

CENTRE UNIVERSITAIRE D'INFORMATIQUE

ACTIVITY REPORT 2010



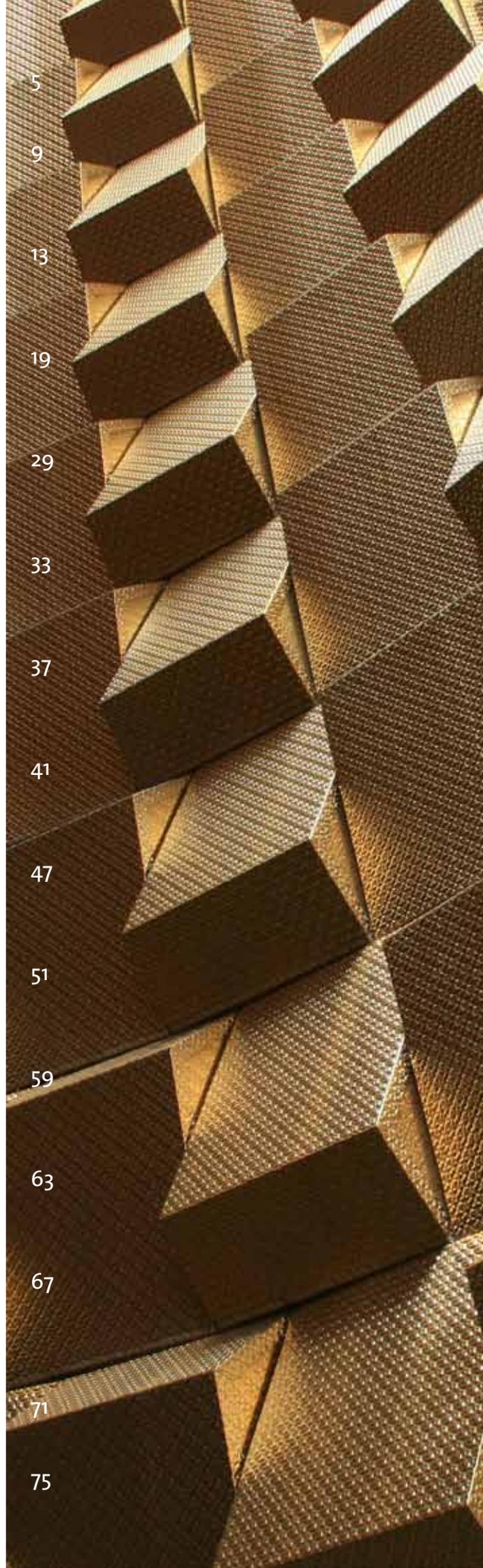
**UNIVERSITÉ
DE GENÈVE**

CENTRE UNIVERSITAIRE
D'INFORMATIQUE



UNIVERSITY OF GENEVA
Centre Universitaire d'Informatique
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Foreword



2010 was a year of many changes in the structure of the CUI - Centre Universitaire d'Informatique of the University of Geneva. Three new professors were officially nominated by their Faculties and became full members of the CUI.

Giovanna di Marzo Serugendo was nominated Full Professor at the Institute of Services Science of the Faculty of Social and Economic Sciences. Her current interests are related to the engineering of autonomous systems, in particular self-assembly of software, self-organizing, self-adaptive and large-scale services. Her applications area are, in particular, autonomous displays, industrial assembly systems, and dynamically resilient systems.

At the same institute, Jean-Henry Morin was nominated tenured Associate Professor. His main research interests are on the area on the business information systems, electronic commerce and services. In particular, his focuses are on digital rights and policy, corporate information asset management, and active business objects (agility and security for the extended enterprise, management instrument panels and dashboards).

On the Computer Science Department of the Faculty of Sciences, Sviatoslav Voloshynovskiy was nominated tenured Associate Professor. His current research interests cover the theoretical analysis of entire chain starting from the multimedia acquisition and interaction with physical objects to the final end-users. It include optimal design of imaging systems (sparse antenna arrays), processing (denoising, restoration), storage (compression, feature extraction) and communication (robust coding) as well as security and privacy related issues of information sharing, search, identification, authentication, classification and mining in large scale-systems.

We welcome the three new Professors at the CUI and we are sure of a successful cooperation. On the other side, 2010 saw the legal retirement of Prof. Christian Pellegrini. In order to celebrate this fact, the CUI organized a round table on the future of the research in informatics with the exceptional presence of Prof. Jean-Paul Haton, Prof. Hervé Bourlard, Prof. Ron Appel, Prof. François Grey and Daniel Borel, president of Logitech. As tough officially retired Prof. Pellegrini continues active in the CUI leading important EU projects.

The year of 2009 has seen the CUI being honored by many awards and new projects to the different research groups and members. The CUI is proud of the recognition given by such awards and projects detailed in this report.

As director of the CUI it is my pleasure to invite the reader to discover the main scientific and educational activities of our several laboratories and research groups during the past year.

Welcome to the CUI



Prof. José Rolim
Director of the CUI
University of Geneva

AAS

Autonomous Adaptive Systems

Prof. Giovanna Di Marzo Serugendo

iss.unige.ch

Autonomous Adaptive Systems

iss.unige.ch

Prof. Giovanna Di Marzo Serugendo

DOMAIN ACTIVITIES

The Autonomous Systems group focuses on the engineering of autonomous systems and services, in particular self-assembly of software, self-organising, self-adaptive and large-scale services. The group is exploring reliability and controllability issues (how to build a reliable and trustworthy self-organising system that is controllable); properties and formal methods issues (how formal methods can help for proving properties of self-organising systems); and developing decentralised algorithms. Considered applications areas are: autonomous displays, industrial assembly systems, services for mobile users and dynamically resilient systems.

TEAM

Director

Giovanna Di Marzo Serugendo
Full professor



Nomination August 1st 2010

SAPERE Self-Aware Pervasive Service Ecosystems

The objective of SAPERE is the development of a highly-innovative theoretical and practical framework for the decentralized deployment and execution of self-aware and adaptive services for future and emerging pervasive network scenarios. The framework will be grounded on a foundational re-thinking of current service models and of associated infrastructures and algorithms. In particular, getting inspiration from natural ecosystems, the project will demonstrate and experiment the possibility of modelling and deploying services as autonomous individuals in an ecosystem of other services, data sources, and pervasive devices, and of enforcing self-awareness and autonomic behaviours as inherent properties of the ecosystem, rather than as peculiar characteristics of its individuals only. The case studies will focus on crowd steering through an ecosystem of self-organizing cooperative displays.



Fig 1: Crowd and Displays

To be noted that as of January 1st 2011 the group was integrated in the Institute of Services Science (ISS).

Self-Organising Industrial Assembly Systems

Current solutions for industrial manufacturing assembly systems do not suit the needs of Mass Customization industry, which is facing low production volumes, many variants and rapidly changing conditions. An assembly system is an industrial installation able to receive parts and join them in a coherent way to form the final product. It consists of a set of equipment items (modules) such as conveyors, pallets, simple robotic axes for translation and rotation as well as more sophisticated industrial robots, grippers, sensors of various types, etc.). Self-organizing assembly systems are a type of assembly systems that participate in their own design by spontaneously organizing themselves in response to the arrival of a product order and manage themselves during production. Assembly system modules and product parts to be assembled organize together (among others, choose their partners, their location and monitor themselves) in order to easily and quickly produce a new or reconfigured assembly system each time a new product order arrives or each time a failure or weakness arises in the current assembly system.

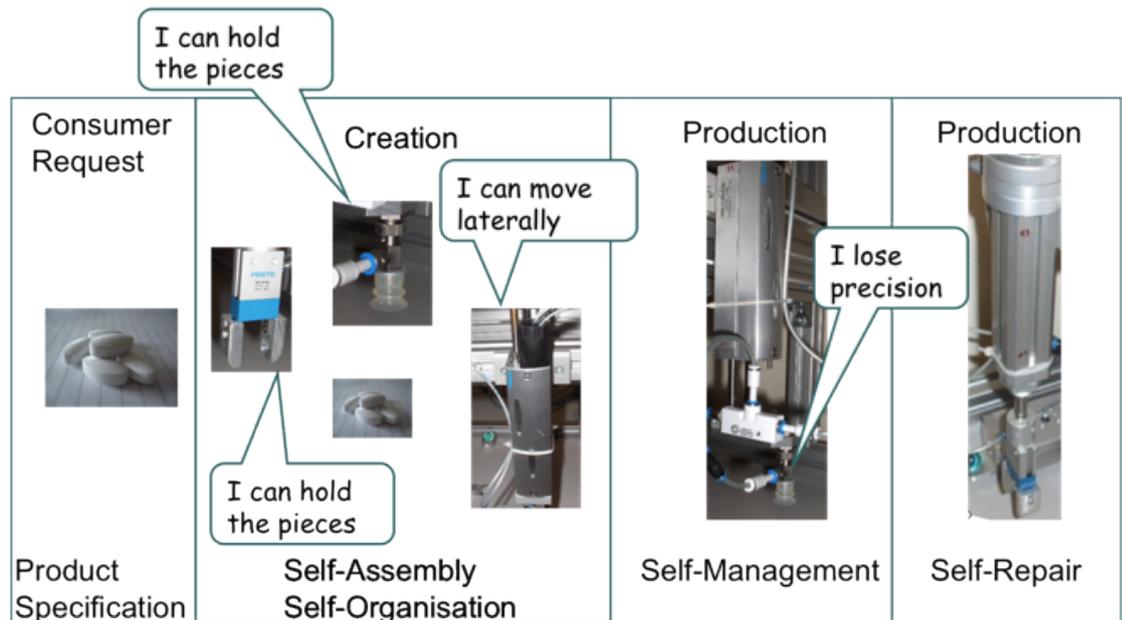


Fig 2: Self-Organising Industrial Assembly System

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] Regina Frei, Giovanna Di Marzo Serugendo, Traian Florin Serbanuta. «Ambient Intelligence in Self-Organising Assembly Systems using the Chemical Reaction Model». *Journal of Ambient Intelligence and Humanized Computing*. Springer. 1(3), pages 163–184. 2010.
- [4] R. Frei, Nuno Pereira, Jose Belo, J. Barata, G. Di Marzo Serugendo. «Implementing Self-Organisation and Self-Management in Evolvable Assembly Systems». *IEEE International Symposium on Industrial Electronics (ISIE 2010)*, July 2010.

Full refereed papers in Conference Proceedings

- [2] Di Marzo Serugendo, G. and Frei, R. (2010). «Experience report in developing and applying a method for self-organisation to agile manufacturing». *IEEE Int. Conf. on Self-Adaptive and Self-Organizing Systems (SASO)*, Budapest, Hungary, 2010.
- [3] Jose Luis Fernandez-Marquez, Josep Lluís Arcos and Giovanna Di Marzo Serugendo: «A Decentralized Approach for Detecting Dynamically Changing Diffuse Event Sources in Noisy WSN Environments». *IEEE Int. Conf. on Self-Adaptive and Self-Organizing Systems (SASO)*, Budapest, Hungary, 2010.
- [5] G. Di Marzo Serugendo, J. Fitzgerald, A. Romanovsky. «MetaSelf—An Architecture and Development Method for Dependable Self-* Systems». *The 25th Symposium on Applied Computing (SAC 2010)*. Switzerland, March 2010.
- [6] J. L. Fernandez, J. L. Arcos, G. Di Marzo Serugendo. «Infrastructureless Storage in Dynamic Environments». *The 25th Symposium on Applied Computing (SAC 2010)*. Switzerland, March 2010.
- [7] Jose Luis Fernandez-Marquez, Josep Lluís Arcos and Giovanna Di Marzo Serugendo: «A Decentralized Approach for Detecting Dynamically Changing Diffuse Event Sources in Noisy WSN Environments». *European Workshop on Multi-Agent Systems*. EUMAS 2010.

CONFERENCE ORGANIZATION AS CHAIR OR CO-CHAIR

- Steering Committee Chair: IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO'11-SASO-12)
- General chair: ACM ERCIM SERENE 2010 workshop – London, April 13-16, 2010

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- International Symposium on Stabilization, Safety and Security of Distributed Systems (SSS'10), New York, September 2010
- International Conference on Cloud Computing (2010), Barcelona, Spain, 2010
- IFAC Workshop on Intelligent Manufacturing Conference Systems (IMS 2010), Lisbon, July 2010
- Bio-inspired Algorithms for Distributed Systems (BADS'10), Washington, June 2010
- ACM ERCIM Software Engineering for Resilient Systems (SERENE'10), London, UK, April 2010
- IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO'10), Budapest, Hungary, October 2010
- Reviewer: International Journal of Agent-Oriented Software Engineering

INVITED TALKS

- Hovering Information—Infrastructureless spatial storage. University of Delft. Seminar. November 2010.

FUNDED RESEARCH PROJECTS

Participation to European projects

SAPERE

Self-Aware Pervasive Service Ecosystems

Funded by the FP7 programme of the EU

Partners: University of Modena e Reggio Emilia, University of Bologna, University of Geneva, University of Linz, University of St Andrews

Period: October 2010 - September 2013

Website: <http://www.sapere-project.eu/>

OTHERS

PhD Thesis Jury

- UK, Ireland

Editorial responsibilities

- Editor-in-chief: ACM Transactions on Autonomous Adaptive Systems (TAAS)
- Editorial Board Member: Multiagent and Grid Systems - An International Journal. ISSN: 1574-1702.
- Editorial Board Member: International Journal of Intelligent Information and Database Systems. InderScience.

Task force / Working groups

- IEEE ETTC Organic Computing Task Force - Member
- IEEE CIS Standards Committee—Task Force in Terminology and Taxonomy—Member
- ERCIM SERENE Working Group

TEACHING

- **Contextualisation et Qualité des Services**, Information Systems, Bachelor, 3 ECTS, 28 hours, 15 students
- **Social and Legal Issues in Informatics**, Information Systems, Master, 6 ECTS, 56 hours, 6 students

The logo for ASG, consisting of the letters 'A', 'S', and 'G' in a bold, sans-serif font. The letters are filled with a dark, textured pattern that resembles a woven fabric or a fine grid.

Advanced Systems Group

Prof. Dimitri Konstantas

iss.unige.ch

Advanced Systems Group

iss.unige.ch

Prof. Dimitri Konstantas

DOMAIN ACTIVITIES

During 2010 the AS Group research was oriented towards the application of Mobile technologies to solve real life problems, in the domain of Ambient Assisted Living and Trust and Identity Management.

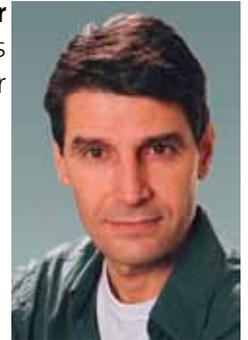
From the point of view of research projects, the project TRAINUTRI started, while a new project (WayFiS) was accepted (to start in 2011) both in the domain of Ambient Assisted Living. The FP7 ULOOP project started in September 2010 and the FP7 PERIMETER continued both in the domain on trust for wireless networks.

From the point of view of personnel at the end of 2010 the group was composed of 11 persons, headed by Prof. Dimitri Konstantas. In fall 2010 Dr. Katarzyna Wac returned as MA from her Post-Doc scholarship from FNRS at Carnegie Mellon University at the United States, and Dr. Lucjan Janowski joined to group a SCIEX post doc.

TEAM

Director

Dimitri Konstantas
Full professor



Senior researchers

Dr. Jean-Marc Seigneur (MER)
Dr. Katarzyna Wac (MA, since September 2010)
Dr. Lucjan Janowski (postdoc, since October 2010)
Dr. LEMONIA Ragia (until March 2010)

PhD students

Alfredo Villalba
Hikari Watanabe (until June 2010)
Dejan Munjin
Xavier Titi
Carlos Ballester Lafuente (since September 2010)

Technical personnel

Richard Bults (since May 2010)
Wilhem Broekema (since May 2010)
Jody Hausmann (since May 2010)
Mark Fasel (since December 2010)

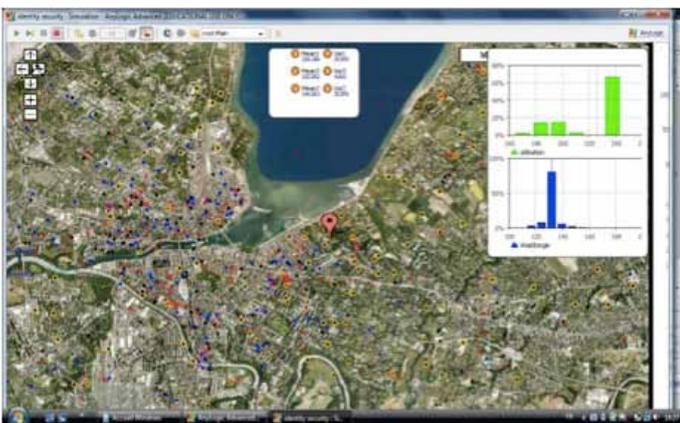


Fig 1: FoxyTag Virtual Tags in the Geneva Area

To be noted that as of January 1st 2011 the group was integrated in the Institute of Services Science (ISS).

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] Stavros Christodoulakis , Michalis Foukarakis , Lemonia Ragia , Hiroaki Uchiyama , Takuya Imai, «Picture Context Capturing for Mobile Databases», IEEE Multimedia, Issue Date:April 2010, pp. 34-41.

Full refereed papers in Conference Proceedings

- [2] Katarzyna Wac, Anind K. Dey, «Mobile user experience beyond the laboratory: Towards methodology for QoE-QoS evaluation in natural user environments», International Workshop on Observing the Mobile User Experience, co-located with NordicHCI, Reykjavik, October 2010.
- [3] Pawel Prociow, Katarzyna Wac, John Crowe, «Wearable System for Personalized Ambient Monitoring and Interventions for Patients with Bipolar Disorder», International Workshop on Therapeutic Strategies - a Challenge for User Involvement in Design, co-located with NordichCI, Reykjavik, October 2010.
- [4] Katarzyna Wac, Anind K. Dey, Athanasios V. Vasilakos, «Body Area Networks for Ambulatory Psychophysiological Monitoring: A Survey of Off-the-Shelf Sensor Systems», 5th IEEE International Conference on Body Area Networks (BodyNets10), Corfu, Greece, 10-12 September 2010.
- [5] Katarzyna Wac, Markus Fiedler, Richard Bults, Hermie Hermens, «Estimations of Additional Delays for Mobile Application Data from Comparative Output-Input Analysis», IEEE/IFIP Network Operations and Management Symposium (NOMS10), Osaka, Japan, 19-23 April 2010.
- [6] Katarzyna Wac, Anind K. Dey, emoBAN: «Improving Quality of Life via Psychophysiological Mobile Computing» (Position Paper), Brain Body and Bytes: Psychophysiological User Interaction Workshop (at CHI2010), Atlanta, Georgia, US, 10-15 April 2010.
- [7] Jean-Marc Seigneur, Xavier Titi and Tewfiq El Maliki, «Towards mobile/wearable device electrosmog reduction through careful network selection», in the Proceedings of the 1st Augmented Human International Conference, ACM, 2010.
- [8] Tewfia El Maliki and Jean-Marc Seigneur, «A Security Adaptation Reference Monitor (SARM) for Highly Dynamic Wireless Environments», in the Proceedings of the Fourth International Conference on Emerging Security Information, Systems and Technologies SECURWARE, Italy, IARIA, 2010.
- [9] Xavier Titi and Jean-Marc Seigneur, «Verifying Hotspot Quality User Rating With Certified QoS Evidence», in the Proceedings of the Fourth International Conference on Emerging Security Information, Systems and Technologies SECURWARE, Italy, IARIA, 2010.
- [10] Xavier Titi and Jean-Marc Seigneur, «Trust-based Hotspot Selection», in the Proceedings of the e-Society International Conference, Portugal, IADIS, 2010.
- [11] Xavier Titi, Baris Yavuz, Lenny Ridell and Jean-Marc Seigneur, «Reputation System for Access Point Selection», in the Proceedings of the International Conference on New Media and Interactivity, Istanbul, 2010.



Fig 2: Virtual Tags tracking with TrackerTag

Books and book chapters

- [12] Katarzyna Wac, Pravin Pawar, Tom Broens, Bert-Jan van Beijnum, Aart van Halteren, «Using SOC in Development of Context-Aware Systems: Domain-Model Approach», Enabling Context-Aware Web Services: Methods, Architectures, and Technologies, M. Sheng, J. Yu and S. Dastdar (Eds.), Chapman and Hall/CRC Publisher .
- [13] Katarzyna Wac, Melanie Hilario, Bert-Jan van Beijnum, Richard Bults, Dimitri Konstantas, «QoS-Predictions Service: QoS Support for Proactive Mobile Services», Wireless Network Traffic and Quality of Service Support: Trends and Standards, Lagkas, T., Angelidis, P. and Georgiadis, L. (Eds.), IGI Global Publisher.
- [14] Hideo Saito, Jean-Marc Seigneur, Guillaume Moreau and Pranav Mistry, «Proceedings of the 1st Augmented Human International Conference», International Conference Proceeding Series, ACM.

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

- Dimitri Konstantas: Member of the advisory and scientific committee of the IICREST institute, Sofia, Bulgaria.
- Dimitri Konstantas: Vice-Chair of the ERCIM eMobility WG.

CONFERENCE ORGANIZATION AS CHAIR OR CO-CHAIR

Dimitri Konstantas:

- Co-Chair of the The International Conference on e-Health Services and Technologies (ICHST 2010), Athens, Greece.

Jean-Marc Seigneur:

- Co-Chair of the first ACM Augmented Human International Conference (AH 2010), Megève, France.
- Chair of the trust/reputation track of the 25th ACM Symposium of Applied Computing, Sierre, Switzerland.

MEMBER OF CONFERENCE PROGRAM COMMITTEES

Dimitri Konstantas:

- ICSOFT 2010
- ICGREEN 2010
- MED2010
- I3E 2010

Jean-Marc Seigneur:

- IEEE/IFIP TrustCom 2010
- IFIP TM 2010
- ACM SAC 2010
- PST 2010
- ACM AH 2010

Katarzyna Wac:

- ACM IHI 2010
- ADAMUS 2010
- Pervasive 2010
- BioAmbIS 2010
- IQ2S 2010
- MobileHCI 2010

INVITED TALKS

- Katarzyna Wac, QoS and QoE for medical applications, European Telecommunications Standards Institute (ETSI) workshop on «Quality of Service - Quality of Experience», September 2010.

