Centre Universitaire d'Informatique

2016

Activity Report

Journée d'info, Uni Mail, 2016 March 2nd

UNIVERSITÉ DE GENÈVE

Centre Universitaire d'Informatique
Battelle - Bâtiment A
7, route de Drize
CH-1227 Carouge

UNIVERSITÉ DE GENÈVE

Foreword

Le Centre Universitaire d'Informatique (CUI) de l'Université de Genève, fondé en 1975, fédère la recherche et l'enseignement en informatique et systèmes d'information de l'Université de Genève.

Nos prédécesseurs ont été particulièrement clairvoyants, en effet plus de 40 ans après, l'informatique, les systèmes d'information, le numérique et le digital sont devenus incontournables, présents au cœur de notre vie de tous les jours. Un centre tel que le CUI, a ainsi un rôle fondamental à jouer au sein d'une Université comme l'Université de Genève pour développer et soutenir la recherche dans les différentes autres disciplines traitées par l'Université.

Le CUI est une équipe de 150 chercheurs, enseignants et professeurs appartenant à 5 facultés: Lettres, Sciences, Médecine, GSEM, et Sciences de la Société. Cette équipe participe à l'enseignement de divers programmes de cours de l'Université. En particulier, cette équipe est responsable des enseignements des BSc en Science Informatique, BSc en Informatique pour Sciences Humaines, BSc en Systèmes d'Information et Science des Services, du MSc en Science Informatique, ainsi que de trois programmes doctoraux dans ces disciplines.

Parmi les faits marquants de 2016, le CUI a remis pour la première fois les diplômes du BSc en Systèmes d'Information et Science des Services. Les systèmes d'information sont présents, voire omniprésents, dans toute la société, dans toutes les entreprises et organisations, quel que soit leur domaine, et il est important de bien les appréhender, les concevoir, les développer et les gérer. C'est le but de l'enseignement fourni à travers ce bachelor.

Même si nous en sommes à la première édition, l'expérience sur laquelle se base cet enseignement remonte à 1995, voire même à 1975. En effet, l'ancêtre de ce bachelor était la mention informatique de gestion de la licence COMIN (Economie commercial et industrielle). C'est en 1995 que le « bachelor » en SI en tant que tel a été créé au sein de la Faculté des Sciences Economiques et Sociales. Finalement, c'est en 2016, qu'il a été transféré au CUI, développant ainsi un enseignement moderne développant l'enseignement par projets et l'aspect interdisciplinaire inhérent à cette discipline.

L'ensemble des étudiants, doctorants et diplômés qui fréquentent le CUI, peuvent ainsi s'appuyer sur une longue liste de leurs prédécesseurs qui œuvrent à des postes importants dans différentes organisations (Etat, organisations internationales, entreprises privées, aéroports, GAFA, etc.), certains ont monté leur propre entreprise, ou démarré leur startup et ont rencontré un grand succès dans ces activités.

Le CUI c'est également de la recherche, et en ce moment nous menons (au moins) 35 projets de recherche dans des domaines divers de l'informatique et du numérique. Cela va de l'analyse du langage naturel aux services mobiles en passant par le big data, les imprimantes 3D, la science citoyenne ou la réalité virtuelle. Ceci est une petite liste non exhaustive de nos activités de recherche.

Je saisis cette occasion pour remercier tous les collaborateurs du CUI pour leur travail de recherche intense, leurs résultats de pointe et leur capacité à assurer des enseignements de qualité.

Les prochaines années viseront à développer nos partenariats et à renforcer nos collaborations d'enseignement et de recherche sur la région, à l'Université ainsi que sur la région du Grand-Genève.

Prof. Giovanna Di Marzo Serugendo
Director of the CUI
University of Geneva

Organisation

Centre Universitaire d'Informatique

Department of Computer Science

Director:
- **Bastien Chopard**

Academic Advisor:
- Stéphane Marchand-Maillet

Secretary:
- Anne-Isabelle Guintini

System Engineer:
- Daniel Agulleiro

Humanities Computing Unit

Director:
- **Paola Merlo**

Academic Advisor:
- Sandra Rubal

Secretary:
- Eva Capitao

Information Service Science

Director:
- **Giovanna Di Marzo Serugendo**

Secretary:
- Marie-France Culebras

Information Science Institute

Director:
- **Dimitri Konstantas**

Medical Informatics

Director:
- **Antoine Geissbuhler**

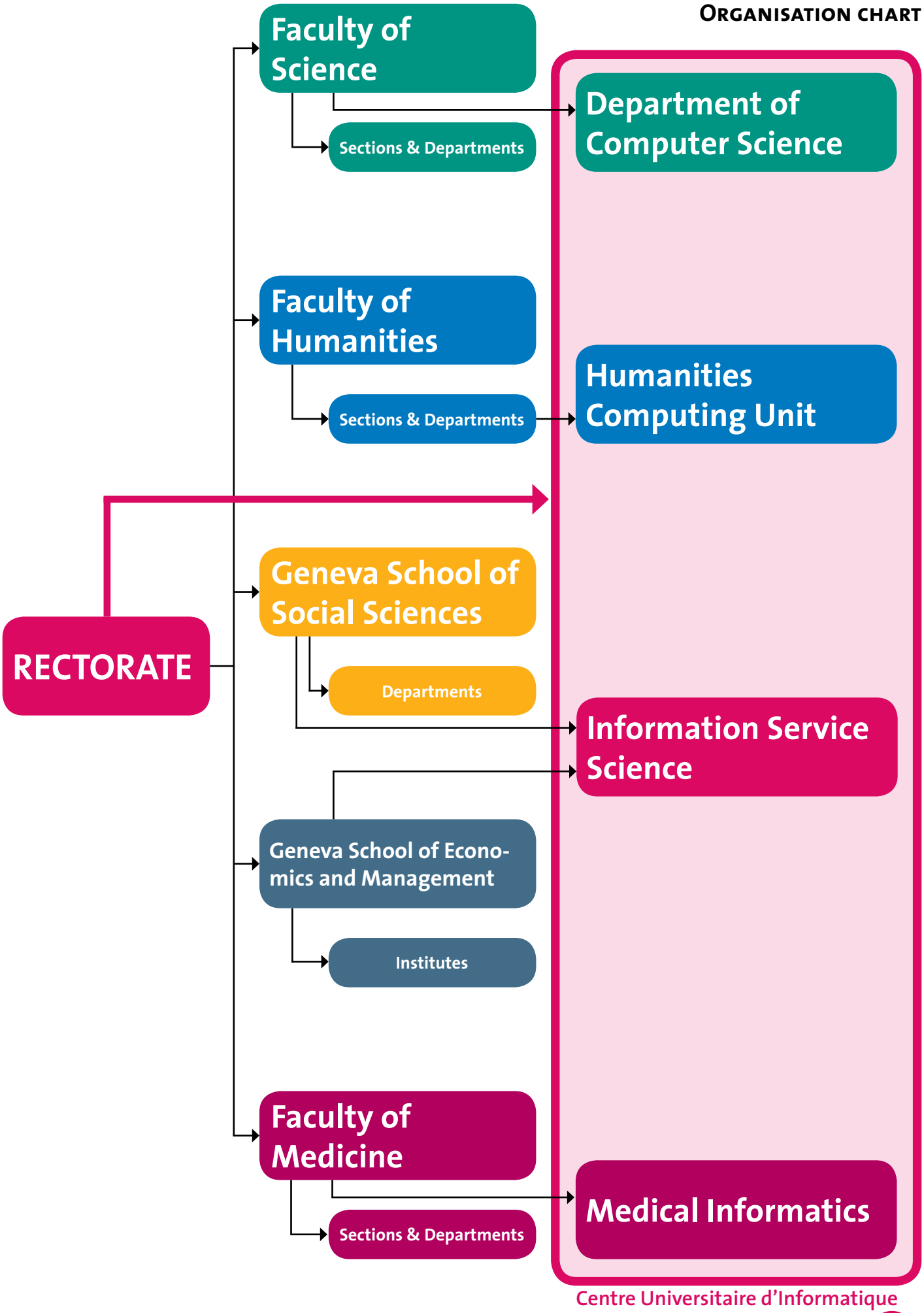
Director:
- **Giovanna Di Marzo Serugendo**

Academic Advisor:
- Marc Pochon

Direction assistant:
- Elie Zagury

Secretaries:
- Lara Broi (till June 2016)
- Marie-France Culebras
- Coralie Grossrieder (from June 2016)
- Maëlle Rumbeli

System Engineer:
- Nicolas Mayencourt


Faculty of Science
Sections & Departments
Department of Computer Science
Faculty of Humanities
Sections & Departments
Humanities Computing Unit
RECTORATE
Geneva School of Social Sciences
Departments
Information Service Science
Geneva School of Economics and Management
Institutes
Faculty of Medicine
Sections & Departments
Medical Informatics
Centre Universitaire d'Informatique

www.citizencyberlab.org

CCC

Citizen Cyberscience Centre

Nuit de la science, Parc de la Perle du Lac, 2016 July 9th

Citizen Cyberscience Centre

Domain activities

At Citizen Cyberlab, we are developing methods and studying motivations for new forms of public participation in research. We are researchers from a diversity of backgrounds – history, informatics, learning, linguistics, medicine, physics, psychology and more. Jointly, we initiate projects and organise events that encourage citizens and scientists to collaborate in new ways to solve big challenges. From online crowdsourcing to in-person hackathons, we are exploring and expanding the limits of citizen science and human computation.

Citizen Cyberlab is based on a partnership between the **European Particle Physics Laboratory, CERN**, the **UN Institute for Training and Research, UNITAR**, and the **University of Geneva**, where several teams in different faculties contribute to the lab's activity. In the following, we report activities, events and publications by or involving CUI members of the Cyberlab team.

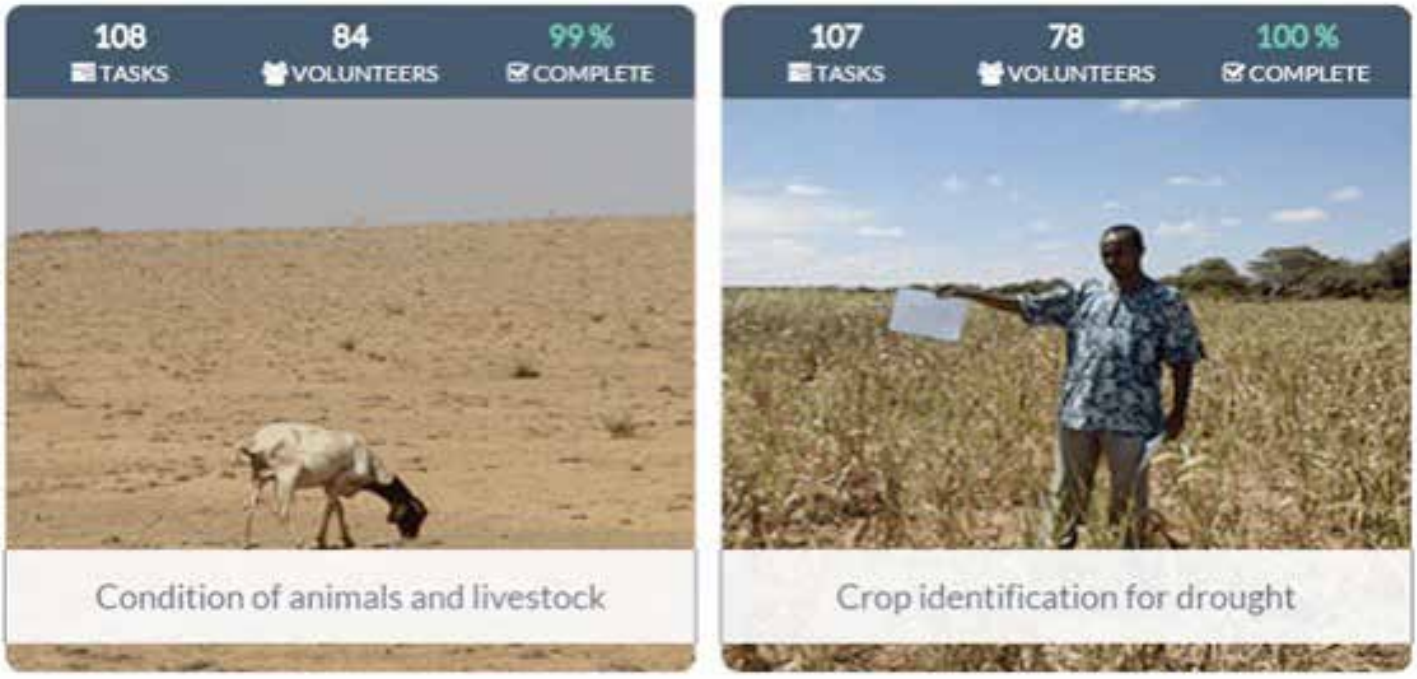
Team

Director
François Grey
Associate professor
H-index: 26

Senior researchers
Dr. Jose Luis Fernandez-Marquez
Dr. Thomas Maillart

Developers / Designers
Rosy Mondardini

Figure 1: GeoTag-X, developed with the UN Institute for Training and Reseearch, aims to help disaster relief efforts on the ground to plan a response by asking volunteers to analyse photos taken in disaster-affected areas.



