

CENTRE UNIVERSITAIRE D'INFORMATIQUE

ACTIVITY REPORT 2007



**UNIVERSITÉ
DE GENÈVE**

**CENTRE UNIVERSITAIRE
D'INFORMATIQUE**



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Foreword



The **Centre Universitaire d' Informatique (CUI)**, one of the oldest computer research centers in the world, is proud to report its activities during 2007. The CUI is a multidisciplinary center dealing with different aspects of computing with members coming from different faculties of the University of Geneva. In particular, the Sciences, the Economics and the Letters Faculties provide the CUI with most of its member. This multidisciplinary aspect is also present in this report by means of significant applications, important publications and several projects in areas as far as Humanities and Biotechnology, Wireless Communication and Services Sciences, Virtual Reality and Software Engineering, Multimedia and Computer Vision to cite only a few of them.

During 2007, the CUI obtained a record number of important research projects by the new FP7 EU, by the Swiss National Foundation, Hasler Foundation and by different industrial partners. These projects are described in this report. The CUI is proud of the recognition given by such projects and the consequences are detailed in this report as our main scientific activities.

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.

Welcome to the CUI



In the background: «Voto per la pagnotta» by Randi Hansen

Prof. José Rolim
Director of the CUI
University of Geneva



Advanced Systems Group

Prof. Dimitri Konstantas



ASG

asg.unige.ch

DOMAIN ACTIVITIES

The main research direction of the group is the study of issues related with autonomous and mobile systems and services, including geo-localized information management, trust issues and quality of service of mobile networks.

More specifically the current research areas of the group are:

- Mobile applications and services: location based services and applications, mobile health applications and mobile services' context information;
- Trust for e- and m-services: formalization and implementation of a model based on the human notion of trust, with concepts such as "recommendations" and uncertainty;
- Quality of service in mobile networks: user and history based prediction of wireless networks' end-to-end observed QoS.

TEAM

Director

Dimitri Konstantas
Full professor



Members

Dr. Ciaran Bryce
Dr. Jean-Marc Seigneur
Dr. Lemonia Ragia

PhD students

Michel Deriaz
Katarzyna Wac
Alfredo Villalba
Michel Pawlak

PHD THESIS

- Michel Pawlak, «A reference model for Free/Open Source Software (F/OSS) process management», August 29th, 2007

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] Wac, Katarzyna and van Halteren, Aart and Bults, Richard and Broens, Tom (2007) Context-aware QoS provisioning for an M-health service platform. *International Journal of Internet Protocol Technology*, 2 (2). pp. 102-108. ISSN 1743-8217 , Publisher: Inderscience Publishers, February 2007
- [2] Broens, T.H.F. and van Halteren, A.T. and van Sinderen, M.J. and Wac, K.E. "Towards an application framework for context-aware m-health applications". *International Journal of Internet Protocol Technology*, 2 (2). pp. 109-115. ISSN 1743-8209, Publisher: Inderscience Publishers, February 2007
- [3] E. Grandgirard, C. Gertosio and J.-M. Seigneur, «Trust Engines to Preserve the Quality of an Operational Decision System», *International Journal of Factory Automation, Robotics and Soft Computing*, Issue 3, July 2007, ISSN 1828 – 6984,
- [4] J. Abendroth and J.-M. Seigneur, «Leveraging the Trusted Platform Module for More Trustworthy P2P File Sharing Peer Software», *WSEAS, Transactions on Communications Journal*, Issue 1, Volume 6, January 2007, ISSN 1109-2742
- [5] Val Jones, Aart van Halteren, Dimitri Konstantas, Ing Widya, Richard Bults, "An application of augmented MDA for the extended healthcare enterprise", *International Journal of Business Process Integration and Management*, Vol 2, No 3, October 2007
- [8] El Maliki and J.-M. Seigneur, «A Survey of User-centric Identity Management Technologies», *IARIA ,Proceedings of the SECURWARE International Conference*, October 14-20, 2007 - Valencia, Spain

Full refereed papers in Conference Proceedings

- [6] Wac, K.E. and Arlos, P. and Fiedler, M. and Chevul, S. and Isaksson, L. and Bults, R.G.A. (2007) Accuracy evaluation of application-level performance measurements. In: *Next Generation Internet Networks*, May 21-23 2007, Trondheim, Norway. pp. 1-5. IEEE Computer Society Press. ISBN 1-4244-0856-3
- [7] Giovanna Di Marzo Serugendo, Alfredo Villalba and Dimitri Konstantas, "Dependability Requirements for Hovering Information", *Workshop on Dependable Application Support for Self-Organizing Networks*, DSN 2007supplementary proceedings of the 37th Annual IEEE/IFIP International Conference on Dependable Systems and Networks June 25 - June 28, 2007, Edinburgh International Conference Centre, Edinburgh, UKT.
- [9] T. El Maliki, Y. Durukan and J.-M. Seigneur, «EasiDeploy: A Usable and Convenient Identity Management Platform with Strong Authentication, PKI and Biometry», *Proceedings of the 2nd Conference on Advances in Computer Security and Forensics*, 12th and 13th July 2007, Liverpool John Moores University, United Kingdom.
- [10] O. Powell, J.-M. Seigneur and L. Moraru, «Trustworthily Forwarding Sensor Networks Information to the Internet», *IARIA, Proceedings of the SECURWARE International Conference*, October 14-20, 2007 - Valencia, Spain
- [11] «Trust Engines to Optimize Semi-Automated Industrial Production Planning», E. Grandgirard, C. Gertosio and J.-M. Seigneur, in the *Proceedings of the fourth International Symposium on Industrial Electronics*, IEEE, June 4-7, 2007, Centro Cultural and Centro Social Caixanova - Vigo, Spain.
- [12] Michel Deriaz, "Trust without Truth", in *proceedings of the IFIPTM 2007, Joint iTrust and PST Conferences on Privacy, Trust Management and Security*, July 30th – August 2nd, 2007, Moncton, New Brunswick, Canada, IFIP Trust Management series, Volume 238, eds. Etalle, s., Marsch, S., pp. 31-45, Springer (Boston) ISBN 9780387-736549
- [13] Michel Pawlak, Ciaran Bryce, « A Reference Model for F/OSS Process Management », in *Proceedings of the Open Source Development, Adoption and Innovation conference*, June 11-14, 2007, Limerick, Ireland, IFIP Vol. 234, Feller, J.; Fitzgerald, B.; Scacchi, W.; Sillitti, A. (Eds.), 2007, ISBN: 978-0-387-72485-0
- [14] Michel Pawlak, Ciaran Bryce, «A Reference Model for F/OSS Process Management», *workshop of Free and Open Source Software Developer's European Meeting (FOSDEM)*, Brussels, February 2007.

Books and book chapters

- [15] J.-M. Seigneur and C. D. Jensen, «User-Centric Identity, Trust and Privacy» chapter XII in R. Song, L. Korba, & G. Yee (Eds.), Trust in e-services: Technologies, practices and challenges. pp. 293-322, Hershey, PA, USA, Idea Group Publishing, ISBN 1-59904-207-X

Research and technical reports

- [16] Dimitri Konstantas (ed), “Mobile Trust” Advanced Systems Group technical report 2007, <http://asg.unige.ch/publications/TR07/index.html>
- i. Trust Without Truth, Michel Deriaz
 - ii. Trusting Virtual Tags, Michel Deriaz
 - iii. Trust and Security in Spatial Messaging: FoxyTag, the Speed Camera Case Study ,Michel Deriaz and Jean-Marc Seigneur
 - iv. Location Based Services for Traffic Management, Lemonia Ragia and Michel Deriaz
 - v. Message Quality for Pervasive System Security, Ciaran Bryce
 - vi. Hovering Information : a new paradigm for sharing delocalized information, Dimitri Konstantas and Alfredo Villalba
 - vii. Dependability requirements for hovering information, Giovana Di Marzo, Alfredo Villalba, Dimitri Konstantas
 - viii. Accuracy evaluation of application-level performance measurements , Wac, K., Arlos, P., Fiedler, M., Chevul, S., Isaksson, L., Bults, R.
 - ix. OSS Quality Assessment Trustworthiness , Jan-Marc Seigneur
 - x. A Reference Model for F/OSS Processes ,Michel Pawlak and Ciaran Bryce.
- [17] J.-M. Seigneur, «Trustworthiness of Collaborative Open Source Software Quality Assessment» Proceedings of the International SECURECOMM Conference, SECOVAL 2007 workshop, third International Workshop on the Value of Security through Collaboration, September 17, 2007, Nice, France
- [18] Villalba Castro, G. Di Marzo Serugendo, D. Konstantas, Hovering Information - Self-Organising Information that Finds its Own Storage, BBKCS-07-07, Technical Report, School of Computer Science and Information Systems, Birkbeck College, London, UK, November 2007

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

- Workshop organisation chair for the I-ESA 2007, the Third International Conference Interoperability for Enterprise Software and Applications, March 26-30, 2007, Funchal, Madeira Island, Portugal.

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- Jean-Marc Seigneur: Joint iTrust and PST Conferences on Privacy, Trust Management and Security (IFIPTM), Moncton, Canada, July, 2007
- Katarzyna Wac: The First IEEE WoWMoM Workshop on Adaptive and Dependable Mission- and bUsiness-critical Mobile Systems (ADAMUS 2007) organized in conjunction with the Int. Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM), helsinki, Finland, 18 June 2007
- Katarzyna Wac: The Third International Workshop on Context-Aware Mobile Systems (CAMS 2007) organized in conjunction with the OnTheMove Federated Conferences (OTM'07) in Vilamoura, Algarve, Portugal, 25 - 30 November 2007
- Katarzyna Wac: Reviewer for the Institution of Engineering and Technology (IEE) Communications Journal (for telemedicine and tele-health area).
- Dimitri Konstantas: Reviewer for the European Journal of Information Systems (EJIS) special issue on «Healthcare Information Systems Research, Revelations and Visions» (2007)
- Dimitri Konstantas: Reviewer for the 2007 IEEE/RSJ International Conference on Intelligent Robots and Systems
- Dimitri Konstantas: Programme committee member of the I3E conference, Wuhan, China, October 10-12, 2007

INVITED TALKS

- Dimitri Konstantas : “Are m-health services commercially viable?”, Invited talk in the “E-Health: Opportunities and barriers for Successful implementations” symposium, December 13th 2007, Enshede, The Netherlands

FUNDED RESEARCH PROJECTS

Participation to European projects

Interop NoE

EU, IST-508011

Period: November 2003 - April 2007

Web: <http://www.interop-noe.org>

54 partners: prime partner University of Bordeaux

EDOS

Environment for the development and Distribution of Open Source software, Funded by the FP6 of the European Union

EU IST-004312

Period: November 2004 - April 2007

Web: <http://www.edos-project.org/>

Partners: Universities (Paris 7, Tel Aviv, Zurich and Geneva), Research Institutes (INRIA), Private companies (Caixa Magica, Nexedi, Nuxeo, Edge-IT and CSP Torino)

PlayMancher

A European Serious Gaming 3D Environment

Funded by the FP7 programme of the EU

Period: November 2007 - October 2010

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

Partners: Systema Technologies S.A. (Coordinator, Greece), TXTe-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)

Participation to National projects

Geo-Tags

trusted geo-spatial tags,

Funded by CTI, Bern

Period: May 2007 - April 2009

Partners: ArxIT SA, Societe Nautique de Geneve / Porto Central

TECHNOLOGY TRANSFER

Collaboration with **ArxIT SA** and **Societe Nautique de Geneve** for the deployment of a geolocalisation service for the Bol d'Or and other events in the lake of Geneva. There are 34 rescue teams around Lake Lemman. However, during big events like the Bol d'Or (about 600 participants), an additional team is used to coordinate the rescue operations. With their 22 boats, they are responsible to supervise the all race and contact the nearest rescue team in case of an emergency. We develop an application that allows showing all the boats on the map of the coordinator, and when the latter moves one of them on his screen, the captain receives an alert on his mobile phone and is directed to the new position.

OTHERS

- **Katarzyna Wac** : Invited course at the Blekinge Institute of Technology (BTH, Karlskrona, Sweden), April 2007, 5h course for MSc students
- **Michel Deriaz** : many articles. radio and television presentations regarding the FoxyTag service (full list at <http://www.foxytag.com/en/press.html>):
- September 2007 (FR): **Revue Automobile**, GPS antiradars: le flou domine. http://www.foxytag.com/press/20070927_RevueAutomobile.pdf
- April 2007 (GB): **Irish Daily Mirror**, How to beat speed cameras with your mobile. http://www.foxytag.com/press/20070423_IrishDailyMirror.jpg
- February 2007 (DE): **SAT.1 Automagazin**, A report on Foxy-Tag. http://www.foxytag.com/press/20070203_Sat1-Automagazin.wmv

TEACHING

- **Infrastructure de Communications**, Bachelor, 6 credits, 56 hours (winter semester), 21 students
- **Communication Multimédia**, Bachelor, 6 credits, 56 hours (spring Semester), 25 students
- **Outils Internet**, Bachelor, 6 Credits, 56 hours (spring semester), 52 students
- **Programmation Objet**, Bachelor, 6 Credits, 56 hours (spring semester), 16 students
- **Introduction to Mobile Systems and Services**, Master, 6 Credits, 56 hours (winter semester), 10 students
- **Programmation des systèmes**, Master, 6 Credits, 56 hours (winter semester), 8 students
- **Design of Multimedia Services**, Master, 6 Credits, 56 hours (spring semester), 6 students
- MATIS - **Sécurité de Systèmes d'Information**, Continuous education, 7 crédits, 60 hours, 6 students



Computer Vision and Multimedia Laboratory

Prof. Thierry Pun



CVML

vision.unige.ch

DOMAIN ACTIVITIES

The **Computer Vision and Multimedia Laboratory** (CVML, <http://vision.unige.ch> and soon <http://cvml.unige.ch>), divided into three groups, carries out research in computer vision and 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 such as EEGs (electroencephalograms), EMG (electromyograms), blood pressure, GSR (galvanic skin resistance), skin temperature, breathing rate.

Content-based Visual Indexing and Retrieval group (Viper, Prof. 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 Image Processing group (SIP, Prof. S. Voloshynovskiy, <http://sip.unige.ch>): studies various aspects of information theory and statistical (stochastic) visual data analysis and processing. The applications mostly cover high quality image compression, restoration and denoising for medical imaging and neuroscience, classification and data mining in large nonstructured databases of natural randomness originating from various imaging techniques, mass-spectrometry and bioinformatics. A related research axis concerns analog and digital watermarking, authentication and tamper proofing of both images and text documents. Current research also concerns brand protection using portable devices and wireless communications. A common basis for these researches is the apparatus of non-stationary statistical modeling, distributed coding and robust perceptual hashing.

Multimodal Interaction group (MMI, Prof. T. Pun, <http://vision.unige.ch/MMI>): studies various forms of multimodal interaction between humans, computers, and environment. Some considered interaction modalities are haptic, auditory, and based on physiological signals such as EEG's. Current developments concern emotion recognition and its use for interaction, brain-computer interfaces, brain imaging, and mobility aids for sight handicapped people.

The CVML has various specialized equipment and associated software:

- stereo-cameras, eye-gaze tracker;
- head-mounted display;
- physiological signal acquisition systems: Biosemi Active II, 64 + 16 electrodes for EEG, complemented by other sensors for EMG - electromyograms, blood pressure (plethysmograph), GSR -galvanic skin resistance, skin temperature, breathing rate;
- Eckel C14 audiometric cabin with electromagnetic insulation (Faraday cage), 2.16m x 1.80m x 2.37m, for conducting multimodal interaction experiments;
- portable microscope with wireless communications for item identification and authentication;
- server with high storage (1.5Tb, Raid 5) and processing capabilities (2 Xeon Dual Core, 12Gb RAM, 64bits architecture)

TEAM

Directors

Thierry Pun
Full professor



Sviatoslav Voloshynovskiy
Associate professor



Stéphane Marchand-Maillet
Assistant professor



Members

Dr. Karim Ansari-Asl (until Aug. 2007)

Dr. Eric Bruno

Dr. Oleksiy Koval

Dr. Romana Rytsar

Dr. Serge Kosinov (until May 2007)

PhD students

Fokko Beekhof

Guillaume Chanel

Benoît Deville

Jana Kludas

Donn Morrison

Mohammad Soleymani (since Sept. 2007)

Eniko Szekely

Emre Topak (until April 2007)

Renato Villan



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).