FUNDED RESEARCH PROJECTS

Participation to European projects

PlayMancer

A European Serious Gaming 3D Environment

Funded by the FP7 programme of the EU

Partners: Systema Technologies S.A. (Coordinator, Greece), TXT e-solutions S.p.A. (Italy), Netunion s.a.r.l. (Switzerland), University of Patras - The Wire Communications Laboratory (Greece), Technische Universitaet Wien (Austria), Fundacio privada institut d'investigacio biomedica de bellvitge (Spain)

Period: November 2007 - October 2010

Website: <http://www.playmancer.eu/>

PERIMETER

User Centric Paradigm for Seamless Mobility in Future Internet

Funded by the FP7 programme of the EU

Partners: Grupo Corporativo GFI Informatica (GFI), Traffix Systems Ltd (TxS), Université de Genève (UNIGE), Fachhochschule Vorarlberg GmbH (FHV), Waterford Institute of Technology (WIT), Blekinge Institute of Technology (BTH), Technische Universität Berlin (TUB), Turkcell Iletisim Hizmetleri A.S (TC), Consorzio Nazionale Interuniversitario per le Telecomunicazioni (CNIT), Telefonica I+D (TID)

Period: May 2008 - April 2011

WebSite : <http://www.ict-perimeter.eu>

Traffic Monitoring and Analysis

Theory, techniques, tools and applications for the future networks

Funded by : COST Action: ICo703

Partners : Coordinator Forschungszentrum Telekommunikation Wien, Austria

Period: April 2008 - March 2012

Web Site: <http://www.cost-tma.eu/>

TRAINUTRI

Funded by SER/EU

Partners : Planet Media (ES), UPM (ES), MobiHealth (NL), University of Geneva (CH), KMOP (GR), UC3M-CAOS (ES), VigiSense SA (CH), ArxiT SA (CH)

Period: April 2010 - March 2012

ULOOP

Funded by the FP7 programme of the EU

Partners : Alcatel Lucent BellLabs (ALBLF), France, University Lusófona/COFAC srl, Portugal, Huawei Technologies Dueseldorf GmbH (HWDU), Germany, Aria S.p.A. (ARIA), Italy, Caixa Mágica Software Lda, Portugal, FON Wireless Ltd, United Kingdom, Technische Universitaet Berlin (TUB), Germany, University of Kent (UniK), United Kingdom, Level7 (LEVEL7), Italy, University of Geneva (UNIGE), Switzerland, University of Urbino (UniUrb), Italy

Period: September 2010 - August 2013

Website: <http://siti.ulusofona.pt/~uloop/>

Participation to National projects

Monitoring and analysis of wireless networks for a QoS-Prediction Service design and development

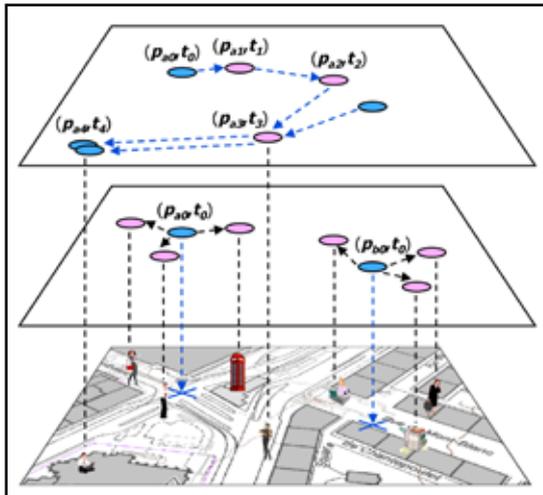
Funded by SER (Swiss federal secretariat for research and education)

Period: November 2008 - October 2011

TECHNOLOGY TRANSFER

In collaboration with ArxiT SA, creation of the **GeTag** service for the Geneva Tourist office.

Fig 3: Hovering information:
An overlay for mobile content



Hovering information (blue) will be capable of moving from one location to another (from \mathbf{p}_{a0} to \mathbf{p}_{a4}) jumping across the intermediate physical devices (pink)

Hovering information (blue) will be linked to a location and optionally time stamped ($\mathbf{p}_{a0}, \mathbf{t}_a$). Physically, this information will reside in neighbouring devices (pink) (MANET, Sensor net)

In the absence of fixed infrastructure, hovering information will use all devices in its neighbourhood such as phones, RFIDS, sensors, PDAs, laptops, PCs, etc

OTHERS

Dimitri Konstantas:

- Expert evaluator for the Dutch and Chilian national research foundations.

Jean-Marc Seigneur:

- Thales scientific board member.

Katarzyna Wac:

- «Performance evaluation of a mobile systems and their services: measurements-based methodology and example assessment techniques», Tutorial presented at IEEE/IFIP Network Operations and Management Symposium (NOMS'10), Osaka, Japan, 19-23 April 2010.
- European Science Foundation-COST Research Conference 'Future Internet & Society' - «COST Ambassador» grant for presenting the topic «From Quality of Service to Quality of Experience in Health Informatics Systems», Italy, October 2010.
- Member of International Society for Ambulatory Assessment of Human Psychophysiology (SAA)

TEACHING

- **Infrastructure de Communications**, Information Systems, Bachelor, 6 ECTS, 56 hours (winter semester), 12 students
- **Services Internet**, Information Systems, Bachelor, 6 ECTS, 56 hours (spring semester), 14 students
- **Intégration et déploiement de services informatisés**, Information Systems, Bachelor, 6 ECTS, 56 hours (spring semester), 6 students
- **Introduction to Mobile Systems and Services**, Information Systems, Master, 6 ECTS, 56 hours (winter semester), 6 students
- **Design of Multimedia Services**, Information Systems, Master, 6 ECTS, 56 hours (spring semester), 6 students
- **Technologies for Services**, Information Systems, Master, 6 ECTS, 56 hours (spring Semester), 12 students
- **Séminaire du Master**, Advanced Seminar on Industrial & Emerging issues in Information Systems in the Master in Information Systems, 3 ECTS, 14 hours (year round), 5 students
- **Projet Intra-Master**, Master in Information Systems, 3 ECTS, 14 hours (year round), 6 students

CVML

Computer Vision and Multimedia Laboratory

Prof. Thierry Pun
Prof. Sviatoslav Voloshynovskiy
Dr. Stéphane Marchand-Maillet

cvml.unige.ch

Computer Vision and Multimedia Laboratory

cvml.unige.ch

Prof. Thierry Pun

DOMAIN ACTIVITIES

The **Computer Vision and Multimedia Laboratory** (CVML, <http://cvml.unige.ch>), divided into three groups, carries out research in multimedia data processing, multimedia data management and security, as well as in multimodal human-machine interaction. Research applies to media such as text, audio tracks, sounds, images and videos, and to physiological signals.

Content-based Visual Indexing and Retrieval group (Viper, MER. S. Marchand-Maillet, <http://viper.unige.ch>): develops strategies for the efficient indexing retrieval and exploration of large multimedia databases. The group studies the complete chain of multimedia management from multimedia processing to content modeling, description and storage and interactive retrieval.

Stochastic Information Processing group (SIP, Prof. S. Voloshynovskiy, <http://sip.unige.ch>): studies various aspects of information theory and statistical (stochastic) information analysis and processing. The applications mostly cover object identification and authentication based on unclonable object features in large nonstructured databases originating from various imaging techniques, mass-spectrometry and bioinformatics. Current research also concerns privacy preserving search, indexing and multiclass classification.

Multimodal Interaction group (MMI, Prof. T. Pun, <http://cvml.unige.ch/MMI>): studies various forms of interaction between humans, computers, and environment. Some considered interaction modalities are haptic, auditory, and based on physiological signals such as EEGs (electroencephalograms), EMG (electromyograms), blood pressure, galvanic skin resistance (GSR) and skin temperature, breathing rate. Current developments concern: affective state determination and emotion recognition and their use for affective computing, multimodal interaction, brain-computer interfaces, and mobility aids for sight handicapped people.

The CVML has various specialized equipment and associated software:

- portable microscope with wireless communications for item identification and authentication;
- computer cluster of 20 Dual Core 3GHz PCs each with 8 Gb RAM and 500Gb disk, inter-connected with GigaBit Ethernet.
- servers with high storage (overall 3.5Tb, Raid 5) and processing capabilities (1 Transtec Calleo (2 Xeon Dual Core, 12Gb RAM) and 2 SunFire X4150 (2 QuadCore, 32Gb RAM each), all 64bits architecture).
- Biosemi Active II EEG acquisition system (<http://www.biosemi.com/>) with 64+16 electrodes, with other sensors to record heart rate, GSR, skin temperature, breathing rate, blood pressure, and EMGs;
- Guger Technology gTec gMobilab+ mobile physiological signals recording system (<http://www.gtec.at/>);
- Eckel C14 audiometric research chamber (<http://www.eckel.ca/>) with electromagnetic insulation (Faraday cage), 2.16m x 1.80m x 2.37m;
- eye gaze-tracker QuickGlance 2 (EyeTech Digital Systems);
- head-mounted display Emagin z800;
- stereo cameras: Videre Design STH-MDCS2, Bumblebee CCD BB2-03S2C-60;
- 3D time-of-flight camera SR4000 3D;
- combined 3D time-of-flight + luminance camera PMD CamCube 3.0 200x200 pixels;
- combined 3D + color camera Microsoft Kinect.

TEAM

Directors

Thierry Pun
Full professor



Sviatoslav Voloshynovskiy
Associate professor



Dr. Stéphane
Marchand-Maillet (MER)



Members

Dr. Guido Bologna
Dr. Eric Bruno (until Aug. 2010)
Dr. Guillaume Chanel (since Dec. 2010)
Dr. Oleksiy Koval

PhD students

Fokko Beekhof
Benoît Deville
Moritz Diephuis
Farzad Farhadzadeh
Juan Gomez (since June 2010)
Taras Holotyak
Jana Kludas
Hisham Mohamed (since Nov. 2010)
Donn Morrison
Mohammad Soleymani
Ke Sun (since Oct. 2010)
Eniko Szekely
Marc von Wyl

Trainee

Sophie Adama (since Sept. 2010)

PHD THESIS

- Jana Kludas, «Information Fusion for Multimedia exploiting Feature Interactions for Semantic Feature Selection and Construction», December 2010

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] M. Soleymani, M. Pantic, T. Pun, «Multi-modal emotion recognition in response to videos», *IEEE Trans. on Affective Computing*, Subm., Jan. 2011.
- [2] M. Soleymani, J. Lichtenauer, T. Pun, M. Pantic, «A multi-modal affective database for affect recognition and implicit tagging», *IEEE Trans. on Affective Computing*, Special Issue on Naturalistic Affect Resources for System Building and Evaluation, B. Schuller, L. Devillers, R. Cowie, E. Douglas-Cowie, A. Batliner, Guest Editors. Submitted Nov. 8th, 2010.
- [3] S. Koelstra, C. Mühl, M. Soleymani, Jong-Seok Lee, A. Yazdani, T. Ebrahimi, T. Pun, A. Nijholt, I. Patras, «DEAP: A database for emotion analysis using physiological signals», *IEEE Trans. on Affective Computing*, Special Issue on Naturalistic Affect Resources for System Building and Evaluation, B. Schuller, L. Devillers, R. Cowie, E. Douglas-Cowie, A. Batliner, Guest Editors. Submitted Nov. 1st, 2010.
- [4] G. Bologna, B. Deville, T. Pun, «Toward local and global perception modules for vision substitution», *Neurocomputing*, Accepted for publication, July 2010. (Online: doi:10.1016/j.neucom.2010.07.022).
- [5] G. Chanel, C. Rebetz, M. Betrancourt, T. Pun, «Emotion assessment from physiological signals for adaptation of games difficulty», *IEEE Trans. on Systems, Man, and Cybernetics - Part A: Systems and Humans*, submitted, June 2009.
- [6] J. J. M. Kierkels, M. Soleymani, T. Pun, «Identification of narrative peaks in clips: text features perform best», *VideoCLEF 2009, Cross Language Evaluation Forum (CLEF) Workshop, Post-Conference Proc.*, Springer LNCS, 2010, to appear.
- [7] R. Rytsar, T. Pun, «EEG source reconstruction using global optimization approaches: Genetic Algorithms versus Simulated Annealing», *Int. Journal of Tomography and Statistics*, Special Issue on Image Processing, Vol. 14 (Special Volume), No. S10, Summer 2010. To appear.
- [8] S. Voloshynovskiy, O. Koval, F. Beekhof and T. Holotyak, «Information-theoretic multiclass classification based on binary classifiers: on coding matrix design, reliability and maximum number of classes», *Journal of Signal Processing Systems*, Nov. 2010. (invited paper)
- [10] J. D. Gomez, G. Bologna, T. Pun, «Color-audio encoding interface for visual substitution: See COLOr Matlab-based demo», *ASSETS 2010, 12th Int. ACM SigAccess Conf. on Computers and Accessibility, Demonstrations Track*, Oct. 25-27, 2010, Orlando, Florida, USA (extended abstract).
- [11] B. Deville, G. Bologna, T. Pun, «Detecting objects and obstacles for visually impaired individuals using visual saliency», *ASSETS 2010, 12th Int. ACM SigAccess Conf. on Computers and Accessibility, Demonstrations Track*, Oct. 25-27, 2010, Orlando, Florida, USA (extended abstract).
- [12] M. Soleymani, M. Larson, «Crowdsourcing for affective annotation of video: development of a viewer-reported boredom corpus», *33th ACM SIGIR, Workshop on Crowdsourcing for Search Evaluation*, July 19-23, 2010, Geneva, Switzerland. (This paper received the runnerup award from Bing).
- [13] S. Koelstra, A. Yazdani, M. Soleymani, C. Mühl, Jong-Seok Lee, A. Nijholt, T. Pun, T. Ebrahimi, and I. Patras, «Single trial classification of EEG and peripheral physiological signals for recognition of emotions induced by music videos», *BI'2010, Brain Informatics*, Aug. 28-30, 2010, Toronto, Canada.
- [14] G. Bologna, B. Deville, T. Pun, «Sonification of color and depth in a mobility aid for blind people», *ICAD 2010, 16th Int. Conf. on Auditory Displays*, June 9-15, 2010, Wash. DC, USA.
- [15] F. Beekhof, S. Voloshynovskiy, O. Koval and T. Holotyak, «On Accuracy, Privacy and Complexity in the Identification Problem», In *Proceedings of SPIE Photonics West, Electronic Imaging 2010, Multimedia Content Access: Algorithms and Systems IV*, San Jose, USA, 2010.
- [16] T. Holotyak, S. Voloshynovskiy, F. Beekhof and O. Koval, «Fast identification of highly distorted images, In *Proceedings of SPIE Photonics West*», *Electronic Imaging 2010, Media Forensics and Security XII*, San Jose, USA, 2010.
- [17] S. Voloshynovskiy, O. Koval, F. Beekhof, F. Farhadzadeh, and T. Holotyak, «Private Content Identification: Performance-Privacy-Complexity Trade-off», *IEEE MMSP 2010*, Saint-Malo, France, 4-7 October, 2010.
- [18] S. Voloshynovskiy, O. Koval, T. Holotyak, F. Beekhof, and F. Farhadzadeh, «Privacy amplification of content identification systems based on fingerprint bit reliability», *IEEE Workshop on Information Forensics and Security - WIFS'10*, Seattle, USA, 12-15, December, 2010.
- [19] F. Farhadzadeh, S. Voloshynovskiy, and O. Koval, «Performance Analysis of Identification System Based on Order Statistics List Decoder», *IEEE International Symposium on Information Theory – ISIT2010*, Austin, Texas, USA, 13-18 June, 2010.
- [20] O. Koval, S. Voloshynovskiy, «Multimodal object authentication with random projections: a worst-case approach, In *Proceedings of SPIE Photonics West*», *Electronic Imaging 2010, Media Forensics and Security XII*, San Jose, USA, 2010.
- [21] S. Voloshynovskiy, O. Koval, F. Beekhof, F. Farhadzadeh, and T. Holotyak, «Information-Theoretic Analysis of Private Content Identification», *IEEE Information Theory Workshop - ITW'10*, Dublin, Ireland, 30 August - 3 September, 2010.

Full refereed papers in Conference Proceedings

- [9] M. Soleymani, S. Koelstra, I. Patras, T. Pun, «Continuous emotion detection in response to music videos», *EmoSPACE 2011, 1st Int. Workshop on Emotion Synthesis, rePresentation, and Analysis in Continuous space*, in conjunction with *IEEE FG 2011*, March 24-25, 2011, Santa Barbara, CA, USA.

- [22] F. Farhadzadeh, S. Voloshynovskiy, and O. Koval, «Privacy Preserving «Identification: Order Statistics List Decoding Perspective», IHH-MSP 2010, Darmstadt, Germany, 15-17 October, 2010.
- [23] F. Farhadzadeh, S. Voloshynovskiy, and O. Koval, «Content Identification Based on digital fingerprint: what can be done if ML decoding fails?», IEEE MMSP 2010, Saint-Malo, France, 4-7 October, 2010.
- [24] F. Farhadzadeh, S. Voloshynovskiy, and O. Koval, «Content-Identification: Towards Capacity Based on Bounded Distance Decoder», WAITCS, Yerevan, Armenia, 10-14 April, 2010.
- [25] Morrison, D., Bruno, E., & Marchand-Maillet, S. (2010). «TagCaptcha: Annotating images with CAPTCHAs». In ACM MULTIMEDIA 2010 (Demo Program), Firenze, Italy.
- [26] Szekely, E., Bruno, E., & Marchand-Maillet, S. (2010). «High-dimensional multimodal distribution embedding». In IEEE ICDM 2010 Workshop on Visual Analytics and Knowledge Discovery (VAKD'10), Sydney, Australia.
- [27] Marchand-Maillet, S., Morrison, D., Szekely, E., Kludas, J., von Wyl, M., & Bruno, E. (2010). «Mining Networked Media Collections». In Adaptive Multimedia Retrieval, Madrid, Spain (invited).

BOOKS AND BOOK CHAPTERS

- [28] Fabio Crestani and Stephane Marchand-Maillet and Hsin-Hsi Chen and Efthimis N. Efthimiadis and Jacques Savoy. (2010). Proceeding of the 33rd International ACM SIGIR Conference on Research and Development in Information Retrieval, SIGIR 2010, Geneva, Switzerland, July 19-23, 2010. ACM.
- [29] Marchand-Maillet, S., Morrison, D., Szekely, E., & Bruno, E. (2010). «Interactive Representations of Multimodal Databases». In J. -P. Thiran, H. Bourlard & F. Marques (Eds.), Academic Press.
- [30] Tsirikas, T., & Kludas, J. (2010). «Overview of the wikipediaMM task at Image» CLEF 2009. Springer.

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

- T. Pun: Member of the Steering Committee of the National center of competence in research NCCR-(IM)² Interactive Multimodal Information Management, headed by the IDIAP research institute, Martigny.
- S. Voloshynovskiy: Member of the IEEE Information Forensics and Security Technical Committee. Link: <http://www.signalprocessingsociety.org/technical-committees/list/ifs-tc/ifs-tc-members/>
- S. Marchand-Maillet, Member of the Steering Committee for the International ACM Conference on Multimedia Retrieval (ICMR)
- S. Marchand-Maillet Chair of the Technical Committee 12 on «Multimedia and Visual Information Systems» of the International Association for Pattern Recognition.

CONFERENCE ORGANIZATION AS CHAIR OR CO-CHAIR Stéphane Marchand-Maillet:

- co-chair of the ACM Conference on Research and Development in Information Retrieval, SIGIR 2010, July 2010, Geneva (550+ participants). <http://www.sigir2010.org>

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- 17th Int. Conf. Multimedia Modeling MMM2011 (Taipei, Taiwan);
- ICPR 2010, 20th. Int. Conf. Pattern Recogn. (Istanbul, Turkey); MMM2010 (Beijing, China);
- SPIE2010, Electronic Imaging 2010, Multimedia security and watermarking XII, San Jose, USA, 2010.
- SIP2010, The 11th IASTED International Conference on SIGNAL AND IMAGE PROCESSING SIP 2010, August, 2011, Honolulu, Hawaii, USA.
- ACM2010, Multimedia and Security Workshop 2010, Rome, Italy, September, 2010.
- IWDW2010, International Workshop on Digital Watermarking 2010, Seoul, Korea, October, 2010.
- MMSP2010, IEEE 2010 IEEE International Workshop on Multimedia Signal Processing, organization of special session on «Fingerprinting based multimedia content management and security», Saint-Malo, France, October, 2010.
- Also: MMM10, RFIA2010, RIAO2010, WIAMIS 2010, CBMI2010, ICME2010, IPTA2010, ICSC2010, AMR2010, SAMT2010, SAC-IAR2010, CORIA2010, IEEE-ICME2010

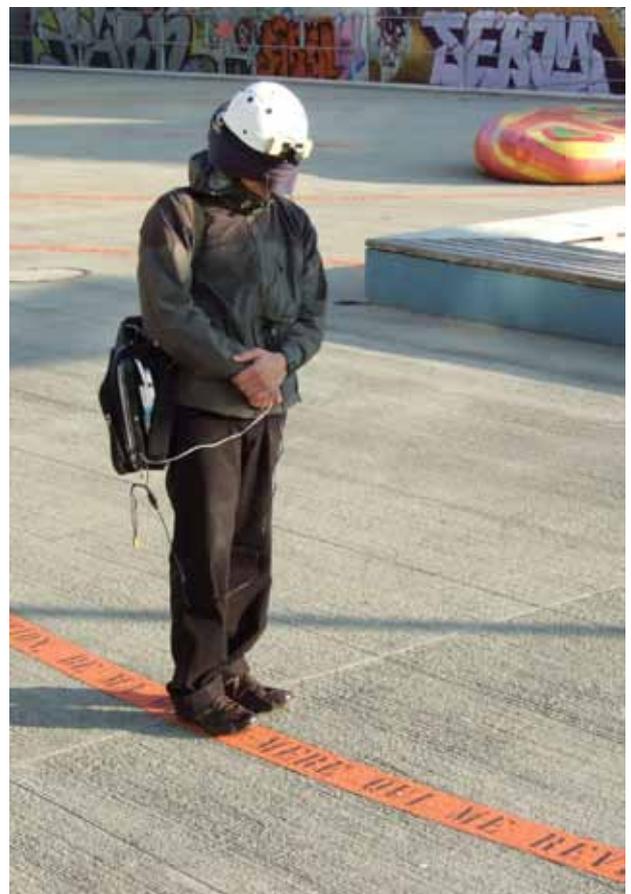


Figure 1: A blindfolded person following a red serpentine line by means of musical sounds only (SeeColor project, Hasler Foundation, with the HES-SO Geneva).

INVITED TALKS

- T. Pun, «Affective computing and multimodal HCI: issues and examples», «Emotion assessment from physiological signals for adaptation of games difficulty», Invited talks, GDR-ISIS (Information, Signal, Image et Vision) Workshop on Emotion, Nov. 25, 2010, Lyon, France.
- S. Voloshynovskiy, «Multiclass classification based on binary classifiers», Polish Neural Network Society, Polish Academy of Science, Zakopane, Poland, 11 June, 2010.
- S. Marchand-Maillet «Multiview Clustering: A Late Fusion Approach Using Latent Models», University of Magdeburg, Germany, November 2010.

FUNDED RESEARCH PROJECTS

Participation to European projects

Petamedia

Peer-to-peer Tagged Media, European network of excellence, FP7 ICT-2007.1.5

Period: March 2008 - September 2011

Participation to National projects

FNRS-SNSF, Swiss National Science Foundation:

Swiss National Center of Competence in Research (IM)2 - Interactive Multimodal Information Management (Leading House: IDIAP Martigny)

Period: 2010 – 2013

Website: <http://www.im2.ch>

Emotion-driven personalized content-based multimedia management

SNSF 200020-124774

Principal investigator: Prof. T. Pun

Period: April 2009 – February 2011

SeeColor II: Seeing colours with an orchestra II

SNSF 200021-127334

Principal investigator: Dr. G. Bologna

Period: October 2009 – September 2011

Participation to the NCCR «Affective Sciences»

Prof. T. Pun is an Associate member of this NCCR.

