He was also in a MdC recruitment jury in Toulouse.

  Xavier Descombes was invited to give seminar or lectures in Strasbourg University, in the annual workshop on stochastic geometry organized in Grenoble, in the summer school in Cabreret, in a workshop in Toulouse orgnaized by the labex CIMI and at Institut Curie during the GdR workshop on computational biology.
- Eric Debreuve is member of the steering committee of Laboratoire I3S and coordinator of Pôle SIS (Signals, Images, Systems) of Laboratoire I3S (includes the management of a 25000-euro funding provided by the lab). He is member of the Board of the Association GRETSI (Groupement de Recherche en Traitement du Signal et des Images) and was reviewer for IEEE: Transactions on Medical Imaging; Springer: Multimedia Tools and Applications, Machine Vision and Applications; Elsevier: Pattern Recognition, Signal Processing; Revue Traitement du Signal. He was member of conference technical program committees (Advanced Concepts for Intelligent Vision Systems (ACIVS), Poznan, Poland and IEEE International Symposium on Biomedical Imaging (ISBI), Beijing, China.
- Laure Blanc-Féraud is Associate Editor of SIAM Journal Imaging Sciences and Traitement du Signal Journal. She is director of GdR ISIS of CNRS. She is Program chair of the conference IEEE ISBI 2014 in Beijing. She is member of the IEEE BISP (Biomedical Imaging Signal Processing) Technical Committee, she was vice chair of the evaluation committee of the ANR program blanc SIMI3 (till july 2013), she is member of the scientific steering committee of ANR (from september 2013), member of the scientific council of Institute INS2I of CNRS, invited member of the scientific council of Institute INSIS of CNRS , member of "bureau du comité des projets" Inria SAM and alternate member of CNECA (Comité National des Enseignants Chercheurs en Agriculture). 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).

  Laure Blanc-Féraud was reviewer for Inverse Problems journal and the conferences IEEE ISBI, IEEE ICIP, IEEE ICASSP. She was co-organisor of the workshop on New Computational Methods in Inverse Problems - NCMIP 2013 (NCMIP) in ENS Cachan and was associate editor for the conferences : IEEE ISBI'13, Workshop NCMIP 2013. She was in the scientific committees of the european workshop on Visual Information Processing (EUVIP 2013) and of the 11th International workshop on Adaptation and Learning in Control and Signal Processing (ALCOSP 2013).
- G. 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.

  G. Malandain is a member of the editorial board of the journal International Journal on Computer Vision (Kluwer). He was an associate editor for the conference ISBI 2014, and serves as reviewer for the conferences DGCI 2013, ISBI 2103, MICCAI 2013 and ICCV 2013.

- Caroline Medioni gave an oral communication at Cold Spring Harbor meeting: Neurobiology of Drosophila in New York and at the "Journées régionales de la Cancéropole PACA".

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

- Master : Emmanuel Soubies, Traitement Numérique des Images, 10h Eq. TD, Niveau M2, Université de Nice Sophia Antipolis, France.
- Master : Florence Besse, Contrôle génétique de la morphologie neuronale, 3h Eq. TD, Niveau M2, Université de Nice Sophia Antipolis, France.
- Master : Florence Besee, Réseaux neuronaux : de la structure à la fonction, 3h Eq. TD, Niveau M2, Université de Nice Sophia Antipolis, France.
- License : Alejandro Mottini, Introduction au Web, 24h Eq. TD, Niveau L1, Université de Nice Sophia Antipolis, France.
- License : Alejandro Mottini, Systèmes Informatiques, 20h Eq. TD, Niveau L1, Université de Nice Sophia Antipolis, France.
- Master : Alejandro Mottini, Outils Mathématiques pour l'Image, 8h Eq. TD, Niveau M2, Université de Nice Sophia Antipolis, France.
- Master : Alejandro Mottini, Traitement d'images, 8h Eq. TD, Niveau M2, 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, Université de Nice Sophia Antipolis, France.
- Master : Xavier Descombes, Bio-imagerie, master IRIV, 6h Eq. TD, Niveau M2, Université de Strasbourg, France.
- Master : Eric Debreuve, Introduction to inverse problems in image processing, 29 h Eq. TD, Master 2 in Computational Biology and Biomedicine/5th year Polytech'Nice-Sophia, Université Nice Sophia Antipolis.
- Master : Eric Debreuve, Basics of image processing, 13h Eq. TD, Master 2 "Génie Biomédical", Université Nice Sophia Antipolis.
- Licence : Alexis Zubiolo, Informatique Générale, 36 heures en équivalent TD, niveau L1, Département Informatique de l'Université de Nice Sophia Antipolis, France
- Licence : Alexis Zubiolo, Programmation Web (HTML & CSS), 12 heures en équivalent TD, niveau L1, Département Informatique de l'Université de Nice Sophia Antipolis, France
- Licence : Alexis Zubiolo, Algorithmique et Programmation Objet, 18 heures en équivalent TD, niveau L2, Département Informatique de l'Université de Nice Sophia Antipolis, France
- 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
- Licence : Caroline Medioni. microscopie optique pratiques et théoriques, 15h Eq. TD, L3, University Nice Sophia Antipolis, France

7.2.2. Supervision

- PhD in progress : Gaël Michelin, Quantitative tools for morphogenesis study, 1st october 2011, Grégoire Malandain (advisor).
- PhD in progress : Alejandro Mottini, Métriques de graphes pour la caractérisation des axones, 1st october 2011, Xavier Descombes (advisor), Florence Besse (co-supervisor).
- PhD in progress, Alexis Zubiolo, Statistical Machine Learning for Automatic Cell Classification, Eric Debreuve (advisor).
- PhD : Saima Ben Hadj, Blind restoration of space variant 3D confocal microscopic images, University Nice Sophia Antipolis, 17 April 2013, Laure Blanc-Féraud
- PhD : Mikael Carlavan, Optimization of the compression-restoration chain for satellite images, University Nice Sophia Antipolis, 10 June 2013, Laure Blanc-Féraud and Marc Antonini.
- PhD in progress : Emmanuel Soubies, MA-TIRF reconstruction, 1st october 2013, Laure Blanc-Féraud and Sébastien Schaub.
- PhD in progress : Lola Baustista, Fluorescence confocal microscopy image restoration, 1st november 2013, Laure Blanc-Féraud.

7.2.3. Juries

- Florence Besse was in one HDR jury at University of Montpellier and one PhD jury at UPMC Paris and Université Paris Sud.
- Eric Debreuve was examiner in the PhD jury of Thomas Peel, Université d'Aix-Marseille, Laboratoire d'Analyse, Topologie, Probabilités (LATP)/Laboratoire d'Informatique Fondamentale de Marseille (LIF). Title: "Algorithmes de poursuite stochastiques et inégalités de concentration empiriques pour l'apprentissage statistique", november 2013.
- PhD : Laure Blanc-Féraud, referee of the PhD committee of Moncef Hidane, University of Caen
- HDR : Laure Blanc-Féraud, referee of the HDR committee of David Mary, University Nice Sophia Antipolis
- PhD : Laure Blanc-Féraud was examiner for 1 HDR and 4 PhD.
- Grégoire Malandain participated as supervisor to the PhD thesis committee of Marine Breuilly (Nice-Sophia Antipolis University), as reviewer to the PhD thesis committee of C. Hughes (INSA Lyon), as chair to the PhD thesis committee of B. Xiang (Ecole Centrale Paris) and V. Delmon (INSA Lyon), as reviewer to the HDR thesis committee of C. Fetita (UPMC) and as referee to the HDR thesis committee of H. Talbot (Paris Est Univ.)

7.3. Popularization

- Xavier Descombes has given a conference in Nice within the program "Science au Lycée".
- Xavier Descombes has given a seminar in Marseille University in a workshop dedicated to multidisciplinarity.

SERPICO Project-Team

9. Dissemination

9.1. Scientific Animation

- *Technical program committees of conferences*

  Charles Kervrann: PC member for ISBI'2013, ISBI'2014, reviewer for ICASSP'2013, ICASSP'2014, ICIP'2013, ICIP'2014, EMMCPRV'2013, GRETSI'2013, member of scientific committee of "Journées d'Imagerie Optique Non-Conventionnelle" (JIONC'2014).

  Patrick Bouthemy: PC member for ICPRAM'2013, ICPRAM'2014, MLDM'2013, TAIMA'2013, reviewer for ISBI'2013, ISBI'2014, ICRA'2013, member of scientific committee of ELMI'13.

- *Journal reviewing*

  Charles Kervrann: reviewer in 2013 for IEEE Transactions on Image Processing, IEEE Transactions on Medical Imaging, SIAM Journal Imaging Sciences, PLoS One, Image and Vision Computing, Journal of Signal Image and Video Processing.

  Patrick Bouthemy: reviewer in 2013 for International Journal of Computer Vision, IEEE Transactions on Circuits and Systems for Video Technology, IEEE Transactions on Image Processing, IEEE Transactions on Medical Imaging.

- *Project reviewing*

  Charles Kervrann: reviewer in 2013 for ERC (Consolidator Grant), ANR and IDEX Paris-Saclay.

- *Participations in seminars, invitations, awards*

  Charles Kervrann was invited to give a talk entitled "Non parametric change detection methods in fluorescence life cell imaging for subcellular trafficking and exocytosis analysis" at the GdR 2588 "BioImage Informatics" Days (Institut Curie, Paris, July 2013) and the ANR MOTIMO workshop (University of Nice, September 2013).

- *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.

  Member of the Steering Committee of ESFRI EuroBioImaging (Inria representative).

  Patrick Bouthemy:

  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 Francaise 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).

- *Other activities*

  SERPICO is involved in the CNRS French networks GdR MIV (2588 - Microscopie Fonctionnelle du Vivant) and the GdR ISIS.

  SERPICO is member of the regional BioGenOuest GIS.

  SERPICO is member of the France-BioImaging Infrastructure in Biological Imaging.

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, Nam-Hoai Nguyen), 3rd year, Ecole Nationale de la Statistique et de l'Analyse de l'Information ENSAI Bruz & University of Rennes 1.

Course on "Introduction to Markov Random Fields" (2 hours), "Image Denoising in Live Cell Imaging" (2 hours) and "Object tracking in Video-Microscopy" (2 hours) for BIAT'2013 (BioImaging Advanced Training), Campus of CNRS, Gif-sur-Yvette, November 2013.

Course on "Biological Imaging" (4 hours) for CIMI (Centre International de Mathematiques et d'Informatique de Toulouse) Image Processing Thematic School, Saint-Lary, June 2013.

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.

Course on "Motion Analysis" (2 hours) for BIAT'2013 (BioImaging Advanced Training), Campus of CNRS, Gif-sur-Yvette, November 2013 and for the CNRS formation "Comprendre les différentes méthodes d'analyse de la dynamique en biologie et leurs paramètres", Institut Jacques Monod, Paris, novembre 2013.

9.2.2. Supervision

PhD in progress: Philippe Roudot, Lifetime estimation of moving vesicles in FLIM microscopy, started in October 2010, supervised by Charles Kervrann and Francois Waharte (UMR 144, PICT IBiSA, CNRS-Institut Curie).

PhD in progress: Denis Fortun, 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.

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 (UMR 144, CNRS-Institut Curie).

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

9.2.3. Juries

Chair of a jury for the recruitment of an assistant professor: University of Rennes 1 (Section CNU 26) [Charles Kervrann].

Member of a jury for the recruitment of an assistant professor: University of Caen - Basse Normandie (Section CNU 27) [Patrick Bouthemy].

Referee of Habilitation thesis: N. Komodakis (ENPC) [Patrick Bouthemy], J.-B. Sibarita (University of Bordeaux 2) [Charles Kervrann].

Referee of PhD thesis: X.S. N'Guyen (University of Paris 6) supervised by S. Dubuisson et C. Gonzales [Patrick Bouthemy], M. Souded (University of Nice Sophia-Antipolis) supervised by F. Bremond [Patrick Bouthemy], K. Haas (University of Bordeaux 2) supervised by D. Choquet [Charles Kervrann, Chair of the jury], M.A. Kechkar (University of Bordeaux 2) supervised by J.-B. Sibarita [Charles Kervrann], L. Genin (University of Paris 13) supervised by F. Champagnat and G. Le Besnerais [Charles Kervrann].

Chair of PhD thesis juries: C. Maumet (University of Rennes 1) supervised by C. Barillot [Patrick Bouthemy], A. Petit (University of Rennes 1) supervised by E. Marchand [Patrick Bouthemy].

VIRTUAL PLANTS Project-Team

7. Dissemination

7.1. Scientific Animation

- Christophe Godin has rendered the following services in 2013:
  - he is a member of the College de Direction of UMR AGAP
  - he is a member of the management board of IBC (Institut de Biologie Computationnelle de Montpellier)
  - he is a member of the scientific committee of the Environnement-Agromomy department at INRA
  - he is a member of the editorial board of the journal Frontiers in Plant Sciences
  - he is the scientific coordinator of the Inria Project Lab (former Action d'Envergure) Morphogenetics
  - he is the scientific coordinator of axis 4 of IBC on imaging and modeling (together with Patrick Lemaire)
  - he was co-chair of the 7th international conference on functional-structural models of plants (FSPM 2013) that was held in Finland in June 2013.
  - he is guest editor for the special issue on FSPMs of the journal Annals of Botany.
  - he gave 6 invited talks (4 abroad).
  - he was referee for papers submitted at journals: Development, PNAS, Plos Comp Biol.
- Yann Guédon has rendered the following services in 2013:
  - he is a member of the editorial board of Annals of Botany and a member of the ERCIM working group "Computing & Statistics".
  - he was a member of the program committee of the 7th International Workshop on Functional-Structural Plant Models (FSPM 13, Saariselkä, Finlande) and evaluated 8 communications.
  - he participated to the PhD committee of Pierre Gloaguen (Ifremer, Nantes) and Gustavo Malagi (Federal University of Pelotas, Brazil and Montpellier SupAgro).
  - he was a referee for papers submitted to Signal Processing and the Gretsi conference.
- Frédéric Boudon was referee for papers submitted to SIGGRAPH, SIGGRAPH Asia, Sensors, Computer Graphics Forum and International Journal of modeling and Simulation.
  - Christian Fournier give a invited talk on graphic programming at the JDEV2013 (Journée nationales du Développement Logiciel 4-5-6 septembre 2013 Ecole polytechnique Palaiseau/Ile-de-France)
- Christophe Pradal has rendered the following services in 2013:
  - he is the scientific coordinator of the Agropolis Fundation project 'OpenAlea software platform'.
  - he is the scientific coordinator of the Inria project ADT 'OpenAlea 2.0'.
  - he is the scientific coordinator of the modeling workpackage of the ANR Blanc Hydro-root.
  - he is a member of the board of the Epiarch network.

- he is an editor of proceeding of the conference Euroscipy [26] that appeared as a special issue of the Journal of Computational Science (JoCS) (together with Gaël Varoquaux and Hans Peter Langtangen).
- he gave 2 invited talks
- he was referee for papers submitted at journals: Journal of Scientific Computing and Annals of Botany.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

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 was responsible for a class of Master 2 on 'Plant modeling' with participation of Yann Guédon, Christophe Pradal, Frédéric Boudon and Christian Fournier at the University of Montpellier 2 (M2 - 25h).

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

Christophe Godin gave a class of Master 2 on 'Plant modeling' in the module plant and animal Morphogenesis of the Master in biology at ENS-Paris organized by Patrick Lemaire (M2 - 4h).

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

Christophe Pradal and Christian Fournier taught the Master class "Impact de l'architecture sur la propagation des maladies foliaires" in the module 'Démarches de modélisation' in Montpellier SupAgro (15h).

7.2.2. Supervision

PhD in progress : Mathilde Balduzzi, *"Geometric modeling of plant canopy from 3D scanner images: Combined use of 3D information and reflected intensity for meshing"*, Montpellier 2 University, C. Godin, F. Tardieu.

PhD in progress : Jonathan Legrand, *"Hormon signaling and control of morphogenesis during flower development"*, ENS Lyon, P. Das, Y. Guedon.

PhD : Jean Peyhardi, *"A new generalized linear model (GLM) framework for analysing categorical data; application to plant structure and development"*, Montpellier 2 University. Y. Guédon, C. Trottier.

PhD in progress : Pierre Fernique, *"Hidden transition models for the phenotyping of plant architecture in relation to environmental and genetic factors"*, Montpellier 2 University. Y. Guédon, J.-B. Durand.

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 : Maryline Lièvre, *"Analysis and multiscale modeling of foliar growh in Arabidopsis thaliana in response to environmental stresses. Implication of the floral transition in the foliar expansion"*, Montpellier 2 University, C. Granier, Y. Guédon.

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"*, Montpellier 2 University, 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.

7.2.3. Juries

Frédéric Boudon was a member of the jury of the PhD defense of Jerome Guenard, from University of Toulouse. Christophe Pradal participated to the PhD committee of Christophe Lecarpentier.

Christophe Godin was a Jury member of the PhD Thesis of Julien Lavenus held in October on the Analysis of the Gene Regulatory Network Controlling Lateral Root Initiation and Patterning Using Systems Biology Approach.

7.3. Popularization

Christophe Godin gave 3 conferences for high-school pupils respectively on plants and fractals and on the Secret Code of Flowers in the context of MathC2+ and fête de la science (6h).

CORTEX Team

8. Dissemination

8.1. Scientific Animation

8.1.1. Responsabilities

- Head of the Complex systems and AI department of the LORIA laboratory (B. Girau)
- Organization of a talk series on Image, Perception, Action & Cognition on a montly basis at the Inria-Nancy Grand Est laboratory (http://ipac.loria.fr/, Y. Boniface with researchers of other teams).

8.1.2. Review activities

- Reviewing for journals and conferences: Artificial Intelligence in Medicine journal (P. Hénaff), International Journal of Advanced Robotic Systems (P. Hénaff), Progress in Artificial Intelligence (B. Girau)
- Member of program committees: Reconfig (B. Girau), IEEE 34th International Conference on Electronics and Nanotechnology ELNANO-2014 (P. Hénaff)
- Evaluation of ANR Blanc SIMI 3 projects (B. Girau)

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 and in cognitive science. Moreover, several members of the team are implied in various kinds of academic responsibilities: Laurent Bougrain is head of the IPAC speciality of the Master In Computer Science, Bernard Girau is member of the Conseil de Collegium Science et Technologie of the University of Lorraine, as well as of the Conseil de Secteur Scientifique MIAE.

8.2.2. Supervision

PhD: Maxime Rio, Modèles bayésiens pour la détection de synchronisations au sein de signaux électro-corticaux, Université de Lorraine, 16/07/2013, B. Girau and A. Hutt (work in relation with the Neurosys team)

PhD: Georgios Detorakis, Plasticité corticale, champs neuronaux dynamiques et auto-organisation, Université de Lorraine, 23/10/2013, N. Rougier

PhD: Carolina Saavedra, Méthodes d'analyse et de débruitage multicanaux à partir d'ondelettes pour améliorer la détection de potentiels évoqués sans moyennage, Université de Lorraine, 14/11/2013, B. Girau and L. Bougrain (work in relation with the Neurosys team)

PhD in progress: Carlos Carvajal-Gallardo, Faisabilité d'une Rétine Artificielle pour la Vision Humaine : Étude Critique des Solutions Électroniques et Contre-Solutions, from 23/02/12, F. Alexandre

PhD in progress: Benoît Chappet, Champs neuronaux dynamiques impulsionnels aléatoires, from october 2012, B. Girau

PhD in progress: Artem Melnyk, Perfectionnement des algorithmes de contrôle-commande des robots manipulateur électriques en interaction physique avec leur environnement par une approche bio-inspirée, from january 2010, co-supervision between Donetsk Technical University (Ukraine) and University of Cergy Pontoise, P. Hénaff

8.2.3. Juries

PhD: Maxime Rio , Modèles bayésiens pour la détection de synchronisations au sein de signaux électro-corticaux, Université de Lorraine, 16/07/2013 (B. Girau, as advisor)

PhD: Carolina Saavedra, Méthodes d'analyse et de débruitage multicanaux à partir d'ondelettes pour améliorer la détection de potentiels évoqués sans moyennage, Université de Lorraine, 14/11/2013 (B. Girau, as advisor)

HDR: Slim Ouni, Parole multimodale : de la parole articulatoire à la parole audiovisuelle, Université de Lorraine, 29/11/2013 (B. Girau, president)

PhD: Nicolas Estibals, Algorithmes et arithmétique pour l'implémentation de couplages cryptographiques, Université de Lorraine, 30/10/2013 (B. Girau, president)

PhD: Julie Busset, Inversion acoustique articulatoire à partir de coefficients cepstraux, Université de Lorraine, 25/03/2013 (B. Girau, president)

PhD: Srikishna Bhat, Mots visuels pour le calcul de pose, Université de Lorraine, 22/01/2013 (B. Girau, president)

PhD: Hoda Sbaiti, Optimisation sur un modèle de comportement pour la thérapie en oncologie, Université de Versailles St Quentin en Yvelynes, 30/09/2013 (P. Hénaff as referee)

PhD: Gatean André, Modélisation oscillatoire de l'écriture manuscrite, Université de Toulouse, 11/12/2013 (P. Hénaff as referee)

ARAMIS Team

9. Dissemination

9.1. Scientific Animation

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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

Master: Olivier Colliot, Master in Computer Science, 12 hours (eqTD), Université Pierre et Marie Curie

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

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

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

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

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

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

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

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

Master: Fabrizio De Vico Fallani, Master in "Me´thodologies et applications en imagerie me´dical", 3 hours (eqTD), Université Pierre et Marie Curie

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

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

Engineering school: Dominique Hasboun, 3 hours, ENSEA

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

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

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

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

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

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

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

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

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

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

9.2.2. Supervision

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

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

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

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

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

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

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

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

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

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

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

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

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

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

9.2.3. Juries

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

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

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

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

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

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

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

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

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

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

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

9.3. Popularization

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

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

ASCLEPIOS Project-Team

8. Dissemination

8.1. Scientific Animation

8.1.1. Journal editorial boards

N. Ayache is the co-founder and the Co-Editor in Chief with J. Duncan (Professor at Yale) of *Medical Image Analysis*[7]. This scientific journal was created in 1996 and is published by Elsevier.

N. Ayache is Associated Editor of *IEEE Transactions on Medical Imaging*[8] 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) and of the SIAM *Journal on Imaging Sciences (SIIMS)*.