PHD THESIS

- Emre Topak, «Information-theoretic performance and security analysis of geometrically structured data-hiding codes», March 2007
- Bruno Janvier, «Toward automatic semantic multi-media structuring and retrieval», January 2007

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] G. Bologna, B. Deville, T. Pun, M. Vinckenbosch, ``Transforming 3D coloured pixels into musical instrument notes for vision substitution applications'', *Eurasip J. of Image and Video Processing*, Special Issue: Image and Video Processing for Disability, 2007, Article ID 76204, 14 pages (Open access article).
- [2] J. Kronegg, G. Chanel, S. Voloshynovskiy, T. Pun, ``EEG-based synchronized brain-computer interfaces: a model for optimizing the number of mental tasks'', *IEEE Trans. on Neural Systems and Rehabilitation Engineering*, Vol. 15, No. 1, March 2007, 50-58.
- [3] T. Pun, P. Roth, G. Bologna, K. Moustakas, D. Tzovaras, ``Image and video processing for visually handicapped people'', *Eurasip J. of Image and Video Processing*, Special Issue: Image and Video Processing for Disability, 2007-2008 (to be published).
- [4] S. Voloshynovskiy, O. Koval, R. Villan, F. Beekhof and T. Pun, ``Authentication of Biometric Identification Documents via Mobile Devices'', *SPIE Journal of Electronic Imaging (JEI)*, Special Issue on Biometrics: Advances in Security, Usability and Interoperability, June, 2007 (in print) (invited paper).
- [5] M. Haroutunian, S. Tonoyan, O. Koval, S. Voloshynovskiy, ``Random coding bound of reversible information hiding E-capacity'', *Mathematical Problems of Computer Science*, v. 28, 2007, pp. 18-33.
- [6] Eric Bruno, Nicolas Moenne-Loccoz, and Stéphane Marchand-Maillet. Design of multimodal dissimilarity spaces for retrieval of multimedia documents. To appear in *IEEE Transaction on Pattern Analysis and Machine Intelligence*, 2007 (in print)

Full refereed papers in Conference Proceedings

- [7] K. Ansari-Asl, G. Chanel, T. Pun, ``A channel selection method for EEG classification in emotion assessment based on synchronization likelihood'', *Eusipco 2007*, 15th Eur. Signal Proc. Conf., Sept. 3-7, 2007, Poznan, Poland.
- [8] G. Chanel, K. Ansari-Asl, T. Pun, ``Valence-arousal evaluation using physiological signals in an emotion recall paradigm'', 2007 IEEE SMC, Int. Conf. on Systems, Man and Cybernetics, Smart cooperative systems and cybernetics: advancing knowledge and security for humanity, Montreal, Canada, Oct. 7-10, 2007.
- [9] G. Bologna, B. Deville, T. Pun, M. Vinckenbosch, ``Identifying major components of pictures by audio encoding of colors'', *IWINAC2007*, 2nd. Int. Work-conf. on the Interplay between Natural and Artificial Computation, Murcia, Spain, June 18-21, 2007.
- [10] R. Rytsar and T. Pun, ``Computational aspects of the EEG forward problem solutions for real head model using finite element method'', 29th Annual Int. Conf. IEEE Engineering in Medicine and Biology Society (EMBC07), August 23-26, 2007, Lyon, France.

- [11] R. Rytsar, T. Pun, ``Human head models for the EEG forward problem'', International ECCOMAS Thematic Conference ViPIMAGE 2007, 17-19th October 2007, FEUP, Porto, Portugal. In: *Computational Vision and Medical Image Processing*, J. Tavares, N. Jorge, Eds., Taylor and Francis Group, London, 2008, 41-46.
- [12] F. Beekhof, O. Koval, R. Villán, S. Voloshynovskiy, E. Topak and T. Pun, ``Document Forensics based on Steganographic Anti-Counterfeiting Markings and Mobile Architectures'', In *Proceedings of 1st International Conference on Forensic Applications and Techniques in Telecommunications, Information and Multimedia*, Adelaide, Australia, January 21-24, 2008.
- [13] M. Haroutunian, S. Tonoyan, O. Koval, S. Voloshynovskiy, ``On reversible information hiding system'', In *Proceedings of the VI International conference «Computer Science and Information Technologies»*, CSIT-2007, Yerevan, Armenia, September 24-28 2007, pp.107-110.
- [14] O. Koval, S. Voloshynovskiy, F. Beekhof, T. Pun, ``Security Analysis of Robust Perceptual Hashing'', In *Proceedings of SPIE Photonics West, Electronic Imaging 2008, Security and watermarking of multimedia contents X*, San Jose, USA, 2008.
- [15] O. Koval, S. Voloshynovskiy, F. Beekhof, T. Pun, ``Analysis of physical unclonable identification based on reference list decoding'', In *Proceedings of SPIE Photonics West, Electronic Imaging 2008, Security and watermarking of multimedia contents X*, San Jose, USA, 2008.
- [16] O. Koval, S. Voloshynovskiy, F. Beekhof, T. Pun, ``Error exponent analysis of person identification based on fusion of dependent/independent modalities: multiple hypothesis testing case'', In *Proceedings of SPIE Photonics West, Electronic Imaging 2008, Security and watermarking of multimedia contents X*, San Jose, USA, 2008.
- [17] F. Beekhof, S. Voloshynovskiy, O. Koval, R. Villan, T. Pun, ``Secure Surface Identification Codes'', In *Proceedings of SPIE Photonics West, Electronic Imaging 2008, Security and watermarking of multimedia contents X*, San Jose, USA, 2008.
- [18] S. Voloshynovskiy, O. Koval, F. Beekhof, T. Pun, ``Robust perceptual hashing as classification problem: decision-theoretic and practical considerations'', *IEEE 2007 International Workshop on Multimedia Signal Processing*, Chania, Crete, Greece, Oct. 1-3, 2007.
- [19] O. Koval, S. Voloshynovskiy, T. Pun, ``Analysis of multimodal binary detection systems based on dependent/independent modalities'', *IEEE 2007 International Workshop on Multimedia Signal Processing*, Chania, Crete, Greece, Oct. 1-3, 2007.
- [20] O. Koval, S. Voloshynovskiy, F. Beekhof, T. Pun, ``Decision-theoretic consideration of robust perceptual hashing: link to practical algorithms'', *WaCha2007, Third WAVILA Challenge*, Sant Malo, France, June 15th, 2007 (invited talk).
- [21] R. Villan, S. Voloshynovskiy, O. Koval, F. Deguillaume, T. Pun, ``Tamper-proofing of electronic and printed text documents'', In *Proceedings of SPIE Photonics West, Electronic Imaging 2007, Security and watermarking of multimedia contents IX*, San Jose, USA, 2007.
- [22] O. Koval, S. Voloshynovskiy, T. Pun, ``Error exponent analysis of person identification based on fusion of independent modalities'', In *Proceedings of SPIE Photonics West, Electronic Imaging 2007, Security and watermarking of multimedia contents IX*, San Jose, USA, 2007.

- [23] Donn Morrison, Stéphane Marchand-Maillet, and Eric Bruno. Hierarchical long-term learning for automatic image annotation. In Proc. of International Conference on Semantics and Digital Media Technologies, Genova, Italy, December 2007.
- [24] Eric Bruno, Jana Kludas, and Stéphane Marchand-Maillet. Combining multimodal preferences for multimedia information retrieval. In Proc. of International Workshop on Multimedia Information Retrieval, Augsburg, Germany, September 2007.
- [25] Jana Kludas, Eric Bruno, and Stéphane Marchand-Maillet. Information fusion in multimedia information retrieval. In Proc. of International Workshop on Adaptive Multimedia Retrieval, Paris, France, July 2007.
- [25] Donn Morrison, Stéphane Marchand-Maillet, and Eric Bruno. Automatic image annotation with relevance feedback and latent semantic analysis. In Proc. of International Workshop on Adaptive Multimedia Retrieval, Paris, France, July 2007.
- [26] E. Szekely, E. Bruno and S. Marchand-Maillet. Clustered Multidimensional Scaling For Exploration In Information Retrieval. In 1st International Conference on the Theory of Information Retrieval (ICTIR'07). Budapest, Hungary, 2007.

BOOKS AND BOOK CHAPTERS

- [27] A. Schlögl, J. Huggins, J. Kronegg, and S. G. Mason, «Evaluation criteria in BCI research,» in Towards Brain-Computer Interfacing, G. Dornhege, J. d. R. Millán, T. Hinterberger, D. J. McFarland, and K.-R. Müller, Eds. Cambridge, MA: The MIT Press, A Bradford Book, 2007. (ISBN 978-0-262-04244-4)
- [28] Stéphane Marchand-Maillet, Eric Bruno, Andreas Nurnberger and Marcin Detyniecki, Adaptive Multimedia Retrieval: User, Context and Feedback, Lecture Notes on Computer Science, Springer-Verlag, 2007 (ISBN: 3-540-32174-8).

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

- T. Pun: Member of the board of GRETSI - Groupe français de recherche et d'études en traitement du signal et des images (<http://www.gretsi.fr>).
- 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: Management Committee member of European Network of Excellence Ecrypt (<http://www.ecrypt.eu.org/>)
- S. Marchand-Maillet: Member of the Technical Committee of the National center of competence in research NCCR-(IM)² "Interactive Multimodal Information Management", headed by the IDIAP research institute, Martigny.
- S. Marchand-Maillet: Member of the Technical Board of the EU STREP MultiMATCH (<http://www.multimatch.eu>)

CONFERENCE ORGANIZATION AS CHAIR OR CO-CHAIR

- ICPR 2008, Int. Conf. on Pattern Recognition, Organizing Committee, track co-chair, Tampa, Florida, USA, Dec. 2008.

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- RIAO 2007, Pattern Recognition and Artificial Intelligence, Pittsburgh, USA, May 2007.
- ACM2008, Multimedia and Security Workshop 2008, Oxford, UK, September 2008 (program committee).
- SIP2008, The 9th IASTED International Conference on SIGNAL AND IMAGE PROCESSING SIP 2008, August 18-20, 2008, Kailua-Kona, USA (international program committee).
- SPIE2008, Electronic Imaging 2008, Multimedia security and watermarking X, San Jose, USA, 2008, (program committee and chair of session on Theoretical Methods).
- WaCha2007, Third WAVILA Challenge, Sant Malo, France, June 15th, 2007 (program committee and chairman for Security of Robust Perceptual Hashing session).
- EUSIPCO2007, 15th European Signal Processing Conference 2007, Poznan, Poland, September 2007 (technical program committee).
- ACM2007, Multimedia and Security Workshop 2007, Dallas, USA, September 2007 (program committee).
- IWDW2007, International Workshop on Digital Watermarking 2007, Guangzhou, China, November 2007 (program committee).
- SPIE2007, Electronic Imaging 2007, Multimedia security and watermarking IX, San Jose, USA, 2007, (program committee and chair of session on Theoretical Methods).
- ACM-SAC2007: 22nd Annual ACM Symposium on Applied Computing, Seoul, Korea, March 11 - 15, 2007 (PC member)
- ACM MMM2007: 13th Multimedia Modelling Conference, Singapore, January 2007
- ACM SIGIR 2007, Amsterdam, July 2007. (PC Member and paper mentor)
- CBMI2007: Fifth International Workshop on Content-based Multimedia Indexing, June 25-27, 2007 Bordeaux, France
- IEEE ICIP2007, San Antonio, Texas, September 2007
- ACM Multimedia 2007, Augsburg, Germany, October, 2007
- ACM MIR, Workshop on Multimedia Information Retrieval, Augsburg, Germany, October, 2007
- MLMI 2007: 4th Joint Workshop on Multimodal Interaction and Related Machine Learning Algorithms. 28-30 June 2007, Brno, Czech Republic
- AMR 2007 5th International Workshop on Adaptive Multimedia Retrieval, 5-6 July 2007 Paris, France
- CVDB2007 Third International Workshop on Computer Vision meets Databases (Co-located with ACM SIGMOD) June 10th, 2007 -- Beijing, China
- ECML/PKDD2007 European Conference on Machine Learning and European Conference on Principles and Practice of Knowledge Discovery in Databases, Warsaw, Poland, September 17-21, 2007
- VISUAL 2007 International Conference series on Visual Information Systems, Shanghai, China, June 2007
- PCM2007: Pacific-Rim Conference on Multimedia, Hong Kong, December 2007



Figure 2: Watch authentication based on the surface microstructure acquired by a mobile phone (SNF Prof Boursier and ECRYPT projects).

INVITED TALKS

- G. Chanel, K. Ansari-Asl, T. Pun, "From thoughts to emotions: emotional state assessment using physiological recordings", HUMABIO EU Project Workshop, "Securing infrastructures and enhancing safety in critical operations; Humabio physiological and behavioural biometrics for unobtrusive authentication and monitoring", February 2, 2007, Basel, Switzerland.
- O. Koval, S. Voloshynovskiy, F. Beekhof, T. Pun, "Decision-theoretic consideration of robust perceptual hashing: link to practical algorithms", WaChaz2007, Third WAVILA Challenge, Sant Malo, France, June 15th, 2007.
- O. Koval «Theoretical and practical aspects of robust perceptual hashing», Invited tutorial, 2nd ECRYPT Summer School on Multimedia Security - 24-27 September 2007, Thessaloniki, Greece.
- S. Marchand-Maillet. Fifth International Workshop on Content-based Multimedia Indexing (Bordeaux, France), Panel of the European Consortium CHORUS on the Evaluation of Multimedia Search Engines. Invited participation.

FUNDED RESEARCH PROJECTS

Participation to European projects

SIMILAR

Seamless integrated multimodal interfaces for learning and augmenting communication in the real world: The European taskforce in future human-machine interfaces research FP6 - IST Priority Call 1 2002-2.3.1.6 "Multimodal interfaces" No. IST-2002-507.602
Period: December 2003 – November 2007
<http://www.similar.cc/>

ECRYPT

European network of excellence in cryptology FP6 - IST Priority Call 1 2002-2.3.1.5 "Toward a global dependability and security framework" No. IST-2002-507.932
Period: February 2004 – January 2008
<http://www.ecrypt.eu.org/>

Cooperation with Intel Corp., USA

«Models for personalized semantic augmentation of digital media»

MultiMatch

Multilingual/MultiMedia Access to Cultural Heritage IST FP6-STREP

No. IST-2006-033104
Period: May 2006 – October 2008
<http://www.multimatch.eu/>



Figure 3: Similarity-based collection browser

Participation to National projects

Hasler Foundation

SeeColor

Seeing colors with an orchestra
No. MMI - 1968
Principal investigator: Prof. M. Vinckenbosch, Univ. of Applied Sciences/HES-SO, Geneva.
Period: Oct. 2005 – Sept. 2008

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

Period: 2002 - 2009.
<http://www.im2.ch/>

FNRS-SNSF, Swiss National Science Foundation:

Emotion-driven personalized content-based multimedia management

SNSF 200021-113274/1.
Period: March 2007 – February 2009

SNF Professorship grant "Stochastic detection of hidden data"

SNSF PPO02-68653/1
Period: April 2003 – April 2007

SNF Professorship grant "Information-theoretic framework for documents and brands protection based on digital data-hiding"

SNSF PPO02-114613
Period: April 2007 – December 2008

Information-theoretic document authentication and self-recovering based on digital data-hiding

SNSF 200021-111643
Period: September 2006 – August 2008

Collection Guide: Large scale multimedia information management

SNSF 200021-109377
Period: October 2006 – September 2008

Marie Heim-Vögtlin grant: Fast automatic normalization and computation of multiscale lead-field models for the EEG/MEG inverse problem

PMPD2-110193/1
Period: October 2005 – September 2008

Participation to the NCCR «Affective Sciences»

Thierry Pun is an Associate member of this NCCR.