Reliable and secure forensic authentication based on random projections and distributed coding

SNSF 200020-121635

Principal investigator: Prof. S. Voloshynovskiy

Period: October 2008 – August 2010

Secure unclonable identification/authentication codes based on natural randomness

SNSF 200021-11977

Principal investigator: Prof. S. Voloshynovskiy

Period: March 2009 – February 2011

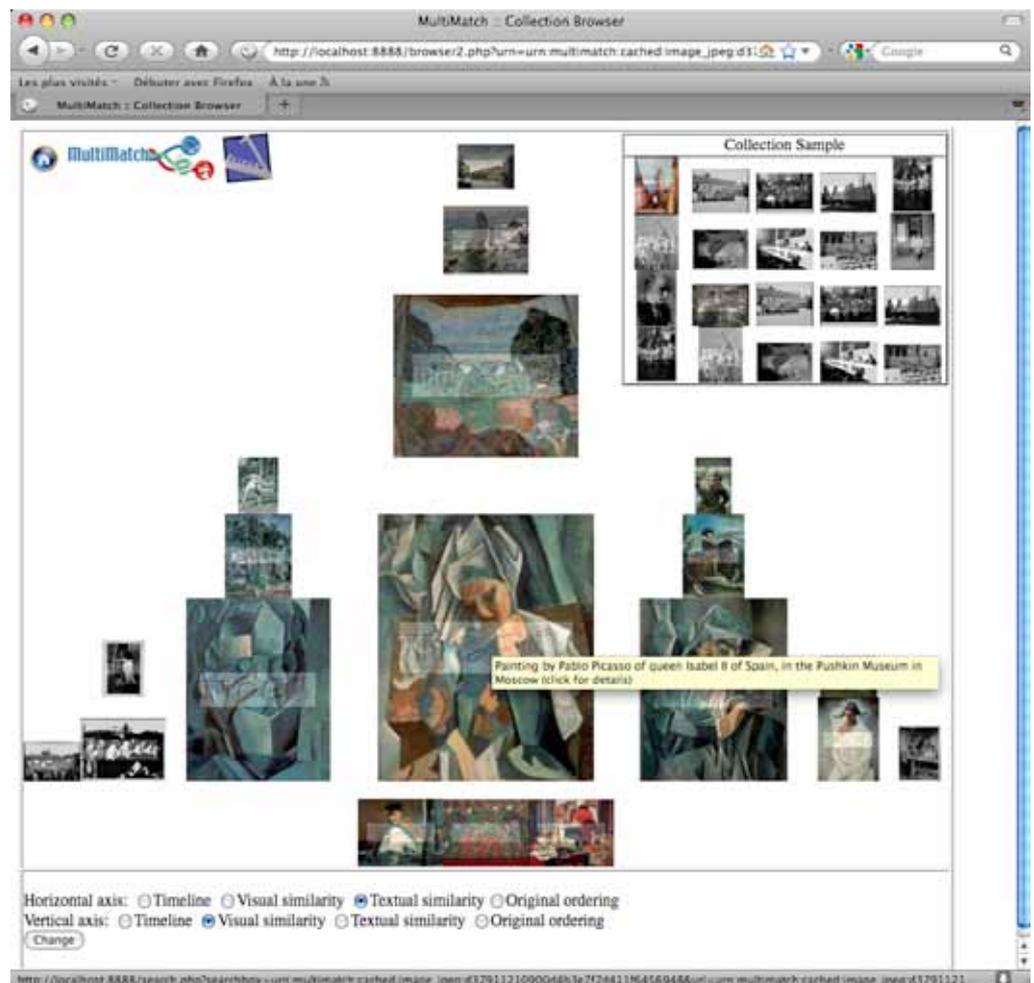


Figure 2: Similarity-based collection browser

SwiftLink: Machine Learning Strategies for Adaptive Multimedia Navigation

SNSF 200021-119906

Principal investigator: Dr. S. Marchand-Maillet

Period: April 2009 – March 2011

Multimodal Fusion for Information Processing and Understanding

SNSF 200021-122036

Principal investigator: Dr. S. Marchand-Maillet

Period: October 2008 – August 2010

Collection Guide: Large Scale Multimedia Information Management

SNSF 200020-121842

Principal investigator: Dr. S. Marchand-Maillet

Period: October 2008 – Septembre 2010

«Economic stabilization»: K-Content; Content Abstraction and Retrieval for large-scale mobile service

Principal investigators: Prof. L. van Gool (ETHZ), industrial partner: kooaba AG

SNSF support

Period: October 2009 – September 2011

Industrial funding:

CRADA: University of Geneva, Anteleon Imaging, «Secure identification and authentication in large scale systems»

Principal investigator: Prof. S. Voloshynovskiy

Period: May 2009 – December 2011

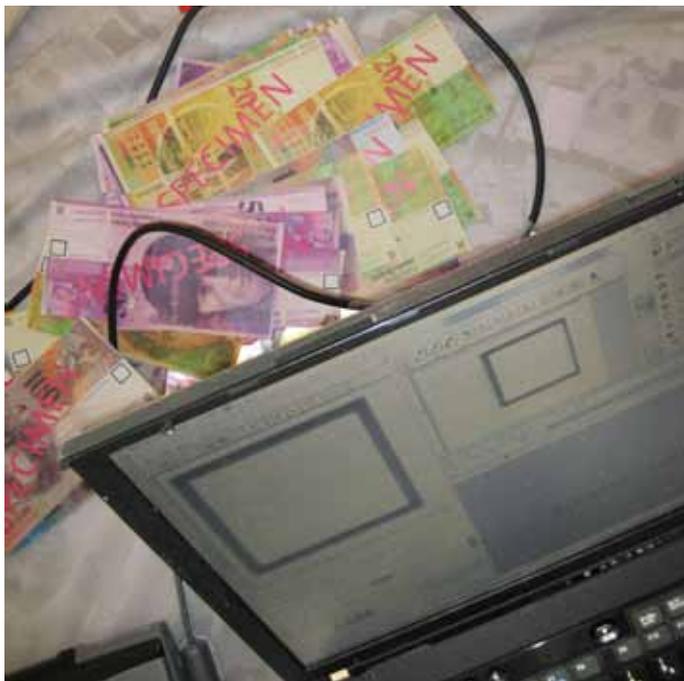


Figure 3: Banknote identification based on unclonable natural randomness of banknote paper

TECHNOLOGY TRANSFER

Spin-off: Anteleon Imaging S.A.R.L. (founded August 2003, <http://www.anteleon.com/>), specialized in multimedia documents protection and management, watermarking, authentication and tamper proofing as well as brands protection.

OTHERS

Editorial boards

- T. Pun: Eurasip International Journal on Image and Video Processing (Hindawi, <http://www.hindawi.com/journals/ijivp/>).
- T. Pun: Computerized Medical Imaging and Graphics (Elsevier/Pergamon, <http://ees.elsevier.com/cmig/>).
- T. Pun: Advances in Multimedia (Hindawi, <http://www.hindawi.com/journals/am/>).
- S. Voloshynovskiy: International Journal of Image and Graphics (World SciNet, <http://www.worldscinet.com/ijig/mkt/editorial.shtml>).
- S. Voloshynovskiy: EURASIP Journal on Information Security (Eurasip IJS) (<http://www.hindawi.com/GetJournal.aspx?journal=IS>).
- S. Voloshynovskiy: ELSEVIER Journal on Computer Standards and Interfaces (http://www.elsevier.com/wps/find/journaldescription.cws_home/505607/description#description) (since October 2009).

Special issues

- Various public demonstrations in open days.

Refereeing/reviewing

- T. Pun is reviewer for the European Research Council “Advanced Investigator Grants”.
- S. Voloshynovskiy is promoted to the level of Senior IEEE Member, December, 2010.



CVML team in 2011

TEACHING

- **Introduction to computer science**, Pharmaceutical Sciences, 1st year Bachelor, 14h. course and 28h. practical work, approx. 40 students. 2 ECTS.
- **Applied cybernetics**, Computer Science, Master, with Prof. C. Pellegrini and Dr. E. Bruno, 56h. course, 56h practical work, approx. 10 students. This course ends with a Lego Mindstorm robotcup competition which involves participants from several Universities and from the Geneva University of Applied Sciences. 8 ECTS.
- **Introduction to computer science**, Biology, 2nd year Bachelor, 28h. course and 2 x 56h. practical work, approx. 40 students. 6 ECTS.
- **Digital image processing and synthesis**, Computer Science, 3rd year Bachelor, optional for Master and postgraduate students, 56h. course and 56h. practical work, approx. 15 students. 8 ECTS.
- **Advanced image processing**, Computer Science, Master, postgrades, 28h. course and 28h. practical work, approx. 8 students.
- **Elements of information theory**, Computer Science, 2nd year Bachelor, Master, postgrades, 28h. course and 28h. practical work, approx. 25 students.
- **Multimedia security**, Computer Science, Master, postgrades, 28h. course and 28h. practical work, approx. 8 students.
- **Multimedia Information Retrieval**, Computer Science, Master, postgrades, 28h. course and 28h. practical work, approx. 14 students.
- **Data Analysis and Pattern Recognition**, Computer Science, Master, postgrades, 28h. course and 28h. practical work, approx. 10 students.



Figure 4: Watch authentication based on the surface microstructure acquired by a mobile phone (SNF Prof Boursier and ECRYPT projects).

Figure 5: High Dimensional Multimodal Embedding (HDME):
Automated organisation of a photo collection by content similarity



- **Elements of multiuser information theory and wireless communications**, Science, Master, postgrades, 28h. course and 28h. practical work, approx. 10 students.
- **Data Structures**, Computer Science, 1st year Bachelor, 56h. course and 56h. lab work, approx. 20 students.
- **Hands-on Programming (practical complement to Data Structures)**, 1st year Bachelor. 56h Practical work, 20 students.
- **Computer Science Project**, Computer Science, 3rd year Bachelor, 28h course and 56h. lab work, approx. 10 students.
- **Industrial Internships**, Summer Semester (3 months supervision), 5 students.
- **Weekly Computer Vision and Multimedia seminars**, graduate students and senior researchers, 1h. per week, about 15 PhD students, post-docs, seniors, visitors.



Figure 6: EEGs (electroencephalograms) recordings for affective computing

DRPG

**Digital
Rights &
Policy
Group**

Prof. Jean-Henry Morin

iss.unige.ch

Digital Rights & Policy Group

iss.unige.ch

Prof. Jean-Henry Morin

DOMAIN ACTIVITIES

The Digital Rights & Policy Group was formed in August 2010 as a temporary structure before the transition of the department of Information Systems towards the Institute of Services Science (ISS) launched in January 2011. Our research focuses on the study and design of new approaches and methods addressing some of the complex challenges in managing rights and policies in an increasingly networked and service oriented society.

Current research directions include:

- Exception Management in DRM environment
- Personal Information Management and Awareness Interfaces
- Socialization of Things Objects and Clouds
- Personalization, Privacy and Empowerment in Internet of Things

Planned research topics include:

- Cloud computing and Service Level Agreements (SLA)
- Rights and Policy interface design
- Service innovation and design

We look forward to 2011 to further develop these research themes through new research projects currently under review, in the context of the Institute of Services Science.

2010 also marks the creation of ThinkServices - a Think Tank on Service Science and Innovation. It is an initiative of the department of Information Systems, University of Geneva and the Observatoire Technologique (OT), State of Geneva. It's goal is to promote Services Science through activities allowing academics, industry and the civil society to jointly and co-creatively discuss, study and work on issues pertaining to the sustainable development of Services Science in a service economy and society. ThinkServices leverages the interdisciplinary skills of its members through self organized ThinkGroups having their own mission, objectives and agendas. With over 30 members, ThinkServices has launched 3 ThinkGroups in 2010 and has several more planned for 2011.

TEAM

Director

Jean-Henry Morin
Associate professor



Nomination August 1st 2010

PhD students

Dejan Munjin

To be noted that as of January 1st 2011 the group was integrated in the Institute of Services Science (ISS).

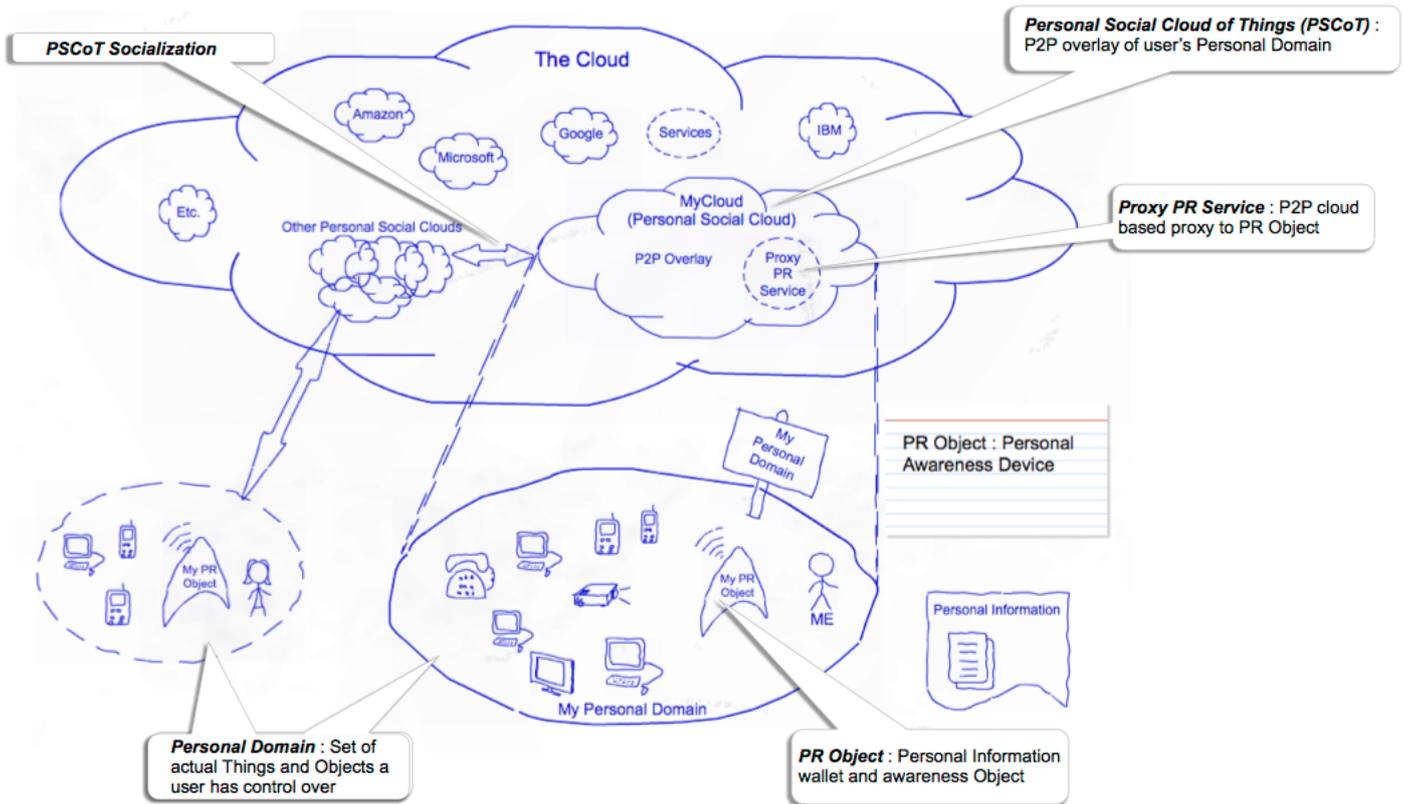


Figure 1: Personal Social Cloud of Things (PSCoT) General Design

Personal Social Cloud of Things (PSCoT) Key Issues:

Personal Information Management

Assuming an All Things Digital environment, users need to have confidence and assurance that their Personal Information (PI) will be used in managed ways. Retaining some form of control over usage, retention, recall, scope, etc. of information will become increasingly critical for the adoption of IoT as more and more of these Things will hold and release PI. Moreover, the “publish once, publish forever” situation with current and future searching capabilities is an important societal issue (digital forgetfulness). Trading and market valorisation of PI is likely to flourish.

Awareness

Given the increasing amount of information being shared and pulled from people and things without any form of user consent or awareness raises a key issue in terms of privacy management. Much of the digital traces we leave behind on a permanent basis are likely to at least require some form of awareness from their owners and holders.

Personal Cloud of Things

How can we evolve from a flat global structure with unclear policies to a personal cloud relying on our personal things and devices. Cloud computing holds great potential, however complex SLAs and the lack of knowledge on where data reside and are processed is a growing concern. There is a need to abstract, federate this growing collection of things and object in a homogeneous structure having its own personal interface.

Socialization of Things, Objects and Personal Clouds

Considering the increasing importance of social networks for people, there is also a trend in socializing Things and Objects. Such devices are engaging in interactions, conversations among them and with their environment (people, places, groups, corporations) thus raising new issues about user based policies that will govern these services. Assuming a Personal Cloud model, what does socialization mean in this context? What is Personal Cloud friendship? Mutualization of storage and processing over “trusted” devices part of a social nexus of “trusted” clouds appears to be a promising direction.

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] Jean-Henry Morin, Shiguo Lian, Xin Wang, and David Llewellyn-Jones, (Guest Editors), Special Issue: «Digital Rights Management for Multimedia Content», Journal of Multimedia, Vol 5, No 5 (2010), 401-403, Oct 2010
- [2] Shiguo Lian, Jean-Henry Morin, Stefanos Gritzalis and Gregory L. Heileman (Guest Editors), Special issue on «ubiquitous multimedia services», Journal of Information Systems Frontiers, Springer Netherlands, July 27, 2010.

Full refereed papers in Conference Proceedings

- [3] Jean-Henry Morin, «Towards Socially-Responsible Management of Personal Information in Social Networks», in Breslin, J.G.; Burg, Th.N.; Kim, H.-G.; Raftery, T.; Schmidt, J.-H. (Eds.), Recent Trends and Developments in Social Software, LNCS 6045, Springer-Verlag Berlin Heidelberg, 2010, pp. 108-115
- [4] Jean-Henry Morin, Jose Sepulveda and Adrian Cheok, «Towards Personal Social Cloud of Things: A User Centric Design Approach», poster in Internet of Things 2010 Conference, Tokyo, Japan, Nov 30 - Dec 1, 2010
- [5] Dejan Munjin and Jean-Henry Morin, «User Empowerment in the Internet of Things», poster in Internet of Things 2010 Conference, Tokyo, Japan, Nov 30 - Dec 1, 2010.

BOOKS AND BOOK CHAPTERS

- [6] Jean-Henry Morin, Jolita Ralyté, Mehdi Snene (Eds.): «Exploring Services Science» - First International Conference, IESS 2010, Geneva, Switzerland, February 17-19, 2010. Revised Papers, Lecture Notes in Business Information Processing 53, Springer 2010, ISBN 978-3-642-14318-2

CONFERENCE ORGANIZATION AS CHAIR OR CO-CHAIR

- Organizing committee co-chair of the International Conference on Exploring Services Science (IESS 1.0), February 17-19 2010, Geneva, Switzerland.
- Co-chair of the 6th IEEE International Workshop on Digital Rights Management, Satellite Workshop of 7th IEEE Consumer Communications & Networking Conference (IEEE CCNC 2010), 13th January, 2010, Las Vegas, Nevada.

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- 6th IEEE International Workshop on Digital Rights Management Impact on Consumer Communications, within the 7th Annual IEEE Consumer Communications & Networking Conference, IEEE CCNC 2010, January 13, 2010, Las Vegas, Nevada, USA.
- The 2010 International Symposium on Collaborative Technologies and Systems (CTS 2010), May 17-21, 2010, Chicago, Illinois, USA
- The Fifth International Conference on Internet Monitoring and Protection (ICIMP 2010), May 9-15, 2010, Barcelona, Spain.
- 9th Annual Security Conference, April 7-8, 2010, Las Vegas, Nevada.
- International Conference on Exploring Services Science (IESS 1.0), February 17-19 2010, Geneva, Switzerland.

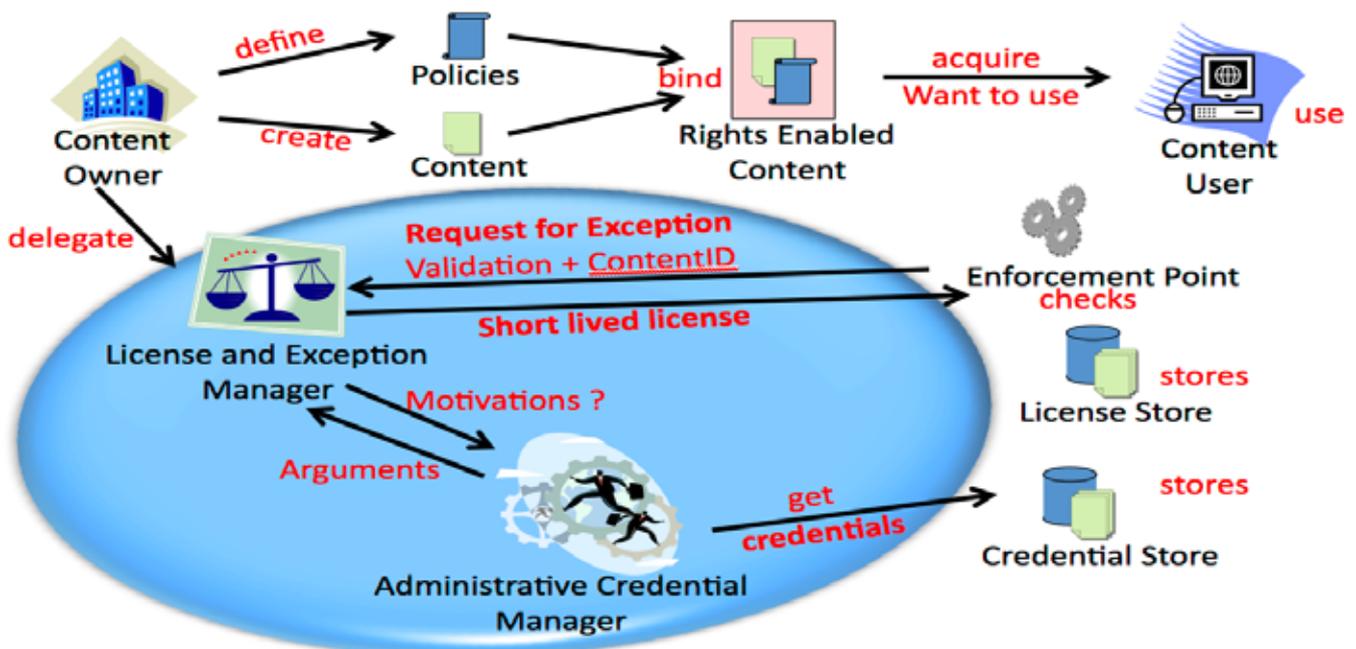


Figure 2: General DRM Exception Management

INVITED TALKS

- «Social-Micro-Innovation : Leveraging the Crowds as co-Innovation Enabler», Enable! Conference, Vienna, March 18-20, 2010
- «Social Networks and Public Debate: Challenges and Opportunities», Hearing for the presidents of the Constituante du Canton de Genève, March 31, 2010
- «ICT for Education, Learning & Development» at WSIS Forum 2010, IFM Action Line C4: Capacity Building Organized by ITU, Geneva, May 10, 2010
- «From DRM to Personal Information Management : A User and Socially Responsible Perspective in a Global Information Society», Keio-NUS CUTE Center, Mixed Reality Lab, Singapore, June 8, 2010
- «What is the Future of DRM», panelist at Copyright & Technology 2010 Conference, June 17, 2010, New York, USA.
- «To Trust or Not to Trust? Telle est la question. Et si nous renversions quelques hypothèses?», at 20e Journée de rencontre de l'Observatoire Technologique (OT, CTI), La confiance à l'ère du numérique, Geneva, Nov 19, 2010

TECHNOLOGY TRANSFER

Continuation of the cooperation initiated in 2009 with **Fa-soo.com**, South Korea, on exchange of know-how and technology to facilitate integration of Exception Management Model-based digital rights management ("DRM") in Enterprise DRM.

OTHERS

President of **ThinkServices** (ThinkServices.ch), created on April 16, 2010 as a Swiss not for profit association. Think Services is a Think Tank on Service Science and Innovation. In 2010, 3 ThinkGroups were launched :

- ThinkGroup on Data, Society and Transparency (TG-DST) gathering over 20 participants with various backgrounds and skills (legal, administration, technical, design, etc.) on a monthly basis to develop a Self Assessment Kit on Data Protection and Transparency.
- ThinkGroup on Business Models
- ThinkGroup on Service Innovation and New Economic Models

Organization of **ThinkServices workshops** :

- Lift 10 workshop : "iDemocracy! Do you? Open Voting and Tribe oriented Public Debate", Lift Conference, Feb 11, 2010, Geneva, Switzerland.
- Rezonance Workshop : «Create the Service Box», at Rendez-vous des Entrepreneurs romands, FER, June 22, 2010, Geneva, Switzerland.
- Workshop «Service Box : Le travail distribué», at Services Industriels de Genève (SIG), Sept. 6, 2010, Geneva, Switzerland.
- Workshop «Skill Box: Les métiers de demain» at Commission économique du PDC, Nov. 23, 2010, Geneva, Switzerland.
- Workshop «les méthodes créatives: créer les services de demain», Les matinales des créateurs d'entreprise, Cité des Métiers et de la Formation, December 9, 2010, Geneva, Switzerland.