List of publications

Full refereed papers in international journals

[1] F. Grey, Of Citizens and Scientists, Human Computation 3-4, 3

[2] J. L. Fernandez-Marquez, I. Charalampidis, O. Abu-Amsha, F. Grey, D. K. Schneider, B. Segal, S. P. Mohanty CCLTracker Framework: Monitoring user learning and activity in web based citizen science projects Human Computation 99-117, 3

[3] S. Dobson, M. Viroli , J. L. Fernandez-Marquez, F. .Zambonelli, G. Stevenson, G. Di Marzo Serugendo, S. Montagna, D. Pianini , J. Ye , G. Castelli and A. Rosi, Spatial awareness in pervasive ecosystems The Knowledge Engineering Review, 31, 343-366

[4] N.E. Johnson, F. Grey, Landfill Hunter: Learning about Waste through Public Participation Human Computation 243-252, 3

[5] O. A. Amsha, D. K. Schneider, J. L. Fernandez-Marquez, J. Da Costa, B. Fuchs, L. Kloetzer, Data Analytics in Citizen Cyberscience: Evaluating Participant Learning and Engagement with Analytics Human Computation 69-97, 3

[6] D. Lopez Martinez, D. Lombraña, F. Grey, E.-T. Hwu A Crowdsourcing-based Air Pollution Measurement System Using DIY Atomic Force Microscopes Human Computation 235-241, 3

[7] S Wheatley, T Maillart, D Sornette, The extreme risk of personal data breaches and the erosion of privacy, The European Physical Journal B, 89:7

International and national advisory committees

- 2016-2018, Head of Scientific Advisory Board (F. Grey), DITOS (Do-It-Together-Science, H2020 Project)

PhD Thesis Committees

- Mattia Gustarini, Examiner F. Grey, CUI, UNIGE

Member of conference/workshop program committees

- Geneva Trialogue (F. Grey, R. Mondardini co-organizers), Campus Biotech, 15/11/2016

Figure 2: For the "CERN Public Computing Challenge 2015", Citizen Cyberlab invited volunteers to contribute their spare computing power to help CERN scientists simulate billions of particle collisions, in order to compare theoretical models with experimental results from CERN's Large Hadron Collider and other particle colliders.

Figure 3: CItizen Cyberlab partners on hackathons in Geneva organised by The Port, an independent association. In The Port hackathons, involving interdisciplinary teams to solve humanitarian and health challenges with state-of-the-art science, cutting–edge technology and abundant creativity.

Funded research projects

Participation to European projects

E2mC

Crowdsourcing for Emergency Response
Period: November 2015 - October 2017.
Partners: E-Geos Spa, Paris-Lodron Universitat Salzburg, Terranea Ug (Haftungsbeschrankt) Gmbh , Universite De Strasbourg, Politecnico Di Milano, Public Safety Communication Europe Forum Aisbl, Systemes D'information A Reference Spatiale – Sirs, Fraunhofer Gesellschaft Zur Forderung Der Angewandten Forschung Ev, Kajo Sro, Autonoom Provinciebedrijf Campus Vesta, Gaf Ag, University Of Geneva
Website: https://www.psc-europe.eu/news-events/news/237-presenting-the-e2mc-project-evolution-of-emergency-copernicus-services.html

Participation to National projects

OmniNavigation

Haptic Belt for Blind Navigation
Period: October 2016 - October 2017.

Others

Refeereeing

- Journal of Open Source Hardware

Editorial responsibilities

- Board Member, Citizen Science, Theory and Practice (http://theoryandpractice.citizenscienceassociation.org/about/editorialteam/)
- Advisory Board, Journal of Human Computation (http://hcjournal.org/ojs/index.php?journal=jhc&page=pages&op=view&path[]=advisory-board)

Events organized in Geneva

- Open Geneva Hackathon, Campus Biotech, 16-18/4/2016
- ODD Summer School, Geneva-Beijing-Shenzhen, 4/7/2016 – 27/8/2016

Participation in TV and Radio Programs

- RTS, CQFD, Hackaton, une nouvelle manière d'innover, Campus Biotech, 09.06.2016, 10h04, http://www.rts.ch/play/radio/cqfd/audio/hackaton-une-nouvelle-maniere-dinnover?id=7751700

Press Release

- UNIGE Communiqué de Presse 13/10/2016, Genève et la Chine s'associent pour le développement durable, http://cui.unige.ch/files/1314/7643/8179/Partenariat_Tsinghua_UNIGE.pdf

Others

- F. Grey elected to Royal Danish Academy of Sciences and Letters, 2016

Technology transfer

- J. L. Fernandez-Marquez spin-off project for haptic belt for blind navigation, with support of Geneva Creativity Centre, Unitec, FONGIT, Fondation ProVisu, Mobile World Capital

Teaching

- **Citizen Science on the Web**, Computer Science, Master, 2 ECTS, 96 hours, 9 students
- **Open Science**, Computer Science, Bachelor, 2 ECTS, 96 hours, 22 students
- **Open Seventeen - Crowdsourcing the SDGs**, Continuous Education / Online Coaching, 12 hours, +70 participants (3 editions in 2016)

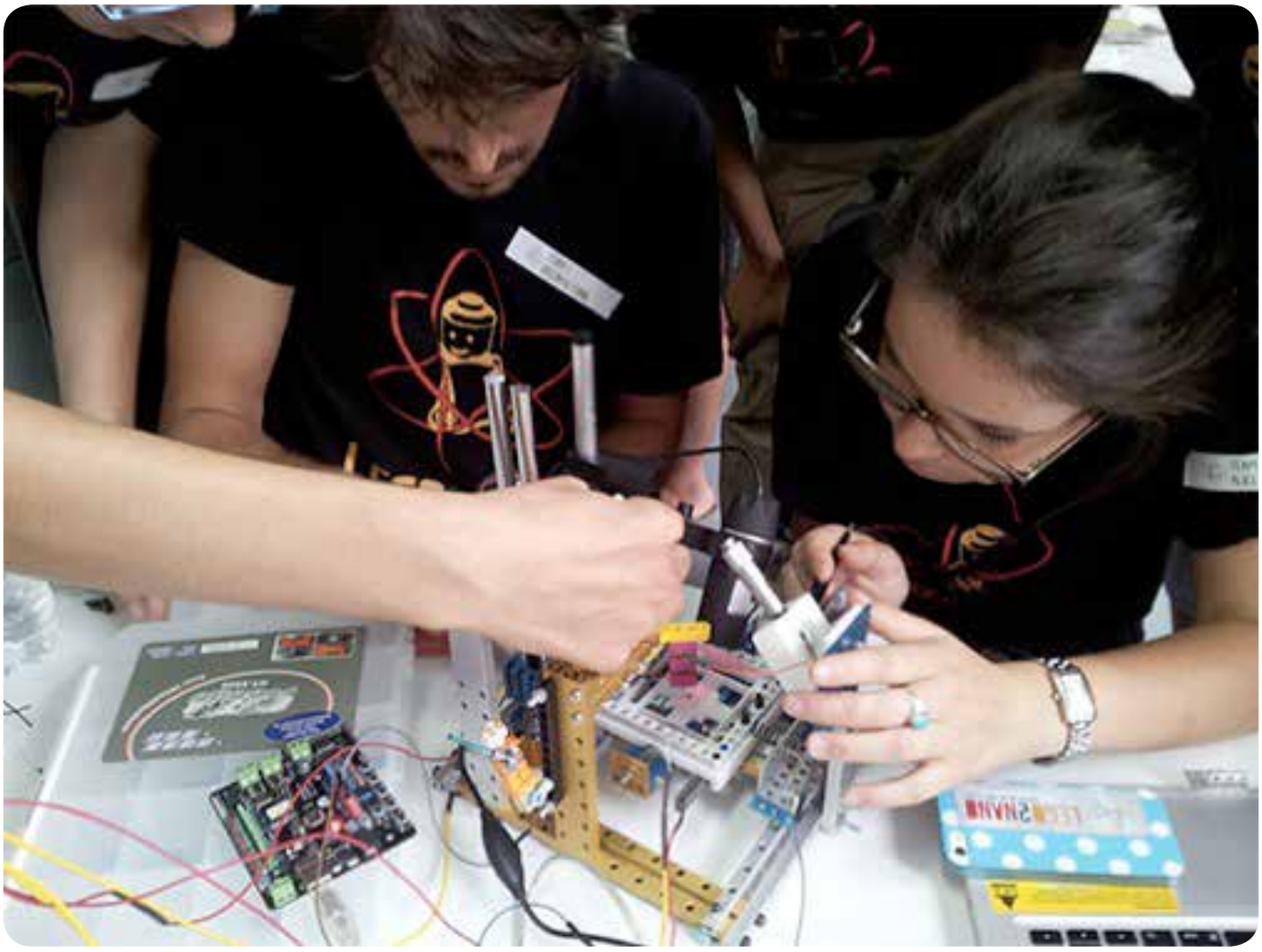
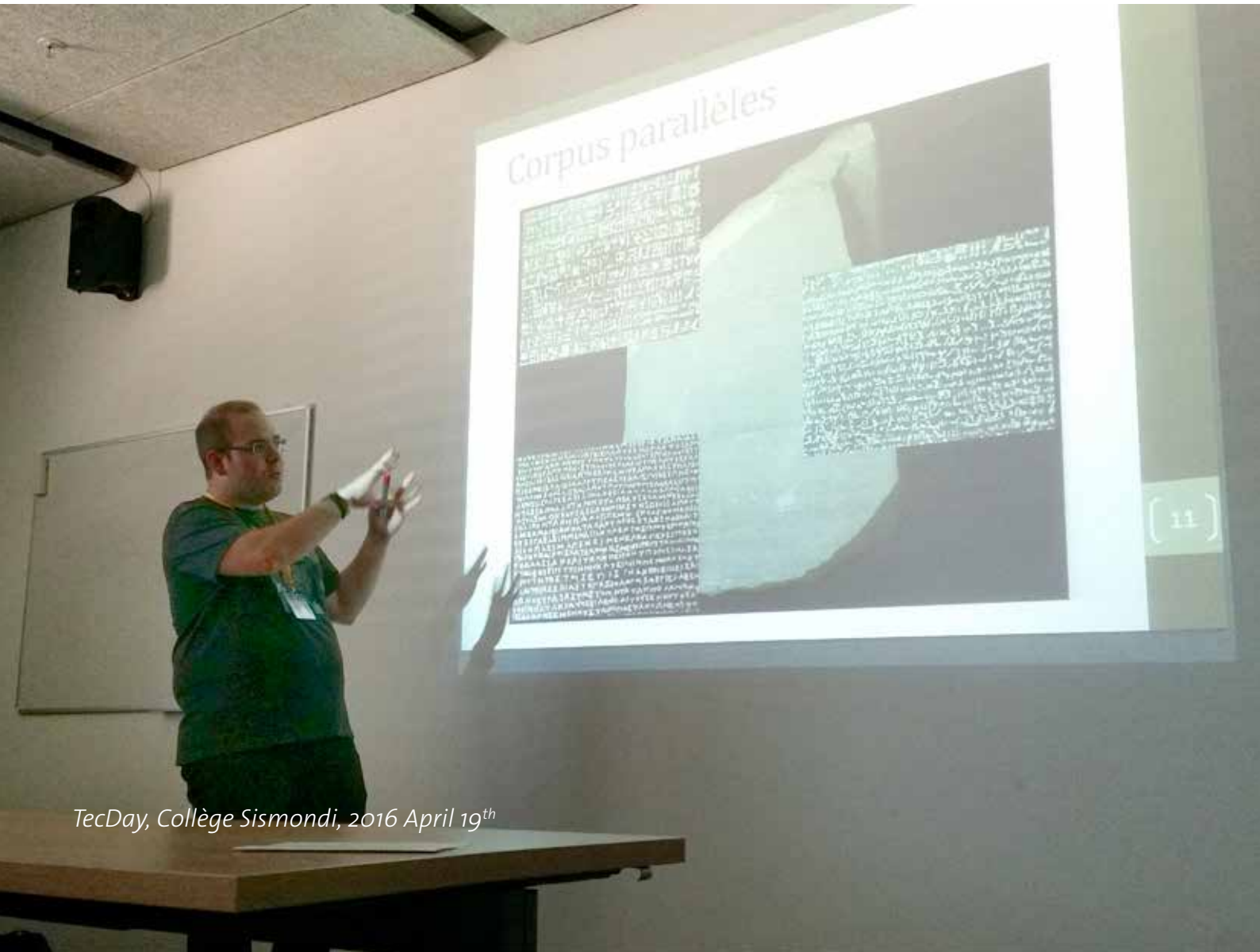


Figure 4: "LEGO2NANO" Hands-on Summer School with Tsinghua University, where students from China and Europe collaborate to build an open source atomic force microscope.

clcl.unige.ch

CLCL

Computational Learning and Computational Linguistics



TecDay, Collège Sismondi, 2016 April 19th

Computational Learning and Computational Linguistics

Domain activities

The Computational Linguistics and Computational Learning (CLCL) Research Group (http://clcl.unige.ch/) is an inter-faculty group that brings together academic staff and PhD students based in the Department of Linguistics in the Faculty of Humanities and the Department of Computer Science in the Faculty of Sciences.