8.1.2. Participation in the organization of conferences

H. Delingette was area chair of the MICCAI 2013 conference held in Nagoya, program committee member of the International Symposium on Biomedical Imaging (ISBI'12), the conference on Virtual Reality Interactions and Physical Simulation (VRIPHYS'13), the MICCAI Workshop on Mesh Processing in Medical Image Analysis (MeshMed'13), the conference on Functional Imaging and Modeling of the Heart (FIMH'13).

X. Pennec was the general chair of the MICCAI workshop MFCA'13 (Mathematical Foundations of Computational Anatomy), which was held at Nagoya (JP) on Sept. 22; area chair of the MICCAI 2013 conference held in Nagoya (JP), Sept. 23-25; member of the paper selection committee of IMPI 2013 (Information processing in Medical Images), Asilomar, CA, USA, June 28, July 3rd, 2013; member of the program committees of: MICCAI 2013; GSI 2013 (Geometric Science of Information), Paris, FR, August 28-30, 2013; Workshop on computational diffusion MRI (CDMRI'13).

M. Sermesant was a co-organizer of the MICCAI 2013 Workshop on Statistical Atlases and Computational Models of the Heart and the medInria hands-on workshop.

8.1.3. Scientific animation

Nicholas Ayache is member of the Aviesan national alliance on biosciences. He is also a member of the "Comité de la Recherche Biomédicale en Santé Publique (CRBSP)" of the Nice hospitals since 2008. He was invited to Fukuoka, Japan in February 2012 to evaluate a national program on "Computational Anatomy" funded by the MEXT.

Xavier Pennec has been a member of the MICCAI Society Board of Directors for the period 2012-2016 and of the Doctoral follow-up Commitee (CSD) at Inria Sophia Antipolis since 2010. In 2013, he was an evaluator for the European Research Concil (math panel), the Council of Physical Science of the Netherlands Organisation for Scientific Research (NWO), for several project proposals submitted to the French research agency ANR.

[7] http://www.elsevier.com/wps/find/journaleditorialboard.cws_home/620983/editorialboard
[8] http://www.ieee-tmi.org/

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 Austrian center of excellence ACMIT, for several project proposals submitted to the French research agency ANR, to the National Commission for Scientific and Technological Research of the Government of Chile (CONICYT). He was involved in the redaction of the report for the evaluation of Inria Sophia Antipolis research center by the national evaluation agency (AERES). He was the coordinator for the national evaluation of the Inria theme "Computational Medicine and Neuroscience" by the Inria evaluation committee and a panel of experts.

M. Sermesant acted as an evaluator for the ANR, CNRS and the Dutch and UK Research Councils. He is a member of the Medical Simulation Working Group of Aviesan, CUMIR (local committee representing the users of computer services) and of the CCC (local committee in charge of the selection of funding for courses and conferences organisation). He also participates in scientific animation in high schools, presenting research and medical imaging (2 times in 2013).

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Master 2 MVA and École Centrale de Paris. H. Delingette and X. Pennec are jointly responsible for 2 modules on medical imaging (formation and analysis of medical images) (45 hours of lectures) at the Master MVA of ENS Cachan "Mathematiques, Vision et Apprentissage". The second module is common to the 3rd year of Ecole Centrale Paris.

Master CBB - Computational Biology and Biomedicine, Univ. Nice-Sophia-Antipolis. X. Pennec is responsible for a 21h module on Computational Anatomy and Physiology, with the participation of H. Delingette (9h)

Diplôme Inter Universitaire - Radiothérapie externe Haute Technicité, Univ. Nice-Sophia-Antipolis. X. Pennec gave a 1 h course.

8.2.2. Supervision

8.2.2.1. PhD defended in 2013

1. Marine Breuilly, *Imagerie TEMP 4D du petit animal - Estimation du Mouvement Respiratoire et de la Biodistribution de l'Iode*. Nice Sophia-Antipolis University, November 2013, [1].
2. Ezequiel Geremia, *Spatial random forests for brain lesions segmentation in MRIs and model-based tumor cell extrapolation*. Nice Sophia-Antipolis University, January 2013, [2].
3. Stephanie Marchesseau *Simulation de modèles personnalisés du coeur pour la prédiction de thérapies cardiaques*. Ecole des Mines de Paris, January 2013, [3].
4. Kristin Mc Leod, *Modeling of Cardiac Growth and Deformation from Medical Images*. Nice-Sophia Antipolis University, November 2013.
5. Adityo Prakosa, *Analysis and simulation of multimodal cardiac images to study the heart function*. Nice-Sophia Antipolis University, January 2013, [5].

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. Vikash Gupta, *Diffusion tensor imaging of the brain: towards quantitative clinical tools*, Nice Sophia-Antipolis University. Started in November 2011.
6. Mehdi Hadj-Hamou, *Biophysical modeling of the anatomical evolution of the brain*, Nice Sophia-Antipolis University. Started in September 2012.
7. Bishesh Khanal, *Modeling the atrophy of the brain in Alzheimer's disease*, Nice Sophia-Antipolis University. Started in November 2012.
8. Loic Le Folgoc, *Biophysical Personalization of Cardiac Models based on Machine Learning*, Nice Sophia-Antipolis University. Started in June 2012.
9. Jan Margeta, *Indexation of time-series 4D cardiac MR images*, Ecole des Mines de Paris. Started in March 2011.
10. 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.
11. Erin Stretton, *Modelling and simulation of brain tumor growth from time-series of 3-D MR images to improve diagnosis and therapy*, Ecole des Mines de Paris. Started in June 2010.
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.

8.2.2.3. Masters Students

1. Nina Miolane: *Defining a mean on Lie groups*. MSc Quantum Fields and Fundamental Forces, Theoretical Physics Dept, Imperial College London, UK. 2013. From July 2013 to August 2013.

8.2.3. Juries

N. Ayache was supervisor of the PhD thesis of Ezequiel Geremia (University of Nice-Sophia Antipolis), co-supervisor of the PhD theses of S. Marchesseau (École des Mines de Paris)) and A. Prakosa (University of Nice-Sophia Antipolis), reviewer of the Phd thesis of R. Prevost (Univ. Paris Dauphine).

Hervé Delingette was supervisor of the Phd theses of S. Marchesseau (École des Mines de Paris) and A. Prakosa (University of Nice-Sophia Antipolis), co-supervisor of the PhD thesis of Ezequiel Geremia (University of Nice-Sophia Antipolis), reviewer of the PhD thesis committee of P-Y. Baudin (Ecole Centrale de Paris).

X. Pennec was a member of the HDR jury of Stéphanie Allassionnière, Ecole Normale Cachan (Reviewer) and to the PhD juries of Kevin Sol, U. Montpelier (Reviewer); Aymeric Stamm, U. Rennes; Fabrice Michel, U. ParisTech (Ecole Centrale) (Reviewer); Jean-Baptiste Fiot, U. Dauphine (Reviewer); Barthelemy Serres, U. Tours (President of the jury); Kristin McLeod, University of Nice-Sophia Antipolis, (Advisor).

Maxime Sermesant was co-supervisor of the PhD theses committee of S. Marchesseau (École des Mines de Paris), A. Prakosa (University of Nice-Sophia Antipolis) and Kristin McLeod (University of Nice-Sophia Antipolis). He was external examiner for the PhD viva of Robert Xi (Oxford University, UK) and Mikael Wallman (Oxford University, UK), and part of the PhD committee of Hubert Cochet MD in Radiology (Bordeaux University).

8.2.4. 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:

  - at the *French-Japanese symposium on the future of surgery* in Strasbourg on December 20th 2012.
  - at the *Rank Prize Fund Symposium* on March 21th 2013 on the topic "Medical Imaging meets Computer Vision".
  - at the symposium organized for the 15th anniversary of the Imaging Science Center at Johns Hopkins University on May 18th 2013.
  - at the Ecole Centrale Paris on November 5th 2013 during the session organised around the challenges in Healthcare and Biotechnologies.
- **Hervé Delingette** gave the following invited lectures:
  - at the *MICI international workshop* held in Tokyo (Japan).
  - at the *MICCAI Workshop on Mesh Processing in Medical Image Analysis 2013* in Nagoya (Japan).
  - at the *10th VRIPHYS Workshop on Virtual Reality Interaction and Physical Simulation* in Lille, France.
  - at the session on cardiac imaging organized by the GRIC (Groupe de Recherche en Imagerie Cardiaque) during the Journées Française de radiologie in Paris.
  - at the *ORASIS conference* in Cluny (France).
- **Xavier Pennec** gave the following invited lectures:
  - IMA Annual Program Year Workshop on Topological Structures in Computational Biology, Minneapolis, US, December 9-13, 2013.
  - Advances in Matrix Functions and Matrix Equations (FUN13), Manchester, UK, April 10-12, 2013.
  - Distinguished seminar series, SCI institute, Salt-Lake City, February 13 2013.
  - Geometric Mechanics and Shape, NZMRI workshop 2013, Ohope beach, New Zealand, January 13-19, 2013.
  - Hamiltonian Dynamics Seminar, Chair of Geometric Analysis Section de Mathématiques, EPFL, Lausanne, October 9, 2013.
  - Thematic day on initial stress for geomechanical models at IFP Energies nouvelles (IFPEN), Rueil-Malmaison, Sept. 19, 2013.
- **Maxime Sermesant** was invited to give the closing lecture on "Mathematics for Healthcare" at the 34th Paediatric Cardiology Seminar organised by Necker Hospital, and gave an invited lecture on congenital cardiopathies at the "Printemps de la Cardiologie" in Marseille and an invited lecture on real-time simulation of ablation at the Atrial Fibrillation meeting in London.

8.2.5. Nominations and Prizes

- **Nicholas Ayache** received the MICCAI 2013 “Enduring Impact Award” for his scientific contributions since the inception of the conference in 1998. This award was established four years ago and was previously awarded to Ron Kikinis (Harvard Medical School), Russ Taylor (Johns Hopkins), Chris Taylor (Manchester Univ.) and Jerry Prince (Johns Hopkins). Nicholas took the opportunity to thank the team and all his collaborators.
- **Nicholas Ayache** was elected at the Collège de France to the Chair “Informatics and Computational Sciences” for the academic year 2013-2014. He will teach a course entitled “The Personalized Digital Patient: Images, Medicine and Informatics”. The course will be completed by seminars (2 of them being delivered by H. Delingette and X. Pennec), and an international Colloquium. More details to appear on the web site of the Collège de France: http://www.college-de-france.fr/site/nicholas-ayache/.
- **Tom Vercauteren** won the Young Scientist Publication Impact Award 2013 of the MICCAI Society (Oct 2012) for the paper "Symmetric log-domain diffeomorphic Registration: a demons-based approach", published at MICCAI 2008 co-authored by X. Pennec, A. Perchant, N. Ayache.

ATHENA Project-Team

9. Dissemination

9.1. Scientific Animation

- R. Deriche is Adj. Director at the Doctoral School EDSTIC (http://edstic.i3s.unice.fr/index.html)
- 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 Concil of AFRIF (Association Française pour la Reconnaissance et l'Interprétation des Formes) and of GRETSI (Groupe d'Etudes du Traitement du Signal et des Images).
- 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.
- R. Deriche has served for many years as area-chair and/or as program committee member for International Conferences as ICCV, MICCAI, ECCV, CVPR, ISBI and national conferences as AFRIF-AFIA RFIA and serves several international journals and conferences (NeuroImage, IEEE Transactions on Medical Imaging, Magnetic Resonance in Medicine, JMIV, Medical Image Analysis Journal, ISBI, ISMRM, HBM..).
- R. Deriche has co-organised MICCAI 2013 Workshop on Mathematical Methods for Brain Connectivity.
- R. Deriche has organised the "Computational diffusion MR imaging" session of the BASP: international biomedical and astronomical signal processing (BASP) Frontiers held in Villars-sur-Ollon (Jan. 27, Feb.1, 2013).
- M. Clerc is on the Editorial Board of Biomedical Engineering Online, and of the ISTE-Wiley book series (Neural Engineering committee).
- T. Papadopoulo served as a referee for the international conferences MICCAI 2013, ICVS 2013, NER 2013 and ISBI 2013 and 2014. He was area chair for the national conference GRETSI 2013. In 2013, he has been reviewer for the journals Image and Vision Computing and Signal, Image and Video Processing.
- T. Papadopoulo has reviewed a BPI proposal and a Futur & Rupture de l'Institut Mines-Télécom proposal.
- 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).
- T. Papadopoulo is a member of the local (Sophia Antipolis) committees for software development (CDT) and for Sustainable development. He is also member of the piloting committee for the platform dtk.

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: 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*, 36 ETD, M2, SSTIM/VIM/MAM5 option at Polytechnic Engineering School, 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.

Doctorat: M. Clerc *Inverse Problems in Brain Imaging*, 6 ETD, OIPE Doctoral Course, Ghent University, Belgium.

9.2.2. Supervision

PhD: Sylvain Merlet, "Compressive Sensing in dMRI", Université Nice Sophia Antipolis, Sept. 11, 2013. Supervisor : Rachid Deriche

PhD: Anne-Charlotte Philippe, "MEG inverse problem regularization via Diffusion MRI", Université Nice Sophia Antipolis, Dec. 19th, 2013. Supervisors: Rachid Deriche and 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.

PhD in progress: Kai Dang, "Conductivity models for optimizing cochlear implant stimulation", started December 2013, 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: Sebastian Hitziger, "MEEG signal processing", started Nov. 2011, Supervisors: Théodore Papadopoulo & Maureen Clerc.

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: Romain Trachel, "A Brain Machine Interface for enhancing human performance", started Oct. 2010. Supervisors: Maureen Clerc & Thomas Brochier.

9.2.3. Juries

- M. Clerc participated in the PhD juries of Maxime Rio (Université de Lorraine), Janis Hofmanis (Université de Lorraine) and Anne-Charlotte Philippe (UNS, Nice).
- M. Clerc participated in a jury for CR2 recruitement at Inria Nancy Grand Est.
- R. Deriche participated in the PhD juries of Alexandre Chapoulie (UNS, Nice), Lihui Wang (INSA, Lyon), Gonzalo Vegas Sanchez Ferrero (Valladolid University, Spain), Yacine Morsli (EMP, Algiers), Nicolas Bourdis (Télécom ParisTech, Paris), Sylvain Merlet (UNS, Nice), Stamm Aymeric (Université de Rennes 1) and Anne-Charlotte Philippe (UNS, Nice).
- R. Deriche participated in the HDR juries of Iasonas Kokkinos (Université Paris Est) and Olivier Coulon (Université d'Aix-Marseille).
- T. Papadopoulo participated in the PhD juries of Carolina Saavedra à Inria Nancy (Université de Lorraine).

DEMAR Project-Team

9. Dissemination

9.1. Scientific Animation

- David Guiraud D. Guiraud is Member of the Editorial Board of Journal of Neural Eng., Associate Editor of EMBC conferences "track rehabilitation, theme 6" 2010-2013, Member of the organizing committee of IEEE NER 2013 (more than 550 registrations for the 2013 edition), member of the steering committee of "Institut des Technologies pour la Santé", Chair of the Labex Numev "Aide à la personne malade et déficiente" specific action. D. Guiraud was reviewer for the 2013 ERC consolidator program panel PE7. specific action.
- C. Azevedo-Coste is Board member of IFESS society (international functional electrical stimulation society) and Associate Editor of Paladyn Behavioral Robotics Journal.
- M. Hayashibe is member of the Editorial Board of the International Journal of Advanced Robotic Systems, Rehabilitation Robotics, and Guest Associate Editor, Frontiers in Neuroprosthetics, Biosignal processing and computational methods to enhance sensory motor neuroprosthetics.
- François Bonnetblanc is reviewer for several journals : Journal of Neuroscience (2011), IEEE Transactions on Neural Systems & Rehabilitation Engineering (2012), Neurosurgery, Journal of Neurology, Research in Developmental Disabilities (2012), Neurocase, Experimental Brain Research, Neuroscience Letters et Journal of Biomechanics.
- Daniel Simon was member of the RTNS'13 (Real Time Networks and Systems) and ETFA'13 (Emerging Technologies and Factory Automation int. conference program commitees and of the IFAC Joint Conference (Grenoble, february 2013) organization committees. Peer reviewer for the IEEE Trans. on Industrial Informatics and the Simulation: Transactions of the Society for Modeling and Simulation International journals, and for the ECC'13, SysTol'13, ECC'14 and ACC'14 int. conferences.
- D. Andreu is co-organizer of the french working group on Control Architectures of Robots of the french GdR Robotique and assistant manager of the Robotic Department (LIRMM).
- F. Soulier was Local coordinator of the Belem (BioElectronics for Medical Engineering) intensive program for the University of Montpellier 2 (Erasmus program).

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master : D. Guiraud, basics of neurophysiology and neuroprosthetics, 10h, niveau (M1, M2), Institut Telecom / Mines specialisation "Tic santé" UE "medical robotics", France;

Master : D. Guiraud, muscle function, modeling and the basics for the control through FES and neuroprosthesis, 20h, , master 1 & 2 "Tic et santé" and master 2 Human Movement Sciences UE "neuroprotheses", 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, Neuroprotheses II, Neurophysiology, 6h, Master STIC pour la Santé , Univ. Montpellier 2, France;

Master : Christine Azevedo-Coste, Neuroprotheses I, Neurophysiology, 4.5h, Master STIC pour la Santé , Univ. Montpellier 2, France;

Master : Mitsuhiro Hayashibe, Neuroprotheses II,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 : Fabien Soulier, electronics and signal processing, 200h, Polytech' Montpellier, France;

Master : François Bonnetblanc, neurophysiology of movement and cerebral plasticity, 65h, University of Bourgogne, France;

Master : Paweł Maciejasz, Neuroprotheses I, Electrical stimulation of nerve fibers – Computer simulation and data processing, 4.5h (TP), Master STIC pour la Santé , Univ. Montpellier 2, France;

Master : Paweł Maciejasz, Neuroprotheses II, Electrical stimulation of nerve fibers and recording of neurophysiological signals, 4.5h (TP), Master STIC pour la Santé , Univ. Montpellier 2, France;

9.2.2. Supervision

HdR : François Bonnetblanc, "Prédictions et traitement des erreurs dans les comportements visuo-manuels : de la flexibilité à la plasticité" , Université de Bourgogne, 23 Sept.

PhD : Maud Pasquier, "Segmentation de la locomotion humaine dans le domaine du sport et de la déficience à partir de capteurs embarqués", Université Montpellier 2, Sep. 16, Ch. Azevedo-Coste and B. Espiau

PhD in progress : Hélène Leroux, "Abstraction et composition pour la conception formelle de neuroprothèses", 09/2011 , D. Andreu

PhD in progress : Yacine Berranen, Modélisation volumique du muscle avec représentation des fonctions physiologiques, 10/2011, D. Guiraud, M. Hayashibe and B. Gilles

PhD in progress : Alejandro Gonzalez de Alba, Whole body control framework for lower limb stability in computational rehabilitation, 09/2011, P. Fraisse and M. Hayashibe

PhD in progress :Zhan Li , Réhabilitation fonctionnelle computationnelle et modélisation physiologique neuromusculaire, 10/2011, D. Guiraud and M. Hayashibe

PhD in progress : Mariam Abdallah, Système d'acquisition de signaux bioélectriques multicanal, programmable et implantable, 09/2012, G. Cathebras, F. Soulier and S. Bernard

PhD in progress : Marion Vincent, "Effets de la stimulation électrique directe (SED): intérêts pour la cartographie fonctionnelle en chirurgie éveillée" , 12/2013, F. Bonnetblanc

PhD in progress : Wafa Tigra, "Vers la commande intuitive d'une neuroprothèse dédiée à la préhension chez le tétraplégique" , 11/2013, Christine Azevedo-Coste, Guillaume Souquet (MXM), David Guiraud, Charles Fattal (Propara)

PhD in progress : Thomas Guiho, "Stimulation electrique medullaire en vue de la restauration des fonctions urinaires, intestinales et sexuelles chez le sujet lese medullaire" , 11/2013, David Guiraud, Luc Bauchet (CHU Montpellier), Christine Azevedo-Coste

PhD in progress : Abir Ben Khaled (IFPEN), "Distributed real-time simulation of numerical models : application to powertrains", 01/2010, D. Simon and M. Ben Gaid (IFPEN)

9.2.3. Juries

D. Guiraud was member of F. Bonnetblanc HDR defense jury, Univ. de Bourgogne, Sep. 23;

Ch. Azevedo Coste was member of M. Pasquier PhD defense, UM2 Montpellier, Sep. 16.

GALEN Project-Team

9. Dissemination

9.1. Scientific Animation

- **Andreas Argyriou**
  - **Conference Committee:** International Joint Conference on Artificial Intelligence (IJCAI), International Conference on Machine Learning (ICML), Advances in Neural Information Processing Systems (NIPS)
  - **Workshop and Tutorials Organization**: International Workshop on Advances in Regularization, Optimization, Kernel Methods and Support Vector Machines: theory and applications (ROKS).
- **Matthew Blaschko**
  - **Conference Committee:** British Machine Vision Conference (BMVC - area chair), IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Neural Information Processing Systems (NIPS), Medical Image Computing and Computer Assisted Intervention (MICCAI), International Conference in Computer Vision (ICCV)
  - **Journal Reviewing Services:** Journal of Machine Learning Research, International Journal of Computer Vision, IEEE Transactions on Pattern Analysis and Machine Intelligence, Computer Vision and Image Understanding
  - **Invited Seminars/Presentations:** Stanford University - USA.
- **Iasonas Kokkinos**
  - **Editorial Activities:** Associate Editor, Image and Vision Computing Journal.
  - **Editorial Activities:** Guest Editor, Computer Vision and Image Understanding Journal.
  - **Conference Committee:** International Conference on Computer Vision (ICCV), International Conference on Computer Vision (CVPR), Artificial Intelligence and Statistics (AISTATS),
  - Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR).
  - **Journal Reviewing Services:** International Journal of Computer Vision, IEEE Transactions on Pattern Analysis and Machine Intelligence, Computer Vision and Image Understanding, Machine Vision and Applications.
  - **Invited Seminars/Presentations:** Institute for Pure and Applied Mathematics (IPAM) - USA, University of Oulu - FI, Kondrad-Zuse Center for Computer Science - DE, Stony Brook University - USA.
- **Nikos Paragios**
  - **Editorial Activities:** Editor in Chief, Computer Vision and Image Understanding.
  - **Editorial Activities:** Associate Editor, International Journal of Computer Vision, Medical Image Analysis, Computer Vision and Image Understanding, Image and Vision Computing Journal, Machine Vision and Applications, SIAM Journal in Imaging Sciences.
  - **Editorial Activities:** Guest Editor, IEEE Transactions on Pattern Analysis and Machine Ingelligence, Medical Image Analysis.
  - **Conference Committee:** IEEE International Conference in Computer Vision (ICCV-area chair), IEEE International Conference in Computer Vision (CVPR), Information Processing in Medical Imaging (IPMI), Medical Image Computing and Computer Assisted Intervention (MICCAI - area chair).