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.

OTHERS

Editorial boards

- 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).
- 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)

Special issues

- International Journal of Image and Video Processing, 2007, Special Issue on «Image processing and disabilities», Guest Editors: A. Caplier, T. Pun, D. Tzovaras.
- EURASIP Journal on Information Security (Eurasip IJS), 2007 Special issue on Robust Hashing (2007), Guest Editor: K. Mihcak, O. Koval, S. Voloshynovskiy. (<http://www.hindawi.com/journals/is/si/rph.html>)

Refereeing/reviewing

- Journals, conferences, national funding organizations for various countries.
- Journée des Collégiens, Presentation of the Computing Science Department for High-School students, Talk on «Nouvelles interfaces humain-machine: interaction multimodale», Oct. 31, 2007.
- T. Pun, «Images mentales et environnements multimédia animés et interactifs: risques ou opportunités?», TSR Découverte, Scientific portal of the Swiss Télévision, Oct. 2007, <http://www.tsrdecouverte.ch/home>, <http://www.tsrdecouverte.ch/13-16/forums/all/cerveau-1316/>
- P. Cormon, «Des scientifiques genevois veulent transformer les couleurs en sons pour aider les aveugles», Entreprise Romande, Oct. 12, 2007.
- D. Haerberli, «La cybersécurité de la planète en jeu à Genève», Tribune de Geneve, June 20, 2007.
- S. Voloshynovskiy, O. Koval, «Sécurité via téléphones portables», EPFL Flash Informatique, August 28, 2007, 41-44.
- Campus, University of Geneva Magazine, «Anteleon: du droit d'auteur à la publicité», Dossier Spin-off, No. 85, April-May 2007.
- RSR1, Radio Suisse Romande, Interviews of Thierry Pun, Serguei Startchik, La Capsule de Pain, «Le marquage numérique», and «Marquage numérique et débouchés commerciaux», by Jean-Olivier Pain, March 28 and 29, 2007.
- A. Vos, «Esprit, es-tu branché?», Campus, Magazine de l'Université de Genève, No. 83, Dec. 2006 - Jan. 2007, 8-9.

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 et 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. 7 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. 10 students.
- **Elements of multiuser information theory and wireless communications**, Science, Master, postgrades, 28h. course and 28h. practical work, approx. 12 students.
- **Data Structures**, Computer Science, 1st year Bachelor, 56h. course and 56h. lab work, approx. 15 students.
- **Hands-on Programming** (practical complement to Data Structures), 1st year Bachelor. 56h Practical work, 15 students.
- **Computer Science Project**, Computer Science, 3rd year Bachelor, 28h course and 56h. lab work, approx. 15 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 4: MultiMatch: some results



Geneva Artificial Intelligence Laboratory

Prof. Christian Pellegrini



GAIL

cui.unige.ch/AI-group

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 for ANNs, and meta-learning for algorithm and model selection.

Current research activities focus on advanced machine learning and data mining techniques (e.g., relational kernel-based learning for complex structures), natural language processing and text mining, information retrieval and information extraction. Research results have been applied to various problems in the life sciences (bioinformatics), such as the processing and classification of mass spectra, disease biomarker discovery, and biological text mining for proteomics database annotation.

TEAM

Director

Christian Pellegrini
Full professor

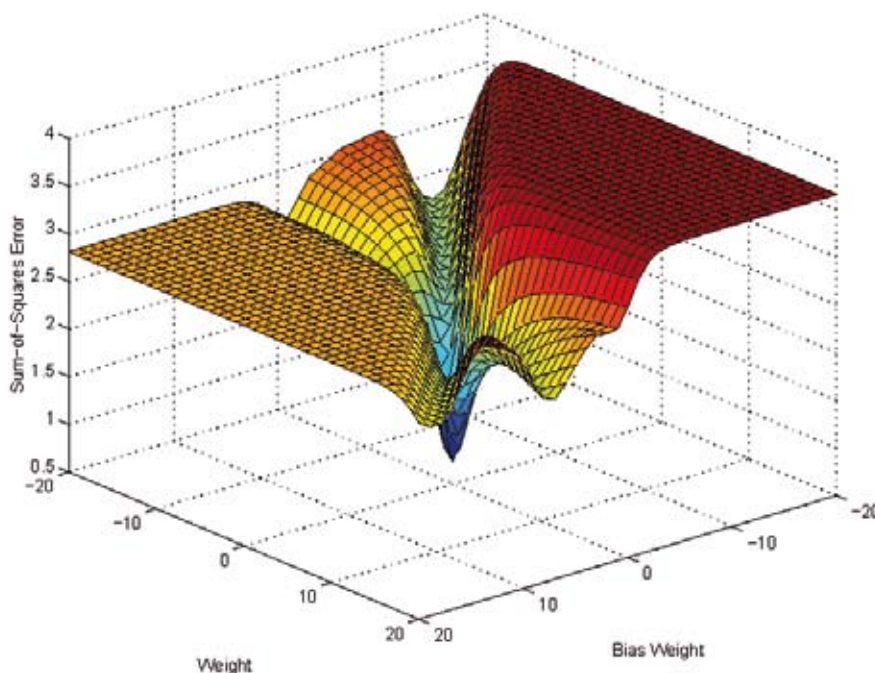


Members

Dr. Mélanie Hilario, MER
Dr. Alexandros Kalousis, MA

PhD students

Frédéric Ehrler
Jee-Hyub Kim
Julien Prados
Ivan Titov
Adam Woznica
Antonio Jimeno Yepes



LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] J.-H. Kim, A. Mitchell, T. K. Attwood, M. Hilario (2007). Learning to extract relations for protein annotation. *Bioinformatics*, 23: i256-i263.
- [2] A. Kalousis, J. Prados, M. Hilario (2007). Stability of feature selection algorithms: a study on high-dimensional spaces. *Knowledge and Information Systems*. volume 12. number 1, pages 95-116.
- [3] P. Zerefos, J. Prados, S. Kossida, A. Kalousis, A. Vlahou. (2007). Sample Preparation and Bioinformatics in MALDI Profiling of Urinary Proteins. *Journal of Chromatography B*.

Full refereed papers in Conference Proceedings

- [4] T. Anagnostopoulos, C. Anagnostopoulos, S. Hadjiefthymiades, A. Kalousis, M. Kyriakakos (2007), Path Prediction through Data Mining. *IEEE International Conference on Pervasive Services (ICPS-2007)*.
- [5] J. H. Kim, M. Hilario (2007). Learning Relations and Information Extraction Rules for Protein Annotation. *IEEE International Symposium on Data Mining and Information Retrieval (DMIR-2007)*. Ontario, Canada, pages 349-354.
- [6] J. H. Kim, A. Mitchell, T. Attwood, M. Hilario (2007). Learning to Extract Relations for Protein Annotation. *15th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB-2007)*. Vienna, Austria.
- [7] I. Titov, J. Henderson (2007). A Latent Variable Model for Generative Dependency Parsing. *International Conference on Parsing Technologies (IWPT-07)*. Prague, Czech Republic.
- [8] I. Titov, J. Henderson (2007). Constituent Parsing with Incremental Sigmoid Belief Networks. *45th Meeting of Association for Computational Linguistics (ACL-07)*. Prague, Czech Republic.
- [9] I. Titov, J. Henderson (2007). Fast and Robust Multilingual Dependency Parsing with a Generative Latent Variable Model. *Proc. of the CoNLL 2007 Shared Task. Joint Conf. on Empirical Methods in Natural Language Processing and Computational Natural Language Learning (EMNLP-CoNLL) (3rd place out of 23)*. Prague, Czech Republic.
- [10] I. Titov, J. Henderson (2007). Incremental Bayesian Networks for Structure Prediction. *24th International Conference on Machine Learning (ICML-07)*. Corvallis, OR, USA.
- [11] A. Woznica, A. Kalousis, M. Hilario (2007). Learning to Combine Distances for Complex Representations. *24th International Conference on Machine Learning (ICML-07)*. Corvallis, OR, USA.

MEMBER OF CONFERENCE PROGRAM COMMITTEES AND REVIEWING PANELS

- Mélanie Hilario, Area Chair of Program Committee, 19th IEEE International Conference on Tools with Artificial Intelligence (ICTAI-2007), 29-31 October 2007, Patras, Greece.
- Mélanie Hilario, European Conference on Machine Learning/Principles and Practice of Knowledge Discovery in Data (ECML/PKDD-2007), 17-21 September 2007, Warsaw.
- Mélanie Hilario, Program Committee, IJCNN-2007 Workshop on Meta-Learning, in conjunction with the International Joint Conference on Neural Networks, 17 August 2007, Orlando, Florida.
- Mélanie Hilario, Program Committee, Brazilian Workshop on Algorithms and Applications of Data Mining (WAAMD-2007), 18-19 October 2007, João Pessoa, Brazil.
- Alexandros Kalousis, 19th IEEE International Conference on Tools with Artificial Intelligence (ICTAI-2007), 29-31 October 2007, Patras, Greece.
- Alexandros Kalousis, European Conference on Machine Learning/Principles and Practice of Knowledge Discovery in Data (ECML/PKDD-2007), 17-21 September 2007, Warsaw.

INVITED TALKS

- Mélanie Hilario, Invited lecture on Data Mining, Master of Advanced Studies in Archival and Information Science (MAS AIS), University of Bern, June 2007.
- Ivan Titov, University of Pennsylvania, Philadelphia, USA (Sep, 2007) «Incremental Bayesian Networks for Natural Language Parsing»
- Ivan Titov, Google Research, New York (Sep, 2007) «Incremental Bayesian Networks for Structured Prediction»

REFEREEING

- Mélanie Hilario, Reviewer for the *Journal of Machine Learning Research*.
- Alexandros Kalousis, Reviewer for the *Proteomics Journal*, *ACM Transaction in Knowledge Discovery*
- Ivan Titov, *ECML/PKDD 2007*, *IJCNLP 2008*.
- Adam Woznica, *ECML/PKDD 2007*.

EDITORIAL RESPONSABILITIES

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

FUNDED RESEARCH PROJECTS

Participation to European projects

DROP-TOP

Integration of DNA, RNA and protein markers in a tool for the prognosis and diagnosis of human disease

FP6 037739

Period: January 2007 – December 2009

FUNDED RESEARCH PROJECTS

Participation to National projects

Local, global and statistical approaches for kernels on relational structures

FN 200020-107926

Period: April 2005 - March 2007

Learning Probabilistic First-Order Domain Theories from Text (ProDoTT)

FN 200021-109500

Period: October 2005 - November 2007

Kernel Based Structure Processing for Natural Language Parsing

FN 200020-109685

Period: November 2005 - October 2007

Africa@Home

Volunteer Computing for Africa

Period: August 2006 - December 2007

TEACHING

- **Introduction to algorithms**, Computer Science, Bachelor, 140 hours.
- **Introduction to Artificial Intelligence**, Computer Science, Bachelor, 112 hours.
- Christian Pellegrini also participates in the following courses: **Applied Cybernetics** (prof. T. Pun), **Heuristic Methods of Learning and Optimization** (prof. B. Chopard and M. Tomassini), **Object-Oriented Concepts and Languages** (prof. P. Dugerdil).
- **Data Mining**, Computer Science, Master, 52 hours.



Information System Interface

Prof. Gilles Falquet



ISI

cui.unige.ch/isi

DOMAIN ACTIVITIES

Current research directions of the ISI group include:

- models and tools to develop and maintain multi-point of view ontologies
- models and systems for managing virtual documents, in particular virtual hyperbooks and digital libraries of hyperbooks
- knowledge intergration: integrating heterogeneous knowledge sources such as texts, maps, 3D models, dictionaris, formal ontologies; managing repositories of formal ontologies
- knowledge-based information retrieval systems
- the specification of spatial (3D) hypertext interfaces and the modelling of adaptivity in 3D interfaces

TEAM

Director

Gilles Falquet
Titular professor

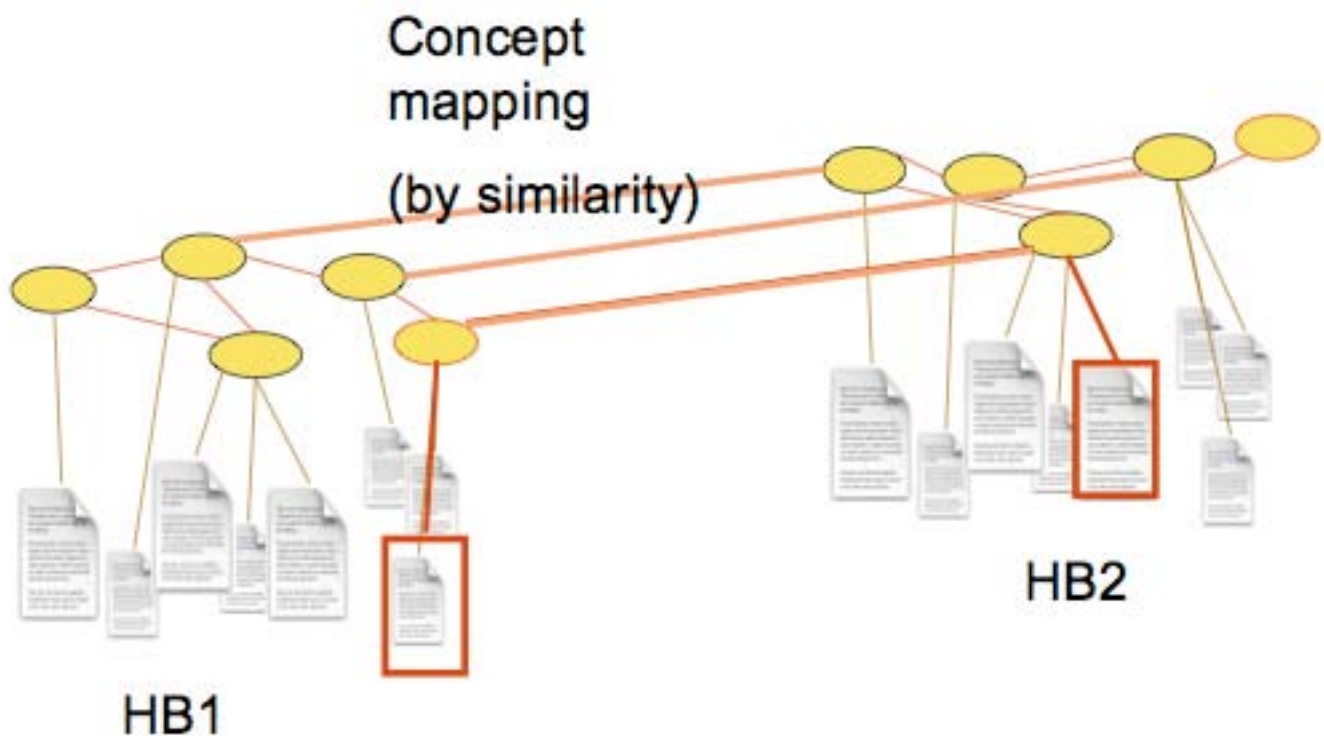


Members

Dr. Jacques Guyot
Luka Nerima

PhD students

Claire-Lise Mottaz
Jean-Claude Ziswiler
El Mustapha El Afti
Saïd Radhouani
Gabriela Tissiani
Kaveh Bazargan



LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] Métral, C., Falquet, G. et Vonlanthen, M. An Ontology-based Model for Urban Planning Communication. In *Ontologies for Urban Development, Studies in Computational Intelligence*, Springer, Berlin, 2007, pp 61-72. Draft
- [2] Metral, C., Falquet, G., Karatzas, K. Ontologies for the Integration of Air Quality Models and 3D City Models. In *proc. 2nd Workshop on Urban Ontologies for an improved communication in urban civil engineering projects*, Turin, 2007.
- [3] Falquet, G., Mottaz Jiang, C.-L., Guyot, J. Un modèle et une algèbre pour les systèmes de gestion d'ontologies. To appear in *In proc. EGCo8*, Sophia Antipolis, Jan 2008.