The group is concerned with interdisciplinary research combining linguistic modelling with machine learning techniques. The scope of research includes fundamental issues in the statistical nature of language, fundamental issues in machine learning for structured prediction problems, and empirical evaluations that cross these two themes.

Today, machine learning is everywhere, and is one of the most sought-after skills by information technology employers. We apply it to language problems using very large amounts of multi-lingual data.

Our current research includes the development of adaptive data-driven systems for several parsing-based tasks, such as investigations of shallow levels of meaning representations and spoken-language understanding for dialogue systems, large-scale information extraction, and statistical machine translation. These systems span several languages (French, English, German, Italian, Spanish, Japanese, Arabic, Czech, Chinese, Catalan) and for some languages have reached state-of-the-art performance.

These systems are based on our linguistic work on cross-lingual syntactic and semantic parallelism and on machine learning methods based on latent variable models, neural networks and graph-based learning.

Team

Directors
Paola Merlo
Associate professor
H-index: 21

James Henderson
CC (UNIGE)
Principal Scientist,
Xerox Research
Centre Europe
H-index: 22

Instructor (Chargée de cours)
Dr. Aurélie Herbelot

Senior researchers
Dr. Corentin Ribeyre

Assistants (PhD students)
Kristina Gulordava
Alexandre Kabbach
Haozhou Wang

Administration
Eva Capitao

CLCL team in 2016

List of publications

Full refereed papers in international journals

[1] Tanja Samardzic and Paola Merlo, (to appear). Probability of external causation: an empirical account of cross-linguistic variation in lexical causatives, Linguistics.

[2] Kristina Gulordava, Paola Merlo. 2016. Multi-lingual Dependency Parsing Evaluation: a Large-scale Analysis of Word Order Properties using Artificial Data. Transactions of Association of Computational Linguistics. Vol 4, pp 343-356.

[3] Boleda, G and Herbelot, A. 2016. Formal Distributional Semantics: an introduction to the special issue. Computational Linguistics, 42:4, 619-635

[4] Paola Merlo (2016), Quantitative Computational Syntax, Italian Journal of Computational Linguistics, Vo. 2, No. 1.

Full refereed papers in Conference Proceedings

[5] Sharid Loáiciga, Kristina Gulordava. Discontinuous Verb Phrases in Parsing and Machine Translation of English and German. Proceedings of 10th Language Resource and Evaluations Conference, pp 2839-2845.

[6] Alexandre Kabbach and Corentin Ribeyre. 2016. Valencer: an API to Query Valence Patterns in FrameNet. In Proceedings of COLING 2016, the 26th International Conference on Computational Linguistics: System Demonstrations, pages 156–160, Osaka, Japan.

[7] Olivier Michalon, Corentin Ribeyre, Marie Candito, Alexis Nasr. Deeper Syntax for Better Semantic Parsing. Proceedings of the 26th International Conference on Computational Linguistics (COLING), Osaka, Japan.

[8] Henderson, James, Popa, Diana N.(2016) , A Vector Space for Distributional Semantics for Entailment. In Proc.54th Annual Meeting of the Association for Computational Linguistics} (ACL 2016), Berlin, Germany.

[9] Herbelot, A. and Kochmar, E. 2016. 'Calling on the classical phone': a distributional model of adjective-noun errors in learners' English. Proceedings of the 26th International Conference on Computational Linguistics (COLING 2016), Osaka, Japan.

[10] Padó, S., Herbelot, A., Kisselew, M. and Snajder, J. 2016. Predictability of Distributional Semantics in Derivational Word Formation. Proceedings of the 26th International Conference on Computational Linguistics (COLING 2016), Osaka, Japan.

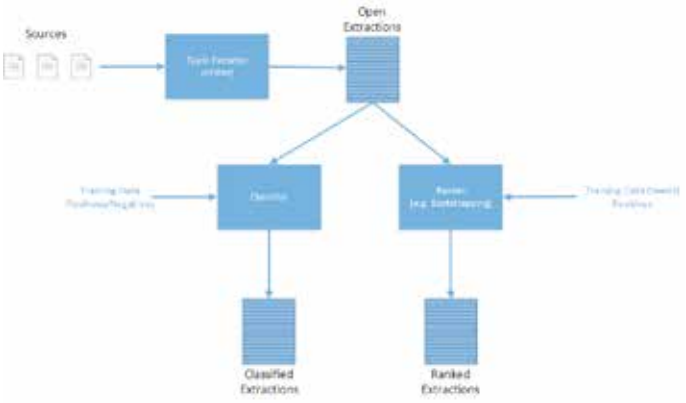


Figure 1: Architecture of information extraction system

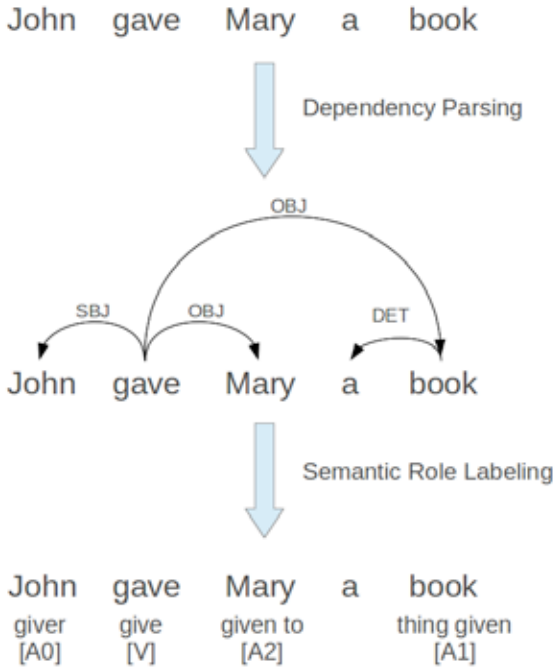


Figure 2: Data flow of syntactic-semantic parsing

Full refereed papers in Workshop Proceedings

[11] Haozhou Wang & Paola Merlo, Modifications of Machine Translation Evaluation Metrics by Using Word Embeddings, Sixth Workshop on Hybrid Approaches to Translation (COLING 2016), 33-41, Osaka, Japan.

[12] Farahmand, Meghdad, Henderson, James (2016). Modeling the Non-Substitutability of Multiword Expressions with Distributional Semantics and a Log-Linear Model. Proceedings of the 12th Workshop on Multiword Expressions, (MWE-ACL 2016), Berlin, Germany.

Books and book chapters

[13] Tanja Samardzic and Paola Merlo (to appear), Aspect-based Learning of Event Duration Using Parallel Corpora», In Mona Diab and Aline Villavicencio, Eds. Essays in Lexical Semantics in Honor of Adam Kilgarriff, Springer.

[14] Paola Merlo (2016), Some Recent Results on Cross-linguistic, Corpus-based Quantitative Modelling of Word Order and Aspect», In Joanna Blochowiak, Cristina Grisot, Eds. Formal models in the study of language: A festschrift for Jacques Moeschler , Springer.

Research and technical reports

[15] Garg, Nikhil and Henderson, James (2016). A Bayesian Model of Multilingual Unsupervised Semantic Role Induction. ArXiv e-prints, 1603.01514.

[16] Corentin Ribeyre, From Token to AMR Alignments, Technical report of the Reseau Langage et Communication

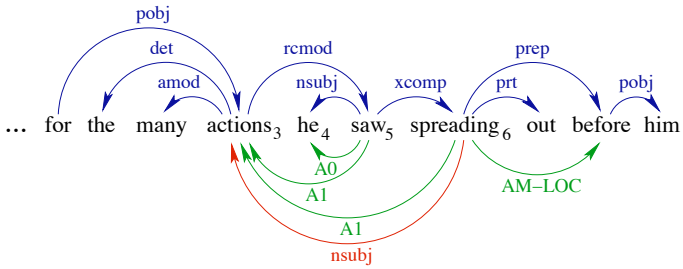


Figure 3: Syntactic and semantic analysis of sentences

International and national advisory committees

- Aurélie Herbelot, Advisory board of VICI grantS, NWO.
- Paola Merlo, Member of the Executive Board for the Association for Computational Linguistics.

International and national Research Programs Committees

- Paola Merlo, Reviewer for ERC Starting and consolidator grants

PhD Thesis Committees

- Corentin Ribeyre, Paris 7, janvier 2016. Méthodes d'Analyse Supervisée pour l'Interface Syntaxe-Sémantique: De la Réécriture de Graphes à l'Analyse par Transitions.

Member of conference/workshop program committees

James Henderson:

- EMNLP 2016 (Conference on Empirical Methods in Natural Language Processing), Austin, Texas.
- ACL 2016 (54th Meeting of the Association for Computational Linguistics), Berlin, Germany.

Aurélie Herbelot:

- Program co-chair for *SEM 2017 (co-located with ACL, Vancouver, August 2017).

Funded research projects

Participation to National projects

Complexity, variation and frequency in natural languages: The interfaces between linguistic theory, experimental psycholinguistics and computational linguistics
Principal Investigator: Paola Merlo
Period: 2016-2018
Granted by the réseau Langage et Communication, Université de Genève.

Others

Refeereeing

- James Henderson, Transactions of the Association for Computational Linguistics, Computational Linguistics.
- Paola Merlo, Journal of language modelling, Italian journal for computational linguistics.

Editorial responsibilities

- Paola Merlo: Editor-in-chief of the journal Computational Linguistics, MIT Press.
- Aurélie Herbelot, guest editor special issue on formal and distributional semantics, Computational Linguistics, MIT Press.

Events organised in Geneva

- Journée des doctorants, Réseau langage et communication.
- Participation to the days of information on informatics in the regional high-schools.

Invited talks

- Paola Merlo The Quest for Language Universals: Multilingual Computational Results and Methods, Keynote TABUdag, Groeningen, June 2016.
- The Quest for Language Universals: Computational Models and Evaluation Methods, University of Zurich, Linguistic Seminar, March 2016.
- Paola Merlo and James Henderson: Quantitative Computational Syntax, NCCR organization Workshop 2016, Zurich.

Other

- Kristina Gulordava, SNF Doc.Mobility scholarship, University of Edinburgh.
- Open-source softwares
- https://github.com/akb89/noframenet-core
- https://github.com/akb89/noframenet
- https://github.com/akb89/valencer
- Ongoing management of / contribution to PeARS (https://github.com/PeARSearch).