Editorial responsibilities

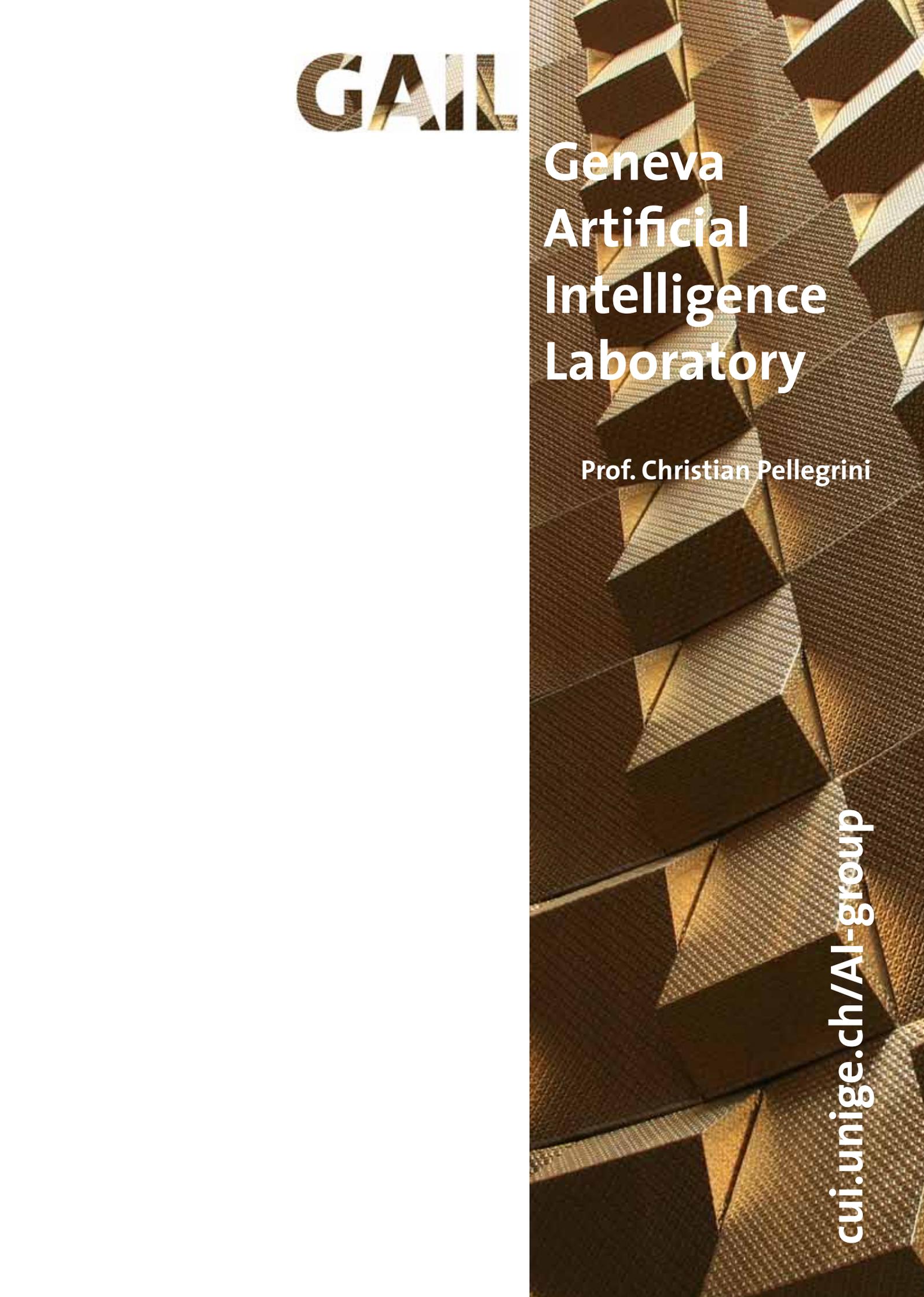
- Editorial Board Member of the Journal of Service Science Research (JoSS), ISSN: 2093-0720, Springer, Journal no. 12927
- Editorial Board Member of the International Journal On Advances in Systems and Measurements, ISSN: 1942-261X, IARIA
- Managing Editor of the Annals of Security (ASec)
- Co-Editor, special issue on Ubiquitous Multimedia Services, Journal of Information Systems Frontiers, ISSN 1387-3326, Springer Netherlands, July 27, 2010.
- Guest Editor, Special Issue: Digital Rights Management for Multimedia Content, Journal of Multimedia, ISSN 1796-2048 Volume 5, Number 5, October 2010

Press, Media, Participation in TV and radio programs

- TSR, 19:30 le journal, TI / Locarno: une jeune fille a été condamnée pour avoir partagé des films et des chansons sur Internet, tsr.ch, January 7, 2010
- RSR, Le Grand 8, interview on the Lift'10 Workshop : "iDemocracy! Do you? Open Voting and Tribe oriented Public Debate", rsr.ch, May 5, 2010
- RSR, On en parle, Pénurie d'adresses IP, rsr.ch, November 9, 2010
- Tribune de Genève, Supplément Emploi, "Professionnels des Services: misez sur la créativité", article about the ThinkServices workshop at Cité des Métiers, December 8, 2010
- Co-animator of a public forum for questions on Internet & Society for the Swiss television (TSR) : Question sur : <http://questions.tsrdecouverte.ch/internet-societe>

TEACHING

- **Introduction à la Sécurité, Ethique et Règlementation des Services**, Information Systems, Bachelor, Spring, 3 ECTS, 28 hours, 13 students
- **Design Science**, Information Systems, Bachelor, Fall, 6 ECTS, 56 hours, 7 students
- **Systèmes d'Information d'Entreprise**, Information Systems, Bachelor, Spring, 6 ECTS, 56 hours, 8 students
- **Informatique et Systèmes d'Information I**, Public Management, Master, Spring, 3 ECTS, 28 hours, 17 students
- **Informatique et Systèmes d'Information II**, Public Management, (elective) Master, Fall, 3 ECTS, 28 hours, 9 students
- **Séminaire du Master, Advanced Seminar on Industrial & Emerging issues**, Master, (yearly) 3 ECTS, 28 hours, 7 students
- **Projet Intra-Master**, Master, (yearly, shared with Laurent Moccozet), 3 ECTS, 28 hours, 7 students
- **Evolution et Perspectives en Technologies de l'Information et de la Communication**, bachelor en lettres et sciences humaines, pilier sciences de l'information et de la communication, chargé d'enseignement à la faculté lettres et sciences humaines, Université de Neuchâtel, Spring and Fall, 5 ECTS, 28 hours, Spring : 101 students, Fall : 120 students



GAIL

**Geneva
Artificial
Intelligence
Laboratory**

Prof. Christian Pellegrini

cui.unige.ch/AI-group

Geneva Artificial Intelligence Laboratory

cui.unige.ch/AI-group

Prof. Christian Pellegrini

DOMAIN ACTIVITIES

The Geneva Artificial Intelligence Laboratory (GAIL) was established in 1980 to conduct research in both theoretical and applied artificial intelligence. Past research projects have dealt with the theory of knowledge representation and reasoning mechanisms, theoretical aspects of hybrid neuro-symbolic systems, knowledge representation and interpretation for various artificial neural network (ANN) architectures, new learning algorithms, metalearning for algorithm and model selection, and text mining.

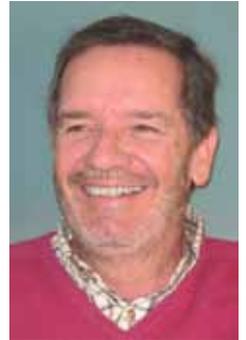
A team led by Melanie Hilario focuses on advanced machine learning and data mining techniques, including learning from complex representations, multiple kernel learning, semantic kernels, and the extensive use of prior knowledge in learning (e.g. development and use of data mining ontologies for workflow optimization and meta-mining). These techniques are applied to various problems in the life sciences (bioinformatics), such as the processing and classification of mass spectra, disease biomarker discovery, pathway modelling, and biological text mining.

A team led by James Henderson investigates techniques such as learning for structures and latent variable models, and applies them to tasks in natural language processing, including syntactic parsing, joint syntactic-semantic parsing, spoken language understanding, and dialogue system architectures. The latter team collaborates closely with the Laboratoire d'Analyse et de Technologie du Langage (LATL) via the interdisciplinary sub-group Computational Learning and Computational Linguistics (CLCL) (<http://clcl.unige.ch>).

TEAM

Director

Christian Pellegrini
Full professor



Members

Dr. Mélanie Hilario (MER)
Dr. James Henderson (MER)
Dr. Alexandros Kalousis (MA)

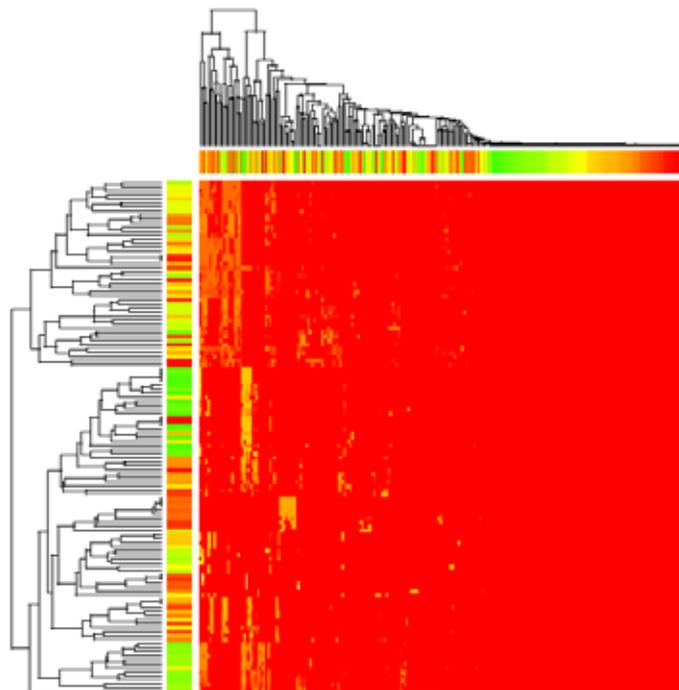
Assistants

Dr. Babak Mougouie, Post doctoral fellow
Dr. Adam Woznica, Post doctoral fellow

PhD students

Huyen Do
Nikhil Garg
Andrea Gesmundo
Jee-Hyub Kim
Phong Nguyen
Jun Wang
Derry Wijaya

Figure 1: Clusters of bacteria resistance profiles



LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] J. Boccard, A. Kalousis, M. Hilario, P. Lantéri, M. Hanafi, G. Mazerolles, J.-L. Wolfender, P.A. Carrupt, and S. Rudaz. «Standard machine learning algorithms applied to UPLCTOF/ MS metabolic fingerprinting for the discovery of wound biomarkers in arabidopsis thaliana». *Chemometrics and Intelligent Laboratory Systems*, 2010.
- [2] M. Dakna, K. Harris, A. Kalousis, S. Carpentier, W. Kolch, J. P. Schanstra, M. Haubitz, A. Vlahou, H. Mischak, M. Girolami, «Addressing the Challenge of Defining Valid Proteomic Biomarkers and Classifiers», *BMC Bioinformatics*, 11, 2010.
- [3] Henderson, J., and Titov, I. (2010). «Incremental Sigmoid Belief Networks for Grammar Learning». *Journal of Machine Learning Research*, 11(Dec):3541-3570.

Full refereed papers in Conference Proceedings

- [4] A. Gesmundo, J. Henderson (2010). «Faster Cube Pruning». In *Proc. International Workshop on Spoken Language Translation (IWSLT 2010)*, Paris, France.
- [5] M. Hilario, N. Lavrac, V. Podpecan, and J. Kok, editors. «Proceedings of the 3rd International Workshop on Third-Generation Data Mining: Towards Service-Oriented Knowledge Discovery (SoKD-10)». Held in conjunction with ECML-PKDD 10, Barcelona, Spain, September 2010.
- [6] D. Wijaya, A. Kalousis, and M. Hilario. «Predicting classifier performance using data set descriptors and data mining ontology». In *Proc. of the 3rd Planning to Learn Workshop, ECAI 2010*, Lisbon, Portugal, August 2010.
- [7] A. Woznica, A. Kalousis. «Adaptive Distances on Sets of Vectors». In *Proceedings of the 10th IEEE International Conference on Data Mining (ICDM-2010)*, Sydney, Australia, 2010.
- [8] A. Woznica, A. Kalousis. «A New Framework for Dissimilarity and Similarity Learning». In *Proceedings of the 14th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD-2010)*, Hyderabad, India, 2010.
- [9] A. Woznica, A. Kalousis, and M. Hilario. «Adaptive matching based kernels for labeled graphs». In *14th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD-2010)*, Hyderabad, India, 2010.

Books and book chapters

- [10] J. Henderson. «Artificial Neural Networks». In Alex Clark, Chris Fox, and Shalom Lappin, editors, *Handbook of Computational Linguistics and Natural Language Processing* (Blackwell, 2010).
- [11] M. Hilario, P. Nguyen, H. Do, A. Kalousis. «Ontology-Based Meta-Mining of Knowledge Discovery Workflows». In N. Jankowski, W. Duch, K. Grabczewski (Eds.), *Meta-Learning in Computational Intelligence*, Springer (in press).
- [12] I. Titov, J. Henderson (2010). «A Latent Variable Model for Generative Dependency Parsing». In H. Bunt, P. Merlo and J. Nivre, editors, *Trends in Parsing Technology*. Text, Speech and Language Technology Series (Springer).
- [13] K.Wac, M. Hilario, B.J. van Beijnum, R. Bults, and D. Konstantas. «QoS-Predictions Service: QoS support for proactive mobile services». In *Wireless Network Traffic and Quality of Service Support: Trends and Standards*, pages 378–399. IGI Global, 2010.

CONFERENCE ORGANIZATION AS CHAIR OR CO-CHAIR

Mélanie Hilario:

- chair of 3rd International Workshop on Third-Generation Data Mining: Towards Service-Oriented Knowledge Discovery (SoKD-10), Barcelona, Spain, September 2010.

MEMBER OF CONFERENCE PROGRAM COMMITTEES

James Henderson:

- EMNLP 2010 (Conf. on Empirical Methods in Natural Language Processing), Cambridge, MA, USA.
- ACL 2010 (Meeting of the Association for Computational Linguistics), Uppsala, Sweden.
- CoNLL 2010 (Conf. on Computational Natural Language Learning), Uppsala, Sweden.
- NAACL-HLT 2010 (North American Chapter of the Association).

Mélanie Hilario:

- European Conference on Machine Learning/Principles and practice of Knowledge Discovery in Databases (ECML/PKDD 2010). Barcelona, September 2010.
- International Conference on Machine Learning (ICML 2010). Haifa, Israel. June 2010.
- 2nd ESWC Workshop on Inductive Reasoning and Machine Learning for the Semantic Web (IRMLeS 2010). Heraklion, Crete. May 2010.

Alexandros Kalousis:

- European Conference on Machine Learning/Principles and practice of Knowledge Discovery in Databases (ECML/PKDD 2010). Barcelona, September 2010.
- International Conference on Machine Learning (ICML 2010). Haifa, Israel.

INVITED TALKS

- Mélanie Hilario, «Optimizing the Knowledge Discovery Process through Semantic Meta-Mining», IRMLeS-2010, 2nd ESWC Workshop on Inductive Reasoning and Machine Learning for the Semantic Web, Heraklion, Crete, May 2010.

REFEREEING

- Huyen Do. ECML-PKDD 2010, ICML-2010.
- James Henderson. ACM Transactions on Speech and Language Processing.
- Babak Mougouie: ECML-PKDD 2010.
- Jun Wang: ECML-PKDD 2010, ICML-2010.
- Derry Wijaya. ECML-PKDD 2010.
- Adam Woznica: ECML-PKDD 2010, ICML-2010.

EDITORIAL RESPONSABILITIES

- Mélanie Hilario. Associate Editor, International Journal on Artificial Intelligence Tools (IJAIT), World Scientific Publishing.
- Mélanie Hilario. Editorial Board Member, Intelligent Data Analysis (IDA), IOS Press.

FUNDED RESEARCH PROJECTS

Participation to European projects

CLASSIC

Computational Learning in Adaptive Systems for Spoken Conversation

EU ICT FP7

Partners: University of Edinburgh (coordinator), Cambridge University, Ecole Supérieure d'Électricité (Metz), France Telecom.

Period: March 2008 – February 2011

Website: <http://www.classic-project.org/>

DebugIT

Detecting and Eliminating Bacteria Using Information Technology

Large-scale integrating project
FP7

Partners: Agfa HealthCare (Belgium, Coordinator), Empirica (Germany), Gama Sofia Ltd. (Bulgaria), Institut National de la Santé et de la Recherche Médicale (France), IZIP (Czech Republic), Linköping University (Sweden), Technological Educational Institute of Lamia (Greece), University College London (UK), Hôpital Universitaire de Genève (Switzerland), University Medical Center Freiburg (Germany)

Period: January 2008 – December 2011

Website: <http://www.debugit.eu/>

e-LICO

An e-Laboratory for Interdisciplinary Collaborative Research in Data Mining and Data-Intensive Sciences

EU FP7 ICT-INF SO STREP: Intelligent content and semantics.

Partners: University of Geneva (Switzerland, Coordinator: Melanie Hilario), Institut national de la santé et de la recherche médicale (France), Medice Oy (Finland), National Hellenic Research Foundation (Greece), Rapid-I GmbH (Germany), University of Manchester (United Kingdom), University of Zurich (Switzerland).

Period: February 2009 – January 2012

Website: <http://www.e-LICO.eu/>

EuroKUP

Kidney and Urine Proteomics.

Cost Action BM0702

Partners: Biomedical Research Foundation, Academy of Athens (Greece, Coordinator), Mario Negri Institute for Pharmacological Research, Bergamo (IT), University of Manchester (UK), National Centre for Sensor Research/BioAnalytical Sciences (IE), INSERM U858, Renal and Cardiac Remodeling, Toulouse (FR), The Linnaeus Centre for Bioinformatics, Uppsala University / SLU, and others from 15 countries that signed the Memorandum of Understanding.

Period: May 2008 – April 2011

Website: <http://www.eurokup.org/>

Participation to National projects

An Adaptive Framework for Learning over Composite Representations

FNRS Project

Period: October 2008 – September 2011

Sampling and Regularization for Latent Structure Models with Feature Induction

FNRS Project

Period: October 2009 – August 2011

Improving the coherence of machine translation output by modeling intersentential relations

Sinergia

Period: Mars 2010 – February 2013

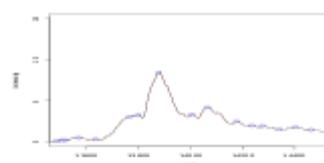
OTHERS

Major events

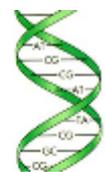
- James Henderson participated to the Google EMEA Faculty Summit, Zurich, February 2010. <http://googleblog.blogspot.com/2010/02/meeting-of-minds-googles-2010-emea.html>

TEACHING

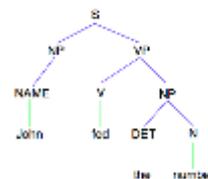
- **Introduction to algorithms**, Computer Science, Bachelor, 8 ECTS, 140 hours.
- **Introduction to Artificial Intelligence**, Computer Science, Bachelor, 8 ECTS, 112 hours.
- **Data Mining**, Computer Science, Master, 8 ECTS, 112 hours
- Christian Pellegrini and Adam Woznica also participate in **Heuristic Methods of Learning and Optimization** (prof. B. Chopard and M. Tomassini)



Sets



Sequences



Trees



Graphs

Figure 2: Mining complex data structures

The ISI logo consists of the letters 'ISI' in a bold, sans-serif font. The letters are filled with a vertical hatching pattern, giving them a textured, three-dimensional appearance. The background of the entire cover is a complex, geometric pattern of overlapping, textured rectangular blocks in shades of brown and gold, creating a sense of depth and complexity.

ISI

Information Systems Interfaces

Prof. Gilles Falquet

cui.unige.ch/isi

Information System Interfaces

cui.unige.ch/isi

Prof. Gilles Falquet

DOMAIN ACTIVITIES

The main research themes of the ISI group are knowledge representation, from formal logical representations to natural language representations, and knowledge access through various kinds of interfaces such as 3D scenes, hyperbooks, spatial hypertexts, natural language queries, etc. In addition to basic research, the group is involved in applied multidisciplinary research projects related to architecture, archaeology, and sustainable urban development.

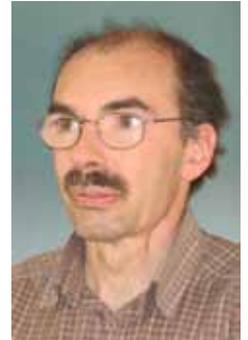
Current research directions of the ISI group include:

- modelling and management of knowledge resources (from formal ontologies to (multilingual) text corpora), with applications in the urban and architectural domain
- logical, semantic and rhetoric indexing and retrieval of scientific documents
- the formal representation of architectural knowledge and the development of knowledge-based systems for architectural design
- usability evaluation of representation techniques for semantic information in 3D virtual environments

TEAM

Director

Gilles Falquet
Titular professor



Members

Dr. Claudine Méttral (MER)
Dr. Laurent Moccozet (MER)
Dr. Jacques Guyot

PhD students

Kaveh Bazargan
Hélène De Ribaupierre
Nizar Ghoula
Alain Junger
Camille Tardy
Mathieu Vonlanthen

To be noted that as of January 1st 2011 the group was integrated in the Institut of Knowledge Integration and Access to Knowledge Repositories (ICLE).