- **Workshop and Tutorials Organization**: Biomedical Image Analysis Summer School (BIOMED).
- **Journal Reviewing Services:** International Journal of Computer Vision, IEEE Transactions on Medical Imaging, NeuroImage.
- **Invited Seminars/Presentations**: Siemens Corporate Research - USA, Colloqium on Data Science in the Big Data Era - FR, SEERSS International Congress in Robotic Surgery - GR.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Participants: Matthew Blaschko, Iasonas Kokkinos, Pawan Kumar, Nikos Paragios.

9.2.2. Teaching

Master : Structure Prediction, 24, M1, Ecole Centrale de Paris [M. Blaschko]

Master : Discrete Optimization, 12, M1, Ecole Centrale de Paris [P. Kumar]

Master : Signal Processing, 36, M1, Ecole Centrale de Paris, France [I. Kokkinos]

Master : Computer Vision, 36, M1, Ecole Centrale de Paris, France [I. Kokkinos]

Master : Pattern Recognition, 24, M2, Ecole Centrale de Paris/Ecole Normale Superieure-Cachan, France [I. Kokkinos]

Master : Advanced Mathematical Models in Computer Vision, 24, M2, Ecole Centrale de Paris/Ecole Normale Superieure-Cachan, France [N. Paragios]

N. Paragios is in charge of the option Medical Imaging, Machine Learning and Computer Vision at the Department of Applied Mathematics of Ecole Centrale de Paris. This option consists of 7 classes in the above mentioned fields, 180 hours of teaching and is also directing the associated M.Sc. (M2) program of the ENS-Cachan in Applied Mathematics, Machine Learning and Computer Vision at Ecole Centrale de Paris.

9.2.3. Supervision

HdR : Pawan Kumar, Weakly Supervised Learning for Structured Output Prediction, Ecole Normale Supérieure de Cachan - ENS Cachan, 12/2013

HdR : Iasonas Kokkinos, Learning and Optimization for Shape-based Representations, Université Paris-Est, 9/2013

PhD: Pierre-Yves Baudin, Graph-based Segmentation of Skeletal Striated Muscles in NMR Images, Ecole Centrale de Paris, 05/2013, Nikos Paragios

PhD: Katerina Gkirtzou, Sparsity Regularization and Graph-based Representations in Medical Imaging, 12/2013, Ecole Centrale de Paris, Nikos Paragios

PhD: Nicolas Honnorat, Curvilinear Structures Segmentation and Tracking in Interventional Imaging, 01/2013, Ecole Centrale de Paris, Nikos Paragios

PhD: Helene Langet, Sampling and Motion Reconstruction in Three-dimensional X-Ray Interventional Imaging, 03/2013, Ecole Centrale de Paris, Gilles Fleury & Nikos Paragios

PhD: Fabrice Michel, Multi-Modal Similarity Learning for 3D Deformable Registration of Medical Images, 10/2013, Ecole Centralse de Paris, Nikos Paragios

PhD: Sarah Parisot, Graph-based Detection, Characterization & Segmentation of Brain Tumors, 11/2013, Ecole Centrale de Paris, Nikos Paragios

PhD: Bo Xiang, Knowledge-Based Image SegmentationUsing Sparse Shape Priors and High-Order MRFs, Ecole Centrale de Paris, 11/2013, Nikos Paragios

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

PhD in progress : Wacha Bounliphone, Sparse Methods towards data mining in Bio-informatics& Bio-imaging, 2013-2016, Matthew Blaschko

PhD in progress : Haithem Boussaid, Learning-based mid-level processing for computer vision and medical imaging, 2010-2014, Iasonas Kokkinos

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 : Puneet Kumar, Weakly Supervised Learning for Object Detection and Semantic Segmentation, 2010-2013, Pawan Kumar

PhD in progress : Stavros Tsogkas, Learning-based mid-level processing for computer vision and medical imaging, 2011-2014, Iasonas Kokkinos

9.2.4. Juries

- **Andreas Argyriou**
  - **PhD Thesis Participation**: G. Zappella - IT (PhD).
- **Matthew Blaschko**
  - **PhD Thesis Participation**: K. Gkirtzou - FR (PhD).
- **Iasonas Kokkinos**
  - **Grant Reviewing Services:** Swiss National Science Foundation.
- **Nikos Paragios**
  - **PhD Thesis Participation**: P-Y. Baudin - FR (PhD), K. Gkirtzou - FR (PhD), M. Heinrich - UK (PhD), N. Honnorat - FR (PhD), P. Kumar (HDR), H. Langet - FR (PhD), S. Merlet - FR (PhD), F. Michel - FR (PhD), S. Parisot - FR (PhD), B. Xiang - FR (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.

MNEMOSYNE Team

8. Dissemination

8.1. Scientific Animation

8.1.1. Responsabilities

- 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.
- Member of the scientific committee of the CNRS PEPS program, of the local Inria committee for invited professors (F. Alexandre).
- Expert of the ITMO 'Neurosciences, Sciences Cognitive, Neurologie, Psychiatrie' (F. Alexandre)

8.1.2. Review activities

- Reviewing for journals: Plos One, Frontiers in Neurorobotics, Applied Intelligence, Cognitive Computation, J. Physiol. (F. Alexandre); Neural Networks, Neurocomputing (N. Rougier); Frontiers in Computational Neuroscience (T. Viéville).
- Member of program committees of conferences: CAP, EMBS, TAIMA (F. Alexandre)
- Reviewing for the Fonds Recherche Quebec, the CNRS, the ANR and several french regional and territorial agencies and universities (F. Alexandre)

8.1.3. Workshops, conferences and seminars

Organization of conferences and workshops:

- Member of the organizing committee of the annual symposium of the CNRS GDR "Multi-electrodes", in charge of the tutorial day (F. Alexandre, october)

Invited speaker and seminars:

- Invited talk to the CNRS 'STIC-Santé' GDR day: "Computer Science and the Brain" (N. Rougier, november)
- Invited Talk to the "Robotics and the Living", Conference organized by the Cergy-Pontoise university (N. Rougier, december)
- Invited Talks "Scientific Visualization" for the JDEV 2013 days (N. Rougier, september)

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.

Concerning tutorials during conferences, Euroscipy 2013, Matplotlib tutorial, (N.Rougier, August); PRACE Winter school 2013, Scientific Visualisation and Python introduction (N. Rougier, March).

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 [21], [23], [22], [9], [10] (including on Mnemosyne subjects [25], [20] and at the methodological level [15], [29], [18]. This explains the rather huge amount of publications on these external subjects in this document.
- "A small history of cyber-criminality" at the Journées pédagogiques sur ISN (N. Rougier, June)
- "About brain modeling", Interstices podcast, (N. Rougier, Februrary)
- Participation to the program "Science Publique", on the french national radio France Culture to a one-hour debate entitled "What can we expect from an artificial human brain?" (F. Alexandre, January).

NEUROMATHCOMP Project-Team

7. Dissemination

7.1. Scientific Animation

Bruno Cessac is a reviewer for the CONYCIT (Chile) and COFECUB (Brasil) program and for the journals Physica D, Nonlinearity, Chaos, Journal of Statistical Physics, IEEE Transaction in Neural Networks, Journal of Mathematical Biology, Journal of Computational Neuroscience. He is in charge of internships organisation in the Master of Computational Biology, Nice.

Olivier Faugeras is co-Editor in Chief of the Journal of Mathematical Science (JMN). He is a member of the French Academy of Sciences and of the French Academy of Technology. He is a member of panel 1 for the ERC Frontier Research Grants.

Pierre Kornprobst was a member of the program committee of the 6th Pacific-Rim Symposium on Image and Video Technology. He co-edited with Frédéric Cazals the book entitled "*Modeling in Computational Biology and Medicine: A Multidisciplinary Endeavor*" [30], which illustrates the program taught in the Master of Science in Computational Biology (Website: `http://cbb.unice.fr`) that they launched in 2009.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Licence 1 : Massimiliano Muratori, TP de physique, 45 h, L1, Ecole d'ingénieurs Polytech.

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

Licence 2 : Massimiliano Muratori, TD d'électromagnetisme , 18h, L2, Ecole d'ingénieurs Polytech.

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: Olivier Faugeras, Etienne Tanré (TOSCA EPI) and Romain Veltz, teach the module *Mathematical Methods for Neuroscience*, M2, ENS Paris, France. The teaching load is mostly distributed between Etienne Tanré and Romain Veltz, 24h each.

7.2.2. Supervision

PhD: Javier Baladron, «Parallel implementations of mean field and neural field equations», Université Nice Sophia Antipolis, 2013, supervised by Olivier Faugeras.

PhD: Diego Fasoli, «Mean-field theory of realistic spiking neurons», Université Nice Sophia Antipolis, 2013, supervised by Olivier Faugeras.

PhD in progress: Hassan Nasser, «Reproducing and anticipating retinal responses», defence planned in March 2014, supervised by Bruno Cessac.

PhD in progress: Rodrigo Cofre-Torres, «Statistics of spike trains and neuronals structures», defense planned in 2014, supervised by Bruno Cessac.

PhD interrupted: Massimiliano Muratori, « Mean field equations for neural networks and synaptic correlations», supervised by Bruno Cessac. The student has decided to stop his PhD after one year to teach in college.

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 Masson (Institut de Neurosciences de la Timone, UMR 6193, CNRS, Marseille, France).

7.2.3. Juries

Bruno Cessac. Jury member of Diégo Fasoli's PhD thesis "Mean-field theory of realistic spiking neurons". Nice, 25-09-2013.

Bruno Cessac. Reviewer of Christophe Magnani's PhD Thesis, "Analyse Sinusoïdale Quadratique de la Fonction Neuronale", Paris Descartes, 10-12-13.

Olivier Faugeras, Chair of the Jury of Mikhail Bogdanov PhD Thesis, Nice 9-12-2013.

Olivier Faugeras, Reviewer for the HDR manuscript of Christophe Pouzat, Paris-Descartes, 10-2013.

NEUROSYS Team

8. Dissemination

8.1. Scientific Animation

8.1.1. Scientific responsibilities

- Responsibility of Master 2-program (speciality TAL) at UFR Math-Info, University of Lorraine (L. Buhry)
- Local coordinator of the Erasmus Mundus program *LCT (Language and Communication Technologies)* (L. Buhry)
- Responsibility of Master program in Computer Science (speciality *Recherche IPAC*), University of Lorraine (L. Bougrain)
- Head of Professional Master Internships in Computer Science, University of Lorraine (L. Bougrain)
- Member of committee IST (L. Bougrain)
- Head of the Communication team of the Computer Science Department of FST (L. Bougrain)
- Member of the Program Committee of the conference on Automatic Learning (CAP) (L. Bougrain)
- Member of the Board of Directors in Organization of Computation Neuroscience (A. Hutt)
- Editor of Journal *ISRN Probability and Statistics* and *Dataset Papers in Medicine – Anesthesiology* (A.Hutt)

8.1.2. Review activity

- For journals: Frontiers in Computational Neuroscience, Cerebral Cortex, New Journal of Physics, Physical Review Letters, Physical Review X, Physical Review E, Cognitive Neurodynamics, Advances in Difference Equations, SIAM Journal of Applied Dynamical Systems, ISRN Probability and Statistics, Scholarpedia (A. Hutt); Journal of Neural Engineering, Neurocomputing, CSSP (Circuits, Systems and Signal Processing) (L. Buhry)
- Programme FP7-PEOPLE (L. Buhry)
- Programme FP7-FET *Human Brain Project* (A. Hutt)

8.1.3. Conference organization and participation

- Organization of the g.tec-workshop at LORIA (L. Bougrain)
- Organization of a workshop at the Computational Neuroscience Conference in Paris (A. Hutt)
- Organization of a one-day tutorial at the Computational Neuroscience Conference in Paris (A. Hutt)
- Member of the organization commitee of *Forum des Sciences Cognitives* at Nancy (L. Buhry)

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

Licence : L. Buhry, *Artificial Intelligence and solution of problems*, 25h, level L3 MIASHS, University of Lorraine

Licence: L. Bougrain, *Artificial intelligence and mobile development - Licence of Computer Science*, 70h, level L3, University of Lorraine

Licence: L. Bougrain, *Optimization - Licence of Computer Science*, 37.5h, level L3, University of Lorraine

Licence: L. Bougrain, *Computer Networks - Licence of Computer Science*, 20h, level L2, University of Lorraine

Licence: L. Bougrain, *Artificial intelligence*, 59h, level L3, Telecom Nancy/ESIAL - University of Lorraine

Licence: L. Bougrain, *Immersive and innovative interfaces*, 3h, level L3, Supélec Metz

Master: L. Buhry, *Algorithms for Artificial Intelligence*, 31h, level Master 1 SCA (Sciences Cognitives et Applications), University of Lorraine

Master: L. Buhry, *Fundamentals in Artificial Intelligence and Data Search*, 18h, level Master 1 SCA (Cognitive Science and Applications), University of Lorraine

Master: L. Buhry, *Computational Neuroscience*, 25h, level Master 2 SCMN, University of Lorraine

Licence: L. Bougrain, *Artificial neural networks - Master of mathematics speciality pro. mathematical engineering and computing tools*, 24h, level M3, University of Lorraine

Master: L. Bougrain, *Ergonomics - Master of Computer Science*, 18h, level M1, University of Lorraine

Master : Axel Hutt, *Algorithm Perls*, 9h, level M1, École des Mines Nancy

8.2.2. Supervision

PhD: Maxime Rio, *Bayesian model for the detection of synchronisation in electro-cortical signals*, Université de Lorraine, July 16 2013, Bernard Girau and Axel Hutt

PhD: Carolina Saavedra, *Analysis and multi-channel denoising methods based on wavelets to improve the detection of evoked potentials without averaging: application to BCI*, Université de Lorraine, 14 December 2013, Bernard Girau and Laurent Bougrain

PhD in progress: Meysam Hashemi, *Analysis of a cortico-thalamic model in the context of general anaesthesia*, May 2012, Axel Hutt

PhD in progress: Mariia Fedotenkova, *Analysis of single-channel EEG-data by a recurrence analysis*, November 2013, Axel 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, Laurent Bougrain and Axel Hutt

8.2.3. Juries

- PhD defense of Muhammad Yousaf, Norwegian University of Life Sciences, 22 February 2013, reviewer (Axel Hutt)
- PhD defense of Merdan Sarmis, Université de Mulhouse, 4 December 2013, reviewer (Axel Hutt)

8.3. Popularization

- Nancy Renaissance 2013 *Moments d'Invention* with stand and talk on conference (L. Bougrain).
- Fête de la Science à Nancy, October 2013 (L. Bougrain et A. Hutt).
- Science Slam Talk on *Sleep and Anaesthesia* at University of Frankfurt / Main, February 2013 (A. Hutt).

PARIETAL Project-Team

8. Dissemination

8.1. Scientific Animation

- B. Thirion acts as reviewers for Medical Image Analysis, IEEE Transactions on Medical Imaging, NeuroImage, ISBI, IPMI, as associate editor for Frontiers in Neuroscience Methods, as program committee for the MICCAI 2012 conference and as expert for ANR, NWO.
- B.Thirion set up the following workshop at the OHBM 2013 conference: *Functional Data-Driven Atlases of the Brain*http://www.humanbrainmapping.org/i4a/pages/index.cfm?pageid=3526 and took part to the morning workshop entitled *Big Data in Neuroimaging: Big Opportunities or Just a Big Hassle - The Skeptical Neuroimagers View*.
- Bertrand Thirion organized a national workshop on Brain-Computer Interfaces at ICM, paris, on June 4th https://itneuro.aviesan.fr/Local/itneuro/dir/documents/newsletter/Newsletteroctobre2013.pdf.
- B. Thirion and G. Varoquaux organized the MMBC workshop at MICCAI 2013 http://groups.csail.mit.edu/vision/mmbc2013/.
- G. Varoquaux was program chair for PRNI 2013 and committee for Euroscipy 2013.
- G. Varoquaux acts as reviewer for NeuroImage, HBM, MedIA, TMI, Frontiers in NeuroInformatics, Frontiers in Brain Imaging methods and Trends in cognitive science Review editor for Frontiers in NeuroInformatics and Frontiers in Brain Imaging methods and as expert for ANR and Agoranov.
- Gael Varoquaux presented scikit-learn and machine learning tools and concepts at the Microsoft Spark incubator, and at Cap Digital.
- Philippe Ciuciu is IEEE senior member, member of the BioImaging Signal Processing (BISP) committee of the IEEE ISBI conference for 3 years (2013-15). He will be BISP area chair of the 2014 IEEE ICASSP conference in Florence.
- Philippe Ciuciu was the main organizer with JM Lina of a symposium in Montreal in Oct 2013: *Scale-free Dynamics and Networks in Neurosciences*, financially supported by the Centre de recherche mathématique de l'université de Montreal. http://www.crm.umontreal.ca/2013/Neuro13/.
- Philippe Ciuciu is an international expert and reviewer for the *Biotechnology and Biological Sciences Research Council*: http://www.bbsrc.ac.uk and the *Technology Foundation STW, Netherlands*. He also serves as **reviewer** for the French research funding agency (ANR) in the field of biomedical engineering and life science research calls. He is also reviewer for 16 peer-reviewing journals including IEEE TMI/BME/SP/IP/PAMI, Medical Image Analysis, NeuroImage, Human Brain Mapping, Plos One, MAGMA, JMRI, Journal of Neuroscience Methods, Signal Processing. He regularly serves as reviewer for the MICCAI, IEEE (ICASSP, ISBI, ICIP, EMBC, PRNI), EUSIPCO, HBM, SampTA, conferences.
- Alexandre Gramfort is Program committee PRNI, Associate editor IEEE EMBC conference and Associate editor Frontiers in brain imaging methods.
- Alexandre Gramfort acts as reviewer for Neuroimage, IEEE TMI, brain topography, HBM journal, PLOS ONE, brain connectivity, journal of clinical neurophysiology, MICCAI, physics in medicine and biology.

8.2. Teaching - Supervision - Juries

8.2.1. 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, ISMRM 30mn

Bertrand Thirion

- Master MVA, Imagerie fonctionnelle cérébrale et interface cerveau machine, 12h + 3h, M2, ENS Cachan, France.

8.2.2. Supervision

PhD : Solveig Badillo, Study of hemodynamic variability in sane adults and children in fMRI, Paris XI, 18/11/2013, supervised by Philippe Ciuciu

PhD : Virgile Fritsch, High-dimensional statistical methods for inter-subject neuroimaging studies, Paris XI, 18/12/2013, supervised by J.-B. Poline and B. Thirion

8.2.3. Juries

- B. Thirion was reviewer for the PhD thesis of A.C. Philippe (Inria Sophia-Antipolis); the defense took place at Sophia-Antipolis on Dec. 19th, 2013.
- G. Varoquaux was examinator for the PhD defense of Katerina Gkirtzou at Centrale Paris, in Dec. 2013.
- P.Ciuciu took part to three PhD committees in 2013, one as reviewer (F. Karahonuglu, EPFL, Lausanne, Switzerland).

8.3. Popularization

PARIETAL presented a game designed by Virgile Fritsch to illustrate our research activities on brain activity decoding, at the Salon de jeux et culture mathématique (May 30^{th}-June 2^{nd}, 2013).

Popix Team

9. Dissemination

9.1. Scientific Animation

Editorial Activity.

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*.

Bertrand Maury is Associate Editor of *M2AN*.

Conference Participation

Marc Lavielle:

- PAGE Meeting, Glasgow UK, June 2013
- ACOP Meeting, Fort-Lauderdale USA, May 2013
- Rencontres de statistiques, Avignon, June 2013
- Combine 2013, Paris, September 2013
- GDR Metice, Paris, June 2013
- SMB 2013, Paris , September 2013

Bertrand Maury:

- MMCS 2013 (Ecole Centrale de Paris),
- CPDE 2013 (IHP),
- French Chilian Polish Conference 2013 (Poland),
- Conference NUMACH 2013 (Sevilla)
- Bertrand Maury is the leader of the GDR (Groupement de Recherche) Maths-Entreprise, a group of more than 300 researchers, dedicated to tighten the links between academic research in mathematics and private companies (http://www.maths-entreprises.fr).

Astrid Decoene:

- MOTIMO colloquium, Nice, September 2013.

Célia Barthélémy:

- PAGE Meeting, Glasgow UK, June 2013
- Journées de la SFdS, Toulouse, June 2013

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 2013 (Glasgow); ACOP meeting 2013 (Fort-Lauderdale); University of Manchester (UK); University of Buffalo (USA).

9.2.2. Supervision

- PhD in progress: Célia Barthélémy, *Modèles à effets mixtes pour l'assimilation de données en oncologie*, debut: October 2012, Marc Lavielle.
- 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.
- Other: Kevin Bleakley supervised two student projects in statistical learning in the *Marketing et gestion de la relation client* year 3 class at ENSAI, Rennes.

9.2.3. Juries

- Kevin Bleakley was in selection committees for Maître de Conférence positions in biostatistics at Paris 6 and Paris 11 Universities. He also participated in the Thesis Committee of Eltaf Alamyar, Montpellier 2 University.
- Marc Lavielle was referee for the HDR of Stéphanie Allassonière.
- Bertrand Maury was member of the jury for CR2 Inria. He was also member of the selection committees of Nice (PR) and Orsay (MCF).
- Marie-Anne Poursat was member of the selection committee of Orsay (MCF).

9.3. Popularization

We have built a comprehensive online wiki (WikiPopix, https://wiki.inria.fr/popix) for the population approach with mixed-effects models. This wiki aims to be an invaluable resource for all pharmacometricians, statisticians, teachers, graduate and undergraduate students in academia, industry and regulatory agencies. It is freely available online for all these communities.