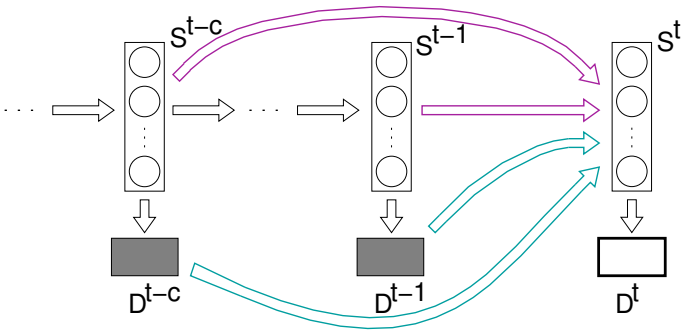


Figure 4: Neural network models for language

Teaching

- **Algorithmique et programmation**, Bachelor, 6 ECTS, 42 hours, 21 students
- **Structure de données et langage orienté-objets**, Bachelor, 56 hours, 4 students
- **Artificial Intelligence: Principles and methods**, Bachelor, 4 ECTS, 56 hours, 19 students
- **Traitement automatique du langage: approches linguistiques et approches statistiques**, 56 hours, 21 students
- **Empirical Methods in Natural Language Processing**, Master, Spring semester, 56 hours, 10 students
- **Empirical Methods in Natural Language Processing**, Master, Fall semester, 56 hours, 2 students

cvml.unige.ch

CVML

Computer Vision and Multimedia Laboratory

Journée d'info, Uni Mail, 2016 March 2nd

Computer Vision and Multimedia Laboratory

Domain activities

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

Information Retrieval and Machine Learning group (Viper, Prof. S. Marchand-Maillet, Prof. A. Kalousis, http://viper.unige.ch): develops strategies for the efficient modeling, indexing, retrieval and exploration of large-scale datasets. The group studies fundamental machine learning strategies to provide efficient and accurate understanding and access to large-scale collections of complex data. Research themes include information retrieval, recommendation systems, data analytics and exploration, learning over sequential and temporal data, structured and kernel learning, regularization techniques for neural networks. Applications are considered in the fields of data visualization, forecasting, IoT, chemoinformatics, biomedicine.

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

Multimodal Interaction group (MMI, Prof. T. Pun, http://cvml.unige.ch/MMI): affective computing and multimodal interaction. Studies various forms of interaction between humans, computers, and environment. Used modalities: haptic, auditory, and based on physiological signals such as EEGs (electroencephalograms), EMG (electromyograms), blood pressure, galvanic skin resistance (GSR) and skin temperature, breathing rate. Current developments concern: affective state determination and emotion recognition and their use for affective computing, multimodal interaction, brain-computer interfaces, mobility aids for sight handicapped people and for the elderly. Member of the Swiss Center for Affective Sciences. Strong cooperation with faculties of psychology, literature, medicine.

The CVML has various specialized equipment and associated software:

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

Team

Direction

Thierry Pun
Full professor
H-index: 48

Sviatoslav Voloshynovskiy
Associate professor
H-index: 29

Stéphane Marchand-Maillet
Associate professor
H-index: 21

Alexandros Kalousis
Professor
(main affiliation: University of Applied Studies, Geneva)
H-index: 24

Senior researchers

Dr. Guido Bologna (also affiliated with University of Applied Studies, Geneva)
Dr. Guillaume Chanel (also affiliated with the Swiss Center for Affective Science)
Dr. Theodoros Kostoulas (also affiliated with the Swiss Center for Affective Science)
Dr. Mohammad Soleymani
Dr. Taras Holotyak
Dr. Edgar Roman-Rangel
Dr. Anna Aljanaki

Assistants (PhD students)

Lionel Blondé
François Bogacz
Séverine Cloix
Mauritz Diephuis
Sohrab Ferdowsi
Magda Gregorova
Dimche Kostadinov
Amina Mollaysa
Michal Muszinsky
Xavier Ouvrard
Jason Ramapuram
Soheil Rayat-Doost
Pablo Strasser
Chen Wang
Olga Taran (since Oct. 2016)
Shideh Rezaeifar (since Oct. 2016)

Administration

Lara Broi (end June 2016)
Coralie Grossrieder (since July 2016)

List of publications

Refereed papers in international journals

[1] Roman-Rangel, E., Wang, C., & Marchand-Maillet, S. (2016). SimMap: Similarity maps for scale invariant local shape descriptors. Neurocomputing, 175, 888-898.

[2] Roman-Rangel, E., Jimenez-Badillo, D., & Marchand-Maillet, S. (2016). Classification and Retrieval of Archaeological Potsherds using Histograms of Spherical Orientations. Journal on Computing and Cultural Heritage, 9.

[3] M. Soleymani, F. Villaro-Dixon, T. Pun, G. Chanel G, Toolbox for Emotional fEAture extraction from Physiological signals (TEAP). Frontiers in ICT Vol. 4, Issue 1, 2017. doi: 10.3389/fict.2017.00001

[4] S. Järvelä, J. Kätsyri, N. Ravaja, G. Chanel, P. Henttonen, «Intragroup emotions: physiological linkage and social presence», Frontiers in Psychology - Emotion Science, Vol. 7, The Social Nature of Emotion research topic, 2016,

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[6] G. Chanel, S. Pichon, L. Conty, S. Berthoz, C. Chevallier, J. Grèzes, «Classification of autistic individuals and controls using cross-task characterization of fMRI activity», NeuroImage: Clinical, Vol. 10, 2016, 78–88. DOI:10.1016/j.nicl.2015.11.010.

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[8] T. Charlon, M. Martínez-Bueno, L. Bossini-Castillo, F. Carmona, A. Di Cara, J. Wojcik, S. Voloshynovskiy, J. Martin, M. Alarcon , Single Nucleotide Polymorphism Clustering in Systemic Autoimmune Diseases, PLoS ONE 11(8): e0160270. doi: 10.1371/journal.pone.0160270, 2016.

[9] Phong Nguyen, Jun Wang, Alexandros Kalousis, Factorizing LambdaMART for cold start recommendations. Machine Learning 104(2-3): 223-242 (2016)

Full refereed papers in Conference Proceedings

[10] Roman-Rangel, E., Jimenez-Badillo, D., & Marchand-Maillet, S. (2016). Rotation Invariant Local Shape Descriptors for Classification of Archaeological 3D Models. In Mexican Conference on Pattern Recognition (MCPR 2016), Guanajuato, MX.

[11] Roman-Rangel, E., Can, G., Marchand-Maillet, S., Hu, R., Gayol, C. P., & Krempel, G., et al. (2016). Transferring Neural Representations for Low-dimensional Indexing of Maya Hieroglyphic Art. In 3rd Workshop on Computer Vision for Art Analysis (VISART-ECCV 2016), Amsterdam, NL.

[12] Roman-Rangel, E., & Marchand-Maillet, S. (2016). Indexing Mayan Hieroglyphs with Neural Codes. In International Conference on Pattern Recognition (ICPR 2016), Cancun, MX.

[13] Osipyan, H., Loko, J., & Marchand-Maillet, S. (2016). Similarity Search of Sparse Histograms on GPU Architecture. In 9th International Conference on Similarity Search and Applications (SISAP 2016), Tokyo, JP.

[14] Schwander, O., Marchand-Maillet, S., & Nielsen, F. (2016). Comix: Joint estimation and lightspeed comparison of mixture models. In IEEE ICASSP 2016, Shanghai, China, March 2016.

[15] Marchand-Maillet, S., Roman-Rangel, E., Mohamed, H., & Nielsen, F. (2016). Quantifying the invariance and robustness of Permutation-based Indexing schemes. In 9th International Conference on Similarity Search and Applications (SISAP 2016), Tokyo, JP.

[16] M Gygli, M Soleymani, « Analyzing and predicting GIF interestingness», ACM Multimedia 2016, Oct. 15-19, 2016, Amsterdam, The Netherlands.

[17] M. Muszynski, T. Kostoulas, P. Lombardo, T. Pun, G. Chanel, «Synchronization among groups of spectators for highlight detection in movies», ACM Multimedia 2016, Oct. 15-19, 2016, Amsterdam, The Netherlands.

[18] S. Cloix, T. Pun, D. Hasler, «Real-time scale-invariant object recognition from light field imaging», VISAPP 2016, 11th Int. Conf. on Computer Vision Theory and Applications, Feb. 27-29, 2016, Rome, Italy.

[19] S. Ferdowsi, S. Voloshynovskiy, D. Kostadinov, T. Holotyak, WIFS Fast content identification in high-dimensional feature spaces using sparse ternary codes, IEEE Workshop on Information Forensics and Security - WIFS'16, Abu Dhabi, UAE, 4-7, December, 2016.

[20] D. Kostadinov, S. Voloshynovskiy, M. Diephuis, S. Ferdowsi, T. Holotyak, Local active content fingerprinting: solutions for general linear feature maps, International Conference on Pattern recognition, ICPR 2016, Cancun, Mexico, December 4-8, 2016.

[21] D. Kostadinov, S. Voloshynovskiy, M. Diephuis, T. Holotyak, Local active content fingerprinting: optimal solution under linear modulation, IEEE International Conference on Image Processing, ICIP 2016, Phoenix, Arizona, USA, Sept. 25-28, 2016.

[22] S. Voloshynovskiy, P. Bas, T. Holotyak, Physical object authentication: detection-theoretic comparison of natural and artificial randomness, IEEE International Conference on Acoustic, Speech and Signal Processing, ICASSP'16, Shanghai, China, March 20-25, 2016.

[23] M. Diephuis, T. Dewael, T. Holotyak, S. Voloshynovskiy, Forensic authentication of banknotes on mobile phones, IS&T International Simposium, Electronic Imaging 2016, Media Watermarking, Security, and Forensics 2016, February 14-18, 2016, San Francisco, California, United States.

[24] R. Grycuk, M. Gabryel, M. Scherer, S. Voloshynovskiy, Image descriptor based on edge detection and crawler algorithm, 15th International Conference on Artificial Intelligence and Soft Computing, ICAISC 2016, Zakopane, Poland, June 12-16, 2016, Proceedings, Part II, Volume 9693 of the series Lecture Notes in Computer Science, 2016, pp 647-659.

Full refereed papers in Workshop Proceedings

[25] G. Chanel, S. J. A. Pichon, L. Conty, S. Berthoz, C. Chevalier, J. Grèzes, «Classification of autistic individuals by merging information from multiple fMRI experiments», OHBM 2016, 22nd Annual Meeting of the Organization for Human Brain Mapping, Geneva, June 26-30, 2016 (poster).

[26] Amina Mollaysa, Pablo Strasser, Alexandros Kalousis. Learning with Feature Side-information. In Workshop on Learning in High Dimensions with Structure, NIPS 2016.

Research and technical reports

[27] S. Rayatdoost, M. Soleymani, Ranking Images and Videos on Visual Interestingness by Visual Sentiment Features, MediaEval workshop, Hilversum, the Netherlands, 2016 (Working notes paper).

[28] M. Fritz, S. Avry, G. Chanel, T. Pun, G. Molinari, M. Bétrancourt, «Real-Time Emotion Self-Report with the Dynamic Emotion Wheel», Annual Research Forum, Swiss Center for Affective Sciences, March 3-4, 2016, Geneva, Switzerland (poster).

International and national advisory committees

- T. Pun: Member of the Steering Committee of the Swiss Center for Affective Sciences.
- T. Pun: IEEE Systems, Man and Cybernetics Society, Technical Committee on Companion Technology
- S. Marchand-Maillet: Member of the Steering Committe for the International ACM Conference on Multimedia Retrieval (ICMR).
- S. Marchand-Maillet, Member of the Editorial Board of the International Journal of Multimedia Information Retrieval.
- S. Voloshynovskiy, Elected associate member of the IEEE Information Forensics and Security Technical Committee (March 2015 – present).
- S. Voloshynovskiy, Founding member and board member of EURASIP Special Area Teams (SATs) in Biometrics, Data Forensics and Security (Aug. 2015 - present).
- M. Soleymani: Executive board for the Association for Advancement of Affective Computing (AAAC).

International and national Research Programs Committees

- G. Chanel, Since 2016, Member of the scientific evaluation panel "CE33 : Interaction, Robotics" of the French National Research Agency
- T. Pun: evaluator for EU ERC - European Research Council, French ANR
- S. Marchand-Maillet: evaluator for Hasler Foundation (CH), COST program (EU), ANR (F), Latvian Ministry of Research (LV)

PhD Thesis Committees

Thierry Pun:

- Sareh Saeedi: Swiss Federal Institute of Technology (EPFL), Switzerland (Prof. J. del R. Millan): «Reliability and adaptive assistance in Brain-Computer interfaces», March 2016.

Sviatoslav Voloshynovskiy:

- B. Tondi: University. of Siena (Italy), Prof. M. Barni
- H. Arabi: Univ. of Geneva (Switzerland).