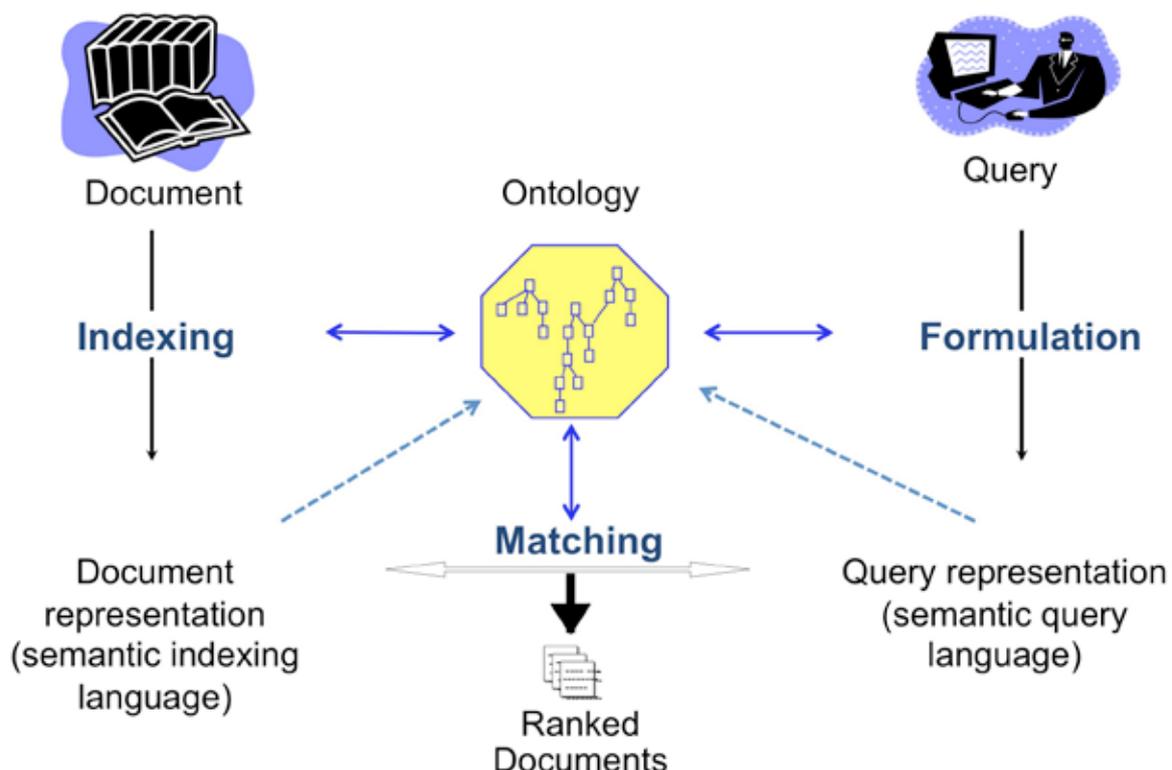


Fig.1: Ontology-based information retrieval

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] Ghoula, N., Falquet, G., Guyot, J. 2010. «Modèle d'entrepôt de ressources hétérogènes pour le traitement sémantique des documents». Document Numérique, vol. 13, no. 2, Hermès, Paris. 2010
- [2] Métral C., Billen R., Cutting-Decelle A.F., Van Ruymbeke M. (2010). «Ontology-based approaches for improving the interoperability between 3D urban models», ITcon, Vol.15, Special Issue: Bringing urban ontologies into practice, 169-184, <http://www.itcon.org/2010/14>.
- [3] Guyot, J., Falquet, G., Teller, J. «Incremental development of a shared urban ontology : the Urbamet experience». (2010= ITcon, Vol.15, Special Issue: Bringing urban ontologies into practice, 132-139, <http://www.itcon.org/2010/14>.
- [4] Métral C., Billen R., Cutting-Decelle A.F., Van Ruymbeke M. (2010). «Ontology-based approaches for improving the interoperability between 3D urban models». In FormaMente, International Research Journal on Digital Future, 1-2(V), 85-111
- [5] Guyot, J., Falquet, G., Teller, J. (2010) «Incremental development of a shared urban ontology : the Urbamet experience». In FormaMente, International Research Journal on Digital Future, 1-2(V), 171-186

Full refereed papers in Conference Proceedings

- [6] Guyot, J., Benzineb, K., Falquet, G. 2010. «myClass: A Mature Tool for Patent Classification. In Proc. Conference on Multilingual and Multimodal Information Access Evaluation», Padua, 20-23 Sept. 2010.
- [7] Bazargan, K., Falquet, G., and Métral, C. 2010. «Testing the Usability of Information Visualization Techniques in Interactive 3D Virtual Environments: a Toolkit». In Proceedings of IADIS International Conference Interfaces and Human Computer Interaction 2010 (Freiburg, Germany 28 - 30 July 2010). [Outstanding Paper Award]
- [8] Ghoula, N., Falquet, G., Guyot, J. 2010. TOK: «Une ontologie de ressources linguistiques, terminologiques et ontologiques». Conference poster in Conférence IC 2010, 8-11 Juin, Nîmes, France.
- [9] Ghoula, N., Falquet, G., Guyot, J. 2010. «TOK: A meta-model and ontology for heterogeneous terminological, linguistic and ontological knowledge resources». In Proc. ACM/IEEE Web Intelligence Conf., Toronto. 2010.

Books and book chapters

- [10] Nogueras-Iso, J., Lacasta, J., Falquet, G., Guyot, J., Teller, J. (2010) «Ontology learning from thesauri: an experience in the urban domain. In Gargouri, F. and Jaziri, W. (Eds.) Ontology Theory, Management and Design: Advanced Tools and Models. IGI Intl publishing.
- [11] Falquet, G., Grin, F. (2010) «Free Software, Proprietary Software and Linguistic Justice». In Intellectual Property and Theories of Justice (paperback edition) A. Gosseries, A. Marciano, A. Strowel (eds.), Palgrave Macmillan, London, 2010.

Research and technical reports

- [12] Bazargan, K. 2010. «Usability Evaluation of Abstract Information Visualization Techniques in Interactive 3D Virtual Environments». Presentation at the WG3 meeting of the COST Action TU0801 (University of Algarve, Faro, Portugal, 4-5 November 2010).
- [13] de Ribaupierre, H., Falquet, G., Roth, P. (2010) «Les différences de genre dans le modèle de prédiction de l'adoption des nouvelles technologies». Submitted to Systèmes d'information & Management.
- [14] de Ribaupierre, H., Falquet, G. «Recherche d'information dans des corpus scientifiques basée sur la structure du discours». Poster presentation at École d'Automne en Recherche d'Information et Applications, Saint-Germain-Au-Mont-D'or, 2010.

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

Gilles Falquet:

- Member of the advisory board. International Journal on Information - Interaction – Intelligence (I3)

Laurent Moccozet:

- Membre du comité de rédaction de RSTI : Revue des Sciences et Technologies de l'Information, <http://tsi.revuesonline.com/>

Claudine Métral:

- Reviewer for City model scale/quality, special issue of ISPRS Journal of Photogrammetry and Remote Sensing, Elsevier Publisher
- Chairwoman of the European COST Action TU0801 – Semantic Enrichment of 3D City Models for Sustainable Urban Development

MEMBER OF CONFERENCE PROGRAM COMMITTEES

Gilles Falquet:

- Member of the scientific committee. BooksOnline 2010.
- Comité scientifique de la conférence Extraction et Gestion de la Connaissance EGC'09
- Comité scientifique des Journées francophones sur les ontologies. JFO. Lyon, Oct. 2009.

Claudine Métral:

- Member of the scientific committee of the 5th 3D GeoInfo Conference, Berlin, Germany, 3-4 November 2010

FUNDED RESEARCH PROJECTS

Participation to National projects

Ontology-Based Precise Multilingual Information Retrieval

FNS

Period: 2008 - 2010

—

Construction automatique de mémoires de traduction pour la traduction assistée par ordinateur et la recherche d'informations multilingues

CTI/KTI

Partner: Swiss e-archive

Period: 2008 - 2010

—

A Semantic Digital Library of Urban Models and Resources

SER-COST

Period: 2009 - 2012

Formalisation et sens du projet architectural

FNS

Partners: interdisciplinaire avec le département de Géographie (requérant principal) et l'institut de Mathématiques de l'Université de Genève

Period: 2008 - 2010

TECHNOLOGY TRANSFER

The projet entitled Construction automatique de mémoires de traduction pour la traduction assistée par ordinateur et la recherche d'information multilingue is a technology transfer project between UNIGE and Swiss e-archive, supported by the Swiss CTI/KTI commission.

OTHERS

Outstanding paper award: Bazargan, K., Falquet, G., and Métral, C. 2010. «Testing the Usability of Information Visualization Techniques in Interactive 3D Virtual Environments: a Toolkit». IADIS International Conference Interfaces and Human Computer Interaction 2010 (Freiburg, Germany 28 - 30 July 2010).

TEACHING

- **Outils formels pour les systèmes d'information**, Information Systems, Bachelor course, 6 ECTS, 56 hours, 10 students
- **Algorithme appliquée**, Information Systems, Bachelor, 6 ECTS, 56 hours, 10 students
- **Systèmes de représentation des connaissances : principes et applications**, Information Systems, Master course, 6 ECTS, 56 hours, 16 students
- **Transdisciplinary platforms for services**, Information Systems, Master course, 6 ECTS, 56 hours, 4 students
- **Interfaces des systèmes d'information**, Information Systems, Master course, 6 ECTS, 56 hours, 15 students
- **Modélisation des bases de données spatiales**, Service course, Information Systems, Master course, 3 ECTS, 28 hours, 45 students
- **Space-City: Modèles urbains 3D**, Service course, Information Systems, Master course, 3 ECTS, 28 hours, 12 students
- **Production de documents web et conception de sites**, Certificat de Formation continue, Information Systems, 1 ECTS, 40 hours, 12 students
- **Création et gestion d'application web interactives**, Certificat de Formation continue, Information Systems, 1 ECTS, 40 hours, 12 students
- **Sites web dynamiques, bases de données et systèmes de gestion de contenu**, Certificat de Formation continue, Information Systems, 1 ECTS, 40 hours, 25 students
- **La 3D comme outil d'expertise, de décision et de communication**, Session de Formation continue, Information Systems, 0 ECTS, 52 hours, 32 students

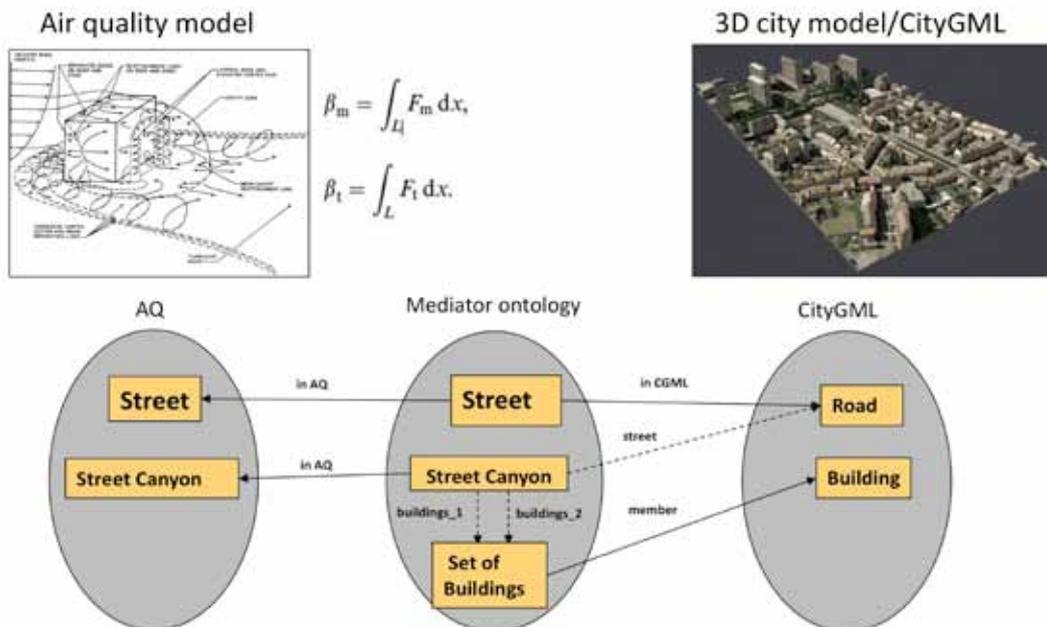


Fig.2: Interconnecting Air Quality Models and 3D City Models through Knowledge Structures

LATL

Laboratory
for the
Analysis
and
Technology
of
Language

Prof. Eric Wehrli

www.latl.unige.ch

DOMAIN ACTIVITIES

The LATL develops research, prototypes, and open source software for several facets of natural language processing. The main areas of research are automatic analysis of sentence structure (parsing) and its meaning, and the development of lexicons and dictionaries. Parsing is at the core of several applications: text-to-speech synthesis, terminological extraction, computer-assisted language learning, text mining, and machine translation. This goal is pursued through the two main methodologies available today: the development of large-scale and robust grammar-based systems and the development of adaptive systems that learn from large amounts of data. The systems developed at LATL span several languages: French, English, German, Italian, and other languages are underway (Greek, Spanish, Japanese, Arabic, Czech, Chinese, and Catalan). The LATL group collaborates closely with the AI group (clcl.unige.ch) in the development of adaptive data-driven systems for several parsing-based tasks, such as investigations of shallow levels of meaning representations and spoken-language understanding for dialogue systems. It is also involved in speech processing, specifically, in automatic segmentation, prosody and speaking style modelling.

TEAM

Director

Eric Wehrli
Full professor



Members

Dr. Paola Merlo (MER)
Dr. Violeta Seretan
Dr. Lonneke van der Plas
Luka Nerima
Asheeh Gulati
Jean-Philippe Goldman
Alexis Kauffmann
Goldjihan Katchajev
Gabriele Musillo
Kamel Nehbi
Lorenza Russo
Tanja Samardzic
Yves Scherrer
Sandra Schwab

Administration

Eva Capitao



LATL team in 2008

PHD THESIS

- Gabrielle Musillo, «Latent Variable Transforms for Dependency Parsing», February 2010.

LIST OF PUBLICATIONS

Full refereed papers in Conference Proceedings

- [1] Avanzi, M., Simon, A.C., Goldman, J.-P. & A. Auchlin, 2010. «C-PROM. An annotated corpus for French prominence studies». Proceedings of Prosodic Prominence: Perceptual and Automatic Identification, Speech Prosody 2010 Workshop, Chicago, Illinois, May.
- [2] Goldman, J.P., Auchlin, A., Roekhaut, S., Simon, A.C. & M. Avanzi, 2010. «Prominence perception and accent detection in French: A corpus-based account». Proceedings of Speech Prosody 2010, Chicago, Illinois, May, 11-14.
- [3] Roekhaut S., Goldman, J.P., Simon, A.C., 2010. «A Model for Varying Speaking Style in TTS systems». Proceedings of Speech Prosody 2010, Chicago, Illinois, May, 11-14.
- [4] Goldman J.P. & al. 2010. «Adding speaking style to a TTS system». 7th Speech Synthesis Workshop, Nara, Japan.
- [5] Goldman J.P. & al. 2010. «Hesitations in read vs. spontaneous French in a multi-style corpus», DiSS-LPSS Joint Workshop 2010, Tokyo, Japan.
- [6] Luka Nerima, Eric Wehrli, and Violeta Seretan (2010). «A recursive treatment of collocations». In Proceedings of the Seventh Conference on International Language Resources and Evaluation (LREC'10), Valletta, Malta.
- [7] Lorenza Russo, «La traduction automatique des pronoms clitics. Quelle approche pour quels résultats?» Traitement automatique des Langues Naturelles (TALN) 2010 (17th edition), Montréal, Canada, July.
- [8] Samardzic, Tanja. and Paola Merlo (2010) «Cross-lingual variation of light verb constructions: using parallel corpora and automatic alignment for linguistic research», In Proceedings of the ACL 2010 Workshop 'NLP and Linguistics: Finding the Common Ground', Uppsala, Sweden.
- [9] Samardzic, Tanja., Lonneke van der Plas, Goljihan Kashaeva, and Paola Merlo (2010) «The Scope and the Sources of Variation in Verbal Predicates in English and French», In Proceedings of the Ninth International Workshop on Treebanks and Linguistic Theories. Tartu: Northern European Association for Language Technology (NEALT), 199-211.
- [10] Samardzic, Tanja (2010) «Semantic and syntactic properties of Serbian decomposed predicates», International Slavic conference papers 39/1. Belgrade: International Slavic centre, 375-385. (in Serbian)
- [11] Yves Scherrer: «Des cartes dialectologiques numérisées pour le TALN». TALN 2010, Montréal, Canada.
- [12] Yves Scherrer & Owen «Rambow: Natural Language Processing for the Swiss German dialect area». KONVENS 2010, Saarbrücken, Germany.
- [13] Yves Scherrer & Owen Rambow: «Word-based dialect identification with georeferenced rules». EMNLP 2010, Cambridge, MA, USA.
- [14] Seretan, Violeta and Eric Wehrli (2010). «Tools for syntactic concordancing». In Proceedings of the International Multiconference on Computer Science and Information Technology, pages 493–500, Wisla, Poland.
- [15] Seretan, Violeta, Eric Wehrli, Luka Nerima, and Gabriela Soare (2010). «FipsRomanian: towards a Romanian version of the Fips syntactic parser.» In Proceedings of the Seventh Conference on International Language Resources and Evaluation (LREC'10), Valletta, Malta.
- [16] Lonneke van der Plas, Jörg Tiedemann, «Finding Medical Term Variations using Parallel Corpora and Distributional Similarity». In Proceedings of the Coling workshop on ontologies and lexical resources, Beijing, China, pp 28—37, August, 2010.
- [17] Lonneke van der Plas, Jörg Tiedemann, Jean-Luc Manguin «Automatic acquisition of synonyms for French using parallel corpora» Proceedings of the 4th International Workshop on Distributed Agent-based Retrieval Tools, Geneva, Switzerland, June, 2010
- [18] van der Plas, Lonneke, Tanja Samardzic, and Paola Merlo (2010) «Cross-lingual validity of PropBank in the manual annotation of French», In Proceedings of the 4th Linguistic Annotation Workshop (The LAW IV), Uppsala, Sweden.
- [19] Wehrli, Eric, Violeta Seretan, and Luka Nerima (2010). «Sentence analysis and collocation identification. In Proceedings of the Workshop on Multiword Expressions: from Theory to Applications» (MWE 2010), pages 27–35, Beijing, China.

Books and book chapters

- [20] Harry Bunt, Paola Merlo and Joakim Nivre (2010), «Trends in Parsing Technology», Springer (Text, Speech and Language Technology, volume 43).
- [21] Violeta Seretan (2010). «Syntax-Based Collocation Extraction». Springer (Text, Speech and Language Technology, volume 44).
- [22] Paola Merlo, Harry Bunt and Joakim Nivre (2010), «Current Trends in Parsing Technology», in Bunt, Merlo, Nivre (eds.), Trends in Parsing Technology, Springer.
- [23] Violeta Seretan and Eric Wehrli (2010). «Extending a multilingual symbolic parser to Romanian». In Dan Tufis and Corina Forascu (eds.): Multilinguality and Interoperability in Language Processing with Emphasis on Romanian, Romanian Academy Publishing House.
- [24] Lonneke van der Plas, Gosse Bouma, Jori Mur, «Automatic Acquisition of Lexico-semantic Knowledge for QA», in Ontology and the Lexicon, Studies in Natural Language Processing, Cambridge University Press, pp 271—287, 2010.

Research and technical reports

- [25] Lonneke van der Plas, James Henderson, Paola Merlo D6.2: «Semantic Role Annotation of a French-English Corpus» <http://www.classic-project.org/deliverables/D6.2revised.pdf>, February, 2010
- [26] Lorenza Russo, «The automatic translation of clitic pronouns. The Its-2 system.», GG@G - Generative Grammar in Geneva, edited by Tabea Ishane and Christopher Laenzlinger, 6 (2010): 203-220, December, 2010.
- [27] Samardzic, Tanja., Lonneke van der Plas, Goljihan Kasraeva, and Paola Merlo (2010) «Variation in Verbal Predicates in English and French», In GG@G - Generative Grammar in Geneva, edited by Tabea Ishane and Christopher Laenzlinger, 6 (2010): 109--136, December.

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

- Paola Merlo, Member of the Executive Board for the Association for Computational Linguistics, 2009--2012.

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- The 23rd International Conference on Computational Linguistics (COLING 2010), Beijing, China, August 23–27, 2010
- The 48th Annual Meeting of the Association for Computational Linguistics (ACL 2010), Uppsala, Sweden, July 11–16, 2010
- The seventh international conference on Language Resources and Evaluation (LREC 2010), Valetta, Malta, May 19–21 2010
- CICLing 2010 satellite conference PROMISE - Processing ROmanian in Multilingual, Interoperational and Scalable Environments, Iasi, Romania, March 29–31, 2010
- TALN 2010 - 17e Conférence sur le Traitement Automatique des Langues Naturelles, Montreal, QC Canada, July, 2010
- Fourteenth Conference on Computational Natural Language Learning (CoNLL 2010), Uppsala, Sweden.

INVITED TALKS

- Paola Merlo, «Synchronised Parsing for Syntactic Dependencies and Semantic Roles for Several Languages», Edinburgh, December.
- Paola Merlo, «Synchronised Models of Syntax and Semantics», Toronto, May.
- Paola Merlo, «Computational Models of the Syntax-Semantic Interface», Cornell, April.
- Jean-Philippe Goldman, «PRAAT tutorial: basics, scripting and automatic segmentation» Lecture at Dpt of Foreign Languages and Literature at National Chiao Tung University, Taiwan, September.

FUNDED RESEARCH PROJECTS

Participation to European projects

CLASSiC

Computational Learning in Adaptive Systems for Spoken Conversation

Period: March 2008 - February 2011.

Partners: University of Edinburgh (coordinator), Cambridge University, Ecole Supérieure d'Électricité (Metz), France Telecom.

Web Site: <http://www.classic-project.org/>

Participation to National projects

Multilingual Translation Model Based on Object-Oriented design: improvements and enhancements

SNFS

Corpus-based Explorations of Cross-Linguistic Syntactic and Semantic Parallelism

Swiss NSF, grant no. 11-114044

Period: 2008 - 2011

Improving the coherence of machine translation output by modelling inter-sentential relations

Swiss NSF SINERGIA project

Period: 2009 - 2012

Partners: University of Geneva (Lettres and Sciences), IDIAP

TECHNOLOGY TRANSFER

LATL.ch is a technology start-up specialized in the development of linguistic software components. Closely associated with LATL laboratory, LATL.ch develops and commercializes products based on fundamental research conducted in the university lab. Two companies involved in Speech synthesis use its phonetiser: Acapela Group, a European group, and SVOX, a start-up located in Zürich.

OTHERS

Honours and scientific awards

- Violeta Seretan: 2010 Geneva University Latsis prize for PhD thesis «Collocation Extraction Based on Syntactic Parsing».
- Violeta Seretan: Swiss National Science Foundation Fellowship for Advanced Researchers, University of Edinburgh.

Dissemination

- Demo on semantic networks has been used for the PR of prospective students 'Journée des collégiens 2010.
- Participation in the translation shared task (French - English, English - French and German - French) in the ACL2010 joint fifth workshop on statistical machine translation and metrics MATR, July, 2010, Uppsala Sweden.
- Participation in Passage 2: Second French parsing evaluation campaign Passage (ANR project), Paris.

Major events

- Paola Merlo participated to the Google EMEA Faculty Summit, Zurich, February 2010. <http://googleblog.blogspot.com/2010/02/meeting-of-minds-googles-2010-emea.html>

TEACHING

- **Databases**, Computer Science for the Humanities, Bachelor, 12 ECTS, 112 hours, 18 students
- **Informatique II - Data Structures and Object Oriented Programming**, Computer Science for the Humanities, Bachelor, 6 ECTS, 84 hours, 6 students
- **Informatique II - Object Oriented Project**, Computer Science for the Humanities, Bachelor, 6 ECTS, 84 hours, 8 students
- **Informatique II - Java seminar**, Computer Science for the Humanities, Bachelor, 2 ECTS, 28 hours, 16 students
- **Information and Communication Technologies**, Computer Science for the Humanities, Bachelor & Master, 12 ECTS, 140 hours, 22 students
- **Natural Language Processing**, Computer Science for the Humanities, Master, 12 ECTS, 140 hours, 7 students
- **Informatique I – Introduction à l'algorithmique et à la programmation**, Computer Science for the Humanities, Bachelor, 6 ECTS, 70 hours, 15 students
- **Informatique I – Programmation Web**, Computer Science for the Humanities, Bachelor, 6 ECTS, 70 hours, 20 students
- **Empirical Methods in Natural Language Processing : Statistical Machine Translation**, Computer Science for the Humanities, Master, 12 ECTS, 56 hours, 10 students

MATIS

Geneva Team Database Laboratory

Prof. Michel Léonard

matis.unige.ch

Geneva Team Database Laboratory

matiss.unige.ch

Prof. Michel Léonard

DOMAIN ACTIVITIES

Service design with

- Methods
- Taking into account trans-disciplinary services
- Impacts on the development of enterprises
- Taking into account initiatives and their management

TEAM

Director

Michel Léonard
Full professor



Members

Dr. Jolita Ralyte (MER)
Dr. Mehdi Snene
Dr. Abdelaziz Khadraoui
Dr. Anastasiya Yurchyshyna

Assistants (PhD students)

Wanda Opprecht

To be noted that as of January 1st 2011 the group was integrated in the Institute of Services Science (ISS).