Books and book chapters

- [4] Grin, F. and Falquet, G. Free software, proprietary software and linguistic justice. Chapter in A. Strowel, A. Gosserie and A. Marciano (Eds.) *Intellectual Property Rights and Theories of Justice*, Palgrave, London (to appear)
- [5] Falquet, G., Nerima, L., Ziswiler, J.-C. Hyperbooks (book chapter). In Sebastian Ryszard Kruk, Bill McDaniel (Eds.) *Semantic Digital Libraries. Bringing Digital Libraries to the Next Generation of Internet*. Springer, Berlin, Germany, 2007. To appear

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

- Gilles Falquet, membre du comité scientifique de la revue *Techniques et Sciences Informatiques (TSI)*, Paris, depuis 2003.
- Gilles Falquet, management committees of the COST Action C21 "Towntology"
- Gilles Falquet, coordinator for Switzerland of the the COST Action C21, 4 Swiss partners, total budget: CHF 800'000 (years 2006-8)

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- Comité scientifique de la conference *Extraction et Gestion de la Connaissance EGC'07*
- Comité scientifique des *Journées francophones sur les ontologies*. JFO. Sousse, Oct. 2007,
- Program committee of the 1st conf. on *Ontologies for Urban Development: Interfacing Urban Information Systems*, Turin, Oct 2007.

FUNDED RESEARCH PROJECTS

Participation to European projects

Integrating Urban Knowledge into 3D City Models within COST Action C21 «Towntology»

Partners: EPF Lausanne, University of Zurich, University of Geneva (geography), Belgium, France, Italy, Spain, Norway, Finland, UK, Romania

Period: 2006 - 2008

Participation to National projects

Ontology-Based Precise Multilingual Information Retrieval

FNS

Period: 2006 - 2007

BATICS project

Co-direction with D. Buchs, see SMV for details

TEACHING

- **Outils formels pour les systèmes d'information**, Information systems department, Bachelor, 56 hours, 14 students
- **Algorithmes et structures de données**, Information systems department, Bachelor, 56 hours, 12 students
- **Systèmes de représentation des connaissances : principes et applications**, Information systems department, Master, 56 hours, 10 students
- **Interfaces des systèmes d'information**, Information systems department, Master, 56 hours, 10 students
- **Nouvelles technologies du Web**, Information systems department, Continuing education (formation continue), 120 hours, 18 students
- **Introduction à UML**, Information systems department, Continuing education, part of the Certificat de formation continue en informatique médicale (CFCU), 18 hours, 12 students



Laboratory for the Analysis and Technology of Language

Prof. Eric Wehrli



LATL

www.latl.unige.ch

DOMAIN ACTIVITIES

The LATL develops research and prototypes 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, terminological extraction, computer-assisted language learning, text mining, and automatic translation. The successful performance of these applications lies in accurate, extensive and detailed information about words. We study machine learning techniques for learning dictionaries, and parse text to automatically treat collocations (fixed sequences of words) to support translation. The systems developed at LATL span several languages: French, English, German, Italian, and other languages are underway (Greek, Spanish, Japanese, and Arabic). We have recently extended our investigations to shallow levels of meaning representations.

TEAM

Director
Eric Wehrli
Full professor



Members

Dr. Paola Merlo
Mr. Luka Nerima

Assistants and PhD students

Jean-Philippe Goldman
Violeta Seretan
Yves Scherrer
Mar Ndiaye
Lorenza Russo
Antonio Leoni de Leon
Sébastien L'haire
Alexis Kauffmann
Gloldjihhan Katchajev
Tanja Samardzic
Athina Michou
Gabriele Musillo
Gaelle Ribordy



LATL team

PHD THESIS

- Sandra Schwab, «Les variables temporelles dans la production et la perception de la parole», December 2007

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] Goldman, J.-P., Auchlin, A. Simon, A.-C. & Avanzi, M. (2007). « Phonostylographe, un outil de description des phonostyles prosodiques. Chroniques radiophoniques et style lu ». *Nouveaux Cahiers de Linguistique Française*, 28. 219-237.
- [2] Avanzi, M., Goldman, J.-P., Lacheret-Dujour, A. Simon, A.-C. & Auchlin, A. , 2007 « Méthodologie et algorithmes pour la détection automatique des syllabes proéminentes dans les corpus de français parlé ». *Cahiers of French Language Studies*, 12/2.

Full refereed papers in Conference Proceedings

- [3] Fabrizio Gotti, Guy Lapalme (Université de Montréal), Luka Nerima & Eric Wehrli. GOFAISUM: A Symbolic Summarizer for DUC. In *Proceedings of the Document Understanding Conference DUC 2007*, Rochester, New York USA, April 26-27, 2007
- [4] Eric Wehrli, Fips, A “Deep” Linguistic Multilingual Parser. In *Proceedings of the ACL 2007 Workshop on Deep Linguistic Processing*, pp. 120 – 127, Prague, Czech Republic, June, 2007
- [5] Violeta Seretan and Eric Wehrli. 2007. Collocation translation based on sentence alignment and parsing. In *Actes de la 14e conférence sur le Traitement Automatique des Langues Naturelles (TALN 2007)*, pages 401–410, Toulouse, France, June. (Best Paper Award).
- [6] Vincenzo Pallotta, Violeta Seretan and Marita Ailomaa, User requirements analysis for Meeting Information Retrieval based on query elicitation, *Proceedings of the 45th Annual Meeting of the Association for Computational Linguistics (ACL 2007)*, Prague, Czech Republic, pages 1008–1015, June, 2007
- [7] J.-Ph. Goldman, M. Avanzi «Vers un algorithme de détection (semi)automatique des proéminences en français parlé», *Proceedings of Rencontres Jeunes Chercheurs en Parole*, pp 84-88, 2007, Paris, France
- [8] J.-Ph. Goldman, M. Avanzi, A.C. Simon, A. Lacheret, A. Auchlin « A Methodology For The Automatic Detection Of Perceived Prominent Syllables In Spoken French », *Proceedings of Interspeech Conference*, 2007, Anvers, Belgium
- [9] Scherrer Yves: Adaptive String Distance Measures for Bilingual Dialect Lexicon Induction, *Annual Meeting of the Association for Computational Linguistics, ACL 2007 Student Research Workshop*, Prague, Czech Republic, June 2007, pp. 55-60.

Books and book chapters

- [10] Chapters in Martin Rajman (ed.) “Speech and Language Engineering”, Lausanne, EPFL Press.
- [11] Eric Wehrli, “Components of a Natural Language Grammar” (1-12)
- [12] Eric Wehrli, *Linguistic Models for Parsing and Generation* (15-24)
- [13] Eric Wehrli, *Multilingual Natural Language Processing* (257-265)

Research and technical reports

- [14] Scherrer Yves: *Phonetic Distance Measures for the Induction of a Translation Lexicon for Dialects*, Mémoire de DEA, University of Geneva, July 2007.
- [15] Scherrer Yves: *Un prototype d’analyseur pour le romanche sursilvain*. Technical report, University of Geneva, October 2007.

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

- Paola Merlo, Member of the Executive Board for the European Chapter of the Association for Computational Linguistics, 2006-2008.

CONFERENCE ORGANIZATION AS CHAIR OR CO-CHAIR

- Paola Merlo, Scientific Chair, 10th International Conference on Parsing Technology (IWPT), 2007, Prague, 23rd-24th June 2007.
- Jean-Philippe Goldman : Co-organisation of the symposium IDP07 Interfaces Discours-Prosodie, 12-14 september 2007, Genève.
- Violeta Seretan, Co-chair of the Student Research Workshop at 45th Annual Meeting of the Association for Computational Linguistics (ACL-SRW’07), Prague, Czech Republic, 26 June 2007.

INVITED TALKS

- J.-Ph. Goldman, A.-C. Simon La variation prosodique régionale en français (Liège, Vaud, Tournai, Lyon) *Description outillée Colloque PFC*, Paris, décembre 2007
- J.-Ph. Goldman, A. Auchlin, M. Avanzi, A. Lacheret, A.-C. Simon *Détection semi-automatique de proéminence Premières Journées des Sciences de la Parole*, Charleroi, mars 2007
- Paola Merlo, *Accurate Learning of Shallow Verb Meaning*, Psychology, University of Milano, February 2007.
- RALI – OLST Research Seminar, Université de Montréal, Luka Nerima, *Le traitement récursif des collocations*, January 24, 2007
- Invited Talk at *Druide Informatique Inc.*, Montreal, Luka Nerima, *L’analyse multilingue avec Fips*, February 16, 2007
- RALI – OLST Research Seminar, Université de Montréal, Eric Wehrli, *L’analyseur multilingue FIPS*, July 11, 2007

FUNDED RESEARCH PROJECTS

Participation to National projects

MulTra

Multilingual Translation Model Based on Object Oriented

FNS

Period: October 2006 – September 2008

Learning Verb Meaning with Hidden Grammars

Swiss National Science Foundation, grant no. 11-114044

Period: 2006 - 2009

Syntactic Parsing with Hidden Variable Probabilistic Pushdown Automata

Host institute: MIT Computer Science and Artificial Intelligence Lab

FNS, Doctoral Fellowship for Prospective Researchers

Period: September 2007 – June 2008

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

Best Paper Award at TALN 2007 for “Collocation translation based on sentence alignment and parsing” (Seretan and Wehrli, 2007).

Refereeing

- ACL 2007 Workshop «A Broader Perspective on Multiword Expressions», Prague, Czech Republic, June 2007.
- Doctoral Consortium at the 8th EUROLAN Summer School, Iasi, Romania, July-August 2007
- Recent Advances in Natural Language Processing (RANLP-2007), Borovetz, Bulgaria, September 2007
- RANLP-07 Workshop on «Acquisition and Management of Multilingual Lexicons, Borovetz, Bulgaria, September 2007
- 45th Annual Meeting of the Association for Computational Linguistics, Prague, Czech Republic, June 2007.
- 14e conférence sur le Traitement Automatique des Langues Naturelles (TALN 2007).
- Traitement Automatique des Langues (TAL).

Editorial responsibilities

- Paola Merlo, member of the editorial board of Computational Linguistics, MIT Press.
- Proceedings of the International Conference on Parsing Technology, Paola Merlo Editor.
- Proceedings of the ACL 2007 Student Research Workshop, Chris Biemann, Violeta Seretan, and Ellen Riloff, editors. 2007.

Participation in Cultural Events

- September 2007, Geneva, Festival de la Batie, Art oratoire, Phonomatron : Development of terminals for doing speech recording and voice manipulation of the audience.

Other achievements

- Collaboration to the project EAGL: Engine for question-answering Genomics Literature, FNS, Partners: Medical Service of the Geneva University Hospitals, Swiss-Prot, Swiss Institute of Bioinformatics (web: <http://www.nat-lang.hcuge.ch/Resources/online-tools.html>)

TEACHING

- **Introduction to Computer Science for the Humanities**, Bachelor course, 12 ECTS, 140 hours, 10 students
- **Databases**, Bachelor course, 6 ECTS, 112 hours, 13 students
- **Data Structures and Programming**, Bachelor course, 6 ECTS, 84 hours, 7 students
- **Object Oriented Project**, Bachelor course, 6 ECTS, 84 hours, 7 students
- **Information Communication Technologies**, Bachelor & Master courses, 12 ECTS, 140 hours, 9 students
- **Natural Language Processing**, Master course, 12 ECTS, 140 hours, 6 students
- **Empirical Methods and Script Languages**, Bachelor and Master course, 12 ECTS, 84 hours, 10 students
- **Empirical Methods in Natural Language Processing : Statistical Machine Translation**, Master course, 12 ECTS, 56 hours, 12 students
- **Readings in NLP**, Master course, 12 ECTS, 56 hours, 8 students
- **Phonetics and Phonology**, Bachelor course, 6 ECTS, 28 hours, 35 students
- **Prosody**, Bachelor course, 6 ECTS, 28 hours, 10 students



Geneva Team Database Laboratory

Prof. Michel Léonard



MATIS

matis.unige.ch

DOMAIN ACTIVITIES

The domain of Information System is so exciting that we find a real pleasure to work in this area. Our research is focused mainly on IS engineering in its different aspects. Basically four main areas represent our research trends:

- The first is the component-based IS engineering. Such approach regroups different fields of research, such as the IS components, interoperability, integration, evolution, static and dynamic aspects integration and IS ontology. It concerns the integration of new needs of information systems in legacy IS.
- The second area of interest is the distributed information system design and implementation. In this area, we focused on the different interactions and knowledge overlap between the IS project partners.
- The third area is the methods engineering.
- Finally, the fourth area is e-government IS engineering (egovIS), where we are building a law-based framework dedicated to institutional IS.

Our laboratory has a long experience in national, international, scientific and industrial collaborations. We are currently member of INTEROP NoE, the european network of excellence.

MATIS is led by Pr. Michel Léonard, who is currently the director of the Information Systems dept. SYINF of the University of Geneva.

TEAM

Director

Michel Léonard
Full professor



Members

Dr. Mehdi Snene
Dr. Jolita Ralyte
Dr. Abdelaziz Khadraoui

Assistans

Nicolas Arni-Bloch
Jorge Pardellas
Wanda Opprecht
Diane Asensio



MATIS

MANagement and T echnology of Infomation Sysstems

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

PHD THESIS

- Abdelaziz Khadraoui, Method Components for Institutional Information System Engineering, June 2007

LIST OF PUBLICATIONS

Full refereed papers in Conference Proceedings

- [1] Agerfalk, P., Brinkkemper, S., Gonzalez-perez, C., Henderson-Sellers, B., Karlsson, F., Kelly, S. and Ralyté, J. (2007). Modularization Constructs in Method Engineering: Towards Common Ground? In Situational Method Engineering: Fundamentals and Experiences. Proceedings of the IFIP WG 8.1 Working Conference. 12-14 September Geneva, Switzerland. Springer IFIP Series, pp. 359-368.
- [2] Jeusfeld M., Backlund P. and Ralyté J. (2007). Classifying Interoperability Problems for a Method Chunk Repository. To appear in the proceedings of the 3rd International Conference on Interoperability for Enterprise Software and Applications (I-ESA'07), Funchal (Madeira Island), Portugal, March 28th – 30th, 2007. Springer-Verlag.
- [3] Seidita V., Ralyté J., Henderson-Sellers B., Cossentino M. and Arni-Bloch N. (2007). A comparison of deontic matrices, maps and activity diagrams for the construction of situational methods. Proceedings of CAiSE'07 Forum. In conjunction with 19th International Conference on Advanced Information Systems Engineering (CAiSE'07), 11-15 June 2007, Trondheim, Norway.
- [4] Henderson-Sellers B., Gonzalez-Perez C. and Ralyté J. (2007). Situational Method Engineering: Fragments or Chunks? Proceedings of CAiSE'07 Forum. In conjunction with 19th International Conference on Advanced Information Systems Engineering (CAiSE'07), 11-15 June 2007, Trondheim, Norway.
- [5] Khadraoui A., Léonard M. (2007). Framework for institutional Information Systems engineering: application in the context of financial domain in accordance with Basel II agreements. 8th IBIMA Conference on Information Management in the Networked Economy, ISBN: 0-9753393-7-0, June 2007, Dublin, Ireland.
- [6] Khadraoui A., Léonard M. (2007). Directives pour l'ingénierie des SI institutionnels, Workshop Méthodes avancées de développement des systèmes d'information, Inforsid'2007, 2007, Perros-Guirec, France.