Stéphane Marchand-Maillet:

- Student: Nam Le (supervisor J-M Odobez, Idiap, EPFL), EPFL PhD Candidacy exam, "Person Identification in Multimodal Social Streams", Feb 2016.
- Student Lilei Zheng (supervisors: Khalid Idrissi and Atilla Baskurt, INSA Lyon, F), PhD defense (INSA), "Triangular Similarity Metric Learning: a Siamese Architecture Approach", May 2016
- Student Casper Petersen (supervisor: Cristina Lioma, Uni Copenhagen, DK) "On the Estimation andUse of Statistical Modelling in Information Retrieval", Nov 2016
- Student: Jakub Valcik (supervisor: Pavel Zezula, Mazaryk Univ, Brno, CZ) "Similarity Models for
- Human Motion Data" July 2016.

Alexandros Kalousis:

- Tiago Daniel Sa Cuhna, « Model Management for Recommender Systems using Metalearning » Engineering Faculty, University of Porto (Portugal), Prof. Carlos Soares, external examiner of mid term PhD evaluation, Porto, September 2016.
- Pavel Kordik, "Meta-learning Templates: Beyond Algorithm Selection in Data Mining", Czech Technical University in Prague, Faculty of Information Technology, Department of Theoretical Computer Science. Habilitation thesis, external examiner.

Mohammad Soleymani:

- C. Katsimerou, Delft University of Technology, the Netherlands (Prof. A. Hanjalic), "Automatically predicting mood from expressed emotions", March, 2016.
- Romain Cohendet, University of Nantes, France (Prof. Le Callet), "Prédiction computationnelle de la mémorabilité des images : vers une intégration des informations extrinsèques et émotionelle", December 2016.

Conference organization as chair or co-chair

Mohammad Soleymani:

- Grand-Challenges chair, ACM Int'l Conference on Multimodal Interactions (ICMI), Tokyo, Japan, 12-16 November 2016
- Area chair, ACM Int'l Conference on Multimedia (MM), Amsterdam the Netherlands, 15-19October 2016
- Affective Brain-Computer Interaction, Special Session 2016 IEEE World Congress on Computat. Intell. & 2016 Int. Joint Conf. on Neural Networks (Vancouver, Canada, co-chair)

Stéphane Marchand-Maillet:

- Area chair, ACM Int'l Conference on Multimedia (MM), Amsterdam the Netherlands, 15-19 October 2016
- Senior PC Member: ACM SIGIR, Pisa, Italy, July 2016

Member of conference/workshop program committees

Thierry Pun:

- IEEE SMC Int. Conf. on Companion Technol. 2017 (Ulm, Germany); ISSAS 2016 (Geneva, Switzerland); BioSignals 2016 (Rome, Italy).

Mohammad Soleymani:

- 24th Conference on User Modeling, Adaptation and Personalization (UMAP), 13-16 July 2016 - Halifax, Canada
- International Joint Conference on Artificial Intelligence (IJCAI), July 9–15, 2016, New York
- IEEE International Conference on Multimedia and Expo (ICME), July 11-15, Seattle, USA.

Sviatoslav Voloshynovskiy:

- SPIE2016, Electronic Imaging 2016, Media watermarking, security and forensics 2016, San Francisco, USA, 2016, (program committee, chairman of Identification Technologies session).
- WIFS2016, IEEE Workshop on Information Forensics and Security 2016, Abu Dhabi, UAE, December 4-7, 2016 (technical committee).

Stéphane Marchand-Maillet:

- ACM-CIKM2016
- ACM-SAC2016
- ECIR 2016
- SISAP2016
- CORIA 2016

Alexandros Kalousis:

- ICML 2016
- NIPS 2016
- AI-STATS 2017

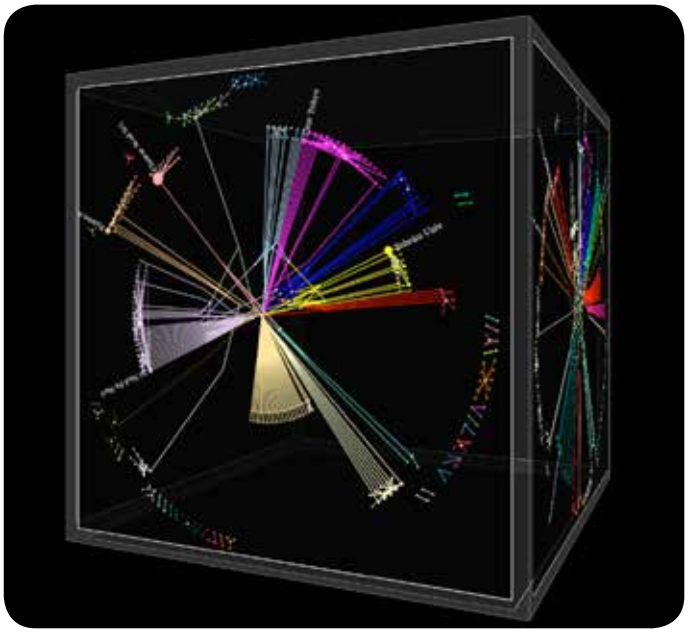


Figure 2: Visual Analytics for Big Data: Development of interfaces for visualising and manipulating complex data. Visualisation of hypergraphs (collaboration with CERN)

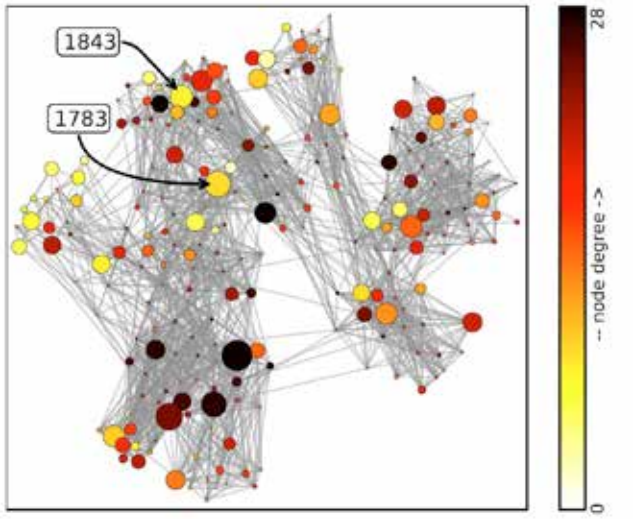


Figure 1: Social Network Analysis: characterization of influence. Study of the relationships and communication in a primary school playground

Refereeing

- A. Kalousis: Machine learning journal, Data Mining and Knowledge discovery journal
- S Marchand-Maillet: Pattern Recognition, Multimedia Tools and Applications (MTAP)

Editorial Responsabilities

Thierry Pun:

- 2014 - : Associate editor, Human-Media Interaction, specialty section of Frontiers in ICT, Frontiers in Psychology and Frontiers in Digital Humanities (Nature Publishing Group).
- 2009 - : Editorial board, Advances in Multimedia (Hindawi).
- 2006 - 2016: Editorial board, EURASIP International Journal on Image & Video Processing (Springer).

Mohammad Soleymani:

- Associate editor, IEEE Transactions on Affective Computing.
- Guest editor, Image and Vision Computing, Special Issue on Multimodal Sentiment Analysis and Mining in the Wild.

Sviatoslav Voloshynovskiy:

- Journal of Electronic Imaging
- IEEE Signal Processing Letters (since December 2015-) and Senior Associate Editor (since April 2016 -).
- ELSEVIER Journal on Computer Standards and Interfaces (since October 2009 -).
- EURASIP Journal on Information Security (Eurasip IJS)
- International Journal of Image and Graphics (IJIG)

Stéphane Marchand-Maillet:

- Associate Editor for the ACM Transactions of Information Systems (ACM-TOIS)

Invited talks

Stéphane Marchand-Maillet:

- May 29th: Digital Support for the Analysis of Mesoamerican Cultural Heritage. Telecom Paristech, ISIS Research Day, Paris
- September 6th: Machine Learning techniques in support for Digital Humanities and Cultural Heritage Analysis and Understanding.. 7th WORLD SCIENTIFIC CONGRESS - ARARAT INTERNATIONAL ACADEMY OF SCIENCES - United Nations Headquarters, Geneva, Switzerland

Guillaume Chanel:

- "socio-affective computing for entertainment", invited talk at the Symposium & workshop on "Personalizing Psychological Assessment and Interventions Using Interactive Technology", Nijmegen, The Netherlands, 3-4 November 2016
- "Socio-affective computing in 3B: Brain, Body and Behavior", Invited talk at the Summer School "From Genotype to Phenotype, emotion in the spotlight", Oberelsbach, Germany, 6-8 October 2016

Guillaume Chanel and G. Molinari:

- «Améliorer l'apprentissage et la collaboration par l'informatique affective», Séminaire Interdisciplinaire 2016, Archives Jean Piaget, Genève, Suisse, April 19th, 2016.

Participation in TV and radio programs

Stéphane Marchand-Maillet:

- March 30th: Human Learning + Machine Learning colloquium, between Boston (Swissnex) and Geneva (UNIGE). Participants: Pierre Dillenbourg (EPFL), Hugues Conrad (International School of Geneva), Jonas Brunschwig (Swissnex Boston), Frank Levy (MIT), Robert Plotkin, L. Todd Rose, Richard Miller, Charles Fadel (Center for Curriculum Redesign), Stéphane Marchand-Maillet (UNIGE)

Funded research projects

Participation to European projects

IMPRESSIONS

Seconds that matter: Managing first impressions for a more engaging virtual agent

Nr. 200021E-164326 / 1, Lead Agency Framework

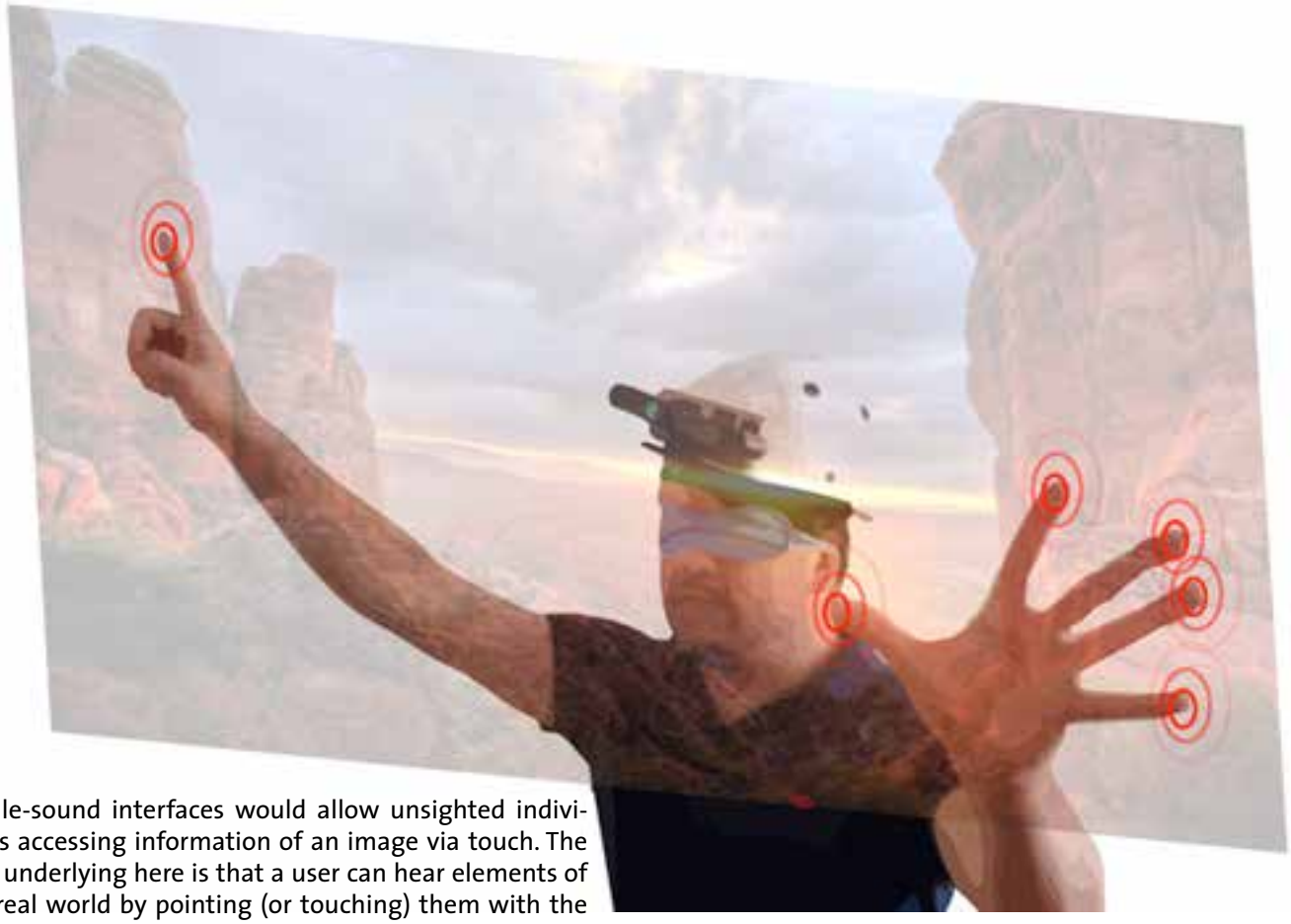
Joint French - Swiss project

French principal investigator: Prof. C. Pélachaud, Télécom-ParisTec.