Furthermore, the team developed an online animated film called *Introduction to PK modeling* for interested members of the public and for teaching and training purposes. It can be seen at https://team.inria.fr/popix/files/2013/02/PKmodelling.swf, and joins two previous animated films already developed by the team (see http://team.inria.fr/popix/files/2011/11/PopulationApproach.swf.

SHACRA Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. VRIPHYS 2013

VRIPHYS 2013 took place in Lille at the end of November: Christian Duriez and Jeremie Dequidt organized the conference with help from Nazim Haouchine and Hugo Talbot. The conference was preceded by a workshop for the users of the SOFA framework. This event was a real success: 60 persons attended the conference (which is about 15 persons more than the previous years).

9.1.2. IPCAI 2013

Stéphane Cotin, Co-Organizer and PC Co-Chair, 2013, International Conference on Information Processing in Computer-Assisted Interventions (IPCAI, http://www.ipcai.org). on June 26, 2013 in Heidelberg, Germany.

9.1.3. Reviewing Activities

- Guillaume Kazmitcheff has been reviewer for the European Archives of Oto-Rhino-Laryngology journal.
- Jeremie Dequidt has been reviewer for the following conferences and journals:
  - Conference IEEE/RSJ IROS 2013
  - Conference IEEE WHC 2013
  - Conference MICCAI 2013
  - the journal Computer Methods and Programs in Biomedicine

  and member of the following program committees:
  - Conference VRIPHYS 2013
  - Conference AFIG 2013
- Christian Duriez has been reviewer for the following conferences and journals:
  - Conference IEEE/RSJ IROS 2013
  - Conference iNaCoMM 2013
  - Conference IEEE VR 2013
  - Conference MICCAI 2013
  - the journal IEEE Transaction on Haptics
  - the journal IEEE Transactions on Visualization and Computer Graphics
  - the journal SCS Simulation
  - the journal the Visual Computer
  - the journal Computer Vision and Visual Understanding
  - ANR projects (Programme CONTINT)

  and member of the following program committees:
  - Conference VRIPHYS 2013
  - Conference IEEE WHC 2013
- Stephane Cotin has been reviewer for the following conferences and journals:
  - Surgical Innovation (SRI)
  - Advanced Modeling and Simulation in Engineering Sciences

and member of the following program committees:

- MICCAI 2013
- IPCAI 2013

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Jeremie Dequidt, Computer Architecture, 25h, GIS3, Polytech Lille, France

Licence : Jeremie Dequidt, Advanced Programming, 25h, IMA3, Polytech Lille, France

Licence : Christian Duriez, Introduction to Finite Element Method, 16h, L3, ICAM, France

Licence : Julien Bosman, Programming, 60h, L1, Univ. Lille 1, France

Licence : Julien Bosman, Oriented Object Programming, 32h, L3, Univ. Lille 1, France

Master : Christian Duriez, Introduction to Finite Element Method, 16h, M1 Génie Ferroviaire, ICAM, France

Master : Christian Duriez, Advanced 3D models, 14h, M2 IVI, Univ. Lille 1, France

Master : Christian Duriez, Medical simulation and Haptic Rendering, 3h, M2, École Centrale de Lille, France

Master : Julien Bosman, GPU Computing introduction, 3h, M2 IVI, Univ. Lille 1, France

Master : Jeremie Dequidt, Advanced 3D models, 2h, M2 IVI, Univ. Lille 1, France

Master : Stephane Cotin, Course on advanced biomechanics, 10h, M2, Telecom Physique Strasbourg, France

Master : Stephane Cotin, Course on real-time soft tissue simulation, 20h, M2, Telecom Physique Strasbourg, France

9.2.2. Supervision

PhD in progress : Hugo Talbot, Interactive Patient-Specific Simulation of Cardiac Electrophysiology, 1st October 2010, Stéphane Cotin and Hervé Delingette

PhD in progress : Julien Bosman, Simulations à base de particules et interactions multi-physiques en temps-réel, 1st October 2011, Stéphane Cotin and Christian Duriez

PhD in progress : Guillaume Kazmitcheff, Dynamical modeling of the middle ear and interactions between organs and medical tools to develop a simulator applied to the otological surgery, 1st March 2011, Christian Duriez

PhD in progress : Ahmed Yureidini, Modélisation d'organes par fonctions implicites, 2009, Stéphane Cotin and Erwan Kerrien

PhD in progress : Vincent Majorczyk, Simulation de Fluide GPU, 2010, Stéphane Cotin

PhD in progress : Alexandre Bilger, Biomecanical simulation for Deep Brain Stimulation, 2011, Stéphane Cotin and Christian Duriez

PhD in progress : Zhifan Jiang, Recalage d'images déformables pour la bimécanicanique, 2011, Stéphane Cotin, Jérémie Dequidt, Mathias Brieu

PhD in progress : Mouhamadou Diallo, Modélisation biomécanique du prolapsus génital, 2011, Mathias Brieu, Pauline Lecomte, Christian Duriez

PhD in progress : Nazim Haouchine, Augmented Reality Tools for Minimally Invasive Hepatic Surgery, 2012, Stéphane Cotin, Marie-Odile Berger, Jérémie Dequidt

PhD in progress : Francois Dervaux, Image driven simulation for interventional radiology procedures, 2012, Stéphane Cotin, Jérémie Dequidt, Erwan Kerrien

PhD in progress : Rosalie Plantefève, 2013, Stephane Cotin

9.2.3. Juries

Christian Duriez was in the examination committee of Coralie Escande, PhD, 12/2013.

Stephane Cotin was in the examination committee of Sagar Umale (Strasbourg University, December 19th, 2012) and in the examination committee of Noura Faraj (Telecom ParisTech, June 3rd, 2013)

9.3. Popularization

9.3.1. Fête de la Science

Christian Duriez has been involved as a *Wandering Researcher* in the Fête de la science (french event that promotes science).

9.3.2. Exhibitions

Christian Duriez and Mario Sanz Lopez have been involved in the design and development of scientific and technological demonstrators for the *Plateau* (e.g. Showroom) Inria at Euratechnologies and for *The Labo* at Inria test laboratory.

9.3.3. Recontre Inria-Industrie 2013

This was a public event taking place in Paris the 11th of June 2013. The new training system dedicated to electrocardiology and the recent deformable robot was presented.

9.3.4. IHU Scientific Days

At the occasion of the IHU Scientific days, we visited the IHU Strasbourg and several talks were done by members of the team: Alexandre Bilger, Stéphane Cotin, Jeremie Dequidt, Nazim Haouchine, Igor Peterlik, and Hugo Talbot.

9.3.5. Intergovernmental seminar

The intergovernmental seminar on digital sciences was held in february at the University of Cergy-Pontoise. Within this context, the team has exhibited a demonstration of a cataract surgery simulator which is dedicated to train surgeons to a new cost-effective cataract surgery procedure MSICS (*manual small incision cataract surgery*). This simulator was developed at Inria and has been transferred to the start-up InSimo.

VISAGES Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Editorial board of journals

- C. Barillot is Associate Editor of IEEE Transactions on Medical Imaging (IEEE-TMI).
- C. Barillot is Associate Editor of Medical Image Analysis (MedIA).
- C. Barillot is Associate Editor of ISRN Signal Processing.
- C. Barillot is Associate Editor of Current Medical Imaging Reviews.
- C. Barillot serves in the peer review committee of the Journal of Computer Assisted Tomography.
- C. Barillot serves in the peer review committee of Neuroimage.
- P. Maurel serves in the peer review committee of Frontiers in Neurosciences

9.1.2. Workshop/Symposium Organization

- S. Prima was the co-organiser and chairman (with Antoine Balzeau from CNRS-MNHN, Paris and François Marchal from CNRS, Marseille) of the colloquium "Symmetry and asymmetries in anthropology" which took place on 24 January 2013 during the annual meeting of the Société d'Anthropologie de Paris (http://www.sapweb.fr).
- S. Prima was in the Steering Committeee of the MICCAI workshop on Mesh Processing in Medical Image Analysis (MeshMed 2013), Nagoya, Japan, September 26, 2013 (http://www2.imm.dtu.dk/projects/MeshMed).
- C. Barillot was program co-chair of the Miccai 2013 international conference (http://www.miccai2013.org/organization.html). MICCAI 2013 Proceedings have been published as LNCS series from Springer. The volume numbers are LNCS 8149, 8150 and 8151 (http://www.springer.com/computer/image+processing/book/978-3-642-40810-6).

9.1.3. Peer Reviews of journals

- IEEE TIP (CB), Medical Image Analysis (CB), NeuroImage (CB), Computer Methods and Programs in Biomedicine (CB), Phys. Med. Biol. (CB), Comp. in Biol & Med. (CB), J. of Neuroscience Methods (CB), Image and Vision Computing (CB), JMIV (CB), NeuroBiology of Aging (IC).

9.1.4. Technical Program Committees (TPC) of conferences

- C. Barillot was area chair of Miccai 2012, SPIE 2012, TPC member of MICCAI workshops DCICTIA 2012, ICSS 2012, MBIA 2012, and MCV 2012, TPC member of IEEE CBMS 2012, ICPR 2012, ESMRMb 2012, SFRMBM 2012, ECR/imaGine 2011.
- S. Prima was TPC member of MeshMed'2013.
- P. Maurel was TPC member of MICCAI'2013.
- O. Commowick was TPC member of MICCAI'2013, IEEE ISBI'2013.

9.1.5. Scientific societies

- C. Barillot is member of the Board of Directors of IPMI (Information Processing in Medical Imaging)
- C. Barillot is member of IEEE EMBS
- C. Barillot is senior member of IEEE
- C. Barillot is member of the European Society of Molecular Imaging (ESMI)

- C. Barillot, O. Commowick, P Maurel and S. Prima are members of the MICCAI society
- E. Bannier, C. Barillot and I. Corouge are members of the European Society of Magnetic Resonance in Medicine and Biology (ESMRMb)

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)
- Elise Bannier gave 4-day lecture in fMRI and E-Prime to Emmanuelle Le Bars, MR Physicist from the University Hospital of Montpellier (February 2012, Rennes, France). This training was funded by Siemens.
- 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 Modelling of Natural Evolution of Brain Pathologies, Inria, December 2012, Christian Barillot, Pierre Maurel
- PhD Renaud Hedouin, Biomarker discovery in brain imaging by using diffusion MRI, Inria/Inserm, 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, December 2011, Christian Barillot, Olivier Commowick
- PhD Camille Maumet, From Group to Patient-Specific Analysis of Brain Function in Arterial Spin Labelling and BOLD Functional MRI, University of Rennes I, defended April 2013, 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, Elise Bannier, Jean-Yves Gauvrit
- PhD Aymeric Stamm, Diffusion Directions Imaging: High resolution reconstruction of white matter fascicles from low angular resolution diffusion MRI, University of Rennes I, defended Nov. 2013, Christian Barillot, Patrick Perez (Technicolor)

9.2.3. Juries

- C. Barillot: PhD reviewer, Andrea Valsecchi, University of Oviedo, Spain, Dec. 2013
- C. Barillot: PhD reviewer, Maxime Taquet, Université Catholique de Louvain, Belgium, Nov. 2013

- C. Barillot: PhD, Solveig Badillo, University Paris Sud, Orsay, Nov. 2013
- C. Barillot: PhD, Thomas Samaille, University PIERRE ET MARIE CURIE, Paris, June 2013
- C. Barillot: PhD reviewer, Sylvain Merlet, University of Nice-Sophia Antipolis, Nice, Sept. 2013
- C. Barillot: PhD reviewer, Stefano Baraldo, Department of Mathematics, Politechnico di Milano, Italia, June 2013
- C. Barillot: PhD, president, Tao LI, University of Rennes I, Rennes, Feb. 2013
- C. Barillot: HDR, Olivier Coulon, University of Aix-Marseille, Marseille, Sept. 2013
- C. Barillot: HDR president, Alexandre Krupa, University of Rennes I, Marseille, Dec. 2012

9.3. Popularizationn

- Inria Emergence, "Une plateforme de Neuroimagerie pour la sclerose en plaque"
- Serimedis/inserm Multimedia report (http://www.serimedis.inserm.fr/fr/spotlight/6203/visages-vision-action-et-gestion-d-informations-en-sante/page/1/SN/techno)
- Video production for INPI Trophee of 2013 (http://www.bretagne-innovation.tm.fr/Temoignages/Laureats-Trophees-INPI-Bretagne-2013-Laboratoire-VisAGeS-Video).
- Ouest Inria: "La fabuleuse histoire de Shanoir "
- Emergences Inria: "Un cloud pour l'imagerie médicale" (http://emergences.inria.fr/2012/newsletter_24/L22-IRT)

ANGE Team

9. Dissemination

9.1. Scientific Animation

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

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

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

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

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

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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

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

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

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

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

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

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

9.2.2. Supervision

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

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

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

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

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

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

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

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

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

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

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

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

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

PhD in progress Jannes Kinscher, *Analysis of seismicity in quarries*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. 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 Amandine Sergeant-Boy, *Detection and characterization of seismic sources generated by glaciers: numerical modelling and analysis of seismic waves*, Institut de Physique du Globe (Univ. Paris 7), supervised by A. Mangeney (in collaboration with J.-P. Montagner, E. Stutzmann and O. 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 (in collaboration with S. Cordier), from Nov. 2012

9.2.3. Juries (PhD)

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

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

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

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

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

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

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

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

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

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

9.3. Popularization

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

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

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

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

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

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

BANG Project-Team

8. Dissemination

8.1. Scientific Animation

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

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

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

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

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

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

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

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

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

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

8.2.2. Supervision

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

8.2.3. Juries

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

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

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

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

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

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

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

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

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

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

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

8.3. Popularization

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

CASTOR Team

9. Dissemination

9.1. Popularization

- With Maria Vittoria Salvetti of the University of Pisa, Hervé Guillard has written a popularization article "Des mathématiciens à la rescousse des lagunes méditerranéennes" [29]for the inline journal Accromath.
  Accromath is a journal of the “Centre de recherches mathématiques de l’Université de Montréal” whose aim is to popularize Mathematics and their applications for secondary school pupils and their professors.
- Redaction of the short note "Les vagues et les rivages, une question de changement de variables" http://mpt2013.fr/changement-de-variable-et-comment-les-vagues-montent-a-lassaut-des-rivages/ in the framework of Mathematics of Planet Earth 2013 (MPE2013) published 04/10/2013 (Hervé Guillard).
- Redaction of the short note "Retour vers le futur" http://mpt2013.fr/retour-vers-le-futur/ in the framework of Mathematics of Planet Earth 2013 (MPE2013) published 16/10/2013 (Jacques Blum & Didier Auroux).

9.2. Teaching - Supervision - Juries

9.2.1. 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 Nucei 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, 68h, L2, Polytech 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

Ecole d’ingénieur: B. Faugeras, Analyse, 39h, L2, Polytech Nice Sophia Antipolis, France

Master: B. Nkonga, Finites volumes/Finites differences, 90h, M1, Université de Nice Sophia Antipolis, France

Master: B. Nkonga, Algorithmique, 35h, M1, Université de Nice Sophia Antipolis, France

Master: B. Nkonga, Calcul Parallèle, 24h, M2, Université de Nice Sophia Antipolis, France

Licence: A. Sangam, Analyse, 40h, L1, Université de 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

9.2.2. Supervision

PhD : C. Lachat, Conception et validation d'algorithme de remaillage parallèles à mémoire distribuée basés sur un remailleur séquentiel", University of Nice Sophia Antipolis 13 décembre 2013, Hervé Guillard, Laurent Hascoet.

PhD : M. Martin, Modélisation fluide pour les plasmas de fusion : approximation par éléments finis de Bell, University of Nice Sophia Antipolis, 4 juin 2013, Boniface Nkonga

PhD in progress: K. Bashtova, modelling of abrasive waterjet and focused ion beam, 1st September 2013, Didier Auroux

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: A. Drogoul, Détection de structures fines en imagerie par analyse asymptotique topologique, 1st september 211, Didier Auroux, Gilles Aubert (UNS)

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

PhD in progress: V. Groza, control and identification of etching rate function in abrasive waterjet, 1st september 2013, Didier Auroux

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.

PhD in progress : J. Vides, Numerical Modeling in toroidal geometries, Oct. 2012 - July 2014, Boniface Nkonga and Hervé Guillard

9.2.3. Juries

Hervé Guillard acted as referee in the PhD thesis jury of Samuel Richard, Aix Marseille Université

Hervé Guillard was in the PhD thesis jury of Clément Surville, Aix Marseille Université

Hervé Guillard acted as referee in the PhD thesis jury of Sophie Gérald: Paris VI

Jacques Blum was referee in the PhD thesis jury of David Coulette , Université de Nancy

Jacques Blum was referee in the HdR jury of Frederic Parrenin, Université de Grenoble

Jacques Blum was in the HdR jury of Maelle Nodet, Université de Grenoble

Richard Pasquetti was president of the PhD thesis jury of A. Parades, Aix-Marseille université

Boniface Nkonga was referee in the PhD thesis jury of

- Mathias Malandain, INSA Rouen,
- Laurent Dastugue, Université Pierre-et-Marie-Curie :Paris VI
- Nicolas Kowalski, Université Pierre-et-Marie-Curie :Paris VI
- Carine Moussaed, Université Montpellier II
- Alejandro Paredes, Aix-Marseille Université

Boniface Nkonga was in the PhD thesis jury of

- Alexandre Carabias: Université de Nice Sophia Antipolis (president)
- Sébastien Le Martelot, Aix-Marseille Université

CLIME Project-Team

9. Dissemination

9.1. Scientific Animation

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

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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

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

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

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

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

9.2.2. Supervision

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

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

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

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

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

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

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

9.2.3. Juries

- Bocquet, M., member, PhD thesis, Benjamin Gaubert, "Assimilation des observations pour la modélisation de la qualité de l'air", Paris Diderot University , 8 July 2013, Créteil, France.
- Bocquet, M., member, PhD thesis, Bertrand Bonan, "Assimilation de données pour l'initialisation et l'estimation de paramètres d'un modèle d'évolution de calotte polaire", 15 November 2013, Grenoble University, Grenoble, France.
- Bocquet, M., member, PhD thesis, Yiguo Wang, "Une nouvelle approche de modélisation de la qualité de l'air à l'échelle régionale par assimilation de mesures lidar", 20 December 2013, University Paris-Est, Champs-sur-Marne, France.
- Herlin, I., reviewer, PhD thesis, Anastase Charantonis, "Méthodologie d'inversion de données océaniques de surface pour la reconstitution de profils verticaux en utilisant des chaînes de Markov cachées et des cartes auto-organisatrices", January 24th 2013, Paris, France.

9.3. Popularization

- Marc Bocquet made a presentation on employment in the environment sector at the second "Forum Maths Emploi", January 2013, Paris.
- Marc Bocquet wrote a paper [32] on "Modélisation numérique de la dispersion atmosphérique accidentelle des radionucléides : l'état de l'art de la recherche" in the journal "Revue du Centre de Défense NBC".
- Isabelle Herlin and Vivien Mallet wrote an introduction to air quality simulation [33] for a special issue on Mathematics for Planet Earth dedicated to teachers in french "collèges" and "lycées" and an internet contribution [35] "Votre air, votre santé": http://mpt2013.fr/votre-air-votre-sante/
- Vivien Mallet introduced numerical simulation of air pollution at the 2013 edition of "Mathématiques en mouvement".
- Vivien Mallet and Anne Tilloy took part to the festival "Futur en Seine" and presented, during four days, research advances in air quality simulation at urban scale.

COFFEE Project-Team

8. Dissemination

8.1. Scientific Animation

- R. Masson: Workshop Multiphase flows Oct. 2013, co-organized with Danielle Hilhorst, Magdalena Dymitrowska, Olivier Le Maitre.
- R. Masson: Minisymposium SIAM Geoscience, july 2013, Padova
- T. Goudon: "Mathematics for Planet Earth: Waves and geophysics", 2013.
- M. Ribot: "Models for bacterial biofilms formation : mathematical, physical and biological perspectives", june 2014, Nice.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

As said above, the members of the team, but one, are faculties of the Math. Department of the University of Nice Sophia Antipolis. The individual teaching duties are as high as 196h/year, with lectures ranging from 1st to 5th year. It is worth pointing out that S. Junca and S. Krell are affiliated to ESPE/IUFM with quite specific teaching duties for the formation of teachers, ranging from K-grades to pre-university. Their duties include visiting classes and mentoring students in the preparation of memoirs with a high professional content. We indicate below the most advanced lectures in which we have been involved:

- F. Berthelin is in charge of the preparation to "agrégation" a national competition to hire teachers in mathematics. This is the most selective competition for teachers. With M. Ribot, F. Berthelin manages specifically the lectures in Analysis and Scientific Computing.
- F. Berthelin: "Kinetic and hyperbolic PDEs", master 2 lecture (2012-13)
- R. Masson: "Finite volumes", master 2 lecture (2012-13)
- M. Ribot, T. Goudon, with P. Raphaël, D. Chiron, L. Michel will be in charge in 2015 of the M2 lectures of Analysis and Numerical Analysis, with a joint program devoted to various aspects of PDEs for fluid mechanics.

We are also at the initiative of creating a "Numerical Working Session" in the laboratory, which can be included in the doctoral formation. The session is based on the invitation of leading experts, with lectures completed by implementation exercises in order to learn new numerical methods (in 2014, the invited speakers are F. Boyer and F. Coquel).
Furthermore, team members have been invited for a couple of lectures abroad:

- R. Masson: "Discretization for diphasic flows in porous media", master lecture jointly with ENSG Nancy and Almata Kazahstan.
- T. Goudon and M. Ribot with F. Coquel (CNRS-Ecole Polytechnique): "Numerical methods for conservation laws", Summer School on Numerics and Control of PDEs, Indian Institute of Sciences, 2013.
- T. Goudon: "From kinetic equation to conservation laws, hydrodynamic limits and kinetic schemes", French-Mexican Meeting on Industrial and Applied Mathematics, 2013.