Books and book chapters

- [7] Ralyté, J., Brinkkemper, S. and Henderson-Sellers, B. (Editors) (2007) Situational Method Engineering: Fundamentals and Experiences. Proceedings of the IFIP WG 8.1 Working Conference, 12-14 September 2007. Geneva, Switzerland. Springer IFIP Series.
- [8] Ralyté, J., Brinkkemper, S., Henderson-Sellers, B. (Editors) (2007) Poster Proceedings of the IFIP WG8.1 Working Conference on Situational Method Engineering: Fundamentals and Experiences (ME07). Technical Report UU-CS-2007-026, ISSN 0924 3275, University of Utrecht, Department of Information and Computing Sciences, The Netherlands, www.cs.uu.nl.
- [9] Khadraoui, A., Léonard, M., Construction d'ontologies à base de lois pour l'ingénierie des systèmes d'information institutionnels, Les Ontologies : Mythes, Réalités et Perspectives, Nouha Editions, ISBN: 978-9973-37-414-1, Sfax, Octobre 2007.

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

- Member of the steering committee of the scientific community CAISE (from 1996 - ...)
- Member of the IFIP WG8.1 group from 1981
- Member of the steering committee of the scientific community INFORSID (from 1985...)

CONFERENCE ORGANIZATION AS CHAIR OR CO-CHAIR

- Organisation of the IFIP WG 8.1 Working Conference on Situational Method Engineering: Fundamentals and Experiences, 12-14 September 2007. Geneva, Switzerland. <http://www.methodengineering07.org/> J. Ralyté – Program chair, M. Snene – Organising chair.

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- CAISE'07 – 19th International Conference on Advanced Information Systems Engineering, Trondheim, Norway, June 11-15, 2007.
- I-ESA'07 – 3rd International Conference on Interoperability for Enterprise Software and Applications, Funchal (Madeira Island), Portugal, March 28th – 30th, 2007.
- REFSQ'07 – 13th International Working Conference on Requirements Engineering: Foundation for Software Quality, Trondheim, Norway, June 11-12, 2007.
- ICEIS'07 – 9th International Conference on Enterprise Information Systems, Funchal, Madeira - Portugal from 12 to 16, June 2007.
- RCIS 2007 – International Conference on Research Challenges in Information Science, Ouarzazate. Morocco, April 23-26, 2007.
- EMMSAD'07 – 12th International Workshop on Exploring Modeling Methods in Systems Analysis and Design, Trondheim, Norway, June 11-12, 2007.
- ICSOFT 2007 – 2nd International Conference on Software and Data Technologies. July 22 - 25, 2007, Barcelona, Spain.
- MUSE'07 – 2nd International Workshop on Metamodeling – Utilization in Software Engineering, July 22 - 25, 2007, Barcelona, Spain. In conjunction with ICSOFT 2007.
- BIR 2006 – 6th International Conference on Perspectives in Business Informatics Research. Tampere, Finland, 5th – 6th October 2006.
- ECIS 2007 - The 15th European Conference on Information Systems. University of St.Gallen, JUNE 07-09, 2007, St.Gallen, Switzerland.
- IBIC 07 – The International Business Informatics Challenge 2007, Dublin City University; Ireland, September 19, 2007.

FUNDED RESEARCH PROJECTS

Participation to National projects

Computer Aided Situational Method Engineering

FNS (Swiss National Science Foundation) No 200020-111748/1.

Period: April 2006 – April 2008

Knowledge pattern for distributed information systems design

FNS No 200020-112153.

Period: April 2006 - April 2008

Contrat avec le CTI (Centre des technologies de l'Etat de Genève)

Domaine du e-gouvernement

TECHNOLOGY TRANSFER

Partner of FIRST events (Rezonance)

OTHERS

Best paper award

Jeusfeld M., Backlund P. and Ralyté J. (2007). Classifying Interoperability Problems for a Method Chunk Repository. To appear in the proceedings of the 3rd International Conference on Interoperability for Enterprise Software and Applications (I-ESA'07), Funchal (Madeira Island), Portugal, March 28th – 30th, 2007. Springer-Verlag.

Panel

J. Ralyté – Panellist at the IFIP WG 8.1 Working Conference on Situational Method Engineering: Fundamentals and Experiences (ME07). Modularisation Concepts in Method Engineering: Towards Common Ground? 12 - 14 September 2007, Geneva, Switzerland.

Tutorial

J. Ralyté – One day tutorial on Situational Method Engineering: Towards a Specific Method for Each System Development Project. 12th International Conference on Reliable Software Technologies, Ada-Europe 2007. Geneva, 25-29 June 2007, <http://adae2007.eig.ch/tutorial.html>

Research seminar

J. Ralyté – Situational Method Engineering: Method Chunks for Interoperability. University of Technology of Valencia, Department of Information Systems. Spain, April 2007.

Referring

Journal of Systems and Software

TEACHING

- **Information System Project Management** (6 ECTS credits, autumn semester, 4h/week, lectures and seminars, master). SES 4304023, 15 students.
- **Evolution and Interoperability of Information Systems** (6 ECTS credits, autumn semester, 4h/week, lectures and seminars, master). SES 4304026, 15 students.
- **Knowledge management** (6 ECTS credits, spring semester, 4h/week, lectures and seminars, master). SES 4304027, 15 students.
- **Advanced Information Base** (6 ECTS credits, spring semester, 4h/week, lectures and seminars, master). SES 4304025, 15 students.
- **Data bases** (6 ECTS credits, spring semester, 4h/week, lectures and seminars, bachelor), 20 students.
- **Database design** (6 ECTS credits, winter semester, 4h/week, lectures and seminars, bachelor). SES 4204020, 20 students.
- **Information system modelling** (6 ECTS credits, spring semester, 4h/week, lectures and seminars, bachelor). SES 4104003, 30 students.
- **Informatics and Information system 1**, (3 ECTS credits, spring semester, 2h/week, lectures and seminars, master). SES 4312017, 10 students.
- **Certificates in Management and Technologies of Information Systems (MATIS) in Continuing Education**, 10 ECTS credits each.



MIRALab Laboratory

Prof. Nadia Magnenat-Thalmann



MIRALab

www.miralab.unige.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 30 European Projects. In 2007, MIRALab was working on the following projects: 3D ANATOMICAL HUMAN, AIM@SHAPE, CATCH, CO-ME, ENACTIVE, EPOCH, FNRS, FRANCOPHONIE, HAPTEX, HUMAINE, INDIGO, INTERMEDIA, INTUITION, LEAPFROG CA & IP, OPENDANCE and UNDERSTANDING 3D, as well as in International conferences, often organised in Switzerland by MIRALab.



Fig.1: Hair reconstruction



Fig 2: Hagia Sophia reconstruction

TEAM

Director

Nadia Magnenat-Thalmann
Full professor



Assistants (PhD students)

Marlène Arévalo-Poizat
Lazhari Assassi
Yacine Benmansour
Ugo Bonanni
Nedjma Cadi-Yazli
Caecilia Charbonnier
Pierre Davy
Alessandro Foni
Benjamin Gilles
Mustafa Kasap
Zerrin Kasap
Bart Kevelham
Christiane Luible
Etienne Lyard
Mélanie Montagnol
Vincent Muggeo
Jérôme Schmid
Tristan Whitmarch

Senior researchers

Parag Chaudhuri (Post Doc)
Thomas Di Giacomo (Post Doc)
Stéphane Garchery (Post Doc)
Gwenaël Guillard (Post Doc)
Rajeev Gupta (Post Doc)
Mingyu Lim (Post Doc)
Laurent Moccozet (MER)
Georgios Papagiannakis (Post Doc)
Dimitris Protopsaltou (Post Doc)
Pascal Volino (Post Doc)

Administration

Guillaume Eynard
Ghislaine Wharton

PHD THESIS

- Benjamin Gilles, «Anatomical and Kinematical Modelling of the Musculoskeletal System from MRI», September 2007
- Stéphane Garchery, «Animation Faciale Temps Réel Multi Plates-formes», June 2007
- Thomas Di Giacomo, «Dynamically Adaptive Animation of Virtual Humans», March 2007

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] E. Lyard, N. Magnenat-Thalmann, "A simple footstake removal method for virtual reality applications", *The Visual Computer*, Springer Verlag, Vol. 23, No. 9-11, pp. 689-695, September 2007.
- [2] N. Magnenat-Thalmann, P. Volino, U. Bonanni, I.R. Summers, M. Bergamasco, F. Salsedo, F. E. Wolter, "From physics-based simulation to the touching of textiles: The HAPTEX Project", *The International Journal of Virtual Reality*, IPI Press, Vol. 6, No. 3, pp. 35-44, September 2007.
- [3] P. Volino, N. Magnenat-Thalmann, "Stop-and-go cloth draping", *The Visual Computer*, Springer Verlag, Vol. 23, No. 9-11, pp. 669-677, September 2007.
- [4] A. Egges, G. Papagiannakis, N. Magnenat-Thalmann, "Presence and Interaction in Mixed Reality Environments", *The Visual Computer*, Springer Verlag, Vol. 23, No. 5, pp. 317-333, May 2007.
- [5] G. Papagiannakis, N. Magnenat-Thalmann, "Mobile Augmented Heritage: Enabling Human Life in ancient Pompeii", *International Journal of Architectural Computing (IJAC)*, Multi-Science Publishing, pp. 396-415, April 2007.
- [6] M. Gutiérrez, D. Thalmann, F. Vexo, L. Moccozet, N. Magnenat-Thalmann, M. Mortara, M. Spagnuolo, "An Ontology of Virtual Humans: incorporating semantics into human shapes", *The Visual Computer*, Vol. 23, No. 3, pp. 207-218, March 2007.
- [7] N. Magnenat-Thalmann, B. Gilles, "Towards an Individualised Physiological Model of the Musculoskeletal System", *Ercim News*, special issue, pp. 25-26, April 2007.
- [8] A. Foni, G. Papagiannakis, N. Cadi-Yazli, N. Magnenat-Thalmann, "Time-Dependant Illumination and Animation of Virtual Hagia-Sophia", *International Journal of Architectural Computing (IJAC)*, Multi-Science Publishing, pp. 284-301, April 2007.
- [9] N. Magnenat-Thalmann, A. Foni, G. Papagiannakis, N. Cadi-Yazli, "Real Time Animation and Illumination in Ancient Roman Sites", *The International Journal of Virtual Reality*, IPI Press, Vol. 6, No. 1, pp. 11-24, March 2007.
- [10] P. Volino, P. Davy, U. Bonanni, C. Luible, N. Magnenat-Thalmann, M. Mäkinen, H. Meinander, "From Measured Physical Parameters to the Haptic Feeling of Fabric", *The Visual Computer*, Springer Verlag, Vol. 23, No. 2, pp. 133-142, February 2007.
- [11] Z. Kasap, N. Magnenat-Thalmann, "Intelligent virtual humans with autonomy and personality: State-of-the-art", *Intelligent Decision Technologies*, IOS Press, Vol. 1, pp.1-13, 2007.

Full refereed papers in Conference Proceedings

- [12] P. Chaudhuri, G. Papagiannakis, N. Magnenat-Thalmann, "Camera-based Gaze Control for Virtual Characters", *ENACTIVE 2007*, pp. 53-60, November 2007.
- [13] R. Gupta, N. Magnenat-Thalmann, "Interactive Rendering of Optical Effects in Wet Hair", *ACM VRST'07*, pp. 133-140, November 2007.
- [14] M. Kasap, N. Magnenat-Thalmann, "Parameterized human body model for real-time applications", *International Conference on Cyberworlds 2007*, pp. 160-167, October 2007.
- [15] T. Di Giacomo, L. Moccozet, N. Magnenat-Thalmann, R. Boulic, D. Thalmann, "Towards Automatic Character Skeletonization and Interactive Skin Deformation", *Eurographics, EG'07 State-of-the-Art Reports*, Prague, Czech Republic, pp. 47-61, October 2007.
- [16] N. Magnenat-Thalmann, M. Montagnol, U. Bonanni, R. Gupta, "Visuo-Haptic Interface for Hair", *International Conference on Cyberworlds 2007*, pp. 3-14, October 2007.
- [17] N. Magnenat-Thalmann, P. Volino, U. Bonanni, I.R. Summers, A. C. Brady, J. Qu, D. Allerkamp, M. Fontana, F. Tarri, F. Salsedo, M. Bergamasco, "Haptic Simulation, Perception and Manipulation of Deformable Objects", *Tutorial Notes, Proc. of EUROGRAPHICS '07, Computer Graphics Forum, Eurographics Association*, Vol. 26, pp. 1-24, September 2007.
- [18] C. Luible, P. Volino, N. Magnenat-Thalmann, "High Fashion in Equations", *SIGGRAPH 2007*, Article No. 36, on-line, September 2007.
- [19] C. Charbonnier, B. Gilles, N. Magnenat-Thalmann, "A semantic-driven clinical examination platform", *Surgetica'2007, Computer-Aided Medical Interventions: Tools and Applications*, Chambéry, France, pp. 183-189, September 2007.
- [20] G. Guillard, N. Magnenat-Thalmann, "Ball-And-Socket Joint Motion Description Using Spherical Medial Representation", *EMBC'07*, pp. 4293-4296, August 2007.
- [21] N. Magnenat-Thalmann, D. Protopsaltou, E. Kavakli, "Learning How to Dance Using a Web 3D Platform", *The 6th International Conference on Web-based Learning (ICWL 2007)*, Edinburgh, UK, August 2007.
- [22] V. Muggéo, L. Moccozet, N. Magnenat-Thalmann, "Scene-graph-based Platform for 3D Computer Graphics Training", *IADIS International Conference e-Learning, 2007*, (IADIS 2007), Lisbon, Portugal, July 2007.
- [23] L. Assassi, G. Guillard, B. Gilles, N. Magnenat-Thalmann, "Volumetric meshes based on medial representation for medical applications", *The International Society for Computer Assisted Orthopaedic Surger (CAOS'07)*, Heidelberg, Germany, pp. 259-262, June 2007.
- [24] F. Dellas, L. Moccozet, N. Magnenat-Thalmann, M. Mortara, G. Patané, M. Spagnuolo, B. Falcidieno, "Knowledge-based extraction of control skeletons for animation", *Shape Modeling International 2007*, pp. 51-60, 2007.
- [25] G. Guillard, N. Magnenat-Thalmann, "Description des articulations à rotule par une représentation médiane sphérique. Application à la hanche", *Conférence sur le Traitement et l'analyse de l'information : méthodes tet applications*, (TAIMA'07), Hammamet, Tunisia, on-line, May 2007.

Books and book chapters

- [26] T. Di Giacomo, S. Garchery, N. Magnenat-Thalmann, "Chapter 2: Expressive Visual Speech Generation", in Data-Driven 3D Facial Animation, in Zhigang Deng and Ulrich Neumann (eds.), Springer Press, ISBN: 978-1-84628-906-4, pp. 29-59, December 2007.
- [27] T. Di Giacomo, S. Garchery, N. Magnenat-Thalmann, "Chapter 12: Real-Time Adaptive Facial Animation", in Data-Driven 3D Facial Animation, in Zhigang Deng and Ulrich Neumann (eds.), Springer Press, ISBN: 978-1-84628-906-4, pp. 217-247, December 2007.
- [28] T. Di Giacomo, L. Moccozet, N. Magnenat-Thalmann, "State-of-the-Art on Level-Of-Detail for Virtual Human Animation and Representation", in Shape Analysis and Structuring, Leila de Floriani, Michela Spagnuolo (eds.), Springer Verlag, September 2007.