MATIS

MANagement and T echnology of Infomation Sysytems

- Component-based IS engineering
- Distributed IS
- Method engineering
- E-government IS engineering

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] Brian Henderson-Sellers and Jolita Ralyté. «Situational Method Engineering: State-of-the-Art Review». *Journal of Universal Computer Science*, Vol. 16, no. 3 (2010), pp. 424-478.
- [2] M. Léonard, and A. Yurchyshyna, «Impact of Services on Sustainable Development of Creative Society». In: *The International Journal of Technology, Knowledge and Society*, Volume 6, Issue 5, 2010, pp.65-78.

Full refereed papers in Conference Proceedings

- [3] Jolita Ralyté, Nicolas Arni-Bloch, and Michel Léonard. «Information Systems Evolution: A Process Model for Integrating New Services». *Proceedings of the 16th Americas Conference on Information Systems – AMCIS'10*. Lima, Peru, August 12-15, 2010. AIS Electronic Library.
- [4] Léonard, M., Yurchyshyna, A., 2010. «Impact of Services on Sustainable Development of Creative Society». In *Proc. 6th International Conference Technology, Knowledge and Society*, 15-17 January, Berlin, Germany.
- [5] Yurchyshyna, A. Opprecht, W. 2010. «Towards an Ontology-based Approach for Creating Sustainable Services». In: *Proc. First International Conference on Exploring Services Sciences (IESS 1.0)*, vol. 53 (2010), pp. 136-149, 17-19 February 2010, Geneva, Switzerland
- [6] Yurchyshyna, A., Leonard, M., Brough-Heinzman, P., 2010. «Towards a Services-based Approach for Supporting Idea Development Process». In *Proc. ICIW2010*, 9-15 May 2010, Barcelona, Spain.
- [7] Opprecht, W., Yurchyshyna, A., Khadraoui, A. and Léonard, M., 2010. «Governance of initiatives for e-government services innovation». In: *Electronic Government and Electronic Participation: Joint Proceedings of Ongoing Research and Projects of IFIP EGOV and ePart 2010*, vol. 33 (2010), pp. 203-210
- [8] Yurchyshyna, A., and Léonard, M. «Improving formalizing expert knowledge in Construction: from ontology-based modeling to creating sustainable services». *Proc. ECPPM2010*, 14-16 September 2010, Cork, Ireland
- [9] Snene M., «Innovation framework for serendipity detection», IN *Proc. TII10*, 29-30 March, 2010, Dusseldorf, Germany.
- [10] Snene M., and Léonard M. «Assisted Knowledge service for overlap detection», *Proc. IBIMA10*, 13-15 May, 2010, Istanbul, Turkey.
- [11] Snene M., «Interconnected semantic Knowledge for financial prediction», *Proc SPICT10*, 15-17 December, 2010, Kuala Lumpur, Malaysia.

Books and book chapters

- [12] Selmin Nurcan, Camille Salinesi, Carine Souveyet, and Jolita Ralyté (Editors). «Intentional Perspectives on Information Systems Engineering». Springer, Berlin/Heidelberg, 2010.
- [13] Jean-Henry Morin, Jolita Ralyté, and Mehdi Snene (Editors). «Exploring Services Science». *Proceedings of the 1st International Conference on Exploring Services Science – IESS 2010*. Springer LNBP Vol. 53, 2010.

- [14] Jolita Ralyté and Pierluigi Plebani (Editors). *CAiSE'10 Workshop Proceedings*. *Proceedings of Workshops BU-SITAL'10, DE@CAISE'10, EOMAS'10 and ER-POIS'10* held in conjunction with the 22nd International Conference on Advanced Information Systems Engineering – CAiSE'10, Hammamet, Tunisia, June 7-11, 2010. *CEUR Workshop Proceedings (CEUR-WS.org)*, ISSN 1613-0073.
- [15] Michel Léonard and Jolita Ralyté. «From Sustainable Information System with a Farandole of Models to Services». In: S. Nurcan et al. (eds.) *Intentional Perspectives on Information Systems Engineering*. Springer, Berlin/Heidelberg, 2010, pp. 1-16.

Research and technical reports

- [16] Abdelaziz Khadraoui, Wanda Opprecht, Michel Léonard «Semantics Interoperability / Multi-view modeling of information systems», Collaboration with CTI (Centre des technologies de l'Etat de Genève), 2010.
- [17] Abdelaziz Khadraoui, Wanda Opprecht, Michel Léonard «Service specification upon existing information systems», Collaboration with CTI (Centre des technologies de l'Etat de Genève), 2010.

CONFERENCE ORGANIZATION AS CHAIR OR CO-CHAIR

- Michel Léonard, General Chair: IESS 1.0 – 1st International Conference on Exploring Services Science, Geneva, Switzerland, February 2010.
- Jolita Ralyté, Workshops and Tutorials Chair: CAiSE'10 – 22nd International Conference on Advanced Information Systems Engineering. Hammamet, Tunisia, June 2010.

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- CAiSE'10 – 22nd International Conference on Advanced Information Systems Engineering, Hammamet, Tunisia, June 2010.
- ECIS'10 – 18th European Conference on Information Systems, Pretoria, South Africa, 2010.
- PoEM'10 – 3rd IFIP WG8.1 Working Conference on The Practice of Enterprise Modeling: from Business Strategies to Enterprise Architectures. Delft, The Netherlands, November 2010.
- ICEIS'10 – 12th International Conference on Enterprise Information Systems. Funchal, Madeira – Portugal, June 2010.
- RCIS'10 – 4th International Conference on Research Challenges in Information Science. Nice, France, May 2010.
- INFORSID'10 – Congrès Informatique des Organisations et Systèmes d'Information et de Décision. Marseille, France, May 2010.
- EMMSAD'10 – International Working Conference on Exploring Modeling Methods in Systems Analysis and Design. Hammamet, Tunisia, June 2010.
- IESS 1.0 – 1st International Conference on Exploring Services Science, Geneva, Switzerland, February 2010.
- GISP'10 – IFIP TC 8 Conference on Global Information Systems Processes, World Computer Congress in conjunction with World Computer Congress WCC'10, September 20-23, 2010, Brisbane, Australia.

- ICSOFT'10 – 5th International Conference on Software and Data Technologies. Athens, Greece, July 2010.
- ENASE'10 – 5th International Conference on Evaluation of Novel Approaches to Software Engineering. Athens, Greece, July 2010.
- WGBP'10 – International Workshop on Goal-based Business Process Engineering in conjunction with the 14th IEEE International EDOC Conference (EDOC 2010). Vitória, ES, Brazil, October 2010.
- Anastasiya Yurchyshyna: COGNITIVE'10 - The Second International Conference on Advanced Cognitive Technologies and Applications, November 21-26, 2010 - Lisbon, Portugal
- Abdelaziz Khadraoui: The third International Conference on Web and Information Technologies, 16-19 June, 2010, Marrakech, Morocco.
- Abdelaziz Khadraoui: Research in Information Systems: Issues and Trends, November 2010, University of Tebessa.
- Abdelaziz Khadraoui: Évolution de l'e-gouvernement vers le web 2.0 et l'open innovation, Workshop, Paris, December 2010

Editorial responsibilities

- Jolita Ralyté: Member of editorial committee of the International Journal of Information Systems Modelling and Design – IJISMD
- Jolita Ralyté: Member of editorial committee of the International Journal of Information Systems in the Service Sector - IJISSS
- Jolita Ralyté: Reviews for IJISMD – International Journal of Information Systems Modelling and Design
- Jolita Ralyté: Reviews for IJSSS – International Journal of Information Systems in the Service Sector Reviews for IS – Information Systems Journal
- Jolita Ralyté: Reviews for SOSYM – Software and Systems Modeling
- Anastasiya Yurchyshyna: Reviews for JCECT - Journal of Civil Engineering and Construction Technology
- Abdelaziz Khadraoui : Reviews for Enterprise Information Systems Journal.

FUNDED RESEARCH PROJECTS

Participation to European projects

DELLIIS

Designing Lifelong Learning for Innovation in Information Services
co-founder

Participation to National projects

Collaboration with CTI (Centre des technologies de l'Etat de Genève)
Service specification upon existing information systems

SERVMED

Collaboration with EHC (Ensemble Hospitalier de la Côte)
Period: March 2010 - March 2011

TECHNOLOGY TRANSFER

MATIS continuing education – certificate on Modelling Information Systems and Services.

OTHERS

- Abdelaziz Khadraoui, courses and seminars: Institutional Information Systems Engineering and E-governement (University of Boumerdes)

Honours and scientific awards

- M. Léonard, IBM Faculty Award 2010. The IBM Faculty Award is a cash-only award intended to recognize outstanding faculty and to promote innovative, collaborative research in disciplines of mutual interest

Refereeing

- M. Léonard, A. Yurchyshyna, The key role of Cross-Pollination Space for innovation in services, In: UNECE publication "Promoting Innovation in the Services Sector", 2010.
- Abdelaziz Khadraoui: E-governance and institutional information systems engineering, April 2010, University of Tebessa.
- Abdelaziz Khadraoui: Institutional Information systems engineering, April 2010, University of Boumerdes.

TEACHING

- **Databases**, Information Systems, Bachelor, 6 ECTS, autumn semester, 56 hours lectures + seminars, 30 students.
- **Business Development with Services**, Information Systems, Master, 6 ECTS, spring semester, 56 hours lectures + seminars, 6 students.
- **Project Management**, Information Systems, Bachelor, 3 ECTS, spring semester, 28 hours lectures, 17 students.
- **Requirements Analysis**, Information Systems, Bachelor, 3 ECTS, autumn semester, 28 hours lectures, 15 students.
- **Information System Governance**, Information Systems, Master, 6 ECTS, autumn semester, 56 hours lectures + seminars, 6 students.
- **Services Institutional Strategies**, Information Systems, Master, 6 ECTS, spring semester, 56 hours lectures + seminars, 10 students.
- **Bases d'information**, Information Systems, Bachelor, 6 ECTS, spring semester, 56 hours, 7 students.
- **Introduction of Services Science**, Information Systems, Bachelor, 6 ECTS, autumn and spring semester, 56 hours course + 56 hours seminar, Bachelor, 400 students.
- **Principles of modelling services**, Information Systems, Bachelor, 6 ECTS, 56 h lectures + seminars, spring semester, 20 students.
- **Methods and realization of services**, Information Systems, Bachelor, 6 ECTS, 56 h lectures + seminars, autumn semester, exceptionally 4 students.
- **Sustainable Information systems**, Information Systems, Master, 6 ECTS, 56 h lectures + seminars, spring semester, 10 students.
- **Services foundations**, Information Systems, Master, 6 ECTS, 56 h lectures + seminars, spring semester, 10 students.

MIRALAB

MIRALab Laboratory

Prof. Nadia Magnenat-Thalmann

www.miralab.ch

DOMAIN ACTIVITIES

MIRALab was founded in 1989 by Professor Nadia Magnenat-Thalmann and brings together about 25 researchers from different fields, such as computer science, mathematics, medical field, design, architecture, fashion design, cognitive science, etc. This truly interdisciplinary group works in the field of computer graphics, computer animation and virtual worlds. Since 1992, the team has participated in more than 45 European Projects. In 2010, MIRALab was working on the following projects: 3D ANATOMICAL HUMAN, 3D LIFE, AERIAL CROWD, FNRS, FRANCOFONIE, INTERMEDIA, PLAY-MANCER and SERVIVE. MIRALab has organized various International conferences and workshops.

The following are some images of our work:

TEAM

Director

Nadia Magnenat-Thalmann
Full professor



Assistants (PhD students)

Lazhari Assassi
Maher Ben Moussa
Ugo Bonanni
Sylvain Chagué
Caecilia Charbonnier
Mustafa Kasap
Zerrin Kasap
Bart Kevelham
Niels Nijdam
Jérôme Schmid
Yeonha An

Senior researchers

Seunghyun Han (Post Doc)
Jinman Kim (Post Doc)
Dimitris Protopsaltou (Post Doc)
Pascal Volino (Post Doc)
Marlène Arévalo
Nedjma Cadi-Yazli

Administration

Ghislaine Wharton

Fig.1: Dynamic wearable interfaces





Fig 2: Virtual try on - Customize your garment



Fig. 3: Social robot



Fig. 4: 3D medical application

PHD THESIS

- Caecilia Charbonnier, «Extreme Hip Movements Based on Optical Motion Capture», February 2010
- Ugo Bonanni, «Haptic Interaction with Virtual Hair», September 2010

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] C. Charbonnier, F.C. Kolo, V.B. Duthon, N. Magnenat-Thalmann, C.D. Becker, P. Hoffmeyer, and J. Menetrey, «Assessment of Congruence and Impingement of the Hip Joint in Professional Ballet Dancers - A Motion Capture Study». *American Journal of Sport Medicine*, published online December 15, 2010.
- [2] S. Han, N. Nijdam, J. Schmid, J. Kim, and N. Magnenat-Thalmann, «Collaborative telemedicine for interactive multiuser segmentation of volumetric medical images». *The Visual Computer Journal*, Springer, vol. 26, no. 6, pp. 639 – 648, June 2010.
- [3] J. Schmid, J. Kim and N. Magnenat-Thalmann, «Extreme Leg Motion Analysis of Professional Ballet Dancers via MRI Segmentation of Multiple Leg Postures». *International Journal of Computer Assisted Radiology and Surgery*, Springer, Vol.6, no 1, pp. 47-57, May 2010.
- [4] C. Charbonnier, N. Magnenat-Thalmann, C.D. Becker, P. Hoffmeyer, J. Menetrey, «An Integrated Platform for Hip Joint Osteoarthritis Analysis: Design, Implementation and Results». *Int J CARS*, Springer-Verlag, 5(4):351-358, 2010.
- [5] B. Gilles and N. Magnenat-Thalmann, «Musculoskeletal MRI segmentation using multi-resolution simplex meshes with medial representations». *Medical Image Analysis*, Elsevier, Vol.14, pp. 291-302, 2010.
- [11] N. Nijdam, S. Han, and N. Magnenat-Thalmann, «A Context-Aware Adaptive Rendering System for User-Centric Pervasive Computing Environments». *The 15th IEEE Mediterranean Electrotechnical Conference*, Springer, pp. 790-795, April 2010.
- [12] C. Charbonnier, F. Kolo-Christophe, V.B. Duthon, N. Magnenat-Thalmann, C.D. Becker, P. Hoffmeyer, J. Menetrey, «Professional Dancer's Hip: A Motion Capture Study». *Trans Orthop Res Soc*, New Orleans, Louisiana, March 2010.
- [13] V.B. Duthon, F. Kolo-Christophe, C. Charbonnier, N. Magnenat-Thalmann, S.R. Duc, C.W.A. Pfirrmann, C.D. Becker, P. Hoffmeyer, J. Menetrey, «Correlation of Clinical and MRI Findings in Professional Dancers' Hip: A New Femoro-acetabular Impingement?». *Trans Orthop Res Soc*, New Orleans, Louisiana, March 2010.
- [14] N. Magnenat-Thalmann, Z. Kasap, M. Ben Moussa, «Affective Interaction with an Expressive Robot». *Poster session of the 4th International Conference on Cognitive Systems*, 2010.
- [15] N. Magnenat-Thalmann, U. Bonanni, G. Böttcher, F.-E. Wolter, «Manipulating Virtual Hair and Textiles». *Proc. 14th ASIM Dedicated Conference on Simulation in Production and Logistics*, 2010.
- [16] Z. Kasap and N. Magnenat-Thalmann, «Towards Episodic Memory Based Long-term Affective Interaction with a Human-like Robot». *IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN 2010)*, 2010.
- [17] C. Cig, Z. Kasap, A. Egges, N. Magnenat-Thalmann, «Realistic Emotional Gaze and Head Behavior Generation Based on Arousal and Dominance Factors». *The Third International Conference on Motion in Games 2010*, Springer, 2010.

Full refereed papers in Conference Proceedings

- [6] N. Magnenat-Thalmann, J. Schmid, L. Assassi, and P. Volino, «A Comprehensive Methodology to Visualize Articulations for the Physiological Human». *Cyberworlds*, IEEE Computer Society, October 2010.
- [7] N. Magnenat-Thalmann and J. Schmid, «3D anatomical functional models for the human musculoskeletal system». *Virtual Physiological Human (VPH) 2010*, September 2010.
- [8] I. Ciuciu, H. Kang, R. Meersman, J. Schmid, N. Magnenat-Thalmann, J.A. Iglesias Guitian, and E. Gobbetti, «Collaborative Semantic Content Management: an Ongoing Case Study for Imaging Applications». *11th European Conference on Knowledge Management (ECKM 2010)*, September 2010.
- [9] J. Schmid, J. Kim and N. Magnenat-Thalmann, «Coupled Registration-Segmentation: Application to Femur Analysis with Intra-subject Multiple Levels of Detail MRI Data». *MICCAI*, Springer, LNCS vol.6362, pp. 562-569, September 2010.
- [10] L. Assassi, A. Sandholm, N. Pronost, P. Volino, D. Thalmann, N. Magnenat-Thalmann, «Biomechanical analysis of dancer's hip joint during extreme motions». *3D Anatomical Human Summer School*, Chania, Crete, Greece, pp. 26-27, May 2010.
- [18] Z. Kasap and N. Magnenat-Thalmann, «Interacting with Emotion and Memory enabled Virtual Characters and Social Robots», In T. Nishida, C. Faucher and L. C. Jain (eds.), *Modelling Machine Emotions for Realizing Intelligence: Foundations and Applications*, Springer, Germany, Volume 1, pp. 209-224, 2010.
- [19] Nadia Magnenat-Thalmann, «Modeling and Simulating Bodies and Garments», Springer, 1st Edition., 2010, XVIII, 186 p. 142 illus., 22 in color., Hardcover, ISBN: 978-1-84996-262-9, 2010.

Books and book chapters

- [18] Z. Kasap and N. Magnenat-Thalmann, «Interacting with Emotion and Memory enabled Virtual Characters and Social Robots», In T. Nishida, C. Faucher and L. C. Jain (eds.), *Modelling Machine Emotions for Realizing Intelligence: Foundations and Applications*, Springer, Germany, Volume 1, pp. 209-224, 2010.
- [19] Nadia Magnenat-Thalmann, «Modeling and Simulating Bodies and Garments», Springer, 1st Edition., 2010, XVIII, 186 p. 142 illus., 22 in color., Hardcover, ISBN: 978-1-84996-262-9, 2010.

Research and technical reports

Several technical reports for the following projects: 3D LIFE, 3D ANATOMICAL HUMAN, AERIAL CROWD, FNRS, FRANCO-PHONIE, INTERMEDIA, PLAYMANCER and SERVICE.

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

- 2010: Member of the international advisory board for the computer science department, Tsinghua University, Beijing, 19-20 August, 2010
- 2000-Present: Member of the “3ème cycle romand d’informatique”, Conférence universitaire de la Suisse occidentale (CUSO), Switzerland.
- 1994-Present: President of the Computer Graphics Association (CGS)

INVITED TALKS AND KEYNOTES

- Keynote Speech at CYBERWORLDS 2010, organized by SCE, A Comprehensive Methodology to Visualize Articulations for the Physiological Human, Singapore, 20 October 20, 2010.
- Keynote Speech at ASIM 2010 conference: Haptic interaction with Virtual Worlds, Karlsruhe, October 7, 2010.
- Keynote Speech at ICME 2010, organized by IEE, Interacting with Virtual Characters and Social Robots: What is Missing? What is Next?, Singapore, July 21, 2010.
- Keynote Speech at CAD’10, (2010 International CAD Conference and Exhibition), 3D Web Interaction of Modeling 3D Garments, Dubai, United Arab Emirates, June 21, 2010.
- Invited Speech at Nicograph International 2010, Simulating Virtual Humans: Past, Present, Future, Singapore, June 19, 2010.
- Plenary speech at MELECON 2010 (Mediterranean Electrotechnical Conference), organized by IEEE, From Scanned Data Towards Individual Simulation of Anatomy-Based Hip Motion, Valetta, Malta, April 27, 2010.

CONFERENCE ORGANIZATION AS CHAIR OR CO-CHAIR

- Computer Graphics International (CGI’2010), Singapore, June 8-11, 2010, Chair. <http://cgi2010.miralab.unige.ch/>
- Intermedia Café, Athens, Greece, May 27-28, 2010, Chair.
- Intermedia summer school, Crete, May 24-26, 2010, Chair.
- 3DAnatomical Human, Summer School, Crete, May 23-24, 2010, Chair.

MEMBER OF PHD COMMITTEE DEFENSE

- Ingo Friese, Leibniz University of Hanover, Germany, February 3, 2010
- Guido Boettcher, Leibniz University of Hanover, Germany, February 4, 2010

FUNDED RESEARCH PROJECTS

Participation to European projects

SERVIVE

«SERVice oriented Intelligent Value adding nEtnetwork for Clothing-SMEs embarking in Mass-Customization»

Period : September 2008 - August 2011

Partners: 15 partners (Adidas AG – Germany, Athens Technology Center – Greece, Customax – Netherlands, Digital Humans – Switzerland, Hohenstein Institute – Germany, Institut français du textile et de l’habillement – France, MIRALab, University of Geneva – Switzerland, National Center of Science and Research «Demokritos» – Greece, Nottingham Trent University - Great Britain, RWTH-Aachen – Germany, Silva & Sistelo SA – Portugal, StudioDemetra – Italy, Team Colours Ltd. – Great Britain, The University of Arts London – Great Britain, Unicatium – Germany)

PLAYMANCER

«Serious Gaming 3D Environment»

Period : November 2007 - October 2010

Website: <http://www.playmancer.eu>

Partners: 8 partners (Systema Technologies S.A. – Greece, Netunion s.a.r.l. – Switzerland, University of Patras, The Wire Communications Laboratory – Greece, Technische Universitaet Wien – Austria, Fundacio privada institut d’investigacio biomedica de bellvitge – Spain, MIRALab, University of Geneva – Switzerland, National Center of Science and Research «Demokritos» – Greece, Serious Games Interactive (SGI) – Denmark, Roessingh Research Development BV (RRD) - Netherlands)

FRANCOPHONIE

«Accès au patrimoine vestimentaire contemporain et traditionnel francophone»

Period: December 2008 - December 2011

Type: Fonds Francophone des Inforoutes

Partners: Université de Beyrouth - Liban, Musée de Mahdia - Tunisie

INTERMEDIA

«Interactive Media with Personal Networked Devices»

Period: October 2006 – September 2010

Website: <http://intermedia.miralab.unige.ch>

Partners: 16 partners (MIRALab, Université de Genève - Switzerland (coordinator), Interdisciplinair instituut voor BreedBandTechnologie VZW - Belgium, Industrial Systems Institute / Integrated Research Information Society - Greece, Lancaster University - United Kingdom, Rheinisch-Westfälische Technische Hochschule Aachen - Germany, Università degli Studi di Genova - Italy, Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e.V. - Germany, Klagenfurt University - Austria, Ecole Polytechnique Fédérale de Lausanne - Switzerland, Groupe des Ecoles de Télécommunications - France, Information and Communications University - Korea, Intracom S.A. Telecom Solutions - Greece, OFFIS e.V. - Germany, Consiglio Nazionale Delle Ricerche - Italy, Telefónica Investigación y Desarrollo Sociedad Anónima Unipersonal - Spain, Carleton University - Canada)

3D Life

«Bringing the Media Internet to Life»

Period : January 2010 – June 2013

Website : <http://www.3dlife-noe.eu/>

Partners: 7 partners (Queen Mary and Westfield College, University of London – United Kingdom, Dublin City University – Ireland, Institut Telecom – France, Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e.V. – Germany, MIRALab, University of Geneva - Switzerland, Centre for Research and Technology Hellas – Greece, Korea University – Republic of Korea)

3DAH - 3D Anatomical Human

«3D Anatomical Functional Models for the Human Musculoskeletal System»