8.2.2. Supervision

- Aude Champmartin, post-doc 2012-2013, funded by Inria, currently post-doc CEA-Univ. Pierre et Marie Curie, labo. J.-L. Lions.
- Walid Kheriji, Post-doc funded by Total
- Nathalie Ayi, PhD UNS, advised by F. Berthelin and L. Saint Raymond (ENS)
- Pierre Castelli, PhD UNS, advised by S. Junca (PhD thesis under the wage-earning student regime)
- Mayya Groza, PhD GdF-Suez, advised by R. Masson
- Bastien Polizzi, PhD UNS, advised by M. Ribot and T. Goudon
- Arthur Vavasseur PhD Ec. Normale Sup. Lyon, advised by T. Goudon
- Yumeng Zhang, PhD Inria/Andra advised by R. Masson and T. Goudon

8.3. Popularization

- R. Masson: Talk "mathematics in geosciences" for the prize-giving of the Olympiads of Mathematics 2013 at UNS
- R. Masson: Article on the role of mathematics in petroleum engineering, in "L'énergie à découvert", CNRS Editions, 2013.
- T. Goudon: "Modelling and simulation of spacecraft charging", European Success Stories in Industrial Mathematics, Springer 2012.
- During the international program "2013, Mathematics of the Planet Earth", supported by UNESCO, T. Goudon, with M. Andler, L. Bel, S. Benzoni, C. Imbert, A. Rousseau has animated the website `mpt2013.fr` with a daily short notice describing a mathematical activity in connection to the Planet Earth. This operation will be followed by a book, to be edited in 2014.
- T. Goudon: "Mathématiques de la Planète Terre", Textes et Documents pour la Classe (TDC), Scérén, CNDP-CRDP, 2013.
- T. Goudon, with C. Calgaro and E. Creusé "Modélisation et simulation des avalanches de neige", Matapli n. 100, 2013.
- T. Goudon: Working session for teachers on "mathematics of the planet earth", during the national meeting of the APMEP (national society of teachers in math), with F. Boyer, G. Chapuisat and J. Charrier from Marseille; this will be completed with talks in classes, with S. Krell.

FLUMINANCE Project-Team

9. Dissemination

9.1. Scientific Animation

Christophe Collewet

- Technical program committees of ORASIS 2013 (journées francophones des jeunes chercheurs en vision par ordinateur)
- Reviewer for ICRA'13 (IEEE International conference on robotics and automation)

Dominique Heitz

- Member of IRSTEA "Comité directeur des Systèmes d'Information"
- Member of IRSTEA "Comité Technique Spécial"
- Responsible of the IRSTEA ACTA Team
- Reviewer for IEEE trans. Im. Proc, Exp in Fluid

Cédric Herzet

- Technical program committees of ICASSP 2013/2014 and SPARS 2013
- Project reviewer for the "Fond National de la Recherche Scientifique" (FNRS), Belgique
- Invited speaker at the CIMI Workshop, Toulouse, June 2013.
- Invited speaker at a local seminar at ParisTech, Paris, January 2013.
- Organizer of a monthly local seminar dedicated to sparse representations.

Etienne Mémin

- Invited speaker special session "Signaux & Images en Océanographie" Gretsi de traitement du signal et des images, Assimilation d'images satellites océaniques: filtrage stochastique et définition de dynamiques adaptées Brest sep. 2013.
- invited speaker 51st AIAA Aerospace Sciences Meeting, jan. 2013. Fluid flow velocity measurements from image sequences, 51st AIAA Aerospace Sciences Meeting, jan. 2013.
- Invited speaker workshop "2D to3D Ocean Dynamics from Space", Ifremer, Brest December 2013.
- 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. , , m. Vis. Comp., Exp in Fluids, ICCV'13, Nonlinear Proc. in Geophysics.
- Responsible of the "Commission Développement Technologique" Inria-IRISA 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 & HdR :

PhD: Sébastien Béyou, Estimation de la vitesse des courants marins à partir de séquences d'images satellitaires. Université de Rennes I, 12/07/2011, Etienne Mémin [11].

PhD in progress : Ioana Barbu, Estimation volumique de mouvement fluides /'a partir de séquence d'images, 01/11/2010, Cédric Herzet et Etienne Mémin

PhD in progress : Qui Dao, Commande des écoulements fluides par asservissement visuel, 01/10/2010, Christophe Collewet

PhD in progress : Valentin Resseguier, Image based assimilation of geophysical flows models under uncertainty, Bertrand Chapron (IFREMER) and Etienne Mémin

PhD in progress : Cordelia Robinson, Assimilation de données images dans un modèle LES : application à la reconstruction d'écoulements turbulents tridimensionnels , 01/11/2011, Dominique Heitz et Etienne Mémin

PhD in progress : Yin Yang , Assimilation d'images par techniques variationnelle ensembliste , 01/11/2011, Etienne Mémin

9.2.3. Juries

Etienne Mémin

- Rapporteur de la thèse de Vincent Chabot, Université J. Fourier, Grenoble, 15 Novembre 2013.
- Président du Jury de thèse de Karim Driffi, Université de Bretagne Sud, Juillet 2013.
- Examinateur Jury HDR d'Arthur Vidard, Université J. Fourier, decembre 2012.

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.

MAGIQUE-3D Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. 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 Pau. She is member of the direction team of the Research Center of Bordeaux. 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 Saclay and Sophia. 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.
- Victor Péron is appointed member of the CJC (Commission Jeunes Chercheurs) of Inria Bordeaux Sud-Ouest. He was member of the committee to evaluate posters of PhD Students (in 2nd year), at Scientific School Doctoral 211 (Univ. of Pau), July 2013.
- 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.

9.1.2. Conferences

- Hélène Barucq and Julien Diaz were members of the scientific committee of Waves 2013 (http://www.lamsin.tn/waves13/)
- Hélène Barucq was member of the scientific committee of JSA 2013 (http://jsa2013.sciencesconf.org/)
- Julien Diaz was member of the organizing committee of the "Journée Ondes et problèmes inverses en géophysique " (http://www.ensta-paristech.fr/~chaillat/MPT2013.html).
- Sébastien Tordeux was member of the scientific committee of the Fifth International Scientific Conference and Young Scientists School "Theory and Computational Methods for Inverse and Ill-posed Problems"the (http://conf.nsc.ru/tcmiip2013)

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

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 : Sébastien Tordeux, Analyse numérique fondamentale, 36 Eq. TD, M1, UPPA, France.

Master : Julien Diaz : Transformées, Fourth-year engineering students at ESTIA (Ecole Supérieure des Technologies Industrielles Avancées), 16 Eq. TD.

Master: Julien Diaz and Sébastien Tordeux, Introduction aux phénomènes de propagation d'ondes, 55 Eq TD, M2, UPPA, France.

ISAE (http://www.isae.fr/): Hélène Barucq, Introduction à la simulation numérique des ondes, 5h Eq TD, Toulouse.

Master : Marc Duruflé, Algorithmique numérique, 60 Eq. TD, Enseirb-Matmeca, France.

Master : Marc Duruflé, Algorithmique et programmation, 32 Eq. TD, Enseirb-Matmeca, France.

Master : Marc Duruflé, Mini-projets de programmation, 28 Eq. TD, Enseirb-Matmeca, France.

Master : Marc Duruflé. Outils informatiques pour le calcul scientifique, 80 Eq. TD, Enseirb-Matmeca, France.

9.2.2. Supervision

PhD : Élodie Estécahandy, Contribution à l'analyse mathématique et à la résolution numérique d'un problème inverse de scattering élasto-acoustique, September 19th 2013, Hélène Barucq and Rabia Djellouli.

PhD in progress : Julen Alvarez, hp-adaptive inversion of magnetotelluric measurements, October 2011, Hélène Barucq and David Pardo.

PhD in progress : Lionel Boillot, Propagateurs optimisés pour les ondes élastiques en milieux anisotropes, May 2011, Hélène Barucq and Julien Diaz.

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 : Théophile Chaumont-Frélet, October 2012, Hélène Barucq and Christian Gout.

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 : Jérôme Luquel, RTM en milieu hétérogène par équations d'ondes élastiques, November 2011, Hélène Barucq and Julien Diaz.

PhD in progress : Vanessa Mattesi, Détection des hétérogénéitées en acoustique et élastodynamique, October 2011, Hélène Barucq and Sébastien Tordeux.

PhD in progress : Vincent Popie, Sebtember 2012, Investigation numérique et expérimentale du comportement acoustique de plaques perforées en vue de développement de modèles homogénéisés, Sébastien Tordeux and Estelle Piot

PhD in progress : Florent Ventimiglia, Schémas d'ordre élevé et pas de temps local pour les ondes élastiques en milieux hétérogènes, November 2010, Hélène Barucq and Julien Diaz.

9.2.3. Juries

- Hélène Barucq was referee for the PhD thesis defended by Rafael Lago at the Institut National Polytechnique de Toulouse, June 3th 2013, entitled "A study on block flexible iterative solvers with applications to Earth imaging problem in geophysics".
- Julien Diaz :
  - Jean-Baptiste Laurent (Université de Toulouse) "Raffinements locaux auto-adaptatifs dans une méthode Galerkine discontinue pour la résolution des équations de Maxwell", July 10th 2013.
  - Axel Modave (Université de Liège, Belgium) "Absorbing Layers for Wave-Like Time-Dependent Problems - Design, Discretization and Optimization", October 7th 2013.

– Ludovic Moya (Université de Nice), Ludovic Moya, “Discontinuous Galerkin time domain method for electromagnetic wave propagation in biological tissues”, December 16th 2013.

9.3. Popularization

- The short movie “Probing the invisible, from the earthquake to the model” realized by MAGIQUE-3D in 2010, has been presented at Unesco during the day “Mathematics for Planet Earth”, on March 5th 2013 http://mpe2013.org/fr/mpe-day-at-unesco/. It is also part of the virtual exhibition “Mathematics of Planet Earth http://imaginary.org/fr/node/134”
- Hélène Barucq is member of the scientific board created for helping to the organization of a mobile exhibition in favor of the equality between girls and boys. The exhibition will be held in Pau in June 2014.
- Juliette Chabassier has written a short paper, “Simuler le son d’un piano” , on the website of Mathématiques de la planète Terre 2013, “Un jour, une brève”, http://mpt2013.fr/facteur-de-piano-numerique [75].
- Juliette Chabassier has written a short paper, “Le piano rêvé des mathématiciens” , in the book “Mathématiques: l’explosion continue”, http://hal.inria.fr/hal-00913685.
- Juliette Chabassier has published a website on the piano modeling, http://modelisation.piano.free.fr.
- Julien Diaz participated to the “Journées jeunes chercheurs en mathématiques du lycée de Navarre / UPPA” http://univ-pau.fr/live/newsletter/newsletter-n46/journeesmaths?isPdf=1, March 20th-22th, 2013.
- Julien Diaz has written an article, “Prospection pétrolière : le sous-sol révélé”, in the TDC (Textes et Documents pour la classe) journal, for high-school teachers, http://www.cndp.fr/tdc/tous-les-numeros/les-mathematiques-de-la-terre.html [77].
- Julien Diaz has written a short paper, "Jeter un œil “Au centre de la Terre” , on the website of Mathématiques de la planète Terre 2013, “Un jour, une brève”, http://mpt2013.fr/jeter-un-oeil-au-centre-de-la-terre/ [76].
- Victor Péron participated to the “Journée d’Immersion des Lycéens à l’Université de Pau” and has given a talk “Probing the invisible, from the earthquake to the model”, November 28th, 2013.

MOISE Project-Team

9. Dissemination

9.1. Scientific Animation

- A. Rousseau is a member of the editorial board of *Discrete and Continuous Dynamical Systems* - Series S (DCDS-S).
- F. Lemarié and A. Rousseau organized a mini-symposium «Domain Decomposition Methods for Environmental Modeling» during the DD22 international conference in Lugano (Switzerland) [47].
- C. Prieur is a member of the editorial board of the section “états de l’art" of Journal of the French Statistical Society (SFdS).
- C. Prieur is in the scientific committee of the SAMO 2013 conference which will be held in Nice in july 2013, jointly with MASCOT NUM annual conference. The SAMO conference has now (since September 2013) a permanent board. C. Prieur is a member of that board.
- C. Prieur, E. Blayo, A. Rousseau have taken part in 2013 to the wide consortium of the Prospective think tank: MATHématiqueS en INteractions pour la TERRE whose purpose is to help the French National Research AgencyNR defining the research-founding program on the theme Mathematics for the Earth.
- C. Prieur was in the scientific committee of the Journées MAS 2013 (SMAI) which were held in Clermont-Ferrand in august 2012.
- C. Prieur and L. Viry organize jointly with H. Monod and R. Faivre (INRA) a school on sensitivity analysis for environmental models (les Houches, 7-12 April, 2013; 4-9 May, 2014).
- C. Prieur is a member of the scientific council of the French Mathematical Society (SMF).
- C. Prieur is member of the board of the group mathematical statistics of the French society of statistics (SFdS) since 2008.
- C. Prieur organized a session on sensitivity analysis in the Journées MAS (SMAI) 2013.
- C. Prieur organized a session on statistical estimation for PDE in the SMAI workshop 2013.
- M. Nodet co-organised with S. Labbé and Ch. Prieur the annual workshop of the GDRE research group in Grenoble, http://ljk.imag.fr/membres/Maelle.Nodet/GDRE2013
- A. Vidard is deputy scientific leader to data assimilation for the NEMO consortium
- F.-X. Le Dimet participates in the organisation of the Sasaki Symposium in the framework of AOGS 2013 (Brisbane, June 2013) and of the Coupling Systems with heterogeneous information ERC (Rennes, January 2014)
- 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.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence: M. Nodet: Statistics, 80h, L2, Université de Grenoble, France

Licence: E. Blayo: Statistics, 36h, L2, Université de Grenoble, France

Master: M. Nodet: Inverse Methods, 28h, M2, Université de Grenoble, France

Licence: E. Blayo, M. Nodet : Mathematics for engineers, 80h, L1, university of Grenoble, France

Master : E. Blayo: Finite element methods, 45h, M1, university of Grenoble, France

Master: E. Blayo: Data assimilation in oceanography, 2h, M2, Ecole des ponts Paris Tech, France

Master : L. Debreu, Numerical ocean modelling, 12H, M2, University of Brest, France

Doctorat: E.Blayo, A. Vidard, introduction to data assimilation, 20h, Université de Grenoble, France

9.2.2. Supervision

HdR : M. Nodet, Inverse problems for the environment: tools, methods and applications, Université de Grenoble, November 28th 2013, [3]

PhD : B. Bonan, Assimilation de données pour l'initialisation et l'estimation de paramètres d'un modèle d'évolution de calotte polaire, Université de Grenoble, Nov 15th 2013, advisers: M. Nodet and C. Ritz. [1]

PhD : Manel Tayachi, Couplage de modèles de dimensions hétérogènes et application en hydrodynamique, Université Joseph Fourier, 28 octobre 2013, Eric Blayo and Antoine Rousseau, [4]

PhD : Gaëlle Chastaing, Estimation des indices de sensibilite sous conditions de dependance, Université Joseph Fourier, 2013, C. Prieur and F. Gamboa, [2].

PhD in progress : Pierre-Antoine Bouttier, Variational data assimilation into highly nonlinear ocean models, October 2009, E. Blayo and J. Verron

PhD in progress : Vincent Chabot, Nouvelles distances pour l'assimilation de séquence d'images, start Nov 2010, advisers: A. Vidard and M. Nodet

PhD in progress : N. Feyeux, Transport optimal pour l'assimilation de séquences d'images, start Nov 2013, advisers: A. Vidard and M. Nodet

PhD in progress : Jérémie Demange, Numerical schemes for tracers and momentum advection in ocean models, 15/12/2010, Supervisors : L. Debreu and P. Marchesiello (IRD).

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: Federico Zertuche, Exploitation des simulateurs multifidelites pour l'analyse de risque, Octobre 2011, C. Prieur and C. Helbert.

PhD in progress : Simon Nanty, Approche stochastique pour la quantification des incertitudes et l'analyse de sensibilité des codes de calcul à entrées temporelles et spatio-temporelles : application aux études de sûreté et de calcul d'impact, October 2012, C. Prieur, C. Helbert

PhD in progress : Laurent Gilquin, October 2013, C. Prieur

PhD in progress : Patricia Tencaliec, Gestion des risques multivariés extrêmes, application à des données de débit sur le bassin versant de la Durance October 2013, C. Prieur

PhD in progress : Thomas Capelle, Recherche sur des methodes d'optimisation pour la mise en place de modeles integres de transport et usage des sols, October 2013, P. Sturm, A. Vidard

9.2.3. PhD and HdR Juries

- E. Blayo was a referee of PhD thesis of Selime Gurol: Solving regularized nonlinear least-squares problem in dual space. Université de Toulouse, June 14, 2013
- E. Blayo was a referee of PhD thesis of Sébastien Beyou: Estimation de la vitesse des courants marins à partir de séquences d'images satellitaires. Université de Rennes, July 12, 2013
- E. Blayo was a member of the jury for the PhD defense of Gaëlle Chastaings: Indices de Sobol généralisés pour variables dépendantes. Université de Grenoble, September 23, 2013.

- E. Blayo was a member of the jury for the PhD defense of Lucile Gaultier: Couplage des observations spatiales dynamiques et biologiques pour la restitution des circulations océaniques: une approche conjointe par assimilation de données altimétriques et de traceurs. Université de Grenoble, October 16, 2013.
- E. Blayo was a member of the jury for the HDR defense of Frédéric Parrenin: Sur l'âge de la glace et des bulles de gaz dans les calottes polaires. Université de Grenoble, October 21, 2013.
- E. Blayo was a member of the jury for the PhD defense of Olivier Vannier: Apport de la modélisation hydrologique régionale à la compréhension des processus de crue en zone méditerranéenne. Université de Grenoble, November 22, 2013
- F.-X. Le Dimet was a member of the jury for the HDR defense of Benjamin Ivorra: Méthodes et techniques de Modélisation, de Simulation et d´Optimisation appliquées à divers problèmes industriels, Université de Montpellier 2, February, 7, 2013.
- C. Prieur was a chair of the PhD jury of Matthias De Lozzo, INSA Toulouse,
- C. Prieur was a chair of the PhD jury of Jonathan El Methni, Université Grenoble 1
- C. Prieur was a chair of the PhD jury of Gérémy Panthou, Université Grenoble 1
- C. Prieur was a member of the PhD jury of Anne Sabourin, Université Lyon 1
- C. Prieur was a member of the PhD jury of Gaëlle Chastaing, Université Grenoble 1
- A. Rousseau was member of the PhD committee of Vincent Visseq (Université Montpellier II)
- A. Rousseau was member of the PhD committee of Nathan Martin (INSA Toulouse)
- A. Vidard was member of the PhD jury of Lucille Gaultier, Université Grenoble I
- A. Vidard was reviewer of the PhD of Alexandre Imperiale, Université Paris VI

9.2.4. Other Juries and Evaluation Committees

- M. Nodet is a member of the national board of Agregation externe de mathématiques 2013
- M. Nodet was a member of the recruiting committee of an assistant professor in applied mathematics in ENSEEIT Toulouse.
- C. Prieur was a member of the jury of the EADS Foundation's Best Thesis Prize reward.
- C. Prieur was a member of the AERES evaluation committee of the LAMA (Univ. Paris Est Marne la Vallée, Univ. Paris Est Créteil), in December, 2013.
- A. Rousseau is a member of Inria Evaluation Committee
- A. Rousseau was member of Inria Bordeaux committee for young graduate scientists
- A. Rousseau was member of Inria Grenoble committee for young graduate scientists
- A. Rousseau was member of the national Inria committee for research positions (both starting and advanced)
- A. Rousseau was member of the national Inria committee for internal competition « Assistant Ingénieur »

9.3. Popularization

- E. Blayo gave several conferences for highschool students on the topics of applied mathematics and applied mathematics for environment.
- A. Rousseau is the Grenoble Rhône-Alpes scientific correspondant for outreach
- A. Rousseau and M. Nodet wrote an outreach article in the APMEP journal about mathematical modelling for the environment [59].

- A. Rousseau, M. Nodet and S. Minjeaud (Nice) developed an impressive outreach effort on the subject of ocean circulation, called "Bottles and Oceanography". They first wrote a paper and designed a numerical experiment, then they proposed a physical experiment as well. This whole package has been presented at UNESCO for the launch of Maths for Planet Earth 2013 http://mpe2013.org/mpe-day-at-unesco, and is a part of the IMAGINARY platform for outreach http://imaginary.org/films/flaschen-und-ozeanographie. It has also been presented at the Comité International des Jeux mathématiques [57], and has been published in the journal Textes et Documents pour la Classe (ressources for highschool teachers) [56].
- A. Rousseau and M. Nodet are members of the editorial committee of Maths for Planet Earth "Un jour une brève » operation http://mpt2013.fr, which aimed and succeeded to publish every day a short outreach article in 2013. Moreover, A. Rousseau is also webmaster and member of the executive board (6 people) of the operation.
- A. Rousseau and M. Nodet gave conferences during the Science Fair / Fete de la Science, for highschool students and their teachers, on the topics of mathematical modelling for the environment.
- M. Nodet gave a talk at the JELU workshop, which regroups university teachers and highschool teachers on teaching methods.
- M. Nodet wrote and outreach article about glaciology in the journal of the French society for applied mathematics SMAI, in the special issue MATAPLI number 100 on the occasion of Mathematics for Planet Earth 2013.
- M. Nodet gave a conference at the Mathematics Weeks in Valence for highschool students and their teachers, on the topic of mathematics for the environment and meteorology.
- Ch. Kazantsev begins a collaboration with Morocco, she has presented the IREM and IREM activities to the Ecole Normale de Rabat who wants now to create such an Institute.
- In the context of the program "100 parrains-100 classes", Ch. Kazantsev gives a weekly lectures to pupils of one secondary school in Grenoble.
- Ch.Kazantsev has participated in the "Fête de sciences" and in the "Semaine des maths" presenting the activities of the IREM of Grenoble.
- F. Zertuche and J. Calandreau have participated in the "Fête de sciences" presenting the activities of Moise.

POMDAPI Project-Team

7. Dissemination

7.1. Scientific Animation

J. Jaffré organized (with P. Knabner) the mini symposium "Complementarity Problems for Flow in a Porous Medium" at the SIAM Geosciences conference, June 17–20, 2013, Padova, Italy.

C. Japhet and M. Kern organized the mini symposium "Coupled Models and Domain Decomposition in Geosciences" at the SIAM Geosciences conference, June 17–20, 2013, Padova, Italy.

M. Kern was co-chair of the Scientific Committee of the SIAM Conference on Mathematical and Computational Issues in the Geosciences http://www.siam.org/meetings/gs13/, June 17–20, Padova, Italy.

M. Kern is Deputy Director of Maison de la Simulation, a joint project between CEA, CNRA, Inria, Université de Paris 11 and Unversité de Versailles, focused on applications of high end computing.