Research and technical reports

Several technical reports for the following projects: 3D ANATOMICAL HUMAN, AIM@SHAPE, CATCH, CO-ME, ENACTIVE, EPOCH, FNRS, FRANCOFONIE, HAPTEX, HUMAINE, INDIGO, INTERMEDIA, INTUITION, LEAPFROG CA & IP, OPENDANCE and UNDERSTANDING 3D.

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

- Member of the National Consultation Group for European Union, under the Seventh Program Framework, NMP, State Secretariat for Education and Research (SER), 2007 - 2008
- Independent expert for evaluation and research proposals, European Commission, Information Society and Media, Directorate General, Brussels, Belgium, 2007
- Invited in the Group of User Centric Media, European Commission, Information Society and Media, 2007
- Expert in the working group networked media of the future, European Commission, Brussels, Belgium, 2007

CONFERENCE ORGANIZATION AS CHAIR OR CO-CHAIR

- Program and Workshop chair of "Data Acquisition for 3D Simulation", 3ème Cycle Romand d'Informatique, December 2007, Zermatt, Switzerland.
- Program Co-chair, Cyber worlds 2007, Hannover, Germany, October 2007
- Program Workshop Co-chair, Computer Animation and Social Agents, CASA 2007, Hasselt, Belgium, June 2007
- General Co-chair, Computer Graphics International 2007, CGI'04, Petropolis, Brazil, May 2007

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- VIP 2007, Asia-Pacific Workshop on Visual Information Processing 2007, Taiwan, December 2007.
- ICAT 2007, International Conference on Artificial Reality and Telexistence, Esbjerg, Denmark, November 2007.
- ACM VRST 2007, ACM Virtual Reality Software and Technology, Newport Beach, California, November 2007.
- Haptex 2007, Workshop on haptic and tactile perception, Hannover, Germany, October 2007.
- CW2007, CyberWorlds 2007, Hannover, Germany, October 2007.
- VSMM 2007, Virtual Systems and Multimedia 2007, Brisbane, Australia, September 2007.

- IVA 07, 7th International Conference on Intelligent Virtual Agents, Paris, France, September 2007.
- EG 2007 Cultural Heritage, Prague, Republic Czech, September 2007.
- CAD/Graphics 2007, 10th International Conference on CAD/Graphics, Beijing, China, September 2007.
- ACII 2007, Affective Computing and Intelligent Interaction Conference, Lisbon, Portugal, September 2007.
- ICI 2007, Fourth International Conference on Image and Graphics, Chengdu, China, August 2007.
- SMI 07, Shape Modelling 2007, Lyon, France, June 2007.
- Graphicon 2007, 17th International Conference on Computer Graphics and Vision, Moscow, Russia, June 2007.
- CGGM07, Workshop on Computer Graphics and Geometric Modeling, Beijing, China, May 2007.
- AAMAS07, International Conference on Autonomous Agents and Multi-Agent Systems, Hawaii, USA, May 2007.
- 3IA2007, Athens, Greece, May 2007.
- SCCG 2007, Spring Conference on Computer Graphics 2007, Budmerice Castle - Slovak Republic, April 2007.
- Laval VR 2007, Laval, France, April 2007.
- Second International Conference on Computer Graphics Theory and Applications GRAPP 2007, Barcelona, March 2007.
- CGIM 2007, Innsbruck, Austria, February 2007.
- MMM 2007, Singapore, January 2007.

INVITED TALKS

- Invited speaker, Virginia Commonwealth University, "High Fashion in Equations", USA, 12 November 2007.
- Invited talk at the 5th NEM General Assembly in Brussels on «Networked Media of the Future», 22 October 2007.
- Invited speaker at CAD/Graphics 2007 in Beijing, China, «From measured fabric to the simulation of cloth», 15-18 October 2007.
- Invited lecture at IEEE Japan Council Women in Engineering, Tokyo, «A life as a Computer Science Canadian and Swiss female Professor », 25 September 2007.
- Invited Speaker at the Joint JSPS-SNSF Seminar on Computer-aided surgery in Osaka University, «From MRI Data to 3D Simulation of the Individual Hip Motion», 22-24 September 2007.
- Invited speaker, Federal University of Alagoas, "Simulating Virtual Humans, 25 years of Research", Maceio, Brazil, June 2007.
- Invited speaker, Federal University of Pernambuco, "Research Problems in Hair and Clothes" Recife, Brazil, June 2007.
- Invited speaker, International Advanced Workshop on Virtual Reality, "Haptex: a European Research Project simulating the touching of textiles", Hong Kong, June 2007.
- Invited talk at the Studium Generale of the University of Marburg, Germany, «Simulation of Models for Virtual Fashion Shows», 2nd May 2007.
- Invited speaker, "Interactive communication with Virtual Humans", Forth, Heraklion, Greece, May 2007
- Invited speaker, SARIT 07, "3D Anatomical Human: a Marie-Curie Research and Training Network", EPF Lausanne, May 2007
- Invited speaker, Institut für Informatik der Universität Zürich, "Simulating virtual humans: 25 years of research", February 2007.

FUNDED RESEARCH PROJECTS

Participation to European projects

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)

AIM@SHAPE

«Advanced and Innovative Models And Tools for the development of Semantic-based systems for Handling, Acquiring, and Processing knowledge Embedded in multidimensional digital objects.»

Period: January 2004 - February 2008

Website: www.aim-at-shape.net/

Partners: 12 partners (C.N.R. – Istituto di Matematica Applicata e Tecnologie Informatiche – Dept. Of Genova- Italy, Ecole Polytechnique Fédérale de Lausanne - Switzerland, Fraunhofer Institut für Graphische Datenverarbeitung - Germany, Informatics and Telematics Institut – Center for Research and Technology Hellas - Greece, INRIA - France, Institut National Polytechnique de Grenoble - France, Max-Planck-Institut für Informatik - Germany, MIRALab, University of Geneva - Switzerland, Stiftelsen for industriell og teknisk forskning ved Norges Tekniske Høgskole - Norway, Technion – Israel Institute of Technology - Israel, Utrecht University - Netherlands, Weizmann Institute of Science - Israel)

ENACTIVE

«Enactive Interfaces»

Period : January 2004 – December 2007

Website : www.enactivenetwork.org

Partners: 24 partners (Scuola Superiore Sant'Anna – PERCRO - Italy, Institute National Polytechnique de Grenoble, Computer Sciences and Artistic creation Laboratory - France, University of Exeter - Biomedical Physics Group - United Kingdom, Centro de Estudios e Investigaciones Técnicas de Guipuzcoa - Spain, University of Lund - Department of Design Sciences - Sweden, Université de technologie de Compiègne - Département Technologie et Sciences de l'Homme - France, Uppsala University - Department of Psychology - Sweden, DLR Institute of Robotics and Mechatronics - Germany, Limburgs Universitair Centrum - EDM Expertise center for Digital Media - Belgium, Sound Processing and Control Laboratory - Faculty of Music, McGill University - Canada, University of Minnesota - Human Factors Research Laboratory - United States, Fundacion Labein - Mechanics Unit - Spain, Max Planck Institute for biological cybernetics Tuebingen - Germany, University of Geneva - MIRALab - Switzerland, Ecole Polytechnique Federale de Lausanne - Virtual Reality Laboratory - Switzerland, Università degli Studi di Padova - Dipartimento di Ingegneria dell'Informazione - Italy, Sony Computer Science Laboratory - France, Ecole des Hautes Etudes en Sciences Sociales - Institut Jean Nicod - France, University of Genoa - Department of Communications, Computer and Systems Science - Italy, Association pour la Création et la

Recherche sur les Outils d'Expression - France, Université Pierre Mendès - France, Centre National de Recherche Scientifique - Laboratoire de Psychologie Expérimentale - France, University of Montpellier I - Motor Efficiency & Deficiency Laboratoire - France, Queen's University of Belfast - United Kingdom)

EPOCH

«European research network on excellence in Processing Open Cultural Heritage»

Period : March 2004 - March 2008

Website : www.epoch-net.org

Partners: 100 (non exhaustive list : University of Brighton – Great Britain, Ename Centre for Public Archaeology and Heritage – Belgium, Katholieke Universiteit Leuven – Belgium, MIRALab, University of Geneva – Switzerland, PIN srl, Servizi didattici e scientifici per l'Università di Firenze – Italy, Technische Universitaet Graz – Austria, Technische Universitaet Wien – Austria)

FRANCOPHONIE

«Accès au patrimoine vestimentaire contemporain et traditionnel francophone»

Period: December 2006 - December 2008

Type: Fonds Francophone des Inforoutes

HAPTEX

«HAPTic sensing of virtual TEXTiles»

Period : December 2004 - November 2007

Website : haptex.miralab.unige.ch/

Partners: 5 partners (MIRALab, University of Geneva - Switzerland, PERCRO Laboratory - Scuola Superiore di Studi Universitari e di Perfezionamento Sant'Anna - Italy, SWL - SmartWearLab, Tampere University of Technology - Finland, UHAN - WelfenLab, University of Hanover - Germany, UNEXE - Biomedical Physics Group, University of Exeter - Great Britain)



Fig 3: Networks

HUMAINE

«Human-Machine Interaction Network on Emotion»

IST-2002-2.3.1.6 Multimodal Interfaces.

Period: January 2004 – December 2007

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

Partners: 32 partners (Centre National De La Recherche Scientifique - Paris - France, Deutsches Forschungszentrum für Künstliche Intelligenz GmbH - Germany, Ecole Polytechnique Fédérale de Lausanne - Switzerland, France Télécom SA - Paris - France, Friedrich-Alexander-Universität Erlangen-Nürnberg - Germany, Herriot-Watt University - UK, Imperial College of Science, Technology and Medicine - London - UK, Inesc Id - Instituto de Engenharia de Sistemas e Computadores: Investigação e Desenvolvimento - Lisboa - Portugal, Institute of Cognitive Sciences and Technologies - Rome - Italy, Institute of Communication and Computer Systems - National Technical University of Athens - Greece, Instituto Superior Técnico - Lisbon - Portugal, Istituto Trentino Di Cultura - Italy, King's College - London - UK, La Cantoche Production - Vincennes - France, Österreichische Studiengesellschaft für Kybernetik - Austria, Queen's University - UK, Royal Institute of Technology in Stockholm - Sweden, T-Systems Nova GmbH - Bonn - Germany, Tel Aviv University - Israel, Trinity College - Dublin - Ireland, Università Degli Studi di Bari - Italy, Università Degli Studi di Genova - Italy, Universität Augsburg - Germany, Université de Paris VIII - France, University of Haifa - Israel, University of Hertfordshire - UK, University of Leeds - UK, University of Oxford - UK, University of Sheffield - UK, University of Southern California - USA, University of Twente - The Netherlands, University of Zagreb - Croatia)

INDIGO

«Interaction with Personality and Dialogue Enabled Robots»

Period: February 2007- July 2009

Website: <http://www.ics.forth.gr/indigo/>

Partners: 9 partners (Acapela Group - Belgium, Albert-Ludwigs University of Freiburg - Germany, Athens University of Economics and Business - Greece, Foundation for Research & Technology - Hellas Institute of Computer Science - Greece, Foundation of the Hellenic World - Greece, Hanson Robotics - U.S., National Centre for Scientific Research «Demokritos» - Greece, Neobotix / GPS - Germany, University of Edinburgh - United Kingdom)

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 Breed-BandTechnologie VZW - Belgium, Industrial Systems Institute / Integrated Research Information Society - Greece, Lancaster University - United Kingdom, Rheinisch-Westfaelische Technische Hochschule Aachen - Germany, Università degli Studi di Genova - Italy, Fraunhofer Gesellschaft zur Foerderung 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)

INTUITION

«Network of Excellence on Virtual Reality and Virtual Environments Applications for Future Workspaces»

Period: September 2004 - August 2008

Website: www.intuition-eunetwork.net/

Partners: 57 partners (Advanced Realtime Tracking GmbH - Germany, Akademia Ekonomiczna w Poznaniu - Poland, Alenia Aeronautica - Italy, ALENIA Spazio S.p.A. - Italy, Association pour la Recherche et le Développement des Méthodes et Processus Industriels - France, Barco NV - Belgium, C.R.F. Società Consortile per Azioni - Italy, Centre for Research and Technology Hellas / Hellenic Institute of Transport - Greece, Centre Lavallois de Ressources Technologiques - France, Centre National de la Recherche Scientifique - France, Commisariat à l'Energie Atomique - France, CS Systèmes d'Information - France, DASSAULT Aviation - France, EADS Space Transportation GmbH, Ecole Nationale d'Ingénieurs de Brest - France, Ecole Polytechnique Fédérale de Lausanne - Switzerland, Electricité de France - France, Foundation of the Hellenic World - Greece, France Telecom R & D - France, Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung - Germany, HAPTION S.A. - France, Helsinki University of Technology - Finland, ICIDO Gesellschaft für innovative Informationssysteme mbH - Germany, Institut National de Recherche en Informatique et Automatique - France, Institut National de Recherche et de Sécurité - France, Institute of Communication and Computer Systems - Greece, Institute of Computer Science, Foundation for Research and Technology – Hellas - Greece, Italdesign – Giugiaro Spa - Italy, LABELIN - Spain, Max Planck Institute for Biological Cybernetics - Germany, MERCURY COMPUTER SYSTEMS SARL, ONDIM - France, OVIDIUS University of Constanta - Romania, Robotics Institute – University of Valencia - Spain, S C N R Tech, S.R.L Brasov - Romania, Scuola Superiore di Studi Universitari e di Perfezionamento S.ANNA - Italy, Société Nationale des Chemins de Fer Français - France, Space Applications Services NV - Belgium, Swiss Federal Institute of Technology, Zurich - Switzerland, Technische Universität München - Germany, TECNATOM, S.A. - Spain, TILS - Italy, TNO - The Netherlands, Universidad de Málaga - Spain, Universidad Politécnica de Madrid - Spain, University of Basel - Switzerland, University of Cyprus - Cyprus, University of Nottingham - U.K., University of Patras - Greece, University of Salford - U.K., University of Sussex - U.K., University of Twente - The Netherlands, University of Warwick - U.K., University of West Bohemia - Czech republic, University Transilvania of Brasov - Romania, Volvo Technology Corporation - Sweden, VTT Technical Research Centre of Finland - Finland)

LEAPFROG CA

«Leadership for European Apparel Production From Research along Original Guidelines (Coordination Action)»

Period : June 2004 – May 2007

Website : www.leapfrog-eu.org/

Partners: 36 partners (European Apparel And Textile Organisation, Deutschen Institute für Textil- und Faserforschung Denkendorf, Institut Français Textile Habillement, Athens Technology Center S.A., D'Appolonia S.p.A., ENEA, TXT e-Solutions SpA, TXTe Solution GmbH, Politecnico di Milano, TECNOTESSILE Società Nazionale di Ricerca Tecnologica r.l., GRUPPO SOI SPA,

Gerry Weber Services International GmbH, Fratelli Piacenza Spa, MIRALab - Universite de Geneve, Bekleidungsphysiologisches Institut Hohenstein e.V., LECTRA SA, Bivolino.com, Fraunhofer Gesellschaft zur Forderung der angewandten Forschung e.V. Institut Graphische Datenverarbeitung, Asociatia «Microregiunea De Dezvoltare Economico-Sociala A Tarii Lapusului», Wetenschappelijk en Technisch Centrum van de Belgische Textielnijverheid, Gaetano Rossini Holding S.p.A., IRIS S.p.A., Jemtex Ink Jet Printing Ltd., Netherlands Organisation for Applied Scientific Research, Shishoo Consulting A.B., Centro Tecnologico das Industrias Textil e do Vestuario de Portugal, TRA Voorzorg - Textile Research Association, Grado Zero Espace S.r.l., Angles Textil SA, STAM S.r.l., University of Genova - Dipartimento di Meccanica e Costruzione delle Macchine, Institut fur Nahttechnik e.V., TWI Ltd., Philipp Moll - office for modern sewing technology, King's College London, University of London, Australian Wool Innovation)