Period : October 2006 – September 2010

Website : <http://3dah.miralab.unige.ch/>

Partners: 8 partners (MIRALab, University of Geneva - Switzerland, Istituti Ortopedici Rizzoli – Italy, University College London – Great Britain, Institut National de Recherche en Informatique et Automatique – France , Visual Computing Group, CRS4 - Italy, Ecole Polytechnique Fédérale de Lausanne – Switzerland, Vrije Universiteit Brussel – Belgium, Center for Sensory-Motor Interaction, Aalborg University - Denmark)

FUNDED RESEARCH PROJECTS

Participation to National projects

Aerial Crowd

«Swiss National Research Foundation Project: Aerial Crowd project description for web publication»

Period: February 2009 - January 2011

Partners: 4 partners (Ecole Polytechnique Fédérale de Lausanne, Computer Vision Laboratory (CVLab) – Switzerland, Ecole Polytechnique Fédérale de Lausanne, Virtual Reality Laboratory (VRLab) – Switzerland, ETHZ Computer Vision Laboratory – Switzerland, MIRALab, University of Geneva – Switzerland)

FNRS Individual project 2008-2010

«Swiss National Research Foundation Project: Cross-Modal Interaction with Deformable Objects for web publication»

Period : October 2008 - September 2010

Partner: 4 partners (Ecole Polytechnique Fédérale de Lausanne, Computer Vision Laboratory (CVLab) – Switzerland, Ecole Polytechnique Fédérale de Lausanne, Virtual Reality Laboratory (VRLab) – Switzerland, ETHZ Computer Vision Laboratory – Switzerland, MIRALab, University of Geneva – Switzerland)

OTHERS

Honours and scientific awards

- Honorary Doctorate of University of Ottawa, Canada, June 4, 2010. www.media.uottawa.ca/mediaroom/news-details_1994.html
- Eurographics Distinguished Career Award 2010 at the opening session of EG2010 on May 2010, at Linköping University. www.eg.org/EG/About/awards/winners/winner_magnenat-thalmann.html

Courses and tutorials

- Eurographics 2009, tutorial given in Real-Time Individualized Virtual Humans, Muenchen, Monday 30, 2009
- Eurographics 2009, tutorial organized and given in 3D Anatomical Modelling and Simulation Concepts, Muenchen, Tuesday 31, 2009

Refereeing

- Jury of Ph.D. thesis for New Zealand, France, Sweden, Switzerland and Germany.
- European Union, FP7 Projects, Brussels.
- Research Grants Council of Singapore.
- Natural Sciences and Engineering Research Council of Canada.
- National Science Foundation USA.
- Swiss National Research Foundation.
- Austrian Research Foundation.
- ACM SIGGRAPH, IEEE Transactions on Visualization and Computer Graphics, IEEE Computer Graphics and Applications, IEEE Computer, Communications of ACM, The Visual Computer, Computer Graphics Forum, Computer Vision, Graphics and Image Processing, Presence, International Journal of Human-Computer Studies, Computers and Graphics, cyberworlds conference, ICAART (International Conference on Agents and Artificial Intelligence), Enactive conference, Multimedia Modelling conference, International Conference on Entertainment Computing (ICEC), International Conference on Signal Processing, Image Processing and Pattern Recognition; GRAPP ("International Conference on Computer Graphics Theory and Applications), Conference on Affective Computing and Intelligent Interaction (ACII 2010), EG Workshop on 3D Object Retrieval, IEEE Virtual Reality Conference 2010, Computer Graphics International, CASA conference, SIGGRAPH/EUROGRAPHICS Symposium on Computer Animation, etc

Editorial responsibilities

- Since 2007: Associate Editor-in-chief of the "International Journal of Virtual Reality", IPI Press, USA.
- Since 2007: Regional Editor of the Journal "Intelligent Decision Technologies", IOS Press, Netherlands.
- Since 2000: Editor-in-chief of the Journal "The Visual Computer" published by Springer Verlag, Germany.
- Since 1990: Co-founder and Co-editor-in-chief, "Journal of Visualization and Computer Animation", John Wiley and Sons.
- Since 1987: Associate Editor-in-chief, "The Visual Computer", Springer Verlag, Heidelberg.
- Since 1995: Editor, Computational Geometry Journal, North Holland.
- Since August 1994: Member of Editorial Board, Journal of Universal Computer Science, Electronic Journal.
- Since 1993: Member of Editorial Board, Journal of Computer Graphics, Russia.

Computer-Generated Films, Live Shows and Exhibitions

- High Fashion in Equations & Interactive 3D Virtual Try On, Digital Nights 2010, A showcase of international & digital arts installations at Orchard Road, Singapore Art Museum and Sculpture Square, Singapore, from September 17th to 26th 2010.

Reviewing

- Reviewer for the european project TATOO, Antwerpen, March 17-18, 2011.
- Reviewer for the european project VPH2, Brussels, October 14, 2011.

TEACHING

MIRALab proposes several Internship Students and Master Thesis for motivated students that are finishing their studies and would like to do a project with us. MIRALab's theses are especially focused towards the fields of Computer Animation, Informatics and Multimedia.

The logo for SMV, consisting of the letters 'SMV' in a bold, sans-serif font. The letters are filled with a dark, textured pattern that resembles a woven fabric or a fine grid.

Software Modelling and Verification

Prof. Didier Buchs

smv.unige.ch

Software Modelling and Verification

smv.unige.ch

Prof. Didier Buchs

DOMAIN ACTIVITIES

Developing complex and reliable software systems requires rigorous methods for modelling, designing and verifying them. The SMV lab is involved in designing dedicated formalisms that are semantically well described in order to make analysis of system properties possible, to automatically produce code and to select pertinent test cases. A coherent set of tools has been developed in order to apply our methods to software-intensive systems.

We are currently studying :

1. development of techniques for distributed object-oriented and reconfigurable system modelling
2. test selection techniques and model checking based on decision diagrams
3. software prototyping and GUI generation
4. model engineering (MDA,UML, model transformation)

TEAM

Director

Didier Buchs
Associate professor



Senior researcher

Dr. Alban Linard (Post Doc)

Assistants (PhD students)

Steve Hostettler
Alexis Marechal
Matteo Risoldi
Edmundo Lopez

Administration

Anne-Isabelle Giuntini

SMV team in 2010: Alban Linard, Steve Hostettler, Edmundo Lopez, Matteo Risoldi, Didier Buchs, Alexis Marechal, Tita (team's mascotte, Petri net expert)



PHD THESIS

- Matteo Risoldi, «A Methodology For The Development Of Complex Domain Specific Languages », 2010.

LIST OF PUBLICATIONS

Full refereed papers in Conference Proceedings

- [1] Buchs, D, Hostettler, S, Marechal, A, and Risoldi, M (2010). «ALPiNA: A symbolic model checker», In: Applications and Theory of Petri Nets - 31st International Conference, PETRI NETS 2010, Braga, Portugal, June 21-25, 2010. Proceedings, ed. by Johan Lilius and Wojciech Penczek, vol. 6128, pp. 287-296, Springer Berlin / Heidelberg. Lecture Notes in Computer Science.
- [2] Buchs, D, Hostettler, S, Marechal, A, and Risoldi, M (2010). «ALPiNA: An Algebraic Petri Net Analyzer», In: Tools and Algorithms for the Construction and Analysis of Systems, 16th International Conference, TACAS 2010, Held as Part of the Joint European Conferences on Theory and Practice of Software, ETAPS 2010, Paphos, Cyprus, March 20-28, 2010. Proceedings, ed. by Javier Esparza and Rupak Majumdar, vol. 6015, pp. 349-352, Springer.
- [3] Hamez, A, Hostettler, S, Linard, A, Marechal, A, Paviot-Adet, E, and Risoldi, M (2010). «Specification of Decision Diagram Operations», In: International Workshop on Scalable and Usable Model Checking for Petri Nets and other models of concurrency - SUMO 2010 workshop proceedings, pp. 61-75 URL = <http://sumo.lip6.fr/Proceedings.html>.
- [4] Hostettler, S, Linard, A, Marechal, A, and Risoldi, M (2010). «Improving the significance of benchmarks for Petri nets model checkers», In: International Workshop on Scalable and Usable Model Checking for Petri Nets and other models of concurrency - SUMO 2010 workshop proceedings, pp. 97-111 URL = <http://sumo.lip6.fr/Proceedings.html>.
- [5] Linard, A, Paviot-Adet, E, Kordon, F, Buchs, D, and Charron, S (2010). «polyDD: Towards a Framework Generalizing Decision Diagrams», ACSD 2010: 10th International Conference on Application of Concurrency to System Design.

- [6] Pedro, L, Risoldi, M, Buchs, D, and Amaral, V (2010). «Developing Domain-Specific Modeling Languages by Metamodel Semantic Enrichment and Composition: a Case Study», In: Proceedings of the 10th workshop on Domain-Specific Modeling (DSM'10), ed. by Matti Rossi and Juha-Pekka Tolvanen and Jonathan Sprinkle and Steven Kelly, pp. 97-102, Aalto University School of Economics (ISBN: 978-952-60-1043-4).

Research and technical reports

- [7] Linard, A, Paviot-Adet, E, Kordon, F, Buchs, D, and Charron, S (2010). «Polymorphic Decision Diagrams»
- [8] Marechal, A and Buchs, D (2010). «Properties specification language for algebraic Petri nets»
- [9] Pedro, L, Risoldi, M, Buchs, D, Barroca, B, and Amaral, V (2010). «Developing Domain Specific Modeling Languages by Metamodel Semantic Enrichment and Composition: a Case Study»

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

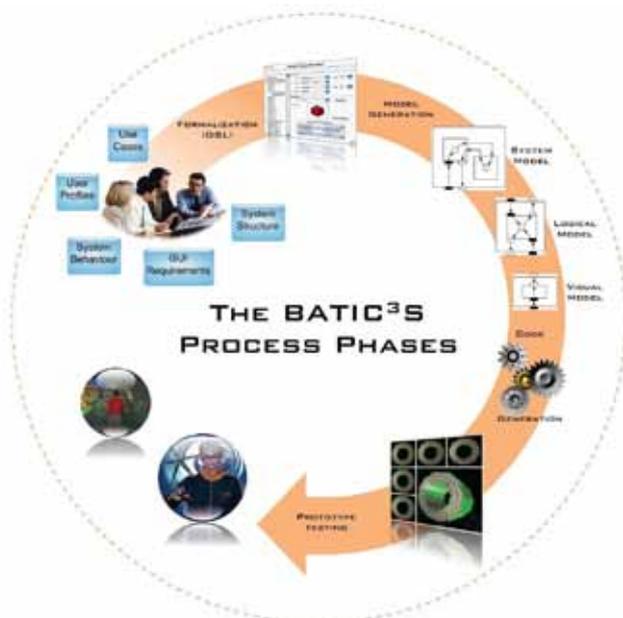
- Rapporteur PhD jury Barbara Galina, Prisma: A Software Product Line-Oriented Process for the Requirements Engineering of Flexible Transactional Models, University of Luxembourg, avril 2010.
- Rapporteur HDR Mohamed Moez YEDDES Approche formelle de vérification dans le cadre des systèmes à événements discrets et des systèmes hybrides, University of Paris 6.
- Rapporteur Thèse, NGUYEN Duy Tung Vérification symbolique de modèles à l'aide de systèmes de réécritures dédiés, Université d'Orleans.

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- Program Committee of RSP10, ICATPN10, PNSE10, Serene10, ICATPN 11.
- General Chair of SuMO 2010, SUMo 2011.
- Editorial board of TopNoc series, Springer Verlag.

INVITED TALKS

- D. Buchs, A. Marechal, S. Hostettler: «ALPiNA: An Algebraic Petri Net Analyzer», Tresor group meeting EPFL.
- D. Buchs: Seminar at the DSM-TP doctoral symposium, September 2010, Lisbon (Portugal), title of the talk: «DSML Verification».
- S. Hostettler, M. Risoldi: Seminar at the DSM-TP doctoral symposium, September 2010, Lisbon (Portugal), title of the talk: «Symbolic Model Checking of High Level Petri Nets».
- A. Linard, Diagrammes de Décision à la Demande (DDoD) avril 2010, Séminaire Performance et Généricté -- Laboratoire de Recherche et Développement de l'EPITA
- D. Buchs et A. Marechal, cours informatique théorique, Cours romand de DAS pour l'option complémentaire informatique.



FUNDED RESEARCH PROJECTS
Participation to European projects

Interreg Test Indus

industrialization of verification techniques using test selection methods

Period: May 2008 - December 2010

Partners: Univ. Besançon, UniGE, LEIRIOS, CTI, CLIO

Participation to National projects

Comedia

Development of symbolic model checking techniques and tools for high level formalisms

Hasler Project

Period: July 2007 – December 2012

Batic3s

Building adaptative interfaces using formal modeling techniques

Hasler Project

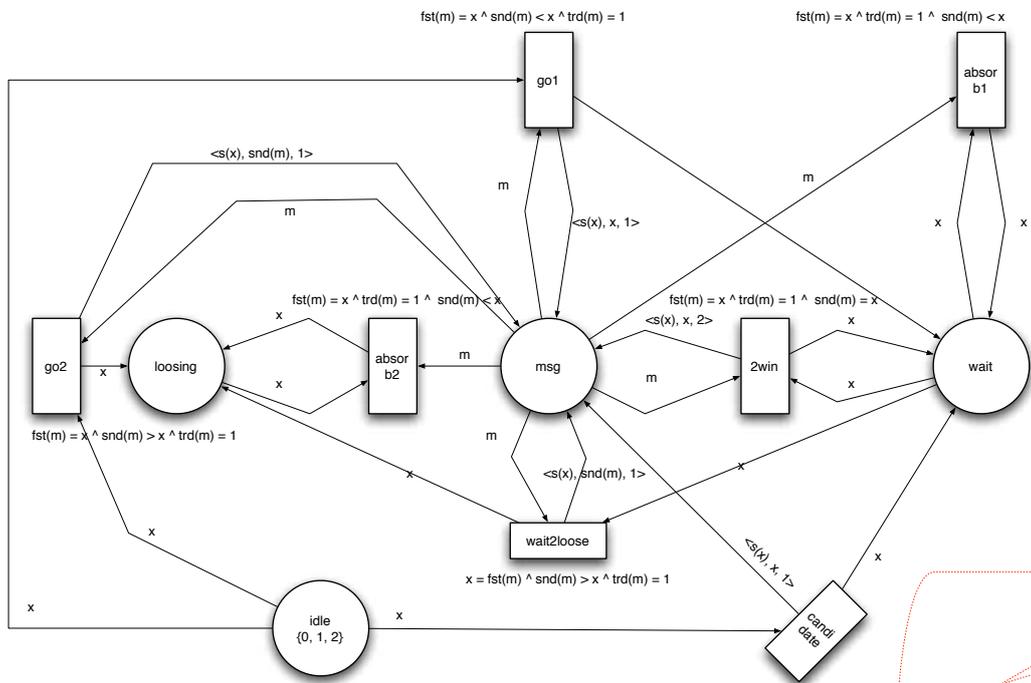
Period: May 2005 - December 2011

MOVEVER

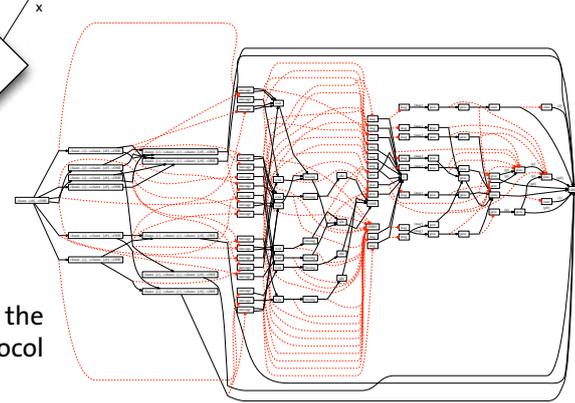
AFR Project

Verification of resilience properties in software development by testing techniques

Period: November 2010 - October 2011



The model of the leader election protocol



The state space of the leader election protocol

BRINTA

Fundamental issues in symbolic model checking techniques for Hierarchical high level modes

FNS Project

Period: October 2010 - December 2012

OTHERS

- Didier Buchs: Editor board of TOPNOG, LNCS, Springer Verlag.
- Didier Buchs: Steering committee of Rapid System Prototyping Symposium.

Institutional projects

- OCI courses on theoretical informatics
- Robot programming, Centre Commercial de Chavannes, Oct. 2010

TEACHING

- **Software Engineering Course**, Computer Science, Bachelor, 4 ECTS, 56 hours, 12 students
- **Formal Tools for Modelling Systems**, Computer Science, Bachelor, 4 ECTS, 56 hours, 20 students
- **Semantics of Programming Languages**, Computer Science, Bachelor, 4 ECTS, 56 hours, 20 students
- **Modeling and Verification**, Computer Science, Bachelor, 4 ECTS, 56 hours, 12 students
- **Advanced Formal Tools** (Optional), Computer Science, Master, 4 ECTS, 56 hours, 9 students
- **Concurrency and Distribution** (Optional), Computer Science, Master, 4 ECTS, 56 hours, 11 students
- **Computer Science Project**, Computer Science, 3rd year Bachelor, 28h course and 56h. lab work, approx. 10 students. In collaboration with Dr. Stéphane Marchand-Maillet

SPC

**Scientific
and
Parallel
Computing**

Prof. Bastien Chopard

spc.unige.ch

Scientific and Parallel Computing

spc.unige.ch

Prof. Bastien Chopard

DOMAIN ACTIVITIES

One main research activity concerns the study of complex systems, in particular the development of new numerical methods to model and simulate phenomena in natural sciences, economics, social systems and bio-medical applications. Cellular automata, Lattice Boltzmann and multi-agent techniques are central tools to address these questions. Parallel programs and algorithms are developed to implement the simulation on large PC clusters, supercomputers or GPUs to discover, explain or reproduce new phenomena.

Recent activities have focused on developing a new methodology and a new software infrastructure to solve challenging multiscale applications, in particular in biomedical problems such as ear modeling (HP2C project) and thrombosis in cerebral aneurysms (THROMBUS project). In the MAPPER project, we develop MML, a multiscale modeling language that will allow the implementation of distributed multiscale application on the European computing infrastructure. As a demonstrator, we develop a multiscale mode for irrigation canal in collaboration with ESISAR, INP-Grenoble.

Another domain of activity is bioinformatics, in collaboration with Swiss Institute of Bioinformatics. New classification methods and algorithm techniques are developed to analyse various biological problems. For instance a complex networks approach is currently developed, in order to understand the differences between healthy and unhealthy systems.

TEAM

Director

Bastien Chopard
Associate professor



Senior researchers

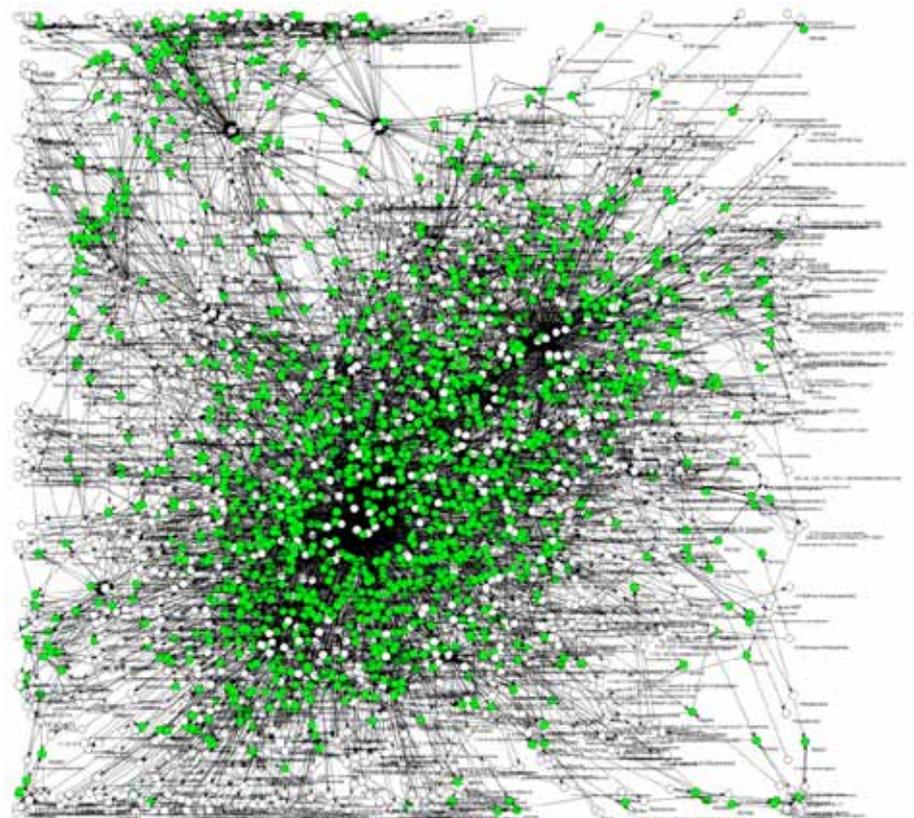
Jean-Luc Falcone
Roland Bouffanais
Najib Kacem

Assistants (PhD students)

Andrea Parmigiani
Daniel Lagrava
Christophe Charpilloz
Ranaivo Razakanirina
Kae Tsunematsu
Mohamed Ben Belgacem

Administration

Anne-Isabelle Giuntini



Complex network corresponding to the metabolic pathway for Homo Sapiens (from KEGG database)

PHD THESIS

- Olivier Marcou, «Modélisation et contrôle des écoulements à surface libre par la méthode de Boltzmann sur réseaux», March 2010, co-supervision with University of Perpignan (France)

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] Christian Huber, Bastien Chopard and Michael Manga. «A lattice Boltzmann model for coupled diffusion mixed diffusion», *J. Comp. Phys.* vol. 229, pp 7956-7976, 2010.
- [2] B. Stahl, B. Chopard and J. Latt, «On the way to compute the wall-shear stress in LB models with first order boundary condition», *Computer & Fluids*, 39, pp. 1625-1633, 2010
- [3] O. Marcou, B. Chopard, S. El Yacoubi, B. Hamroun, L. Lefèvre and E. Mendez, «Lattice Boltzmann Models for Simulation and Control of Unsteady Flows in Open Channels». *J. of Hydraul. Eng.*, vol 136, p. 809, 2010
- [4] Pham van Thang, Bastien Chopard, Laurent Lefèvre, Diemer Anda Ondo, Eduardo Mendes, «Study of the 1D lattice Boltzmann shallow water equation and its coupling to build a canal network», *Journal of Computational Physics* 229 (2010) 7373–7400, doi:10.1016/j.jcp.2010.06.022

Full refereed papers in Conference Proceedings

- [5] Rafik Ouared, Bastien Chopard, Daniel Rufenacht, K. O. Lovblad and V. M. Pereira. «Thrombosis Engineering in Intracranial Aneurysms using a Lattice Boltzmann Numerical Method». *IFMBE Proceedings*, ISSN1680-0737, Vol 25/4, pp. 1538--1541, Springer Berlin Heidelberg, 2010. DOI 10.1007/978-3-642-03882-2_408
- [6] Bastien Chopard, Rafik Ouared, Andreas Deutsch, Haralambos Hatzikirou, Dieter Wolf-Gladrow, «Lattice-gas cellular automaton models for biology: from fluids to cells», *Journal Acta Biotheoretica*. Vol 58, Number 4, pp. 329-340, 2010. DOI: 10.1007/s10441-010-9118-5
- [7] Jean-Luc Falcone, Bastien Chopard and Alfons Hoekstra. «MML: towards a Multiscale Modeling Language». *Procedia Computer Science* 1:11, 819-826, 2010
- [8] Ranaivo Mahaleo Razakanirina and Bastien Chopard, «Using Cellular Automata on a Graph to Model the Exchanges of Cash and Goods» *ACRI 2010*, S. Bandini et al. (Eds.): *ACRI 2010, LNCS 6350*, pp. 163--172, 2010. Springer-Verlag Berlin Heidelberg 2010
- [9] Bastien Chopard, Daniel Lagraeva, Jonas Latt, Orestis Malapinas and Rafik Ouared, «A LATTICE BOLTZMANN MODELING OF BLOODFLOW IN CEREBRAL ANEURYSMS», *ECCOMAS 2010*, Lisbon.