J. E. Roberts is a member of the External Advisory Board for CFSES (Center for Frontiers of Subsurface Energy Security), University of Texas at Austin and SANDIA National Laboratories, Albuquerque, New Mexico.

J. E. Roberts organized (with A. Scotti and L. Formaggia) the mini symposium "Discrete-fracture Models for Porous Media Flow" at the SIAM Geosciences conference, June 17–20, 2013, Padova, Italy.

J. E. Roberts is a member of the prize committee for the Interpore society.

J. E. Roberts is a member of the selection committee for recruiting professors in the department of maths of the University of Bergen, and a member of the national Norwegian committee for the promotion of professors.

M. Vohralík was member of the ENUMATH 2013 scientific committee, see http://enumath2013.epfl.ch/.

M. Vohralík organized a workshop on "A posteriori error estimates and mesh adaptivity for porous medium problems", on November 13th, 2013, see https://who.rocq.inria.fr/Martin.Vohralik/A_posteriori/13/.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Licence : I. Ben Gharbia, *Mathématiques 4*, 54 h, L2, Université de Paris 2, France.

Licence : I. Ben Gharbia, *Statistiques 4*, 54 h, L2, Université de Paris 2, France.

Master : J. Ch. Gilbert, *Optimisation différentiable – Théorie et algorithmes*, 42 h, M1, ENSTA ParisTech, France.

Master : M. Kern, *Éléments finis*, 30 h, M1, Mines ParisTech, France.

Master : M. Kern, *Problèmes inverses*, 26 h, M1, Mines ParisTech, France.

Master : M. Vohralík, A posteriori error estimates for efficiency and error control in numerical simulations, 36 h, M2, Université de Paris 6, France.

Master : M. Vohralík, A posteriori error estimates for efficiency and error control in numerical simulations, 21 h, M2, Charles University, Czech Republic.

7.2.2. Supervision

PhD : T. T. P. Hoang, *Méthodes de décomposition de domaine espace-temps pour la formulation mixte de problèmes d'écoulement et de transport en milieu poreux*, Université de Paris 6, December 11th, 2013, J. E. Roberts, C. Japhet, M. Kern.

PhD : Carole Widmer-Heinry, Adaptive finite volume method based on a posteriori error estimators for solving two phase flow in porous media, Université de Paris 6, November 21st, 2013, M. Vohralík, Vivette Girault (LJLL), Huy Tran (IFPEN).

PhD : Soleiman Yousef, A posteriori error estimates and adaptivity based on stopping criteria and adaptive mesh refinement for multiphase and thermal flows. Application to steam-assisted gravity drainage, Université de Paris 6, December 10th, 2013, M. Vohralík, Vivette Girault (LJLL), Éric Flauraud (IFPEN).

PhD in progress : E. Ahmed, *Modélisation d'écoulements diphasiques dans un milieu poreux fracturé*, January 2012, J. E. Roberts and A. Ben Abda.

PhD in progress : S. Ali Hassan, *Estimations d'erreur a posteriori et critères d'arrêt pour des solveurs par décomposition de domaine et avec des pas de temps locaux*, November 1st, 2013, M. Vohralík.

PhD in progress : N. Birgle, *Écoulements souterrains, méthodes numériques, et calcul haute performance*, October 2012, J. Jaffré.

PhD in progress : F. Cheikh, *Identification de failles dans un milieu poreux par une méthode d'indicateurs*, December 2011, J. E. Roberts and H. Ben Ameur.

PhD in progress : C. Josz, *Optimisation globale des flux d'énergie dans un réseau de transport d'électricité*, May 1st, 2013, J. Ch. Gilbert.

PhD in progress : M. H. Riahi, *Identification de paramètres hydrogéologiques dans un milieu poreux*, December 2011, J. Jaffré and H. Ben Ameur.

7.2.3. Juries

J. Ch. Gilbert was a member of the Selection Commity for a Maître de Conférence position at both Université Joseph Fourier (Grenoble 1) and ENSEEIHT (INP Toulouse).

M. Vohralík was the referee of the PhD thesis of Simon Lemaire (Université de Paris 12, December 12th, 2013) and examiner of the HdR thesis of Ludovic Chamoin (ENS Cachan, October 11th, 2013).

7.3. Popularization

J. Ch. Gilbert has written the following pages on Wikipedia.fr in 2013: Algorithme des directions alternées, Borne d'erreur, Complémentarité, Cône dual, Ensemble de sous-niveau, Gradient projeté, Inéquation variationnelle, Lagrangien (optimisation), Lemme de Hoffman, Matrice complètement positive, Matrice copositive, Méthode de Gauss-Seidel, Optimisation complètement positive, Optimisation conique, Optimisation convexe, Optimisation copositive, Optimisation SDP.

M. Kern gave a talk on "Mathematics and Simulation" at the *Palmarès académique des Olympiades de mathématiques de l'Académie de Paris*, on May 29th, 2013.

M. Kern gave a talk on "Mathematics and Subsurface Water", as part of the *Promenades mathématiques* program for students in Terminale S and 1ère S, at Lycée Émilie du Châtelet (Serris), on May 22nd, 2013.

SAGE Project-Team

9. Dissemination

9.1. Scientific Animation

9.1.1. Scientific committees of conferences

- J. Erhel is a member of the editorial board of the PARENG'2013 conference (Pecs, Hungary, March 2013).
- J. Erhel is a member of the scientific committee of the MAMERN'13 conference (Granada, Spain, April 2013).
- J. Erhel is a member of the scientific committee of the SMAI 2013 conference (Seignosse, France, May 2013).
- J. Erhel is a member of the international advisory committee of the parallel CFD conferences (Changsha, Hunan, China, May 2013).

9.1.2. Organization of workshops

- J. Erhel organized with E. Faou and T. Lelièvre the conference NASPDE (Rennes, September 2013).

9.1.3. 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)
- J. Erhel is member of the editorial board of ETNA.
- J. Erhel is member of the editorial board of ESAIM:Proceedings.
- J. Erhel is member of the editorial board of Mathematics of Planet Earth 2013, un jour-une brève.
- J. Erhel is member of the wide consortium of the prospective think tank: MATHématiqueS en INteractions pour la TERRE (funded by ANR)

9.1.4. 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.

9.1.5. 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 is member of the Comité Technique d'Etablissement Public of Inria.
- J. Erhel is member of Conseil d'Administration of Inria.
- J. Erhel is member of the working group of Inria Rennes on project management.
- J. Erhel participated in the panel during the workshop on HAL organized by the Universities of Rennes.
- G. Pichot is responsible for the domain "environment" at IRISA.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

- A. Abdelmoula is teaching assistant (permanent position) in computer science at the University of Tunis, Tunisia.
- 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.
- A. Le Gentil: Master M1; title: TP d'analyse, conception et programmation orientée objets; 26 hours; INSA, Rennes, France.
- 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 each; INSA, Rennes, France.

9.2.2. Supervision

PhD: M. Oumouni, University of Rennes 1 and University of Kenitra, June 2013, co-advisors J. Erhel and Z. Mghazli.

PhD: A. Abdelmoula, University of Rennes 1 and University of Tunis, December 2013, co-advisors B. Philippe and M. Moakher.

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 Yaounde 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.

PhD in progress: S. Sabit, University of Rennes 1, October 2010, advisors J. Erhel with É. Canot.

9.2.3. Juries

- HdR: O. Coulaud, University of Bordeaux, November 2013. Reviewer J. Erhel.
- PhD: R. Lago, University of Toulouse, Mathematics, June 2013. Examiner J. Erhel.
- PhD: C. Heinry, University of Paris 6, Mathematics, December 20123. Reviewer J. Erhel.

9.3. Popularization

- J. Erhel participated in the Inria workshop on scientific popularization, Paris, January 2013.
- J. Erhel participated in the Mathematics of Planet Earth Day at UNESCO, Paris, March 2013.
- J. Erhel gave a talk entitled "la terre se met aux maths", during the week of maths, at lycée Victor and Hélène Basch, Rennes, in March 2013 [59]. See http://www.irisa.fr/sage/jocelyne
- J. Erhel participated in the panel on "Observer et mesurer la terre", Rencontres CNRS Jeunes Sciences et Citoyens, Ile de France, March 2013 See http://www.scienceouverte.fr/Rencontres-CNRS-Jeunes-Sciences-et,413 and http://www.scienceouverte.fr/-Divers-voyages- [58]
- J. Erhel was invited to "congrès des jeunes chercheurs", at ISFEC Bretagne, Rennes, April 2013

- J. Erhel gave a talk with F. Tort (ENS Cachan) entitled "L'informatique, c'est pas pour les filles", at the salon "Educatec-Educatice", Paris, November 2013.
- J. Erhel coordinated with C. Leininger the journal TDC no 1062 "les mathématiques de la terre", october 2013. See http://www.cndp.fr/tdc/tous-les-numeros/les-mathematiques-de-la-terre.html
- B. Philippe wrote a review on TDC no 1062. See http://www.interstices.info.
- J. Erhel wrote a document entitled "sur les traces des polluants", in TDC no 1062 [57].
- J. Erhel wrote a paper entitled "Le Jour d'après : vers une réflexion sur les modèles climatiques ", in Interstices [56]
- J. Erhel wrote two texts in the blog mpt2013: "Henry Darcy et sa loi" [54] and "La diffusion, un moteur universel" [55].
- B. Philippe wrote a text in the blog mpt2013: "La terre a du potentiel" [61] See http://mpt2013.fr/.

STEEP Team

9. Dissemination

9.1. Scientific Animation

P. 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.
P. Sturm co-edited, with S. Garlatti and O. Boissier, a special issue in Revue d'Intelligence Artificielle *with the best AI papers of the conference RFIA 2012.*
P. Sturm co-edited, with S. Garlatti, a special issue in Traitement du Signal *with the best pattern recognition and computer vision papers of the conference RFIA 2012.*
P. Sturm is member of the Scientific Council of the foundation Barcelona Media.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

P. Sturm, Informatique visuelle, 37.5h, M2, University of Grenoble, France.
P. Sturm, Computer vision, 13.5h, M2, University of Grenoble, France.

9.2.2. Supervision

PhD in progress:

Julien Alapetite, Pilotage d'une collectivité avec l'empreinte écologique, part-time PhD student who carries out part of his work in STEEP, graduation expected in 2014, advisor D. Dupré (CERAG)
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 2013, 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

P. Sturm, President of the AFRIF Thesis Award Committee (French Association for Research in Pattern Recognition and Interpretation)
P. Sturm, Member of habilitation committee, Christophe Cudel, Universite de Haute-Alsace, Mulhouse
P. Sturm, Reviewer of PhD thesis, Laurent Caraffa, Paris 6
P. Sturm, Reviewer of PhD thesis, Pedro Miraldo, Coimbra University, Portugal
P. Sturm, Reviewer of PhD thesis, Christian Unger, Technische Universität München, Germany
P. Sturm, President of PhD committee, Jordi Sanchez-Riera, Grenoble University
P. Sturm, President of PhD committee, Marion Decrouez, Grenoble University
P. Sturm, President of PhD committee, David Ok, école des Ponts ParisTech

9.3. Popularization

STEEP participated in the 2013 edition of the technological fair "Forum 4i" of the Rhône-Alps region, which was on "Intelligent mobility, usages and innovations". The forum is visited by local and regional politicians and other stakeholders as well as by the general public. We presented the activities of the team and the socio-economic issues that motivate them.

Emmanuel Prados has been invited to give the introductory talk of the conference "Journée des Mathématiques"of Grenoble organized by the "Rectorat de Grenoble" (Grenoble, March 18, 2013; Title of the presentation: "Préserver l'environnement avec l'aide des mathématiques").

BIOCORE Project-Team

9. Dissemination

9.1. Scientific Animation

J.-L. Gouzé is a member of the scientific committee for the conference BIOMATH ; also for the conference for E. Benoit (La Rochelle 2013). He 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.

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". He is a member of the scientific comity of the competitivity pole "Trimatec". O. Bernard 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 (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 committees of the doctoral school "Sciences de la Vie" at the University of Nice-Sophia Antipolis.

P. Bernhard is a member of the scientific committees of the doctoral school "Sciences fondamentales et appliquées" at the University of Nice-Sophia Antipolis.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

O. Bernard (9h ETD), "Mathematical models in Biology". Master on biological oceanography in Villefranche-sur-Mer (M2), Universit Pierre et Marie Curie, France.

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

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

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

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

J.-L. Gouzé (9h ETD), M. Chaves (4.5h ETD), "Discrete and continuous approaches to model gene regulatory networks", Master of Science in Computational Biology (M2), University of Nice - Sophia Antipolis. M. Chaves and J.-L. Gouzé have participated in a book chapter entitled "Modeling and analysis of gene regulatory networks" on the topics taught in this course [62].

J.-L. Gouzé (18h ETD), M. Chaves (9h ETD), A. Carta (6h ETD), "Modelling biological networks by ordinary differential equations", 4th year students, Génie Biologie, Ecole Polytechnique University of Nice - Sophia Antipolis

O. Bernard supervised two projects for engineer school students. The first project involved 6 students of Ecole Nationale Supérieure des Mines de Paris (last year of engineering school, 1 week ("Using thermal flux to agitate microalgae cultures") and the second project involved 4 students from the Ecole Centrale de Paris (first year of engineering school), 4 months, to design biofilm for microalgae.

9.2.2. Supervision

PhD : M. Teixeira-Alves, “Modélisation de réseaux écologiques dans un cadre de protection des cultures: applications à la lutte biologique”, UNS, defended January 25, 2013. Supervisors: F. Grognard and L. Mailleret.

PhD : M. Castel “Modélisation des trajectoires évolutives des pathogènes de plantes dans les écosystèmes agricoles", University of Rennes, defended November 12, 2013. Supervisors : F. Hamelin and D. Andrivon (Agrocampus Ouest) and L. Mailleret.

PhD in progress : P. Hartmann, "Developement of a model for microalgal photoadaptation", since september 2010, UNS. Supervisor: O. Bernard.

PhD in progress : A. Carta, “Analysis and Control of models of biological regulatory systems. Application to growth control in *E. coli*”, since december 2010, UNS. Supervisors: J.-L. Gouzé and M. Chaves.

PhD in progress : C. Baroukh, “Modeling the coupling of microalgae with anaerobic digestion”, since September 2011, University of Montpellier 2. Supervisors: J.-P. Steyer and O. Bernard.

PhD in progress : A. Lebon, “Modélisation couplée plantes-ravageurs-ennemis naturels dans un contexte de lutte biologique", since October 2011, University of Montpellier 2. Supervisors : Y. Dumont (CIRAD), F. Grognard and L. Mailleret.

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, UPMC. Supervisors: A. Sciandra and O. Bernard

PhD in progress : C. Combe, "Response of microalgae to fluctuating light", since september 2012, UPMC. Supervisors: A. Sciandra and S. Rabouille.

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

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: O. Bernard.

PhD in progress : S. Casagranda. “Analysis and control of cell growth models”, since November 2013, UNS. Supervisor: J.-L. Gouzé.

9.2.3. Juries

O. Bernard was referee for the HDR of J. Morchain, Nov. 19, Title: "Bioreactor modelling by coupling fluid mechanics and population balance” Toulouse University

O. Bernard was in the PhD jury of A. Besson, Dec. 9. Title: "Multi scale study of the harvesting of Dunaliella salina”

O. Bernard was in the PhD jury of B. Sialve, Jul 15. Title: “Coupling microalgal cultivation with anaerobic digestion”, INSA Lyon

O. Bernard was in the PhD jury of A.-C. Boulanger, Sep.13. Title: "Modelling, simulation and data assimilation for a hydrodynamics-biology coupling problem", University Pierre et Marie Curie.

M. Chaves was in the PhD thesis jury of Luca Grieco, May 3. Title: “Integrative modelling and analysis of MAPK network deregulations in human cancers,” University of Marseille and TAGC (INSERM U928).

J.L. Gouzé was referee for the PhD thesis of Radhouane Fekih-Salem, Sept. 30. Title: “Modèles Mathématiques pour la Compétition et la Coexistence des Espèces Microbiennes dans un Chemostat”, UM2 Montpellier

J.L. Gouzé was in the PhD thesis jury of Olivier Borkowski, Feb. 19. Title: “ Growth-rate-dependent protein production in bacteria”. Univ. Paris Descartes.

J.L. Gouzé was referee for the PhD thesis of Mohamed Amin Ben Sassi, Apr. 15. Title: "Analyse et contrôle des systèmes dynamiques polynomiaux". UJF Grenoble.

J.L. Gouzé, F. Grognard and L. Mailleret were in the PhD thesis jury of Mickael Teixeira Alves, Jan. 25. Title: "Des interactions indirectes entre les proies : modélisation et influence du comportement du prédateur commun". UNS.

J.L. Gouzé was in the HDR jury of Madalena Chaves, Oct. 24. Title: "Predictive analysis of dynamical systems: combining discrete and continuous formalisms", UNS.

L. Mailleret was in the PhD thesis jury of Magda Castel, Nov. 12. Title: "Écologie et évolution théoriques des parasites de plantes annuelles", Université de Rennes.

J.-L. Gouzé is in the thesis committee of C. Baroukh (University of Montpellier).

M. Chaves is in the thesis committee of F. Fourré (University of Luxembourg).

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).

9.3. Popularization and media

The activities related to microalgae have generated many articles in national newspapers (Le Monde.fr, Libration, Le Point.fr, ...), and broadcasts on national TV. Several articles were written by the team members to explain the hurdles and potential of microalgae [36], [70]. A book [65] 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.

P. Bernhard has given conferences in high schools in the framework of the program “Sciences et culture au lycée”.

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 8, 2013).

O. Bernard and J.-L. Gouzé gave two keynote lectures at the CAB2013 conference, Mumbai, India.

F. Grognard was invited to give a talk entitled "Commande des systèmes proies-prédateurs: rétroactions et impulsions" at the workshop "Des dynamiques singulièrement perturbées aux dynamiques de populations" in honour of Eric Benoît (La Rochelle, December 16-18, 2013)

P. Bernhard gave a talk on the handicap paradox at the International Workshop on Biodiversity and Environment at the Mathematical Research Center of Montreal.

E. Rousseau gave a talk on " Sustainable plant resistance management in agricultural landscapes" at the Réunions de Virologie Vegetale (RVV) at Aussois, France (January 13-17, 2013). She presented a poster on the "Impact of quantitative plant resistance on within-host viral demo-genetic dynamics" at the "Workshop Bridging theoretical and experimental evolution" in La Fouly, Switzerland (June 12-15, 2013) and at the "5èmes Journées de Rencontre des Doctorants du Département SPE" in Montpellier, France (June 26-28, 2013).

CARMEN Team

9. Dissemination

9.1. Scientific Animation

- The members of the team are regular reviewers for international journals and conferences in applied mathematics, biomedical engineering, cardiac electrophysiology, and electrocardiography.
- N. Zemzemi was a member of the Inria delegation at the India-France technology summit, New delhi, October 23-24th, 2013.
- Y. Coudière did participate to the organization of the First Scientific Workshop of the LIRYC, October, 24-25th, 2014.
- Y. Coudière is a member of the Scientific Committee of the international conference on « Finite Volume for Complex Application », to be held in Berlin, June, 2014, www.wias-berlin.de/workshops/fvca7.
- Y. Coudière is a member of CAIMS, The Canadian Applied and Industrial Mathematics Society, and presented the work of Carmen during the CAIMS conference in Québec, June, 2013.
- Y. Coudière is the scientific coordinator of the ANR research project HR-CEM.
- S. Labarthe presented the work of Carmen based on HPC solvers at the PlaRim day, April, 2014, LABRI, Bordeaux.
- S. Labarthe presented his work at the « Printemps de la Cardiologie », the national conference of the French Cardioolgist Society, held in April 2013 in Marseille, and was invited to the symposium “AF: Clinical challenges for biophysical modelling” in London, June, 2013.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : S. Labarthe, *Probabilities and statistics, introduction to databases*, 64 h eqTD, IUT HSE U Bordeaux 1.

Engineering school: S. Labarthe, *Scientific computing with Fortran 90*, 96h eqTD, ENSEIRB-MATMECA, IPB.

Engineering school: N. Zemzemi, *Scientific computing project: finite elements method application to cardiac electrophysiology*, 2nd year, 28h eqTD, ENSEIRB-MATMECA, IPB.

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 1.

9.2.2. Supervision

PhD : S. Labarthe, « Modélisation de l’activité électrique des oreillettes et des veines pulmonaires », Université Bordeaux Segalen, December, 13th, 2013, supervised by Y. Coudière and J. Henry.

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 », co-supervized by N. Zemzemi with Moncef Mahjoub, École Nationale d'Ingénieur de Tunis (Tunisia).

PhD in progress : W. Mbarki, « Etudes thérique et numérique du couplage purkinje-myocarde en electrophysiologie cardiaque », co-supervised by N. Zemzemi with Saloua Aouadi, Faculté des sciences de Tunis (Tunisia).

9.2.3. Juries

- Y. Coudière was a member of the jury for defense of the PhD of V. Desveaux, « Contribution à l'approximation numérique des systèmes hyperboliques », Université de Nantes, November 26th, 2013.
- Y. Coudière was a member of the jury for defense of the PhD of S. Labarthe, « Modélisation de l'activité électrique des oreillettes et des veines pulmonaires », Université Bordeaux Segalen, December, 13th, 2013

9.3. Popularization

- S. Labarthe, Forum Emploi Maths 2013, invited for an intervention to the round table « Témoignages : métiers du secteur santé », 01/2013, Paris.
- S. Labarthe and G. Ravon welcomed two secondary school pupils for a week dedicated to the observation of research work in our team and the Inria research center.
- N. Zemzemi, recieved 4 groups of pupils in final year of high school, that were following a special option on computer, numerical sciences. He animated a workshop on modelling for health sciences.
- The team was represented by N. Zemzemi at the « Rencontre Inria-Industrie » (meeting Inria – Industry) on: Modelling, simulation, and high-performance computing, Paris, June 11th, 2013.
- A. Davidovic presented herself and her work during a meeting with the public called « Visages de sciences », organized at « Cap Sciences », Bordeaux, Spring 2013.