LEAPFROG IP

«Leadership for European Apparel Production From Research along Original Guidelines (Integrated Project)»

Period : May 2005 – July 2009

Website : www.leapfrog-eu.org/

Partners: 38 partners (Euratex – Belgium, ANTEX, Angles Textil – Spain, ATC, Athens Technology Center – Greece, Bekleidungsphysiologisches Institut Hohenstein – Germany, D'Appolonia – Italy, DITF- ITV – Germany, ENEA – Italy, IFTH, Institut Français Textile Habillement – France, Lectra S.A. – France, Philipp Moll office for modern sewing technology – Germany, TNO – Netherlands, University of Cambridge, Cavendish Laboratory – Great Britain, MIRALab, University of Geneva – Switzerland, DIMEC, Dipartimento di Meccanica e Costruzione delle Macchine - Università degli Studi di Genova, CENTEXBEL, Wetenschappelijk en Technisch Centrum van de Belgische Textielnijverheid, Grado Zero Espace S.r.l., Angles Textil SA, Ermenegildo Zegna, STAM S.r.l., Università Politecnica delle Marche, Philipp Moll - office for modern sewing technology, LECTRA SA, University of Cambridge, Bivolino.com, Wilhelm Zuleeg GmbH, TXT e-Solutions GmbH, Hugo Boss AG, CSGI - Consorzio per lo Sviluppo dei Sistemi a Grande interfase, Assyst - Gesellschaft fur Automatisierung, Software und Systeme GmbH, KUKA-InnoTec GmbH, Groupe Flory SA., Fratelli Piacenza Spa, Browzwear International Ltd., CITEVE - Centro Tecnologico das Industrias Textil e do Vestuario de Portugal, Ten Cate Advanced Textiles by, COLOR WEB GmbH by Peppermint, ROBOT, European Commission)

OPENDANCE

«Open-editing cooperative platform for web Dance»

Period : October 2005 - September 2008

Website : www.aegean.gr/culturaltec/CILab

FUNDED RESEARCH PROJECTS

Participation to National projects

CO-ME

«The Computer Aided and Image Guided Medical Interventions»

Period: January 2001 - June 2009

Website: co-me.ch

Partners: 3 main partners (Ecole Polytechnique Fédérale de Lausanne - Switzerland, Hôpital Universitaire de Genève (HUGE) - Switzerland, MIRALab, University of Geneva - Switzerland)

CATCH

«CommunicAtion Technologies for Cultural Heritage (e-learning)»

Period : January 2006 - July 2008

Type : Swiss Virtual Campus

Website : www.swissvirtualcampus.ch

Partners: 3 partners (MIRALab, University of Geneva - Switzerland, Seminar für Klassische Philologie, University of Basel - Switzerland, TEC-Lab, Università della Svizzera Italiana, Lugano - Switzerland)

FNRS 2007

«Swiss National Research Foundation Project: Haptic Simulation of Hair»

Period : October 2006 - September 2008

Type : Swiss Research

Partner: MIRALab, University of Geneva

Understanding 3D

«Understanding 3D (e-learning)»

Period : January 2006 – July 2008

Type : Swiss Research

Website : www.swissvirtualcampus.ch

Partners: 3 partners (MIRALab, University of Geneva - Switzerland (coordinator), Computer Graphics Laboratory, ETH Zentrum, Zurich - Switzerland, Departement Informatik, Universität Basel - Switzerland)



Fig. 4: The Xian Terracotta army

OTHERS

Public exhibition and performance

- ENACTIVE Workshop and EU Review, the third ENACTIVE Review held in conjunction with the ENACTIVE workshop, hosted by MIRALab at the University of Geneva, from 28th to 30th March 2007.
- Spring School on Wearable Computing, in the context of the third cycle roman of informatics, this workshop was addressed with issues on wearable computers the 5th March 2007.

Honours and scientific awards

- XIX International Forum Computer Space film competition award, Sofia, Bulgaria, for the film “High Fashion in equations”, 2007.
- CGI Film Festival award at Computer Graphics International 2007, Petrópolis, Brazil, for the film “High Fashion in equations”.
- Selected as one of the 100 leading personalities in the French region of Switzerland by the magazine “L’Hebdo”, May 2007.

Courses and tutorials

- EUROGRAPHICS 2007, tutorial organized and given on Haptic Simulation, Perception and Manipulation of Deformable Objects, Prague, Czech Republic, September 2007.
- EUROGRAPHICS 2007, tutorial on Advanced Topics in Virtual Garment Simulation, Prague, Czech Republic, September 2007.
- EUROGRAPHICS 2007, tutorial organized and given on Towards the Virtual Physiological Human, Prague, Czech Republic, September 2007.
- Computer Graphics International ‘2007, tutorial on Modelling crowds, Petropolis, Brazil, June 2007.

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.

Editorial responsibilities

- Since 2007, Regional Editor of the Journal “Intelligent Decision Technologies”, IOS Press.
- Since 2007, Associate Editor-in-chief of the “International Journal of Virtual Reality”, IPI Press, USA.
- Since January 1, 2000, Editor-in-chief of the Journal “The Visual Computer” published by Springer Verlag, Germany.
- Since January 2001, Member of the Advisor Board, International Journal of Image and Graphics, World Scientific.



Fig. 5: Medical scan

Participation in TV and radio programs

- Impatience, Friday 28 December 2007, La Première, Radio Suisse Romande (Switzerland)
- Une Suisse high-tech aux USA, 20 October 2007, Tribune de Genève (Switzerland)
- Der virtuelle Schneider, 10 October 2007, Neue Zuercher Zeitung (NZZ) (Switzerland)
- Diagnostiquer les pathologies articulaires en 3D, 01 October 2007, Le Monde (France)
- 3D Anatomical Human, the Television Suisse Romande (TSR) presented a short show at the evening news, 16 May 2007.
- Mon corps en 3D?, 16 May 2007, Revue de Presse de l’UNIGE (Switzerland)
- Haptic glove to touch on virtual fabrics, 13 February 2007, New Scientist Tech (online)

TEACHING

- **Animation et multimédia**, Bachelor course, 6 ECTS, Winter semester
- **Outils Informatiques**, Bachelor course, 6 ECTS, Winter or summer semester
- **Programmation de Base**, Bachelor course, 6 ECTS, Winter semester
- **Synthèse d’Image & Réalité Virtuelle**, Bachelor course, 6 ECTS, Summer semester
- **Understanding & Simulating Body and Facial Emotions**, Master course, 6 ECTS, Summer semester
- **Virtual & Augmented Worlds**, Master course, 6 ECTS, Winter semester



Fig. 6: Garment reconstruction



Software Modelling and Verification

Prof. Didier Buchs



SMV

smv.unige.ch

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



Members

Ang Chen
Steve Hostettler
Levi Lúcio
Luis Pedro
Matteo Risoldi
Odorico Von Susani
Andrey Berlizev



Steve Hostettler, Levi Lúcio, Andrey Berlizev, Didier Buchs, Luis Pedro, Matteo Risoldi, Ang Chen

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] Levi Lucio and Luis Pedro and Didier Buchs, System Prototype and Verification Using Metamodel-Based Transformations, DSO, April 2007 (Vol. 8, No. 4) ISSN: 1541-4922

Full refereed papers in Conference Proceedings

- [2] M.Risoldi and D.Buchs, A domain specific language and methodology for control systems GUI specification, verification and prototyping, VL/HCC 2007 conference.
- [3] Luis Pedro and Didier Buchs and Levi Lucio, Model and Metamodel Semantics Enrichment Using Transformations and Domain Composition, RISE 2007, 2007, Nicolas Guelfi (ed).
- [4] Ang Chen and Didier Buchs. Composing Business Process with ID-Net. In Proc. International Workshop on Petri Nets and Software Engineering, Siedlce, Poland, June 2007.
- [5] Levi Lúcio, Didier Buchs, Luis Pedro. "Semi-Automatic Test Case Generation from CO-OPN Specifications". Proceedings of the M-TOOS 2007 Workshop, Portland, Oregon, USA.
- [6] M. Risoldi and V. Amaral, Towards a formal, model-based framework for control systems interaction prototyping, N. Guelfi and D. Buchs eds., RISE 2006 proceedings, Springer-Verlag, LNCS 4401, pp. 144-159, 2007

Invited Presentation

- [8] Didier Buchs, MeFoSyloMa meeting, Paris, march 9th 2007
- [9] Didier Buchs, Uni Nova Lisboa, Lisboa, june 27 2007

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

- D. Buchs: Editorial Board, LNCS Transactions on Petri Nets and Other Models of Concurrency (ToPNoC)
- D.Buchs Editorial comitte 'réseaux de Petri et algorithmes' de TSI (technique et Sciences Informatiques)

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- D. Buchs : Program committee of Petri Nets and Software Engineering, Siedlice, Poland, june 2007
- D. Buchs : Program Committee Conf. on Rapid System Prototyping, Porto-Alegre, Brasil, May 2007.
- D. Buchs : Program Committee Conf. Rapid Integration of

Software Engineering, Luxembourg Nov. 2007.

- D. Buchs : Session Chair RST07, Geneva, june 2007.
- D. Buchs : Programming Committee of the Workshop on Petri Net Tools and Applications, Marseille, march 2008 (PNTAP'08)

FUNDED RESEARCH PROJECTS

Participation to European projects

Interreg Test-UML

interreg European funds

Partners: EPFL, University of Geneva, University of Franche-Comté, CTI Genève.

CORRECT

Luxembourg European funds

Partners: Luxemburg, University of Geneva, University of Newcastle.

Period: November 2004 – December 2006

FUNDED RESEARCH PROJECTS

Participation to National projects

ISIS – RA

Integrated System Implementation and Specification for Reliable distributed Applications, FNRS.

Period: November 2006 – October 2008

VeDiss Project

Haslerstiftung, DICS initiative

Partners: EPFL, University of Geneva

Period: August 2003 – December 2007

BATICS Project

Haslerstiftung

Partners: HES-SO-EIG, University of Geneva, University of Lisboa, CERN

Period: August 2005 – July 2008

Project Comedia

Haslerstiftung, MANCOM initiative

Period: 2007 - 2009

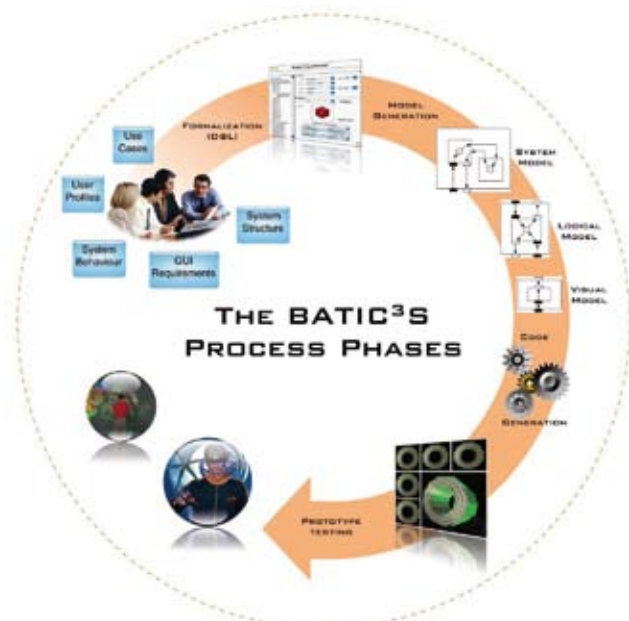
OTHERS

Thesis Jury

- Rodrigo Garcia, Modelling and Monitoring Industrial Automation Systems – with IEC 61346 and Sequential Function Charts, EPFL, 2006.
- Duy Vo Duc, Model checking for Synchronous Java, EPFL, 2007.

TEACHING

- **Semantics of Programming language**, Bachelor course, 4 ECTS credits
- **Formal tools**, Bachelor course, 4 ECTS credits
- **Software Engineering**, Bachelor course, 4 ECTS credits
- **Modeling and Verification**, Bachelor course, 4 ECTS credits
- **Advanced formal Tools (optional)**, Master course, 4 ECTS credits
- **Concurrency and Verification (optional)**, Master course, 4 ECTS credits





Scientific and Parallel Computing

Prof. Bastien Chopard



SPC

spc.unige.ch

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 to discover, explain or reproduce new phenomena.

Another domain of activity is bioinformatics, in collaboration with Swiss Institute of Bioinformatics. New classification methods and algorithm techniques are developed to analyse the coding in protein sequences and to build large phylogenetic trees.

TEAM

Director

Bastien Chopard
Associate professor



Members

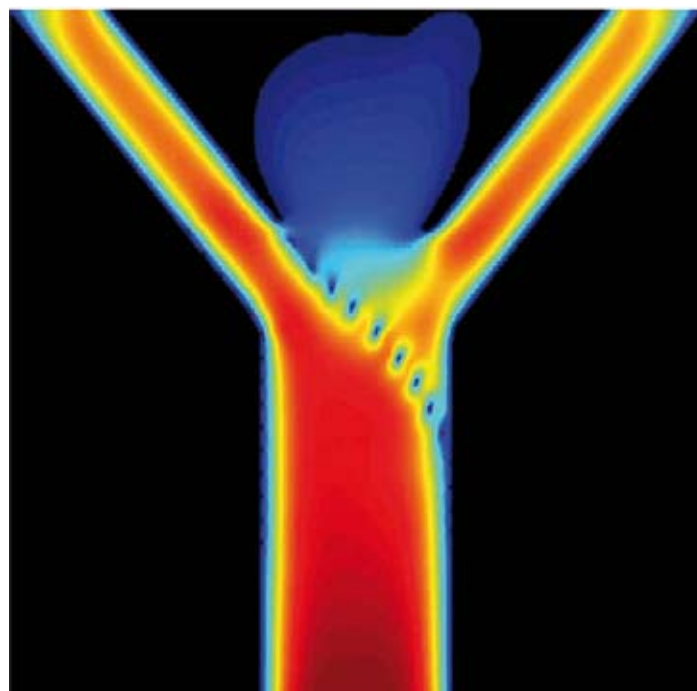
Jean-Luc Falcone
Rafik Ouared
Alexandre Lebouthiller

Assistants

Philippe Combes
Olivier Marcou
Andrea Parmigiani

PhD students

Bernd Stahl
Kae Tsunematsu
Xin Zhou



Blood flow simulation in blood vessels with an aneurysm

PHD THESIS

- Jonas Latt, «Hydrodynamic limit of lattice Boltzmann equations», March 2007
- Hung Nguyen, «Numerical simulation of lattice Boltzmann method for determination of hydrodynamic properties of fractal aggregate», March 2007
- Davide Alemani, «A lattice Boltzmann numerical approach for modelling reaction-diffusion processes in chemically and physically heterogeneous environment», May 2007
- Bernhard Sonderegger, «Anataxis : reconstruction of the tree of life», June 2007

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] Jonas Latt and Bastien Chopard, A benchmark case for lattice Boltzmann: turbulent dipole-wall collision, *Int. J. Mod. Phys. C*, Vol. 18 (4), 619-626, 2007.
- [2] L. Axner, Jonas Latt, Alfons G. Hoekstra, Bastien Chopard and Peter M. A. Slood, Simulating Time Harmonic Flows with the Regularized L-BGK Method, *Int. J. Mod. Phys. C*, Vol. 18 (4), 661-666, 2007.
- [3] B. Chopard, R. Ouared, D.A. Ruefenacht and H. Yilmaz, Lattice Boltzmann Modeling of Thrombosis in Giant Aneurysms, *Int. J. Mod. Phys. C*, Vol. 18 (4), 712-721, 2007.
- [4] Davide Alemani, Bastien Chopard, Josep Galceran and Jacques Buffle, Study of three grid refinement methods in the Lattice Boltzmann framework for reactive-diffusive processes, *Int. J. Mod. Phys. C*, Vol. 18 (4), 722-731, 2007.
- [5] Hung Nguyen, B. Chopard and S. Stoll, Hydrodynamic properties and permeability of fractal objects, *Int. J. Mod. Phys. C*, Vol. 18 (4), 732-738, 2007
- [6] Olivier Marcou, B. Chopard and S. El Yacoubi, Modeling of irrigation canals: a comparative study. *Int. J. Mod. Phys. C*, Vol. 18 (4), pp. 739-748, 2007

Full refereed papers in Conference Proceedings

- [7] Alfons Hoekstra, Eric Lorenz, Jean-Luc Falcone and Bastien Chopard, Towards a Complex Automata Framework for Multi-Scale Modeling: Formalism and the Scale Separation Map, in Y. Shi et al (Eds) ICCS 2007 Beijing, LNCS 4487, pp. 922-939, Springer-Verlag 2007.
- [8] Jean-Luc Falcone and Bastien Chopard, Understanding Signal Sequences with Machine Learning, BioEvo '07 conference, Valence, April 2007.