Swiss principal investigator: Prof. T. Pun, Dr. G. Chanel

Period: July 2016 - June 2019

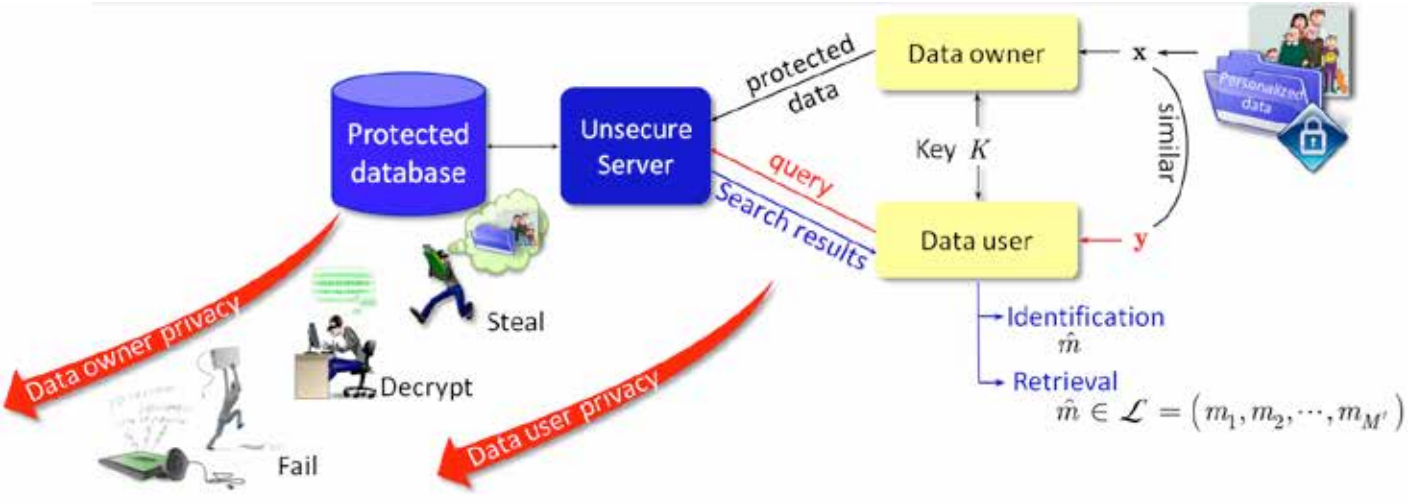
CVML team, 2016 Nov. 1st



Tactile-sound interfaces would allow unsighted individuals accessing information of an image via touch. The idea underlying here is that a user can hear elements of the real world by pointing (or touching) them with the fingers, as shown in this figure. Ideally, the user needs only to sweep (explore) the real world with his hands and fingers in order to get visual information. In an attempt to reproduce this idea, in See ColOr we capture the appearance of the real world into an image that is presented to the user through a tactile tablet. Thus, instead of naturally pointing into the real world, See ColOr's users need to carry a tablet and point (tap) into it in order to explore the sonified visual information. The implementation of this tablet-based interface will be discus in this section, whereas seminal ideas and early implementations of the ideal model (tablet-free) will be exhibited later in the conclusion section of this work.

(left) The sonification in the local module is illustrated. There are 25 points and 25 sources in this module. To effects of visualization however, only 3 points and 8 sources are respectively displayed. Note that when the row of 25 pixels (points) related to the central part of the image is mapped into sound, it is also augmented to cover the whole azimuth-frontal auditory field. (right)An illustration of the sonification in the global module is presented. Now, only the pixel tapped with the fingertip is sonified. Note that the use of spatialized sounds gives the user awareness of the lateral position of the point (from left to right), which is why in this illustration the source matches the position of the point horizontally though not in elevation. In other words, the source is put down on the azimuth plane, preserving only the horizontal position of the finger on the image. It is well known that rendering elevation is much more complicated than lateralization.

Figure 3: Privacy-preserving multimedia identification/retrieval architecture



Participation to National projects

FNRS-SNSF, Swiss National Science Foundation:

Sensing Knowledge Emotions in Multimedia Discovery
Ambizione Grant PZ00P2_154981/1
Mohammad Soleymani
Period: January 2015 - December 2017

Information-theoretic forensic physical object identification
SNF 200021-165672
Principal investigator: Prof. S. Voloshynovskiy, Computer Science Dpt., Univ. of Geneva.
Period: October 2016 - September 2018

Emotional and aesthetic highlights detection in movies
SNF 205121_153239
Leading House: University of Geneva, Prof. D. Sander
Principal investigator: Prof. T. Pun, Prof. Patrizia Lombardo, Dr. Guillaume Chanel, Michal Muszynski
Period: October 2014 - September 2018

Hasler Foundation

EyeWalker: Ultralight lowcost clipable vision system for mobility aids
Nr. 11083
Principal investigator: Prof. T. Pun
Partners: CSEM Neûchatel (E. Franzi, D. Hasler), HEIG-VD Yverdon (M. Kocher) HES-SO (G. Bologna)
Period: May 2015 – April 2016

EEG artifact reduction using facial expression analysis and its applications to emotion recognition
Principal investigator: Dr. M. Soleymani, Univ. of Geneva.
Co-principal investigator: T. Pun
Period: January 2016 - December 2018

Swiss National Center of Competence in Research «Affective Sciences» (NCCR)

Affective computing and emotion awareness in computer-mediated interaction
Leading House: University of Geneva, Prof. D. Sander
Principal investigators: Prof. T. Pun and Prof. M. Betrancourt
Period: September 2013 - August 2016

Others

Content fingerprinting and object recognition
CRADA: University of Geneva, U-nica Systems
Period: August 2014 - December 2018

Small codes for large systems: information-theoretic privacy preserving content identification
Joint project between the University of Geneva and Princeton University
Principal investigator from the University of Geneva: Prof. S. Voloshynovskiy, Computer Science Dpt., Univ. of Geneva.
Principal investigator from Princeton Geneva: Prof. E. Abbe.
Period: January 2014 - December 2016

Technology transfer

- **Spin-off: Anteleon Imaging S.A.R.L.** (founded August 2003, http://www.anteleon.com/), specialized in multimedia documents protection and management, watermarking, authentication and tamper proofing as well as brands protection.
- **U-nica Sytems**, AG (Malans) (http://www.u-nica.com) according to Collaborative and Research Agreement between the University of Geneva and U-nica Systems in the domain of physical object protections against counterfeiting based on the University of Geneva patented technology.
- **GEDECE, S.A.R.L.** Geneva (http://www.gedece.org) technology licencing and collaboration in the domain of physical objects security and image processing.

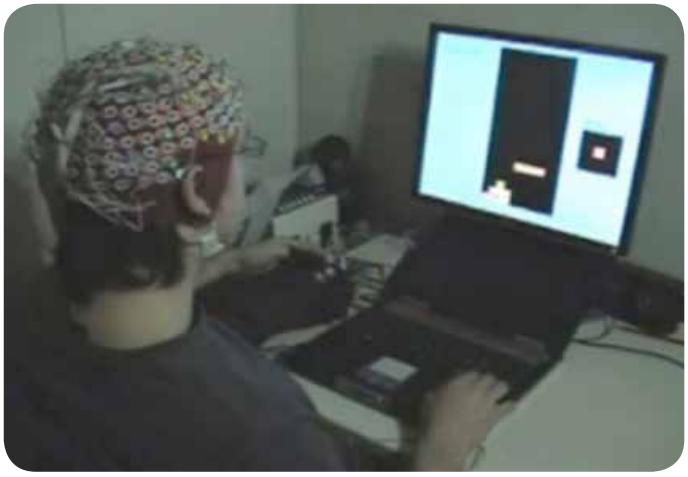


Figure 4: Assessment of users emotional states by using multimodal physiological signals

Figure 5: Movie affective characterization using physiological signals and content analysis

Open software and databases

CSEM 25
Title of the service/product/process: CSEM-25
Type: dataset of object classes
External partners involved in the development (if any): CSEM
Client or End user(s) : Computer vision community
Brief description: Captured with a Raytrix R5 camera, CSEM-25 is a multipurpose dataset of 5 object classes to address several aspects of computer vision applications using light field with a lens-grid-based representation.
Website: http://csem.ch/csem-25-db

GIF interestingness database
Title of the service/product/process: GIF interestingness database
Type: dataset of GIFs
External partners involved in the development (if any): ETH Zurich
Client or End user(s) : Multimedia community
Brief description: It is a collection of GIFs with labels on emotions, aesthetics and interest.

Image interestingness database
Title of the service/product/process: Image interestingness database
Type: dataset of 1005 images
External partners involved in the development (if any): none
Client or End user(s) : Computer vision and multimedia community
Brief description: It is a collection of photos with labels on emotion, aesthetics and interest.

Emotion in Music database
Title of the service/product/process: Emotion in Music database
Type: dataset of more than 2700 songs
External partners involved in the development (if any): Academia Sinica, Taiwan, Utrecht University, the Netherlands
Client or End user(s) : Music information retrieval community, psychologists
Brief description: It is a collection of songs with creative commons license with dynamic and static emotional annotations.

MAHNOB-HCI database
Title of the service/product/process: MAHNOB-HCI database
Type: database of emotional responses
External partners involved in the development (if any): Imperial College London, UK
Client or End user(s) : Researchers from affective computing, computer vision and psychology
Brief description: A database of emotional reactions to videos including, facial expressions, physiological signals and eye gaze.

DEAP
Title of the service/product/process: DEAP
Type: database of emotional responses
External partners involved in the development (if any): Queen Mary University of London, UK, University of Twente, Netherlands, EPFL
Client or End user(s) : Researchers fro maffective computing, computer vision and psychology
Brief description: A database of emotional reactions to music videos including, facial expressions and physiological signals

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TEAP
Title of the service/product/process: TEAP
Type: Toolbox (open source)
External partners involved in the development (if any): none
Client or End user(s) : Researchers from affective computing and physiological signal analysis
Brief description: A toolbox for extracting emotionally relevant features from physiological signals

---

EATMINT
Title of the service/product/process: EATMINT database
Type: Database
External partners involved in the development (if any): none
Client or End user(s) : Researchers from affective computing and social signal processing
Brief description: A database for the analysis of collaboration from behaviors and physiological reactions

Others

- Thierry Pun: elected to the Swiss Academy of Engineering Sciences, one of the four Swiss Academies. Effective 1st January 2017.
- Thierry Pun: membre des Conseils de Fondation Unitec, du Fonds Général de l'Université.
- Thierry Pun: délégué à l'Intégrité dans la recherche pour la Faculté des sciences, Université de Genève

Teaching

- **Human-computer interaction** (Affective computing and multimodal interaction part), Master, with Profs. G. Falquet et L. Moccozet. 56h practical work, approx. 10 students. 8 ECTS.
- **Digital image processing and synthesis**, Computer Science, 3rd year Bachelor, T. Pun, optional for Master and postgraduate students, 56h. course and 56h. practical work, approx. 15-20 students. 8 ECTS.
- **Introduction to algorithms**, Computer Science, 1st year Bachelor, 56h. course, 28h exercises and 56h. lab work, approx. 40-50 students, T. Pun
- **Avanced image processing**, Computer Science, Master, postgrades, 28h. course and 28h. practical work, approx. 8 students.
- **Elements of information theory**, Computer Science, 2nd year Bachelor, Master, postgrades, 28h. course and 28h. practical work, approx. 25 students.
- **Data mining**, Computer Science, 3rd year, Master in statistics, 1st year, 28h. course and 28h. practical work, aprox. 20 students.
- **Multimedia security and privacy**, Computer Science, Master, postgrades, 28h. course and 28h. practical work, approx. 8 students.
- **Information Retrieval**, Computer Science, Master, postgrades, 28h. course and 28h. practical work, approx. 15 students.
- **Information Analysis and Processing**, Computer Science, Master, postgrades, 28h. course and 28h. practical work, approx. 25 students.
- **Elements of multiuser information theory and wireless communications**, Computer Science, Master, postgrades, 28h. course and 28h. practical work, approx. 10 students.
- **Data Structures**, Computer Science, 1st year Bachelor, 56h. course and 56h. lab work, approx. 30 students.
- **Hands-on Programming** (practical complement to Data Structures), 1st year Bachelor. 56h Practical work, 20 students.