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

PhD Committees:

- Roman Mylonas. LC-MSMS Identification of Small Molecules: X-Rank a robust Library search algorithm, April 13, 2010, SIB Geneve
- Yann Mauron, LC-MSMS Identification of Small Molecules; SmileMS, a small Molecule Identification Platform Applied to clinical toxicology. April 13, 2010, SIB Geneve
- Olav Aursjo May 4th, Oslo: Two-phase flow in a porous medium stimulated by oscillations, University of Oslo, May 4, 2010.
- Syed Murtaza, High Performance Reconfigurable Computing with Cellular Automata. University of Amsterdam, May 25, 2010.
- Keijo Mattila, Implementation techniques for the lattice Boltzmann method, University of Jyväskylä, Finland, August 28, 2010.
- Eric Lorenz, Multi-scale Modeling with Complex Automata: In-stent Restenosis and Suspension Flow. University of Amsterdam, November 11, 2010.

Other Committees:

- CADMOS
- 3ème cycle romand d'informatique
- SwinNG
- Speedup

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- International Conference on Computational Science, ICCS 2010, Amsterdam, May 31- June 2, 2010,
- Discrete Simulation of Fluid dynamics, DSFD 2010, Rome, July 5-9, 2010.
- Cellular Automata for Research and Industry ACRI 2010, Ascoli Piceno, Italy, Sept 21-25, 2010.
- Seventh International Conference on Flow Dynamics, ICFD, Sendai. Nov 1-3, 2010.

INVITED TALKS

- Symposium on High Accuracy Flow Simulations (HAFS) EPFL, 15-17 fev, 2010.
- Trends in Computational Hemodynamics, CECAM workshop, EPFL, May 10-12
- Lattice Boltzmann, particle methods and experiments of physiological flows, Lisbon ECCOMAS June 14-18
- DSFD 2010, Rome, July 5-9, 2010.
- Multiscale Modeling and Simulation, ETHZ - CECAM - ESF Workshop, 19-22 October 2010, Kartaus Ittingen, Switzerland
- Japan-Swiss meeting, Medical Engineering Based on Vessel, Biology, University of Zurich Irchel, Nov 16-17, 2010.
- Seminar of the Institute of Computational Science, University of Lugano, Lugano, Dec 7, 2010.

FUNDED RESEARCH PROJECTS

Participation to European projects

MAPPER

FP7, agreement RI-261507

Multiscale Applications on European e-Infrastructures

Period: October 2010 - September 2013

Partners: University of Amsterdam, University College London, University of Ulster, ICBP Poznan, AGH / AGH-UST Krakow, Ludwig-Maximilians-Universitaet Muenchen, Chalmers Tekniska Hoegskola Ab, Max Planck Gesellschaft Zur Foerderung Der Wissenschaften E.V.

Web Site: <http://www.mapper-project.eu>

COAST project (STREP)

Complex Automata for modelling and simulation of complex systems

Period: September 2006 - February 2010

Partners: University of Amsterdam, University Sheffield, TU Braunschweig, NEC, Germany, University of Geneva

Web Site: <http://www.complex-automata.org>

Swiss representative for **COST action IC 805: complexHPC**

Participation to National projects

Cellular Automata dynamics on irregular topologies: application to simple economical model

FN - 200021-120245

Period: June 2008 - January 2012

Numerical simulations of volcanic phenomena by Lattice-Boltzmann methods

FN - 200021-11635

Partners: University of Washington (USA), GeorgiaTech (USA), University of Geneva (Switzerland)

Period: June 2007 - November 2010

Control of irrigation canals : a Lattice Boltzmann Approach

FN - 200020-117770

Partners: University of Perpignan (France), ESISAR, Grenoble-INP (France), University of Geneva (Switzerland)

Period: November 2007 - April 2009

SWITCH AAA project - Virtual EZ-Grid

FN - 200020-117770

Partners: HEPIA, USI, University of Geneva (Switzerland)

Period: July 2009 - June 2010

HP2C: Numerical modeling of the ear: towards the building of new hearing devices

Partner: Elisabeth Delevoy, CEA Grenoble

Period: November 2010 - December 2011

OTHERS

Courses and tutorials

- Organisation of a 3-Day International Course on the Pabalos software, Feb 2010 (en collaboration avec J. Latt, EPFL)

Refereeing

- Reviewing for many international journals and conferences

Editorial responsibilities

- Int. J. of Mod Phys C
- J. of Computational Sciences (JoCS)
- J. of Cellular Automata
- Natural Computing Journal (NACO)

Other duties

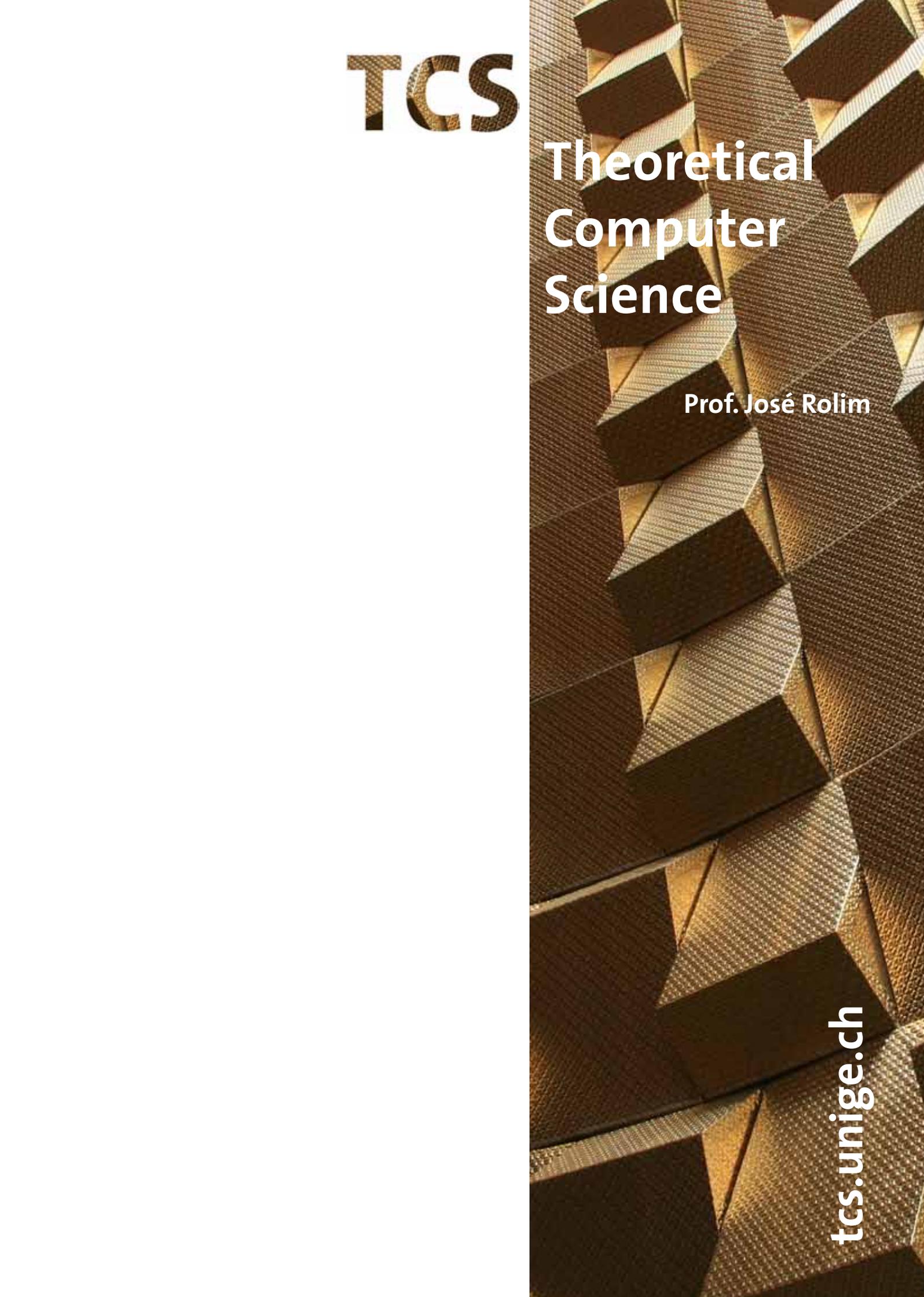
- Groupe Leader à l'Inst. Suisse de Bioinformatique (SIB)
- Président CIFS, représentant Fac Science à la COINF

Radio interviews

- Two times: RSR 1 (Impatience) about CADMOS projects and cerebral aneurysms simulations

TEACHING

- **Méthodes Heuristiques d'apprentissage et d'optimisation**, Computer Science, Master, 8 ECTS, 112 hours, 15 students
- **Programmation Bioinformatique**, Computer Science, 7 ECTS, 84 hours, 10 students
- **Parallelisme**, Computer Science, Bachelor, 4 ECTS, 56 hours, 20 students
- **Algorithmique**, Computer Science, Bachelor, 4 ECTS, 56 hours, 20 students
- **Algorithme paralleles/probabilistes**, Computer Science, Master, 4 ECTS, 56 hours, 10 students
- **Outils, modélisation et simulation en calcul numérique**, Computer Science, 4 ECTS, 56 hours, 10 students



TCS

Theoretical Computer Science

Prof. José Rolim

tcs.unige.ch

Theoretical Computer Science

tcs.unige.ch

Prof. José Rolim

DOMAIN ACTIVITIES

The TCS-Sensor Lab (theoretical Computer Science and Sensor Networks Lab) main research activities are in large measure concerned with the representation, transformation and communication properties of information systems such as ad-hoc, sensor networks and embedded systems. A certain body of knowledge emphasizing the interweaving themes of complexity and algorithms represent the research axis of theoretical computer science. Under complexity one includes questions which tasks can or cannot be performed by information systems of different aspects restricted in several resources such as running time, memory amount, energy dissipation or communication transmission. Under algorithm one includes questions regarding how efficient a task can be performed in term of such resources. These questions are often addressed by developing models of relevant parts of information systems such as processors, their interconnections, their rules of operation, the means of communication, etc, and by the study of properties of such models.

TEAM

Director

José Rolim
Full professor



Members

Dr. Pierre Leone (MER)
Dr. Aubin Jarry (MA)
Dr. Eduardo Solana (CC)
Dr. Florian Huc

Assistants (PhD students)

Pierre Repetto
Orestis-Napoleon Evangelatos
Hakob Aslanyan
Tigran Tonoyan
Marios Karagiannis
Konstantinos Chantzis
Anthony Gasperin



Example of a clustered sensor network

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] Pierre Leone, Elad Michael Schiller: «Interacting Urns Processes for Clustering of Large-Scale Networks of Tiny Artifacts». *IJDSN* 2010: (2010)
- [2] Pierre Leone, Sotiris E. Nikolettseas, José D. P. Rolim: «Stochastic Models and Adaptive Algorithms for Energy Balance in Sensor Networks». *Theory Comput. Syst.* 47(2): 433-453 (2010)

Full refereed papers in Conference Proceedings

- [3] Hakob Aslanyan and Jose Rolim. «Interference minimization in wireless networks». 3rd International Workshop on Wireless Network Algorithm and Theory. *WiNA2010*: 444-449, December, 2010.
- [4] Hakob Aslanyan and Jose Rolim. «Randomly roving agents in wireless sensor networks». International Conference on Intelligent Network and Computing. *ICINC2010*: Volume 1, 257-261, November, 2010.
- [5] Hakob Aslanyan, Pierre Leone and Jose Rolim. «Data propagation with guaranteed delivery for mobile networks». 9th International Symposium of Experimental Algorithms. *SEA2010*: 386-397, May, 2010.
- [6] Florian Huc and Aubin Jarry. «Geographic Routing in Large Sensor Network without 2D Coordinates». 10th *INFORMS* Telecommunications Conference, 2010.
- [7] Florian Huc and Aubin Jarry. «VRAC: Virtual Raw Anchor Coordinate Routing in Sensor Networks». *Wireless On-demand Network System and Services*, February, 2010.
- [8] Florian Huc, Aubin Jarry, Pierre Leone, José Rolim. «Virtual Raw Anchor Coordinates: A New Localization Paradigm». International Symposium on Algorithms for Sensor Systems, *Wireless Ad Hoc Networks and Autonomous Mobile Entities ALGOSENSORS2010*, 2010.
- [9] Aubin Jarry. «On the Complexity of Computing Shortest Fast Reroute Paths». *Reliable Networks Design and Modelling RNDM2010*, October, 2010.
- [10] Aubin Jarry, Pierre Leone, Sotiris Nikolettseas and José Rolim. «Optimal Data Gathering Paths and Energy Balance Mechanisms in Wireless Networks». International Conference on Distributed Computing in Sensor Systems, 2010.
- [11] Tigran Tonoyan. «A constant factor algorithm for scheduling with linear powers». International Conference on Intelligent Network and Computing. *ICINC2010*: Volume 2, 43-48, November, 2010.
- [12] Luminita Moraru, Pierre Leone, Sotiris E. Nikolettseas, José D. P. Rolim: «Path quality detection algorithms for near optimal geographic routing in sensor networks with obstacles». *Wireless Communications and Mobile Computing* 10(5): 647-661 (2010)
- [13] Pierre Leone, Marina Papatriantafidou, Elad Michael Schiller, Gongxi Zhu: «Chameleon-MAC: Adaptive and Self-* Algorithms for Media Access Control in Mobile Ad Hoc Networks». *SSS* 2010: 468-488
- [14] Florian Huc, Aubin Jarry, Pierre Leone, José D. P. Rolim: «Brief announcement: routing with obstacle avoidance mechanism with constant approximation ratio». *PODC* 2010: 116-117

- [15] Constantinos Marios Angelopoulos, Sotiris E. Nikolettseas, Dimitra Patroumpa, José D. P. Rolim: «Coverage-Adaptive Random Walks for Fast Sensory Data Collection». *ADHOC-NOW* 2010: 81-94

Books and book chapters

- [16] Maria J. Serna, Ronen Shaltiel, Klaus Jansen, José D. P. Rolim: «Approximation, Randomization, and Combinatorial Optimization». *Algorithms and Techniques*, 13th International Workshop, *APPROX* 2010, and 14th International Workshop, *RANDOM* 2010, Barcelona, Spain, September 1-3, 2010. *Proceedings Springer* 2010

Research and technical reports

- [17] Aubin Jarry and Pierre Leone and José Rolim. «Virtual Raw Anchor Coordinates»: Theory #1. 2010 (<http://arxiv.org/abs/1002.0484>)
- [18] Marios Karagiannis, Christos Koninis. «LQI values heatmap with iSense hardware technical report». *Wisebed FIRE EU Project*, May 31, 2010. (<http://www.wisebed.eu/images/stories/deliverables/TR/TR-2010-UNIGE-RACTI-LQI.pdf>)

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

- SARIT - Swiss Association for Research in Information Technology – José Rolim - president
- ERCIM- European Research Consortium for Informatics and Mathematics.- José Rolim- member of the Board of Directors
- IFIP - The Swiss IFIP Committee (SIC) - TC1 Foundations of Computer Science – delegate: Jose Rolim

CONFERENCE ORGANIZATION AS CHAIR OR CO-CHAIR

- DCOSS 10 IEEE International Conference on Distributed Computing in Sensor Systems, June , 2010 – University of California, Santa Barbara – chair steering committee: Jose Rolim
- APPROX 2010 – 13th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems – UPC Barcelona , September 2010 - chair steering committee: Jose Rolim
- RANDOM 2010 - 14th International Workshop on Randomization and Computation – UPC Barcelona , September 2010 - chair steering committee: Jose Rolim
- SEA 2010– 9th International Symposium on Experimental Algorithms –May – Ischia Island, Italy - chair steering committee: Jose Rolim
- ALGOSENSORS 2010 - 6th International Workshop on Algorithms for Sensor Systems, *Wireless Ad Hoc Networks and Autonomous Mobile Entities* -Bordeaux, France -July, 2010 member steering committee: Jose Rolim
- IPDPS 10 - 24th IEEE International Parallel & Distributed Processing Symposium. 14-18 April 2008 , Atlanta, USA member steering committee: Jose Rolim

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- ICALP 2010 -37th International Colloquium on Automata, Languages and Programming, July 5-10, 2010 -- Bordeaux, France – José Rolim
- FUN 2010 - Fifth International Conference on FUN WITH ALGORITHMS, June 2-4, 2010, Ischia Island, Italy – Jose Rolim
- WiSARN 2010 : CFP: 2nd International Workshop on Wireless Sensor, Actuator and Robot Networks – November 2010, China – Jose Rolim
- 6th International Workshop on Algorithms for Sensor Systems, Wireless Ad Hoc Networks and Autonomous Mobile Entities, ALGOSENSORS 2010, Bordeaux, France, July 5, 2010 : Pierre Leone
- 9th International Symposium on Experimental Algorithms, SEA 2010, May 20-22, Ischia Island, Italy: Pierre Leone
- IEEE International Parallel & Distributed Processing Symposium TCPP PhD Forum, Atlanta, 19-23 April, 2010 : Pierre Leone
- 11es Journées Doctorales en Informatique et Réseaux, JDIR 2010, 24, 25 et 26 Mars 2010, Sophia Antipolis, France : Pierre Leone
- IADIS International Conference Wireless Applications and Computing 2010, WAC 2010, Freiburg, Germany, July 26-28, 2010: Pierre Leone
- IADIS International Conference, Informatics 2010, Freiburg, Germany, July 26-28, 2010: Pierre Leone

INVITED TALKS

- 2nd Year General Assembly Meeting – FRONTS - Barcelona, Spain, February 01-02, 2010, Talk: Geographic Routing – Jose Rolim

FUNDED RESEARCH PROJECTS

Participation to European projects

AEOLUS

Algorithmic Principles for Building Efficient Overlay Computers

UE6 – 015964

Period: September 2005 – February 2009

FRONTS

Foundations of Adaptive Networked Societies of Tiny Artefacts

UE7 – 215270

Period: February 2008 – January 2011

WISEBED

Wireless Sensor Network Testbeds

UE7 – 224460

Period: June 2008 – May 2011

HOBNET

HOListic Platform Design for Smart Buildings of the Future InterNET

UE7 – 257466

Period: June 2010 – May 2013

Participation to National projects

Power Aware Computing in Embedded Systems

FNRS 200020-124396

Period: May 2009 – April 2010

OTHERS

- 2010 IEEE Computer Society Awards for Continuous Service – Jose Rolim
- Jose Rolim elected president of the SARIT - Swiss Association for Research in Information Technology
- Member of the Editorial Board of the Journal “Algorithms”, MDPI Publisher: Pierre Leone

TEACHING

- **Programmation des systemes**, Computer Science, 4 ECTS, Bachelor, 80 hours, 20 students
- **Algorithmique avancée**, Computer Science, Bachelor, 4 ECTS, 80 hours, 20 students
- **Distributed Algorithms for Wireless Sensor Networks**, Computer Science, Master, 4 ECTS, 80 hours, 20 students
- **Algorithmique pour le web**, Computer Science, 4 ECTS, Master, 80 hours, 20 students
- **Cryptographie et sécurité**, Computer Science, 4 ECTS, Bachelor, 80 hours, 20 students
- **Systèmes concurrents et distribués**, Computer Science, 4 ECTS, Master, 56 hours
- **Calculabilité et Complexité**, Computer Science, 4 ECTS, Bachelor, 80 hours, 20 students
- **Langages Formels**, Computer Science, 3 ECTS, Bachelor, 80 hours, 20 students

Administrative Staff



The administrative staff of CUI is dedicated to serving at its best the community of researchers, teachers and students. Essentially covering four domains :

Administration: Its role is to manage the CUI budget, logistics, communication, etc. It also manages the Web site, the production of documents (activity report, flyers, etc.) as well as the organization and coordination of public and promotional events such as the book and student fair (Salon du Livre et de l'Etudiant)

- **Elie Zagury** is direction assistant;

Secretariat: Works at the departments level of CUI. Hiring and contract renewals of doctoral students as well as all the tasks related to CUI operations are handled by the secretariat. It also provides a perfect connection to major University services such as HR, accounting, etc.

- **Germaine Gusthiot** is administrative assistant;
- **Marie-France Culebras** is secretary;
- **Anne-Isabelle Giuntini** is part-time secretary (50%);
- **Céline Marleix-Bardeau** is part-time secretary (50%).



Marie-France Culebras, Germaine Gusthiot, Anne-Isabelle Giuntini

IT: Two systems-engineers manage the basic computer infrastructure of CUI (data storage, backups, servers, network, etc.) using Linux and Windows. Their help and support is appreciated daily by the whole CUI community. This service works closely with the University IT Division.

- **Nicolas Mayencourt** is system-engineer;
- **Daniel Agulleiro** is system-engineer;

Library: The CUI Library provides services and tasks as any specialized library of an university center. It is part of the library network of the University of Geneva (<http://www.unige.ch/biblio/sciences/infos/cui.html>) and is proud to offer some specificities in its field. Its current collection contains approximately 12'000 books and 30 specialized paper journals.

- **Dorothee Hauser** is head librarian;
- **Amélia Bossard** is librarian.



Dorothee Hauser, Amélia Bossard



Nicolas Mayencourt, Elie Zagury, Daniel Agulleiro

2010

Financial
Report



CUI

Staff	CHF 1'010'908.-
• Academic	CHF 284'155.-
• Administrative and Technical	CHF 577'920.-
• Employer's social contributions	CHF 148'833.-
Operating costs - Investment	CHF 163'851.-
Operating costs - Others	CHF 211'000.-
Library	CHF 47'207.-
CUI SUBTOTAL	CHF 1'432'966.-

COMPUTER SCIENCE DEPARTMENT, FACULTY OF SCIENCES

Staff	CHF 3'128'811.-
• Academic	CHF 2'464'153.-
• Administrative and Technical	CHF 159'679.-
• Employer's social contributions	CHF 504'979.-
Operating costs - Investment	CHF 90'000.-
Operating costs - Others	CHF 11'000.-
DEPARTMENT SUBTOTAL	CHF 3'229'811.-

INFORMATION SYSTEMS DEPARTMENT, FACULTY OF ECONOMIC AND SOCIAL SCIENCES

Staff	CHF 1'952'808.-
• Academic	CHF 1'592'240.-
• Administrative and Technical	CHF 45'386.-
• Employer's social contributions	CHF 315'182.-
Operating costs - Investment	CHF 11'380.-
Operating costs - Others	CHF 6'300.-
DEPARTMENT SUBTOTAL	CHF 1'970'488.-

UNIT OF COMPUTER SCIENCE FOR THE HUMANITIES, FACULTY OF HUMANITIES

Staff - Academic, incl. Charges (estimation)	CHF 552'491.-
Operating costs	CHF 20'000.-
DEPARTMENT SUBTOTAL	CHF 572'491.-

TOTAL BUDGET

CHF 7'205'756.-

COMPUTER SCIENCE DEPARTMENT, FACULTY OF SCIENCES

UE-funded Projects	CHF 1'410'082.-
Swiss-funded Projects	CHF 1'172'131.-
DEPARTMENT SUBTOTAL	CHF 2'582'213.-

INFORMATION SYSTEMS DEPARTMENT, FACULTY OF ECONOMIC AND SOCIAL SCIENCES

UE-funded Projects	CHF 1'575'369.-
Swiss-funded Projects	CHF 693'527.-
DEPARTMENT SUBTOTAL	CHF 2'268'896.-

UNIT OF COMPUTER SCIENCE FOR THE HUMANITIES, FACULTY OF HUMANITIES

UE-funded Projects	CHF 355'000.-
Swiss-funded Projects	CHF 365'151.-
DEPARTMENT SUBTOTAL	CHF 720'151.-

TOTAL CREDIT**CHF 5'571'260.-**



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