DRACULA Project-Team

9. Dissemination

9.1. Scientific Animation

The year 2013 was marked by the following events:

- The edition of 4 volumes of the journal MMNP (Mathematical Modelling of Natural Phenomena) on the following topics: Harmonic analysis; Anomalous diffusion; Front Propagation; Plant growth modelling (see http://journals.cambridge.org/action/displayJournal?jid=MNP).
- The co-organization of a monthly seminar (INRIabcd, every last friday), jointly with Inria team BEAGLE, and the organization of a seminar on biomathematics (on thursday, twice a month) (see archives : http://dracula.univ-lyon1.fr/news_old.php).
- The organization of the Semovi seminar (http://www.biosyl.org/news/semovi). Two editions (March and October) in 2013, Olivier Gandrillon.
- Thematic program: Mathematical Biology

  Our team has been the co-organizer of a thematic program on "Mathematical Biology", in Lyon (France) from March 4th to June 14th (3 months), 2013:
  http://mathbio2013.sciencesconf.org/
  These activities are funded in part by the "Laboratoire d'Excellence", labex MILYON an initiative from the French ministry of research.
  The main topics of this program are: Cell biology, population dynamics, quantitative modeling for drug development, systems biology, and evolutionary biology.

  The highlights of the program are:

  - Systems Biology Approach to Infectious Processes, Lyon (France), May 13-15 (part of the thematic program Mathematical Biology), Fabien Crauste, Olivier Gandrillon.

  - ESMTB-EMS Summer school "Multiscale modeling in the life sciences", Lyon (France), May 27-31 (part of the thematic program Mathematical Biology), Thomas Lepoutre, Vitaly Volpert.

  - Conference in honour of Michael Mackey's 70th birthday, Lyon (France), June 3-6 (part of the thematic program Mathematical Biology), Samuel Bernard, Fabien Crauste, Laurent Pujo-Menjouet.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Licence : Léon MATAR TINE, Analyse, fonctions de plusieurs variables, Prepa L2, 60h, University Lyon 1.

Licence : Léon MATAR TINE, Analyse numérique, L3, 36h, University Lyon 1.

Licence : Laurent PUJO-MENJOUET, EDP réaction-diffusion, 10.5h, L3, University Lyon 1.

Licence : Laurent PUJO-MENJOUET, EDO-Systèmes dynamiques, 40h, L3, INSA Lyon.

Licence : Laurent PUJO-MENJOUET, Equations différentielles et EDP, 36h, L3, University Lyon 1.

Licence : Laurent PUJO-MENJOUET, Fonctions de plusieurs variables, 36h, L1, University Lyon 1

Licence : Laurent PUJO-MENJOUET, Suite et série de fonctions, 36h, L2, University Lyon 1.

Licence : Laurent PUJO-MENJOUET, Projet Etudiant, 03h, L2, University Lyon 1.

Licence : Philippe MICHEL, Analyse appliquée, 56h, L3, Ecole Centrale de Lyon.

Licence : Philippe MICHEL, Analyse appliquée, 56h, L3, Ecole Centrale de Lyon.

Licence : Philippe MICHEL, Probabilités et statistique, 32h, L3, Ecole Centrale de Lyon.

Licence : Philippe MICHEL, Projet d'études, 10h, L3, Ecole Centrale de Lyon.

Master : Mostafa ADIMY, Dynamique des populations : application aux populations de cellules, 15h, M2, University Lyon 1.

Master : Thomas LEPOUTRE, Préparation à l'agrégation, calcul scientifique, 30h, M2, University Lyon 1.

Master : Thomas LEPOUTRE, Dynamique des proteines, 18h, M2, University Lyon 1.

Master : Thomas LEPOUTRE, Equations de Hamilton Jacobi, 18h, M2, ENS Lyon.

Master : Samuel BERNARD: Dynamique des populations : application aux populations de cellules, 15h, M2, University Lyon 1.

Master : Laurent PUJO-MENJOUET, Modélisation en biologie et médecine, 4h, M2, ENS Lyon.

Master : Laurent PUJO-MENJOUET, EDP et modélisation, 30h, M1, INSA Lyon.

Master : Laurent PUJO-MENJOUET, Projets tutorés, 3h, M1, University Lyon 1.

Master : Laurent PUJO-MENJOUET, Systèmes dynamiques, 27h, M1, University Lyon 1.

Master : Laurent PUJO-MENJOUET, EDP pour l'hématopoïèse, 18h, M2, University Lyon 1.

Master : Philippe MICHEL, Algorithmes pour la décision en entreprise, 16h, M2, Ecole Centrale de Lyon.

Master : Philippe MICHEL, Systèmes embarqués collaboratifs, 14h, M1, Ecole Centrale de Lyon.

Master : Philippe MICHEL, Projet Application - Recherche, 10h, M1, Ecole Centrale de Lyon.

Master : Philippe MICHEL, Méthodes variationnelles pour les EDP, 36h , M2, Ecole Centrale de Lyon.

9.2.2. Supervision

PhD in progress: Loic Barbarroux, Ecole Centrale de Lyon, French ministry scholarship, since October 2013, co-supervised by Mostafa Adimy and Philippe Michel.

PhD in progress: Latifa Bouguerra, University of Alger, Algerian scholarship, since October 2012, co-supervised by Mostafa Adimy and Rachid Boudchich.

PhD in progress: Abdennasser Chekroun, University Lyon 1, Algerian scholarship, since October 2012, supervised by Mostafa Adimy.

PhD in progress: Raouf El Cheikh, University Lyon 1, salarié, since October 2011, supervised by Samuel Bernard.

PhD : Mohamed Helal, Contributions aux équations et inclusions différentielles et applications a des problèmes issus de la biologie cellulaire, University of Sidi Bel Abbes, Algeria, September 2013, co-supervised by Laurent Pujo-Menjouet and Abdelkader Lakmeche.

PhD in progress: Marine Jacquier, University Lyon 1, since October 2012, co-supervised by Mostafa Adimy and Fabien Crauste.

PhD in progress: Alen Tosenberger, University Lyon 1, CNRS scholarship, supervised by Vitaly Volpert.

9.2.3. Juries

- Mostafa Adimy was member and reviewer of the following PhD: Dhaou Lassoued (University of Paris 1 (Panthéon-Sorbonne)), December 2013; Souhila BOUDJEMA (University of Paris 1 (Panthéon-Sorbonne)), September 2013; Yuan HE (University of Bordeaux), November 2013; Ousmane SEYDI (University of Bordeaux), November 2013; Mohamed HELAL (University of Sidi Bel Abbes, Algeria), 22 September 2013; Naamat ALI (University of La Rochelle), July 2013.

- Mostafa Adimy was reviewer of the following PhD: William DIMBOUR (University of Antilles et de la Guyane), May 2013.
- Samuel Bernard was member of the following PhD: Anne-Sophie LESART (University of Grenoble), November 2013.
- Samuel Bernard was acting as a co-director for the following PhD: Stephan FISCHER (University of Lyon) December 2013.
- Olivier Gandrillon was acting as a director for the following PhD: Gael Kaneko (University of Lyon), Septembre 2013.
- Olivier Gandrillon was member and reviewer of the following PhD: Benoit Robisson (University of Marseille), November 2013; Lydia Boudaréne (ENS Paris), March 2013.
- Olivier Gandrillon was member of the following PhD: Adrien Senecal (ENS Paris), September 2013.

M3DISIM Team

8. Dissemination

8.1. Scientific Animation

Dominique Chapelle

- Member of the editorial boards of journals *Computers & Structures* and *M2AN*
- Program committee of conference "Functional Imaging and Modeling of the Heart 2013"
- Invited lecturer at conference "Shell Structures - Theory and Applications 2013"
- Member of the Academic Senate of FCS Paris-Saclay

Philippe Moireau

- Reviewer this year for ACOM IJNME JOMP MCCS journals, the Waves conference and the American Control Conference

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

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", 3h lectures and 14h classes , M2, ENSTA ParisTech, France

Sébastien Imperiale

Master's: "MA201 - La méthode des éléments finis", 12h, M2, ENSTA ParisTech, France

Post-graduate: "Numerical methods for waves propagation simulations", 4h30, Collège Polytechnique, France

Post-graduate: "Piezoelectric sensor and wave based inverse problems", Summer school on Inverse Problems, Bremen, 1h30, Germany

Annabelle Collin

Oral examination:"Algebra and Geometry", UPMC, Spring 2012

Bachelor's degre:"Multivariable Calculus", UPMC, fall 2012

8.2.2. Supervision

PhD in progress: 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 Burtschell, "Mechanical modeling and numerical methods for poromechanics: Applications to cardiac perfusion", Ecole Polytechnique, started October 2013, advisors D. Chapelle and P. Moireau

PhD defended in December: Alexandre Imperiale, "Image-based observation operators for data assimilation in cardio-mechanics", UPMC, started October 2010, advisors D. Chapelle and P. Moireau

8.2.3. Juries

Dominique Chapelle: member of PhD committee of S. Marchesseau

Philippe Moireau: member of PhD committee of A.-C. Boulanger

8.3. Popularization

TV News Story "la météo du coeur" (how to predict the heart weather) on France5 "Magazine de la santé" (11 March 2013)

D. Chapelle invited speaker at "Horizon Maths 2013"

MASAIE Project-Team

7. Dissemination

7.1. Scientific Animation

A. Iggidr is an elected member of Inria Evaluation committee (CE).

A. Iggidr served as a member of the CR2 committee (Jury concours CR2) at Inria RHÔNE ALPES, May 2013.

G. Sallet was an invited speaker at the "Workshop on Mathematical Methods and Modeling of Biophysical Phenomena", Cabo Frio, State of Rio de Janeiro, Brazil, March 4th-8th, 2013. http://w3.impa.br/~zubelli/BIOMATH2013/.

A. Iggidr was an invited speaker at "III Simpósio de Modelagem do Controle da Dengue", Petrópolis, State of Rio de Janeiro, Brazil, May 8th-10th, 2013. http://claudia-codeco.github.io/pronex/simposio2013.html.

G. Sallet was a lecturer at the CIMPA-ICTP-UNESCO research school "Numerical methods in fluid mechanics, mathematical epidemiology and reaction-diffusion systems", September 2-13, 2013, University Gaston Berger, Saint-Louis, Senegal. http://www.cimpa-icpam.org/spip.php?article500.

G. Sallet was a speaker at the scientific meeting "Des dynamiques singulièrement perturbées aux dynamiques des populations", La Rochelle, December 16th-18th, 2013.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

Licence and Master : P. Adda, 192h, L1, L2, L3, M1, University Lorraine.

7.2.2. Supervision

- PhD : Derdei Bichara. Application de la théorie des observateurs à l'identification des paramètres de modèles épidémiologiques, Université de Lorraine, February 28, 2013, G. Sallet and A. Iggidr.
- PhD : L. Tendeng. Etude de modèles de transmission de la Schistosomiase: Analyse mathématique, reconstruction des variables d'état et estimation des paramètres, Université de Lorraine, May 2013, G. Sallet.
- PhD in progress : Mouhamadou Diaby, "Etude mathématique de l'evolution temporelle et spatiale de certaines épidémies. Applications à la Bilharziose (schistosomiase).", 01/01/2010, A. Iggidr.
- PhD in progress : Mamadou Lamine Diouf, "Modélisation, observation et contrôle de la propagation de certaines épidémies en Afrique Subsaharienne.", 01/01/2010, A. Iggidr.

7.2.3. Juries

A. Iggidr was member (referee) of the PhD thesis jury of Mamadou Diagne, "Modélisation et étude mathématique de la dynamique de prolifération du Typha dans le Parc National des Oiseaux de Djoudj", defended in November 2013 at Université de Haute-Alsace.

MODEMIC Project-Team

8. Dissemination

8.1. Scientific Animation

C. Casenave has been an “outstanding reviewer” for IEEE Transactions on Automatic Control in 2013.

The team has organized a one day international workshop on biofilm modeling (May, Paris) [[16]].

The team has organized a “research school” of one week in June dedicated to the biologists of the marine research station of Banyuls [[17]].

F. Campillo was invited to give a lecture on stochastic modeling and simulation at CNRS/Génopôle Thematic School on “Advances in Systems and Synthetic Biology” at La Colle sur Loup (France), March 25 to 29. Fabien Campillo was invited to give a lecture on particle filtering at the Univ. of Mons at the "Dynamical systems, control and optimization" (DYSCO) of the Interuniversity Attraction Poles, May 24.

C. Casenave and F. Campillo are in the organizing committee of the MIA Division national meeting to be held in March 2014.

C. Casenave is in charge of the Modemic Seminar.

From the 15th to the 18th April, the team had its annual meeting in the “Hameau de l’Etoile”.

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

F. Campillo and M. Joannides, “Stochastic modeling of ecosystem”, 20 hours, Master 2 in Biostatistics, Univ. Montpellier 2.

A. Rapaport, “Practical Mathematics”, 25 hours, Master 1 in Mathematics, Univ. Montpellier 2.

C. Casenave and A. Rapaport, “Advanced mathematical modeling”, 18 hours, Master 2 STIC - Environnement, Univ. Montpellier 2.

A. Rapaport, “About modeling and numerical simulations of dynamical systems”, 9 hours, Master 1 in Ecosystems, Univ. Montpellier 2.

A. Rapaport, “Introduction to modeling”, 12 hours, 1st year, SupAgro Montpellier.

C. Casenave, F. Campillo and A. Rapaport, “modeling for biology and ecology, mathematical and computational methods”, 20 hours, Doctoral lectures, Univ. Montpellier 2.

8.2.2. Masters supervision

Supervision:

A. Boutoub [70], supervisor: F. Campillo.

C. Droin [71], supervisor: C. Casenave.

S. Sekkat [74], supervisor: C. Casenave.

[16] https://sites.google.com/site/anrdisco/meetings/workshop-may-2013
[17] http://lomic.obs-banyuls.fr/fr/test/ecole_chercheur_chemostat.html

Co-supervision:

M. Chebbi: “Modélisation et approximation stochastique appliquées en écologie”, Master of Applied Mathematics, ENIT/LAMSIN, Tunis, co-supervisors: S. Toumi and F. Campillo.

Y. Dadoud: “Contrôle Optimal d’un procédé biologique séquentiel discontinu : approche par simulations”, Master of Applied Mathematics, ENIT/LAMSIN, Tunis, co-supervisors: N.a Abdellatif and F. Campillo.

Z. Khedim: “Réalisation d’une interface Matlab pour la simulation des bioprocédés : Application au modèle ADM1”, Master of Automatic Control, Univ. Aboubekr Belkaid, Tlemcen, Algeria, co-supervisors: B. Benyahia and J. Harmand.

M. Crespo: “Modelling unhomogeneous biorectors”, Master of Applied Mathematics, Univ. Madrid., co-supervisors: B. Ivorra, A. Rapaport

8.2.3. PhD’s supervision

M. Radhouane Fekih-Salem, “Modèles mathématiques pour la compétition et la coexistence d’ espèces microbiennes dans un chémostat, co-tutelle Univ. Montpellier 2/ENIT-LAMSIN, Tunis (Tunisia), defended in Sep. 2013 (co-directors: A. Rapaport and T. Sari) [11].

M. Angelo Raherinirina,”Modélisation markovienne des dynamiques d’usages des sols. Cas des parcelles situées sur le bord du corridor forestier Ranomafana-Andringitra”, Univ. Fianarantsoa (Madagascar), defended in Aug. 2013 (director: F. Campillo) [12].

Ms Coralie Fritsch, “Simulation et analyse de modèles individu-centrés d’écosystèmes bactériens pour des procédés biotechnologiques”, Univ Montpellier 2, since Oct. 2011 (director: F. Campillo).

Ms Amel Ghouali, “Analyse et commande optimale d’un bioréacteur de dépollution des eaux usées”, cotutelle Univ Montpellier 2/Univ. Tlemcen (Algeria), since Nov. 2011 (director: J. Harmand).

M. Guilherme Pimentel, “Modélisation dynamique, analyse et supervision d’un réacteur membranaire”, cotutelle Univ. Montpellier 2/Univ. Mons (Belgique), since Sept. 2013 (Co-directors: A. Vande Wouver and A. Rapaport).

8.2.4. Juries

M. Benjamin Ivorra, “Méthodes et techniques de modélisation, simulation et optimisation appliquées à divers problèmes industriels”, thèse d’Habilitation à Diriger des Recherches, Univ. Montpellier 2, Fev. 2013 (examiner: A. Rapaport).

M. Derdei Bichara, “Etude de modèles épidémiologiques: stabilité, observation et estimation de paramètres”, Univ. Metz, Fev. 2013 (referee: A. Rapaport).

M. Mickael Teixeira Alves, “Des interactions indirectes entre les proies: modélisation et influence du comportement du prédateur commun, Univ. Nice Sophia Antipolis, Jan. 2013 (referee: T. Sari).

M. Sihem Kouloughli, “Optimisation de systèmes automatisés de stockage/déstockage multi allées et à racks glissants”, Univ. of Tlemcen, Algeria, Jun. 2013 (referee: T. Sari).

M. Térence Bayen, “Etude du quelques problèmes de contrôle optimal issus des EDP et des EDO”, Habilitation à diriger des recherches, Univ. Montpellier 2, Dec. 2013 (examiner: A. Rapaport).

8.3. Popularization

The team has participated to the writing of a blog [73], [72] for the MPT2013, french edition of Mathematics of the Planet Earth 2013.

The team has participated to the writing of two articles [31], [32] in the TDC magazine dedicated to teachers in secondary classes.

8.4. Community services

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.

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; member of the selection board in case of selection of a Professor of probability at the Univ. of Montpellier 2.

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.

NUMED Project-Team

7. Dissemination

7.1. Scientific Animation

- Vincent Calvez: Organization of a thematic trimester in Lyon "Mathematical Biology 2013" (ENS and Univ. Lyon 1): 3 months, 4 conferences, 1 workshop and 1 summer school, more than 400 participants, focus on interdisciplinary conferences with biologists and theoretical physicists (evolutionary biology, cell biology, drug development, system biology).
- Paul Vigneaux and Vincent Calvez are editors of the **CEMRACS 2009 - Mathematical Modelling in Medicine** Proceedings. ESAIM. Vol. 30, August 2010, 165 pages.
- **Organization of Conferences :**
  In 2008/2009, Vincent Calvez and Paul Vigneaux co-organize the **CEMRACS 2009 - Mathematical Modelling in Medicine**, 14^{th} edition of this 6-week international summer school (at the CIRM, Marseille, France, July 20 to August 28, 2009). CEMRACS is supported by the SMAI (French Industrial and Applied Mathematics Society).
  In 2010, Paul Vigneaux co-organizes the **8^{th} JERAA**, 25-26 Nov., a two days conference on Partial Differential Equations gathering the community from Rhône-Alpes-Auvergne (France).
- **Seminars :**
  Since September 2008, Paul Vigneaux and Vincent Calvez co-organize the "Modelling and Partial Differential Equations" seminar, joint with ENS de Lyon and Institut Camille Jordan (4 talks by month, from September to June).
- **Commissions and Boards :**
  - Paul Vigneaux is member of the Board of **MILYON**, the Laboratory of Excellence (Labex) in Mathematics of Lyon. This Labex aims at federating international research, higher education and society activities.
  - Paul Vigneaux is member of the Hiring Commissions (“Comités de Sélection”) at the University of **Clermont-Ferrand 2**, **Lyon 1**, **Montpellier 2**, **Centrale Nantes**, **INSA Lyon** and **ENS de Lyon** : it consists in the selection of candidates for permanent positions in the Mathematics department.
  - Paul Vigneaux is member of the Boards of the Numerical Modelling Center (**PSMN**) of Lyon, of **UMPA**, the mathematics research lab at ENS de Lyon, of the Board of the Department of Mathematics (teaching) at ENS de Lyon.
  - Emmanuel Grenier created, together with Didier Bresch, the first national network gathering most of the french academic teams working on mathematical models for life sciences (GDR Mabem $2008-2011$). He is in the scientific board of the GDR Metice, successor of GDR Mabem.

7.2. Teaching - Supervision - Juries

7.2.1. Teaching

- Marie Aimée Dronne teaches 192h per yer, in Lyon 1 University and in INSA de Lyon (Licence and Master, "master of neurosciences", "master of cancerology", "master of drug development"), teaching in mathematics and statistics for medical students and modeling for INSA students (electrophysiological models, epidemiological models, pharmacocinetic models)
- Vincent Calvez teaches 64h per year, L3, M2 (mathematics, complex systems) at ENS de Lyon

- Paul Vigneaux has his Associate Professor's teaching service (192 hours each year in 2010, 2011, 2012) at ENS de LYON. A few hours are done at L3 level and the majority of the service is done at 'Agregation' Training (M2 level): Numerical/Analysis, Partial Differential, Scientific Computing and Modelling. Excellent results are obtained by his students at the National Competition "Agregation de Mathematiques" (Several 20/20 and one first total rank (over 300 competitors) in 2012).
- In 2013, Paul Vigneaux only teaches 64 hours thanks to an Inria "delegation". The same year, he was an invited lecturer at the well established CNRS thematic school on "Computational Fluid Mechanics" (13th edition, each 2 years). This school is intended for Tenure-Track Researchers' as well as PhD students' training. He was also invited to give a 12 hours Doctoral lecture in the framework of the PhD program of the Institute of Mathematics of Seville, Spain (with Excellence Label from the Ministry of Education). He is also teaching at the M2-Recherche level at ENS de Lyon, a core lecture of the Mathematical Doctoral Program training of Lyon.
- Emmanuel Grenier is professor. He teaches 192h per year, at L3, M1, M2, Agrégation level (modeling, pde, analysis, ...). He was responsible of third year students of mathematics at ENS Lyon. He is now responsible for first year master students. He is a former associate professor at Ecole Polytechnique (till 2010).

7.2.2. Supervision

HdR: Benjamin Ribba, Université de Grenoble, 2013.

7.3. Popularization

- Vincent Calvez is responsible for regular actions towards high school students (regular talks in high schools).
- Paul Vigneaux:

  Paul Vigneaux has a significant activity in the official dissemination website of CNRS: "Images des Mathematiques". He is a member of its Editorial Board since the beginning in 2009, in particular responsible of the "Billets" section (60% of the total reading flux of the website). Nonetheless, he also edited most of the applied mathematics articles of the site and made several articles contributions. Among others a translated/commented article on Richard Courant and his Institute, as well as a series, with the authorization of the EMS, of 20 articles on "Success Stories of Mathematics in Industry" in 2012-2013. Cf: http://images.math.cnrs.fr/Vigneaux-Paul.html In 2013, he was one of the editors of the series of 40 books published by the association of *Le Monde* (top national newspaper), *Institut Henri Poincaré* (Head: Cedric Villani) and *Images des mathematiques*. This series was supported by Cedric Villani and aims at broadcasting mathematics to a general public. Vincent Calvez was also one of the editors of the series. Currently still under publication, it is already an editorial success in terms of selling (20 book issued).