- **Operating systems** (Systèmes informatiques), 2nd year Bachelor, 28h course, 28h exercices, 56h lab work, 15 students
- **Computer Science Project**, Computer science, 3rd year Bachelor, 28 hours course and 56 hours lab. Approximately 10 students.
- **Industrial Internships**, Summer Semester (3 months supervision), 5 students.
- **Weekly Computer Vision and Multimedia seminars**, graduate students and senior researchers, 1h. per week, about 15 PhD students, post-docs, seniors, visitors.
- **Affective and Sentic Computing**, Swiss doctoral school on Affective Sciences, four hours lecture and tutorial, 17 doctoral students.

Figure 6: GameEmo is an example of affective game developped in our laboratory, where the speed of the falling bricks is varied according to the user's feelings. If the person is too stressed, the speed decreases, while it increases when the user gets bored, all this resulting in an increase in the sense of flow and pleasure. In the photograph, one sees that the player is equipped with a non-intrusive Galvanic Skin Resistance sensor on two of the left-hand fingers; these are used to provide a real-time estimate of the stress level. That game has also been developed into a real arcade game currently part of a year-long exhibition at the Muséum of Natural History, Neuchâtel (http:http://www.museum-neuchatel.ch/). Developing such affective, engaging games is one example of affective computing.

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TecDay, Collège Sismondi, 2016 April 19th

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Dr. Maher Ben Moussa
Dr. Matteo Ciman
Dr. Giuseppe Cosenza
Dr. Louis Cuel
Dr. Michel Deriaz
Dr. Mattia Gustarini
Dr. Jacques Guyot
Dr. Abdelaziz Khadraoui
Dr. Thomas Maillart
Dr. Dejan Munjin
Dr. Lemonia Ragia
Dr. Niels Nijdam
Dr. Mehdi Snene
Dr. Vedran Vlajki

Scientific Collaborators
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Nedjma Cadi-Yazli
Anastasija Collen
Nadji Hamed-Bey
Sten Hanke
Christophe Jeannette
Chokri Koussa
Michael Mesfin
Kevin Salvi

Assistants / PhD Students
Hammoud Abbass
Sahar Aljalbout
Grigorios Anagnostopoulos
Matthias Becker
Allan Berrocal Rojas
Andra Chincisan
Hon Fai Choi
Francesco De Angelis
Alexandre De Masi
Marios Fanourakis
Meghdad Farahmand
Maxim Filatov
Panagiotis Kostopoulos
Athanasios Kyritsis
Carlos Martinez de la Osa
Alexandre Mollard
Aman Sabrina Nwatchouck A Koul
Arianna Religi
Simon Senecal
Manel Sghir
Camille Tardy
Yvain Tisserand
Christiana Tsiourti
Assane Wade
Kristina Wagner

Eleni Christodoulou
Invited professor
H-index: 15

Giovanna Di Marzo Serugendo
Full professor
H-index: 26

Gilles Falquet
Associate professor
H-index: 15

Verena Kantere
Invited professor
H-index: 13

Dimitri Konstantas
Full professor
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Michel Léonard
Honorary professor
H-index: 19

Nadia Magnenat-Thalmann
Honorary professor
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Claudine Métral
MER

Laurent Moccozet
MER
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Jean-Henry Morin
Associate professor

Jolita Ralyté
MER
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Jean-Marc Seigneur
MER
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Katarzyna Wac
Invited professor
H-index: 19

Developpers / Designers (PAT)
Adnan Imeri
Tiago Nunes
Alberto Olliaro

Fellowships
Surafel Luleseged

Visiting Academic Guests
Rui Filipe Antunes
Anne-Françoise Cutting-Decelle
Zang Fanglue
Jean-Pierre Hurni
Thang Le Dinh
Tang Min
Yanlong Tang
Ruofeng Tong

Administration
Lara Broi
Marie-France Culebras
Coralie Grossrieder

Domain activities

Services represent the most growing sector of the economy in industrialized nations. Services science is arising from the rapid development of services across the industrial world and the need to analyze and study the organization, deployment, maintenance and operation of those related IT based and IT supported services. Services Science represents an interdisciplinary approach to the systematic innovation in service systems, integrating management, social, legal and engineering aspects.

ISS is an inter-faculty research laboratory of the Centre Universitaire d'Informatique of the University of Geneva (iss.unige.ch). As a team of 65 staff members, we are active in research, technology watch, creativity and teaching. We are currently participating in 29 research projects (EU/Cost/CTI/SNF/Private funding) representing a funding of 3.3M/year.
By its very mission, ISS targets research-led innovative services exploiting information and digital technology, such as services for mobile users, for seniors, or for specific industry needs. We developed a series of solutions specifically targeting the seven application domains:

- Smart and Sustainable Cities
- Digital Humanities
- Environment
- Health and Quality of Life
- Information Security
- Indoor positioning
- Processing data coming from smartphone or wearable sensors

Our major areas of research cover:

- Autonomous Adaptive Services, Pervasive Services
- Services for mobile users
- Multimedia services
- Digital Rights Management and Policies for Services
- Knowledge Engineering, Semantic Web, Ontology
- M-health, E-Health, Ambient Assisted Living
- Multimedia Services, Virtual Reality, Augmented Reality
- Modeling, Business Process Methods
- Trust and Online Reputation Management
- Augmented Human
- Smart City Digital Management
- Service Law Compliance
- Geographical Information Systems
- E-Learning
- Social Networks Analysis, Predictive analytics
- Indoor positioning
- Processing data coming from smartphone or wearable sensors
- Data visualization in 3D city models
- Quality of data and semantic queries in volunteer geographic information

Relevant Facts about ISS in 2016

- LIFTAcademia: workshop within the LIFT Conference (Jan 2016)
- Politiques publiques à l'ère du numérique – Nov 29th 2016
- ICTs and Governance in Europe and China – Workshop Nov 25th 2016
- Smart Urbanism(s) – The Chinese and Swiss Experience Compared, Nov 24th 2016
- Awards: Jean-Marc Seigneur - Google Excellent Research in Academia Award
- We joined two National Thematic Networks of CTI - Digital Switzerland and Swiss Alliance for Data-Intensive Services
- K. Wac was a Keynote Speaker: "Star Trek's Tricorder: Science Fiction or Future Science?", European Association of Hospital Pharmacists (EAHP), Vienna, Austria (3500 registered participants) and Panel Member: "Innovations for Global Health Challenges", ITU-WHO Policy Dialogue on Digital Health for "Healthy Lives and Wellbeing for All (SDG3)" in parallel to the World Health Assembly, Geneva, Switzerland.
- Michel Deriaz presented the AAL projects run by the ISS to the all IMAD managers (50 people).

We are also part of the Hub in Environmental Informatics of the University of Geneva aiming at developing research and teaching in this area.

Our additional strong involvement in interdisciplinary think groups places us at the forefront of the technology watch in Services Science in Switzerland. We regularly contribute to creativity and innovation hands-on experiments targeted at industry. We also participate to a full range of academic programs in Information Systems and Services Science (BSc, Msc, Executive Programs and PhD).

Our international network includes many academic institutions, public administrations, creativity and innovation consultants, think tanks and services providers across Europe, Asia, North America.

Giovanna Di Marzo Serugendo - Collective Adaptive Systems

Collective Adaptive Systems refer to a form of complex systems where a large number of heterogeneous entities interact without specific external or internal central control, adapt their behaviour to environmental settings in pursuit of an individual or collective goal. Actual behaviour arises as an emergent property through swarm or collective intelligence. Examples include understanding emergence and social behaviour of natural life (e.g. bacteria self-organising to overcome shortage of food), engineering swarm robotics, developing socio-technical systems and more generally developing services for smart and sustainable cities.

We lead and develop research in three main areas:

- Studying natural systems (e.g. biological, social, human ones) and identifying essential models, mechanisms and interactions at work at the heart of those systems, mostly through agent-based models, simulations and design patterns.
- Designing and developing artificial collective adaptive systems and different forms of emergent behaviour (e.g. swarm robotics, ecosystems of spatial services for smart cities, higher-order emergence)
- Verifying the reliability and trustworthiness of those systems prior to their deployment in real-life settings.

Michel Deriaz - TaM group

The TaM group is a member of the Institute of Services Science (ISS) and belongs to the Computer Science Centre (CUI, for Centre Universitaire d'Informatique) from the University of Geneva. Created in January 2012, TaM is currently participating in different national and international R&D projects, all linked to indoor positioning techniques, maps, navigation and processing of data coming from smartphones' sensors.

Our team is composed of PhD candidates, scientists and developers. Some of us are used to work in private companies. We have the know-how to cover the complete lifecycle of a R&D project, from its initial idea to a fully operational prototype. By using agile development methods, we combine the advantages of fast prototyping, early involvement of users, and high-quality products.

Verena Kantere - Big Data management and analytics

The field of Big Data management and analytics includes techniques, algorithms and tools used to inspect collections of data to extract patterns, generalizations and other useful information. Big data analytics is very important in risk assessment, pharmaceutics, fraud detection, epidemiology, business process effectiveness, market analysis, anti-terrorism, etc. More importantly, large-scale analytical data processing has become a necessity in the majority of industries. Enabling engineers, analytics experts and scientists alike to tap the potential of vast amounts of business-critical data has grown increasingly important. Such data analysis demands a high degree of parallelism, in both storage and computation. Business datacenters host vast amounts of data, stored over large numbers of nodes with multiple storage devices, and process them using thousands or millions of cores.

Gilles Falquet, Laurent Moccozet and Claudine Métral - Knowledge Engineering KE@ISS

The Knowledge Engineering research group studies the representation, processing, and visualization of formalized and non-formalized knowledge resources. It's current research activities concentrate on the following topics:

- Defining models, operations, and algorithms for the management of heterogeneous knowledge resources (ontologies, terminologies, thesauri, text corpora, ...) in large knowledge repositories.
- Semantically enriching semi-formal knowledge organization systems to produce formal ontologies
- Extracting and representing scientific knowledge elements contained in scientific texts, and building systems for precise scientific information retrieval
- Studying 3D visualization techniques to represent data and knowledge associated to objects of 3D virtual environments with a focus on enriched 3D city models.
- Defining models and techniques for the visualization of scientific knowledge bases

The main application areas are: semantic digital libraries; manuscript indexing, retrieval, and interconnection; urban and geographic knowledge engineering; the extraction linguistic knowledge from large open resources; knowledge engineering and visualization for the digital humanities.

Michel Léonard - MATIS (Management and Technology of Information Services)

The Society/Company seems to become fully servitized. This trend induces huge fields of services to be immersed, and discovered. Consequently, a lot of human and collective activities will be interwoven with artificial activities, and one major concern about such a Society/Enterprise development depends on the quality of these interwoven activities. So, following our research approach in information systems, we centre our research on information – and not on software, like Web services – to explore activities emerging or transformed in enterprises or e-government, and to discover actionable knowledge, relevant to these servitized situations. Thus, we explore appropriate:

- Company organisations taking into account initiatives, responsibility,
- Design methods taking into account adaptability, agility, composition, compliance with rules,
- Information base management systems (Kasterix),
- Transdisciplinary environments,
- Company evolution through IS evolution by means of services.

Thus, we work on the creation of Tiers-Lieux in the context of a new emerging kind of economy: the contributory economy. They will provide cognitive cross-pollination spaces for developing large services requiring multidisciplinary, multi-institutional, notably public and private, researchers and practitioners, in order to face the intricate situations, for instance with Big Data, Open Data, Smart Region. It is an interconnected grid of activities, platforms and methods aiming at accelerating exploration, development and market validation of new services. It will enable students and researchers to express, model and experiment specific requirements, and to be immerged in real situations.

Dimitri Konstantas - Mobile services

Mobile services and applications are today an indispensable part of our daily life. We are using our smartphones to access our mail, chat with friends and colleagues, take and store photographs and videos, obtain guidance and route information, play games, access the internet and even measure our daily activities and our physical performance and obtain highly personalized services and information. In other words, smartphones are today indispensable to all our daily activities. For the past few years we have been working in the development of mobile services and applications in different domains, including services for the elderly, services for civil engineers and security applications.