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

- Bastien Chopard, expert for PhD committee, University of Amsterdam, NL

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- IICAI-07, India, April 2007
- ICCS 07, Beijing May 2007
- DSFD 07, Banff, July 2007

INVITED TALKS

- ICS 07 Kyoto, April 2007
- ETHZ (Prof Hans Herrmann, Nov 27)

FUNDED RESEARCH PROJECTS

Participation to European projects

@neurIST project (IP)

Integrated biomedical informatics for the management of cerebral aneurysms
Period: Jan 2006 - Dec 2009
28 partners
Web: <http://www.aneurist.org>

COAST project (STREP)

Complex Automata: a new framework for the simulation of complex, multiscale systems
Period: Sept 2006 - Aug 2009
5 partners
Web: <http://www.complex-automata.org>

Member of the *COST P19 project*

FUNDED RESEARCH PROJECTS

Participation to National projects

Numerical simulation and Mesoscopic of Bloodflow and Thrombogenesis...

Period: October 2006 - September 2007

Lattice Boltzmann simulations of complex fluids

Period: April 2005 - March 2007

Modelling and control of water flow in open-channels by a Lattice...

Period: August 2005 - March 2007

Numerical simulations of volcanic phenomena by Lattice-Boltzmann methods

Period: June 2007 - May 2010

Control of irrigation canals : a Lattice Boltzmann Approach

Period: November 2007 - April 2009

OTHERS

Journal Editorial board

- J. of Cellular Automata
- Natural Computing Journal (NACO)
- Int. J. Unconv Comp.

Participation to PhD Committee

- L Axner, Dec 18, University of Amsterdam

Divers

- Groupe Leader à l'Inst. Suisse de Bioinformatique (SIB)
- Président CIFS, membre COINF
- Représentant UNIGE de SwiNG (Swiss National Grid Association)
- Responsable cours option Dept. Informatique

TEACHING

- **Heuristique et méthode d'optimisation**, 8 credits
- **Programation Bioinformatique**, 7 credits
- **Parallelisme**, 4 ECTS credits
- **Algorithmique**, 4 ECTS credits
- **Algorithme parallèles**, 4 ECTS credits
- **Methodes numériques et simulations en physique**, 4 ECTS credits



Theoretical Computer Science

Prof. José Rolim



TCS

tcs.unige.ch

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. Olivier Powell (MA)
Dr. Eduardo Solana (CC)

Post-docs

Dr. Taras Holotyak
Dr. Aubin Jarry

Assistants

Matthieu Bouget
Jacques Fontignie
Marios Karagiannis
Andraei Marculescu
Luminita Moraru
Michael Weiss
Thibaud Guenegou



Example of a clustered sensor network

PHD THESIS

- Eduardo Solana, «Collaborative Domains in Internet Environments», July 2007

LIST OF PUBLICATIONS

Refereed papers in international journals

- [1] Powell Olivier, Leone Pierre, Rolim Jose, Energy Optimal Data Propagation in Sensor Networks, Journal on Parallel and Distributed Computing, vol. 67, no. 3, pp. 302-317, 2007.
- [2] Leone Pierre, Albuquerque Paul, Mazza Christian, Rolim Jose, A Framework for Probabilistic Numerical Evaluation of Sensor Networks, the ACM Journal of Experimental Algorithmics (JEA) vol. 11 devoted to selected best papers of WEA05, 2007.

Full refereed papers in Conference Proceedings

- [3] Powell Olivier, Leone Pierre, Rolim Jose, Energy Optimal Data Propagation in Sensor Networks, Journal on Parallel and Distributed Computing, vol. 67, no. 3, pp. 302-317, 2007.
- [4] Leone Pierre, Albuquerque Paul, Mazza Christian, Rolim Jose, A Framework for Probabilistic Numerical Evaluation of Sensor Networks, the ACM Journal of Experimental Algorithmics (JEA) vol. 11 devoted to selected best papers of WEA05, 2007.
- [5] O. Powell, J.-M. Seigneur and L. Moraru (2007) In proceedings of the International Conference on Emerging Security Information, Systems and Technologies SECUREWARE
- [6] Simple and Efficient Geographic Routing around Obstacles for Wireless Sensor Networks, O. Powell and S. Nikolettseas (2007) proceedings of the 6th Workshop on Experimental Algorithms, WEA07
- [7] Moraru Luminita, Leone Pierre, Nikolettseas Sotiris, Rolim Jose, Near optimal geographic routing with obstacle avoidance in wireless sensor networks by fast-converging trust-based algorithms, To be published in the Proceedings of the 3-rd ACM International Workshop on QoS and Security for Wireless and Mobile Networks (Q2SWinet 2007), Chania, Crete Island, Greece, 2007

Books and book chapters

- [8] Survivability of Sensors with Key and Trust Management, J.-M. Seigneur, L. Moraru and Olivier Powell, Handbook of Research on Wireless Security
- [9] Obstacle Avoidance Algorithms in Wireless Sensor Networks, S. Nikolettseas and O. Powell, Encyclopedia of Algorithms (Springer).
- [10] Moses Charikar, Klaus Jansen, Omer Reingold, José D. P. Rolim: Approximation, Randomization, and Combinatorial Optimization. Algorithms and Techniques, 10th International Workshop, APPROX 2007, and 11th International Workshop, RANDOM 2007, Princeton, NJ, USA, August 20-22, 2007, Proceedings Springer 2007

Research and technical reports

- [11] Lightweight Target Tracking Using Passive Traces in Sensor Networks, A. Marculescu, S. Nikolettseas, O. Powell and J. Rolim, (2008) Computing Research Repository (CoRR) of Distributed, Parallel and Cluster Computing, ref. cs.DC/0803.2219v1.
- [12] Geographic Routing Around Obstacles in Wireless Sensor Networks, O. Powell and S. Nikolettseas, (2007) Computing Research Repository (CoRR) of Distributed, Parallel and Cluster Computing, ref. cs.DC/0703094.
- [13] TrustMIX: Trustworthy MIX for Energy Saving in Sensor Networks, O. Powell, L. Moraru and J.-M. Seigneur, (2007) Computing Research Repository (CoRR) of Distributed, Parallel and Cluster Computing, ref. cs.DC/0705.2313v1

INTERNATIONAL AND NATIONAL ADVISORY COMMITTEES

- DCOSS 07 IEEE International Conference on Distributed Computing in Sensor Systems, Santa Fe, New Mexico - USA, June 18 - 20, 2007 – chair steering committee: Jose Rolim
- APPROX 2007 – 10th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems – Princeton University, August 2007 - chair steering committee: Jose Rolim
- RANDOM 2007 - 11th International Workshop on Randomization and Computation – Princeton University– August 2007 - chair steering committee: Jose Rolim
- WEA 2008 – 6th International Workshop on Experimental Algorithms – June 4-6, 2007, Rome, Italy - chair steering committee: Jose Rolim
- ALGOSENSORS 2007 - International Workshop on Algorithmic Aspects of Wireless Sensor Networks - July 14 2007, Wroclaw, Poland.- member steering committee: Jose Rolim
- IPDPS 07 - 21st IEEE International Parallel & Distributed Processing Symposium. 26-30 March 2007, Long Beach, California, USA member steering committee: Jose Rolim
- IFIP - The Swiss IFIP Committee (SIC) - TC1 Foundations of Computer Science – delegate: Jose Rolim,

CONFERENCE ORGANIZATION AS CHAIR OR CO-CHAIR

- DCOSS 07 IEEE International Conference on Distributed Computing in Sensor Systems, Santa Fe, New Mexico - USA, June 18 - 20, 2007 – chair steering committee: Jose Rolim
- APPROX 2007 – 10th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems – Princeton University, August 2007 - chair steering committee: Jose Rolim
- RANDOM 2007 - 11th International Workshop on Randomization and Computation – Princeton University– August 2007 - chair steering committee: Jose Rolim
- WEA 2008 – 6th International Workshop on Experimental Algorithms – June 4-6, 2007, Rome, Italy - chair steering committee: Jose Rolim

MEMBER OF CONFERENCE PROGRAM COMMITTEES

- ALGOSENSORS 2007 - International Workshop on Algorithmic Aspects of Wireless Sensor Networks - July 14 2007, Wroclaw, Poland.- Jose Rolim
- MFCS 2007 - 32nd International Symposium on Mathematical Foundations of Computer Science= August 26 – August 31, 2007 - Czech Republic -member program committee: Jose Rolim
- MSWiM 2007- 10-th ACM International Symposium on Modeling, Analysis and Simulation of Wireless and Mobile Systems - October 22 - 26, 2007 - Chania, Crete Island, Greece - member program committee: Jose Rolim
- ISPA 2007 - The Fifth International Symposium on Parallel and Distributed Processing and Applications - August 29 - 31, 2007 Niagara Falls, Canada- member program committee: Jose Rolim
- SAGA 2007 - 4th Symposium on Stochastic Algorithms, Foundations, and Applications, 13-14 September 2007 - ETH Zürich - member program committee: Jose Rolim
- PARIS 2007 - International Workshop on Protocols and Algorithms for Reliable and Data Intensive Sensor Networks – October 8, 2007 – Pisa –Italy - member program committee: Jose Rolim

INVITED TALKS

- WCSN 07 - Research Meeting on Wireless Computing and Sensor Networks (WCSN) Havana, Cuba - April 23- May 4. Invited talk on Energy Efficiency in Sensor Networks – Jose Rolim
- PERAD 07 - JOINT FET – EATCS WORKSHOP ON Pervasive Adaptation- January 26, 2007, Brussels – Invited talk : Sensor Networks and Networked societies of Artefacts – by Jose Rolim

FUNDED RESEARCH PROJECTS

Participation to European projects

European grant – AEOLUS

Algorithmic Principles for Building Efficient Overlay Computers – UE6 – 015964

Period: September 2005 – August 2009

SER – COST295

Modelisation of dynamical aspects of wireless sensor networks ,no Co5.0030

Period: October 2005 – December 2007

SER – COST293

Evolving Graphs for Communication Network Design, no Co6.001

Period: October 2006 – September 2008

FUNDED RESEARCH PROJECTS

Participation to National projects

Power Aware Computing

FNRS 200021-104017

Period: June 2004 – January 2007

Power Aware Computing

FNRS 200020-116084

Period: May 2007 – April 2009

Games and Complexity: Applications

FNRS 200020-113257

Period: October 2006 – September 2007

OTHERS

- **Refereing** for several journals in 2007 like JPDC (Journal of Parallel and Distributed Computing), TCS (Theoretical Computer Science), Information and Computation, Sensor Journal, Discrete Applied Mathematics, Encyclopedia of Algorithms among many others
- **Doctorat** Honoris Causa – University of Geneva – 2007 – Prof. Viktor Prasanna – in close cooperation with the TCS group...

TEACHING

- **Distributed Algorithms for Wireless Sensor Networks**, Masters, 4 ECTS credits, 4 hours/week (spring semester only)
- **Langages Formels**, 4 hours, summer semester, 1st year Bachelor
- **Calculabilité et Complexité**, 4 hours, winter semester, 2nd year Bachelor
- **Cryptographie**, 4 hours, summer semester, 3rd year Bachelor
- **Algorithmique**, 4 hours, summer semester, 2nd year Bachelor, in collaboration with Bastien Chopard
- **Algorithmique pour le web**, 4 hours, winter semester, Master
- **Introduction a l'informatique pour les biologistes**, 8 hours
- **Elements of multiuser information theory and wireless communications**, 6 hours, in collaboration with Sviatoslav Voloshynovskyy and Oleksiy Koval
- **Programmation des systemes**, 4 hours, 2nd year Bachelor
- **Réseaux**, 4 hours, 3rd year Bachelor
- **Seminaire avancé TCSensor**, 2 hours, doctoral course



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'Étudiant)

- **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;
- **Catia Bertossa** is part-time secretary (50%);
- **Céline Marleix-Bardeau** is part-time secretary (50%);

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: Provides a loan service to the whole CUI community (students, faculty, researchers). It also handles the library collections. Major changes were undertaken in 2007 for the management of periodicals, most of which have now become digital.

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



Nicolas Mayencourt, Marie-France Culebras, Daniel Agulleiro, Céline Marleix-Bardeau, Germaine Gusthiot, Dorothee Hauser, Amélia Bossard, Elie Zagury, not on the picture: Catia Bertossa. Photography by Mélanie Montagnol



Financial Report



CUI

Staff	CHF 949'867
• Academic	CHF 261'886
• Administrative and Technical	CHF 533'472
• Employer's social contributions	CHF 154'509
Operating costs - Investment	CHF 108'451
Operating costs - Others	CHF 251'000
Library	CHF 84'475
CUI SUBTOTAL	CHF 1'393'793

COMPUTER SCIENCE DEPARTMENT, FACULTY OF SCIENCES

Staff	CHF 2'691'957
• Academic	CHF 2'089'137
• Administrative and Technical	CHF 147'329
• Employer's social contributions	CHF 455'491
Operating costs - Investment	CHF 79'166
Operating costs - Others	CHF 26'000
DEPARTMENT SUBTOTAL	CHF 2'797'123

INFORMATION SYSTEMS DEPARTMENT, FACULTY OF ECONOMIC AND SOCIAL SCIENCES

Staff	CHF 1'766'088
• Academic	CHF 1'439'790
• Administrative and Technical	CHF 41'372
• Employer's social contributions	CHF 284'926
Operating costs - Investment	CHF 14'400
Operating costs - Others	CHF 7'000
DEPARTMENT SUBTOTAL	CHF 1'787'488

UNIT OF COMPUTER SCIENCE FOR THE HUMANITIES, FACULTY OF HUMANITIES

Staff - Academic, incl. Charges (estimation)	CHF 610'375
Operating costs	CHF 25'000
DEPARTMENT SUBTOTAL	CHF 635'375

TOTAL BUDGET**CHF 6'613'779**


COMPUTER SCIENCE DEPARTMENT, FACULTY OF SCIENCES

1 professor position + 1 assistant position	CHF 285'000
UE-funded Projects	CHF 788'771
Swiss-funded Projects	CHF 1'656'958
DEPARTMENT SUBTOTAL	CHF 2'730'729


INFORMATION SYSTEMS DEPARTMENT, FACULTY OF ECONOMIC AND SOCIAL SCIENCES

UE-funded Projects	CHF 2'105'690
Swiss-funded Projects	CHF 454'413
DEPARTMENT SUBTOTAL	CHF 2'560'103


UNIT OF COMPUTER SCIENCE FOR THE HUMANITIES, FACULTY OF HUMANITIES

Swiss-funded Projects	CHF 179'534
DEPARTMENT SUBTOTAL	CHF 179'534

TOTAL CREDIT**CHF 5'470'366**



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