REO Project-Team

8. Dissemination

8.1. Scientific Animation

- Laurent Boudin
  - Member of the Board of Mathematics Licence (*EFU de Licence de mathématiques*), UPMC.
  - Co-organizer of the monthly workgroup “Humaniste” focusing on mathematics applied to humanities, alternatively taking place at UPMC, UP7D and Orléans and jointly handled by LJLL, MAPMO and CAMS.
  - Member of the think-tank for first-year programs in Mathematics at UPMC.
  - Member of the IREM (Institutes for Research on Mathematics Teaching) Scientific Committee.
  - Co-organizer of the conference "Multiscale multiphysics modelling for the respiratory system", with C. Grandmont and B. Grec,
  - Co-organizer of first-year ending workshop of the Kindymo project, with J.-P. Nadal and A. Vignes.
- Muriel Boulakia
  - Organization of the workshop "Mathematical Aspects of Fluid-Structure Interactions", IHP (Paris), November 2013
- Miguel Ángel Fernández Varela
  - Member of the Postdocs Selection Committee, Inria Paris-Rocquencourt
  - Mini-symposium on *Advanced numerical methods for fluid mechanics*, ENUMATH 2013, August 26-30, Lausanne, Switzerland (organized with E. Burman and A. Ern).
  - Mini-symposium on *Fluid-structure interaction and fictitious domain methods*, SMAI 2013, 6ème biennale française des mathématiques appliquées et industrielles, May 27-31, 2013, Seignosse Le Penon, France (organized with S. Boyaval and L. Monasse).
  - Member of the "Ramón y Cajal" Program selection committee, mathematics section, Ministry of research, development and innovation (Spain).
  - Member of the committee CEA-EDF-Inria summer school on Numerical methods for interface problems in fluid and solids with discontinuities, June 23-July 4, 2014, Cadarache (with P. Massin and J. Segré).
- Jean-Frédéric Gerbeau
  - Editor-in-Chief of Mathematical Modelling and Numerical Analysis (M2AN)
  - Member of the editorial boards of International Journal for Numerical Methods in Biomedical Engineering (IJNMBE) and of Communications in Applied and Industrial Mathematics.
  - Service activity at Inria: Délégué Scientifique / Chairman of the project-teams’ committee of Inria Paris-Rocquencourt research center; Member of the Inria Evaluation Committee; Member of the Inria International Chairs committee.
  - Service activity in other French institutions: Member of the Mathematics Faculty Concil of University P. & M. Curie Paris 6 (conseil de l’UFR 929); member of the scientific committee of the Faculty of Science, University Versailles Saint-Quentin; member of the scientific committee of Labex NUMEV, Montpellier.

  - Service activity abroad: member of the Reference Committee of the PhD program Mathematical Models and Methods in Engineering (Politecnico di Milano, Italy);
  - Organizing Committee of the SIAM APDE 2013 conference. Orlando, USA.
  - Scientific Committee of the ENUMATH 2013 conference. Lausanne, Switzerland.
  - Advisory Committee of the 3rd International conference on Computational & Mathematical Biomedical Engineering (CMBE 2013). Hong-Kong
- Céline Grandmont
  - Member of the CNU 26 (2011–2015).
  - Co-organizer of the international conference "Multiscale multiphysics modelling for the respiratory system" June 26-27, 2013, Paris, around 50 participants. https://www.ljll.math.upmc.fr/m3rs2013/
  - Co-organizer of the second Math-parity Day (on gender issues in the mathematics community), 24 juin 2013, IHP, Paris. http://postes.smai.emath.fr/apres/parite/journee2013/
- Jessica Oakes
  - International Society of Aerosol Medicine Student Forum Leader. September 2013 - Present.
  - 4th International Conference on Engineering Frontiers in Pediatric and Congenitial Heart Disease. Sub-Organizer. November 2013 - Present.
- Elisa Schenone
  - Co-organizer of the monthly Junior Seminar of Inria Paris-Rocquencourt
- Marc Thiriet
  - Member of the Scientific committee of the collaborative platform DiscInNet.
  - President of thematic comittee CT3 (Biomedical Simulation and Applications to Health) of GENCI (Grand Equipement National de Calcul Intensif – National Large Equipement for Intensive Computation)
  - Member of several Evaluation Groups of the Canadian Granting Agency NSERC (mainly Mechanical Engineering, but also Mathematics)
- Marina Vidrascu
  - Member of the Postdocs Selection Committee, Inria Paris-Rocquencourt
- Irène Vignon-Clementel
  - Review Editor of Frontiers in Pediatric Cardiology
  - Organizing the monthly seminar at Inria Paris-Rocquencourt on “modeling and scientific computing”
  - Inria: member of the “Conseil d’orientation scientifique et technologique” (scientific and technologic orientation council) of Inria, in the subgroup “GT Actions Incitatives” (incentive action working group), PhD grant committee
  - Mediator between PhD students and their supervisors for Inria Paris-Rocquencourt
  - Coordinator of the associated team CARDIO between REO and Prof. Taylor’s lab at Stanford University, USA and colleagues both at Inria and in the USA (2008-present)

Conferences

- Grégory Arbia
  - Contributed talk, Congrès SMAI , Seignosse, France, May 2013.
  - Contributed talk, Modelling of physiological flows , Chia, Italy, June 2013.
  - Inria Junior Seminar, January 2013 Inria Junior Seminar, January 2013
- Laurent Boudin

  - Seminar, Numerical analysis, Irmar, Univ. Rennes 1, January 2013
  - Seminair, MIP, Univ. Toulouse 3, February 2013.
- Muriel Boulakia
  - Seminar, Univ. Darmstadt (Germany), february 2013
  - Seminar, Maths-Club, Univ. Paris-Diderot, march 2013
  - Contributed talk, Workshop Control of fluid-structure systems, Paris, november 2013
- Miguel Ángel Fernández Varela
  - Talk at minisymposium, SMAI 2013, 6ème biennale française des mathématiques appliquées et industrielles, May 27-31, 2013, Seignosse Le Penon
  - Seminar, University of Montpellier, May
- Benoit Fabrèges
  - Contributed talk, M3RS ending conference, UPMC Paris 6, June 2013
  - Contributed talk, 3th International Conference on Computational & Mathematical Biomedical Engineering, 16-18 December 2013, Hong Kong, China
  - Seminar, Nantes, January 2013
  - Contributed talk, Journée Dynamo 2013, March 2013, Orléans
  - Seminar, Strasbourg, May 2013
- Justine Fouchet-Incaux
  - Seminar at "Groupe de Travail des Thésards", March 2013, Laboratoire Jacques-Louis Lions, Paris 6
  - Poster, VIIIème congrès de Physiologie, de Pharmacologie et de The´rapeutique (P2T'13), April 2013, Angers
  - Seminar at "Groupe de Travail Numérique", May 2013, Laboratoire de Mathématiques d'Orsay
  - Talk at minisymposium "Calcul scientifique et pathologies pulmonaires", Congrès SMAI 2013, May 27-31, Seignosse,
  - Seminar of "Analyse Numérique et Equations aux Dérivées Partielles" team, June 2013, Laboratoire de Mathématiques d'Orsay
  - Contributed talk, workshop "Multiscale multiphysics modelling for the respiratory system", ANR M3RS ending conference, June 2013, Laboratoire Jacques-Louis Lions, Paris 6
  - Poster, colloque EDP-Normandie, October 2013, Caen
  - Invited speaker, workshop "BioPhysMath", December 2013, Nice
- Jean-Frédéric Gerbeau
  - Invited conference, Workshop “EDP Normandie”, Caen, 2013
  - Seminar Simon Fraser University, Vancouver, Canada, November, 2013
  - Seminar Université de Rouen, February 2013.
  - Talk at minisymposium, SIAM Conference on Analysis of Partial Differential Equation, Orlando, USA, 2013
  - Talk at minisymposium, USNCCM, Raleigh, USA, 2013
  - Talk at minisymposium, ECCOMAS, Lausanne, Switzerland, 2013
- Céline Grandmont
  - Invited speaker, Opening day of GDR Metice, May 2013, Paris
  - Contributed talk, Minisymposium, Equadiff 13, sept. 2013, Prague, Czech Republic

  - Invited speaker, PDEs and Dynamical system in Biology, Oct. 2013, Tel Aviv, Israel
  - EDP Seminar, Univ Paris-Sud, oct. 2013
- Matthieu Hillairet
  - Invited talk at Mathematical Aspects of Fluid-Structure Interactions, November 4-8, Paris,
  - Invited talk at Asymptotic behaviour of systems of PDE arising in physics and biology: theoretical and numerical points of view, November 6-8, Lille
  - Seminar, University of Paris 13, November
  - Seminar, University of Avignon, November
  - Seminar, University of Toulouse, December
  - Seminar, University of Lyon, December
- Mikel Landajuela
  - Contributed talk, 12th U.S National Congress on Computational Mechanics (US-NCCM12), Raleigh, USA, July 22-25, 2013
- Damiano Lombardi
  - Contributed talk “Tom Hughes 70”, San Diego USA, February 2013.
- Ayman Moussa
  - Workshop Kinetic Days (Toulouse, April 2013)
  - M3RS Ending Conference (LJLL, June 2013)
  - Workshop Math Bio (Versailles, March 2013)
  - Numerical Analysis/PDE Seminar (ENS Ker Lann, October 2013)
  - MFO “Classical and Quantum Mechanical Models of Many-Particle Systems” (Oberwolfach, December 2013)
  - Numerical Analysis/PDE Seminar (ENS Cachan, December 2013)
- Jessica Oakes
  - Talk and poster, 19th International Congress of the International Society for Aerosols in Medicine, Chapel Hill, USA, April 2013.
  - Poster, University of California, San Diego Research Exposition. April 2013.
  - Poster, Whitaker Grantee Orientation, July 2013.
  - Inria Junior Seminar, October 2013.
- Sanjay Pant
  - Contributed talk and poster, 4th International Workshop on Statistical Atlases and Computational Models of the Heart held in conjunction with the 16th International conference on Medical Image Computing and Computer Assisted Intervention, Sep 22–26, 2013, Nagoya, Japan.
- Elisa Schenone
  - Contributed talk at V International Symposium on Modelling Of Physiological Flows - MPF2013, June 11-14, 2013
  - Contributed talk at Mini Symposium on Cardiovascular Biomechanics at AP-COM&ISCM2013, Singapore, December 11-14, 2013.
  - 2nd Feel++ Users Days, January 23-25, 2013
  - Matinée "Contrôle" avec Alfio Quarteroni, LJLL, 21 mars 2013
- Saverio Smaldone
  - 5th International Symposium on Modelling of Physiological Flows (MPF 2013), Chia Laguna, Sardinia, Italy, 11-14 June 2013;

- Marc Thiriet
  - Keynote speaker 11th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, April 3-7, 2013, Salt Lake City, Utah
  - Keynote speaker at Annual Meeting of the Canadian Applied and Industrial Mathematics Society, CAIMS 2013, Quebec City, June 16 - 20 (joint work with Deleuze, TWH. Sheu)
  - 4th CREST-SBM International Symposium, 13-14 March 2013, Tokyo, Japan.
  - International Conference on Life Science & Biological Engineering (LS&BE'13), 15-17 March, 2013, Tokyo (joint work with Y. Deleuze, TWH. Sheu, M.)
  - 2013 International Conference on Life Science & Biological Engineering (LS&BE'13), 15-17 March, 2013, Tokyo (joint work with M. Solovchuk, TWH. Sheu)
  - 2014 IEEE International Symposium on Biomedical Imaging, Beijing, China, April 29 - May 2, 2014 Passat N.)
- Marina Vidrascu
  - Plenary talk 22st International Conference on Domain Decomposition Methods, September 16-20, 2013 - Università della Svizzera italiana - Lugano, Switzerland
  - Seminar Laboratoire Jacques Louis Lions, Paris 6 UPMC, October, 2013
- Irène Vignon-Clementel
  - Contributed talk in honor of TJR Hughes 70th birthday, FEF2013, Feb 24th-27th, San Diego, USA
  - Seminar, Department of Mechanical and Aerospace Engineering, University of California San Diego, Feb 28th, San Diego, USA
  - Plenary, CREST-SBM conference, March 13th-14th, Tokyo, Japan
  - Invited lecture (3h), University of Tokyo, March 15th, Tokyo Japan
  - Contributed talk, BIS' workshop, May 20th-21rst, Paris, France
  - Invited talk, GDR Metice, June 17th-19th, Paris, France
  - Contributed talk, MAFELAP, June 10th-13th, London, UK
  - Seminar, Department of Biomedical Engineering, King's College London, June 12th, London, UK
  - Invited talk, Multiscale multiphysics modelling for the respiratory system workshop, June 26th-27th, Paris, France
  - Contributed talk, USNCCM12, July 22nd-25th, Raleigh, USA
  - Seminar, Demi-heure de science, Inria, Sept 12th, Rocquencourt, France
  - Evaluation seminar, associated team CARDIO 2008-2013, Oct 9th, Online
  - Contributed talk, 3rd International Conference on Computational and Mathematical Biomedical Engineering, Dec 15th-18th, Honk-Hong, China

8.2. Teaching - Supervision - Juries

8.2.1. Teaching

DUT :

- Justine Fouchet-Incaux 1ère année: Mathématiques S'1, 45h, IUT d'Orsay, département Mesures Physiques, Université Paris-Sud,
- Justine Fouchet-Incaux 1ère année: Informatique et algorithmique S'1, 28h, IUT d'Orsay, département Mesures Physiques, Université Paris-Sud

Licence :

- Grégory Arbia
  - Algèbre 1 : calcul vectoriel, 36h, L1, UPMC
  - Calcul matriciel numérique, 24h, L3, UPMC.
- Chloé Audebert Calculus, 22h, L1 - undergraduate, Université Paris 6 UPMC
- Laurent Boudin
  - Series and integrals (10h), L2, UPMC.
  - Multivariable calculus and multiple integrals (111 h), L2, UPMC.
  - Shared studies supervision in mathematics licence for approximately 250 students (20h), L2, UPMC.
  - Co-supervisor (for mathematics) of the bidisciplinary computer science / applied mathematics licence program and of the joint program UPMC-Brown on computer science / applied mathematics (no hour dedicated), L2, UPMC.
- Muriel Boulakia
  - Scilab (30h), L2, UPMC
  - Hilbertian analysis (30h), level L3, Polytech'Paris,
- Miguel Àngel Fernàndez Varela Scientific computing, 30h, level L3, École des Ponts ParisTech,
- Céline Grandmont Numerical Analysis, 36 h, L3, UPMC
- Elisa Schenone
  - Calcul vectoriel, 72h, L1, UPMC
  - Calcul matriciel numérique, 24h, L3, UPMC
  - Scilab, 34h, L2, UPMC
- Irène Vignon-Clementel Mathematics for biology, 64h ETD, L1 - undergraduate, Université de Versailles Saint Quentin

Master :

Laurent Boudin

- Basics for numerical methods (48h), M1, UPMC.
- Studies supervision in mathematics master for 15 students (10h), M1, UPMC.

Muriel Boulakia

- Numerical Methods (48h), level M1, Polytech'Paris,
- Preparatory course for teaching admission examination Agrégation (80h), M2, UPMC,

Jean-Frédéric Gerbeau

- Numerical methods in hemodynamics (20h), level M2, UPMC / Univ Paris-Sud / Ecole Polytechnique.

Miguel Àngel Fernàndez Varela

- Numerical methods in bio-fluids, 6h, level M2, University of Vigo, Spain.
- Numerical methods for fluid-structure interaction, 6h, level M2, Université de Laval, Québec, Canada

Marc Thiriet

- "Biofluid flows", 12 h, University Pierre & Marie Curie

Others

- Irène Vignon-Clementel Ecole d'ingénieur: Numerical simulations of blood flow, 1h30, as part of the undergraduate "continuum mechanics" class at AgroParisTech, France

8.2.2. Supervision

PhD in progress : Grégory Arbia, *Multi-scale Modeling of Single Ventricle Hearts for Clinical Decision Support*, since October 2010. Supervisors: J-F. Gerbeau & I. Vignon-Clementel.

PhD in progress : Chloé Audebert, *Modeling of liver hemodynamics*, since October 2013. Supervisors: J-F. Gerbeau & I. Vignon-Clementel.

PhD in progress :Justine Fouchet-Incaux, *Mathematical and numerical modeling of the human breathing*, since October 2011. Supervisors: C. Grandmont & B. Maury.

PhD in progress : Mikel Landajuela, Coupling schemes and unfitted mesh methods for fluid-structure interaction, since October 2012, Supervisor: M.A. Fernández Varela.

PhD in progress :Stéphane Liwarek, *Air flow in the nasal cavity*, since October 2010. Supervisors: M.A. Fernández Varela & J-F. Gerbeau

PhD in progress : Jimmy Mullaert, *Fluid-structure interaction*, since September 2009. Supervisors: M.A. Fernández Varela& Y. Maday

PhD in progress : Elisa Schenone, *Inverse problems in electrocardiology*, since October 2011. Supervisors: J-F. Gerbeau & M. Boulakia.

PhD in progress : Saverio Smaldone, *Numerical methods for cardiac hemodynamics*, since October 2010, Supervisors: J-F. Gerbeau & M.A. Fernández Varela.

8.2.3. Juries

- Laurent Boudin
  - Member of the PhD committee of Nicolas Lelong (Univ. Tours, Sept. 2013).
- Muriel Boulakia
  - Hiring committee: UPMC (MCF position)
- Miguel Àngel Fernàndez Varela
  - Member of the PhD committees (referee) of I. Dione (Université de Laval, Québec, Canada).
- Jean-Frédéric Gerbeau
  - Habilitation (HDR) committee: Jing-Rebecca Li (HDR), Université Paris-Sud.
  - PhD committees: Simon Labarthe, Université de Bordeaux (reviewer), Vincent Chabannes, Université de Grenoble (reviewer), Alexandre Impérial, Univ. Paris 6.
  - Hiring committee: Université Paris-Sud (assistant prof), Inria Bordeaux (junior researcher), Inria (senior researcher).
- Céline Grandmont
  - AERES Committee: LMPA, Calais Univ., Nov 2013
  - Hiring committee: Metz Univ. (Professor position).
- Marc Thiriet
  - Member of the PhD committee of Robin Chatelin,(University Toulouse)
- Marina Vidrascu
  - Member of the PhD committee (referee) of Vincent Visseq (University Montpellier)
- Irène Vignon-Clementel
  - Member of the PhD committee Jessica Oakes, University of California San Diego, USA, May 31rst
  - Member of the PhD committee Charlotte Debbaut (referee), Ghent University, Belgium, Sept 20th;
  - Member of the PhD committee (referee) Alessandro Melani, MOX, Politecnico di Milano, Italy, Sept 30th.

8.3. Popularization

- Ayman Moussa
  - Participation at “Fête de la science” at Paris 7

SISYPHE Project-Team

9. Dissemination

9.1. Scientific Animation

P.-A. Bliman:
- Chargé de mission at Direction Générale de la Recherche et de l'Innovation, Ministère de l'Enseignement Supérieur et de la Recherche (since 2012, part-time, 60%) ; Scientist in charge of latin America at Direction des Affaires Internationales, Inria (since 2009, part-time, 20%) ; Member of the Scientific Committees of the regional collaboration program MATH AmSud and STIC AmSud (since 2009).
- Associate Editor of *Systems & Control Letters* (since 2008) ; Reviewer for *IEEE Transactions on Automatic Control, Automatica...* ; Expert for *Fonds National de la Recherche Scientifique* (FNRS), Belgium ; Member of the Conference Editorial Board of European Control Association (EUCA), actuating for 13th European Control Conference, Strasbourg, June 2014.

Frédérique Clément: Participation to INRA selection committees: CR2 2013 (admissibility and admission) "Modelling in cell biology and biology of organisms" ; DR2 2013 (admission) "Animal and plant genetics and physiology".
Appointed member of the scientific board of the BCDE (Cell Biology, Development and Evolution) ITMO (Multi OrganizationThematic Institute) of the French National Alliance for Life and Health Sciences http://www.aviesan.fr/en.

M. Mirrahimi: Associate Editor of Systems & Control Letters ; Member of IFAC Technical Committee on Distributed Parameter Systems.

M. Sorine: Member of IFAC Technical Committee on the Biological and Medical Systems (IFAC TC 8.2) ; Member of the scientific board of the ITMO Circulation, Metabolism and Nutrition (Multi Organization Thematic Institute of the French National Alliance for Life and Health Sciences).

Q. Zhang is Member of two IFAC Technical Committees on 1/ Fault Detection, Supervision and Safety of Technical Processes ; 2/ Modelling, Identification and Signal Processing.

9.2. Teaching - Supervision - Juries

9.2.1. Teaching

Master: P.-A. Bliman, "Advanced tools for system analysis and design by Linear Matrix Inequalities (LMI) techniques", Instituto Tecnológico de Aeronáutica, São José dos Campos (SP), Brazil (3h).
Master: S. Steer, "Modélisation et simulation des systèmes dynamiques", 20 heures, M2, Ecole Polytechnique, France.
Master: S. Steer, "Traitement numérique du signal et application aux signaux physiologiques", 32 heures, M2, Université d'Evry, France.

9.2.2. Supervision

PhD: Thiago Pereira das Chagas [33], *Stabilisation d'orbites périodiques pour des systèmes en temps discret et en temps continu*. Université Paris-Sud, Orsay, June, 25 2013. Supervisor: P.-A. Bliman.
PhD: David Marie-Luce [32], *Modélisation réduite et commande d'éléments du système de dépollution d'un groupe motopropulseur en vue des normes Euro 6 et Euro 7*. Université Paris-Sud, Orsay, March, 4 2013. Theses.fr. Supervisor: P.-A. Bliman. Co-supervisor: M. Sorine.
PhD: Alexandre Guerrini [31], *Évaluation des performances de systèmes d'assistance au contrôle pour la réanimation : Application au contrôle de la glycémie*. Université Paris-Sud, Orsay, June, 21 2013. Supervisor: M. Sorine.

9.3. Popularization

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