Since 2009 we have been applying the results of our research in the study and development of services for the aging society and for mobile services of elderly. In this context, in 2016 we have succeeded acquiring 4 European projects in the Ambient Assisted Living (AAL) program, 2 technology transfer projects (CTI), one FNRS project (memory condition of Eldrrly) and one H2020 (Security in IoT). Our work in the domain of ageing society concentrates in the study of lifestyle of senior persons (age 65 and more) and the creation of mobile services for monitoring the activities of the users and providing them proactive information regarding activities to do (realising the basic directive for senior persons : do not stay inactive), putting them in contact with other users with similar interests (socialisation), providing them the means for getting help from formal and informal care givers, and even advising them on diet and exercise. In this projects we collaborate with local (Geneva based) industrial partners that are offering services for seniors. The research results from the AAL and H2020 projects are then transfered, via the CTI technology transfer projects, towards commercial applications and services. Our research is carried out in four specialised Laboratories, the Conscious Analytics System Laboratory (CASlab), the Quality of Life Laboratory (QoL), the Travelling and Mobility Laboratory (TaM) and the Security Laboratory (SecLab).

Nadia Magnenat-Thalmann - MIRALab

MIRALab was founded in 1989 by Professor Nadia Magnenat-Thalmann and has brought together PhD students and researchers from different fields, such as computer science, 3D graphics, 3D simulation, social robotics, 3D fashion design, and cognitive science. This truly interdisciplinary group continues to work in the field of medical informatics, virtual worlds and virtual humans .

Since 1992, MIRALab has participated in more than 50 European Projects and contributes to the management of two International Conferences, CASA and CGI. Moreover, MIRALab produces 3D showcases for museums, galleries, such as fashion shows with virtual models and clothes. In 2016, MIRALab was working on the following projects: ANINEX, ITN-DCH, NOTRE, REPLAY and ViMM.

Jean-Henry Morin - Digital Rights & Policy

As our society and economy continues to move towards interwoven digital services and systems, blending the real and the artificial world, our research activities continue to investigate some of the complex challenges and issues towards a more sustainable and responsible digital society. Information Protection and Control (IPC) in general and the growing need for Data Protection have become recognized area where increased research is needed. We continue our work in those areas with a particular look at distributed ledger technologies (blockchain) as a mechanism to support new services and designs to support increasingly complex requirements. Major examples of these research issues we are currently working on include data marketplace ecosystems, dispute resolution and arbitration, data protection and digital rights and policy management.
From July 2016 to July 2017, Jean-Henry Morin is on sabbatical leave in South Korea where he is Invited Professor at Korea University Business School and Yonsei School of Business. During this time, he is also invited researcher at Fasoo.com where he investigates blockchain technologies in Information Security.

Katarzyna Wac - Quality of Life Technologies

The key aim of the Quality of Life (QoL) technologies research area is to promote ICT technologies to improve QoL of individuals through rigorous scientific research, education, science communication and outreach. Particularly, given the current expertise of the team, its goal is to establish quality research in mobile networking systems delivering accurate and timely services to their users «anywhere-anytime-anyhow». The general approach is necessarily a transdisciplinary one, as many of the challenges in development and deployment phases of these systems need to be addressed considering not only the system and its Quality of Service (QoS) provided in an operational networking environment, but, as sometimes missing in the current research - the actual system end-users, approaching mobile networking not from the perspective of new hype technology, but from the perspective of new innovative ways to achieve some pre-defined goal. These end-users have thus different services" requirements, expectations and perceptions of the Quality of Experience (QoE), including system's usability, efficiency and effectiveness. In transdisciplinary research projects, we aim to establish innovative methodologies to demonstrate the value of mobile networking systems improving the QoS, the QoE and ultimately the QoL outcomes of its end-users, and society at large. The QoL team currently contributes to research on mobile networking systems deployed in healthcare (denoted as 'mHealth') for personal well-being, active and healthy ageing and ambient assisted living by leveraging personal, big data approaches (like 'quantified-self' one) in Living Lab settings.

PhD Thesis

- Garyfallos Fragkidis - The Value Perspective in the Analysis and Design of Service Systems – University of Geneva, Switzerland, Jury member, November 2016.
- Barbara Streimelweger, Human Factor-Based Risk Management to Improve Patient Safety, University of Geneva, Geneva, Switzerland, Jury Member, June 2016.
- Mattia Gustarini, Analysing Smartphone Users "inner-self": The Perception of Intimacy and Smartphone Usage Changes, University of Geneva, Switzerland, February 2016
- Celia Boyer, Methods and tools to retrieve reliable Health Information on the Internet, August 2016
- Andra Chincisan, Analysis of 3D Knee Joint Deformation Using a Multiscale Modelling Approach, May 31, 2016
- Matthias Becker, Efficient Extraction of Musculoskeletal Structures from Multi-Channel MR Images, Sept. 20, 2016
- Sara Trombella, Assessment of Muscular Activity by Positron Emission Tomography using [11C]Acetate, Sept. 20, 2016

List of publications

Refereed papers in international journals

Gilles Falquet and Claudine Métral:

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[2] Billen, R., Cutting-Decelle, A.-F., Métral, C., Falquet, G., Zlatanova, S., Marina, O. (2016) Challenges of Semantic 3D City Models: A Contribution of the COST Research Action TU0801. In Information Resources Management Association (Eds.) 3D Printing: Breakthroughs in Research and Practice, IGI Global.

Abdelaziz Khadraoui:

[3] Adnan Imeri, Abdelaziz Khadraoui, André Rifaut, D. Nicolas (2016). The new strategy to develop scenarios in compliance with legal and ethical issues. Advances in Computer Science 5(2)

Nadia Magnenat-Thalmann:

[4] J. Ren, X. Jiang, J. Yuan and N. Magnenat Thalmann, Sound-Event Classification Using Robust Texture Features for Robot Hearing, IEEE Transactions on Multimedia (TMM), Vol. PP, Issue 99, Pp.1- 1, DOI: 10.1109/TMM.2016.2618218, October 2016

[5] L. Assassi and N. Magnenat Thalmann, Assessment of cartilage contact pressure and loading in the hip joint during split posture, International journal of computer assisted radiology and surgery (IJCARS) (IF: 1.827), Vol. 11, Issue. 5, pp.745-756, DOI 10.1007/s11548-015-1303-1, May 2016

[6] S. Senecal, L. Cuel, A. Aristidou and N. Magnenat Thalmann, Continuous body emotion recognition system during theater performances, Computer Animation and Virtual Worlds (IF: 0.548), Vol. 27, Issue. 3-4, pp.311-320, DOI: 10.1002/cav.1714, May 2016

[7] M. Pitikakis, A. Chincisan, N. Magnenat Thalmann, L. Cesario, P. Parascandolo, L. Vosilla and G. Viano, Automatic measurement and visualization of focal femoral cartilage thickness in stress-based regions of interest using three-dimensional knee models, International journal of computer assisted radiology and surgery (IJCARS) (IF: 1.827), Vol. 11, Issue. 5, pp.721-732, May 2016

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[9] J. Hou, L.-P. Chau, N. Magnenat Thalmann and Y. He, Low-latency Compression of Mocap Data using Learned Spatial Decorrelation Transform, Computer Aided Geometric Design (CAGD) (IF: 1.639), DOI: 10.1016/j.cagd.2016.02.002, February 2016

Jean-Henry Morin and team:

[10] Nwatchock a koul, S., Morin, J-H. "Towards a Taxonomy of Data and Guiding Principles for Data Markets"Proceedings of the 11th Pre-ICIS Workshop on Information Security and Privacy, Dublin, Ireland December 10, 2016

Jolita Ralyté:

[11] Agnès Front and Jolita Ralyté (2016). Introduction. Numéro spécial « Une vision SI de l'ingénierie des documents ». Document Numérique 19(1): 7-8, Lavoisier.

Katarzyna Wac and team:

[12] Streimelweger, M., Wac, K., Seiringer, W., (2016). « Human-factor-based risk management in the healthcare to improve Patient Safety», International Journal of E-Health and Medical Communications (IJEHMC), 7(3):16-28, September 2016.

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Figure 1: QoSIS: Quality of Service-Information System predicts and prescribes the best networking option for a mobile service user

[16] Gustarini, M., Scipioni, M., Fanourakis, M., Wac, K. (2016). «Differences in Smartphone Usage: Validating, Evaluating, and Predicting Mobile User Intimacy», Pervasive and Mobile Computing (PMC), Elsevier, Impact Factor: 2.079 (in press

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Michel Deriaz and team:

[18] Stress detection using smart phone data, Panagiotis Kostopoulos, Athanasios Kyritsis, Michel Deriaz and Dimitri Konstantas, in proceedings of The EAI International Conference on Wearables in Healthcare (EAI 2016), Budapest, Hungary, June 2016.

[19] A BLE-Based Probabilistic Room-Level Localization Method, Athanasios I. Kyritsis, Panagiotis Kostopoulos, Michel Deriaz and Dimitri Konstantas, in proceedings of The Sixth International Conference On Localization and GNSS (ICL-GNSS 2016), Barcelona, Spain, June 2016.

[20] F2D: A location aware fall detection system tested with real data from daily life of elderly people, Panagiotis Kostopoulos, Athanasios I. Kyritsis, Michel Deriaz and Dimitri Konstantas, in proceedings of The Sixth International Conference on Current and Future Trends of Information and Communication Technologies in Healthcare (ICTH 2016), London, United Kingdom, September 2016.

[21] Positioning Evaluation and Ground Truth Definition for Real Life Use Cases, Carlos Martínez de la Osa, Grigorios G. Anagnostopoulos, Mauricio Togneri, Michel Deriaz and Dimitri Konstantas, in proceedings of The Seventh International Conference On Indoor Positioning and Indoor Navigation (IPIN 2016), Madrid, Spain, October 2016.

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[23] Practical Evaluation and Tuning Methodology for Indoor Positioning Systems, Grigorios G. Anagnostopoulos, Carlos Martínez de la Osa, Tiago Nunes, Abbass Hammoud, Michel Deriaz and Dimitri Konstantas, in proceedings of The Fourth IEEE International Conference on Ubiquitous Positioning, Indoor Navigation and Location-Based Services (UPINLBS 2016), Shanghai, China, 2016.

[24] Robust Ultrasound-Based Room-Level Localization System Using COTS Components, Abbass Hammoud, Michel Deriaz and Dimitri Konstantas, in proceedings of The Fourth IEEE International Conference on Ubiquitous Positioning, Indoor Navigation and Location-Based Services (UPINLBS 2016), Shanghai, China, 2016.

Giovanna Di Marzo Serugendo and team:

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Figure 2: NOTRE project – Network for Social Computing Research diagram © MIRALab

Figure 3: Augmented reality with FoxyTour

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[32] Maxim Filatov, Verena Kantere. (Tutorial on) Data Analytics in Multi-Engine Environments. In the International Conference on Data Analytics and Management in Data Intensive Domain (DAMDID), 2016.

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[45] Carlos Martinez de la Osa, Grigorios G. Anagnostopoulos, Mauricio Togneri, Michel Deriaz, Dimitri Konstantas « Positioning evaluation and ground truth definition for real life use cases ». IPIN 2016 : Indoor Positioning and Indoor Navigation conference, University of Alcalá, Alcalá de Henares (Madrid), Spain, October 4-7, 2016

[46] C. Tsiourti, M. Ben-Moussa, J. Quintas, B. Loke, I. Jochem, J. A. Lopes, and D. Konstantas, "A Virtual Assistive Companion for Older Adults: Design and Evaluation of a Real-World Application", in Proceedings of SAI Intelligent Systems Conference 2016, September 2016, London, United Kingdom.

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[48] S. Fagel, M. Ben-Moussa, and D. Cereghetti, "How Avatars in Care Context Should Show Affect," in Pervasive Health 2016 Workshop on Affective Interaction with Virtual Assistants within the Healthcare Context, 2016.
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[56] Semantic enrichment of places with VGI sources: a knowledge based approach, C. Tardy, G. Falquet, L. Moccozet, 10th workshop on Geographic Information Retrieval (GIR), ACM, 2016.
[57] Prediction of anatomical exposure to solar UV: a case study for the head using SimUVEx v2, A Religi, L. Moccozet, J-L. Buillard, C. Backes, L. Vuilleumier, D. Vernez and A. Milon, IEEE Healthcom 2016, 18th International Conference on E-Health Networking, Applications & Services, 2016.
[58] Towards a Technology-Enhanced Assessment Service in Higher Education, L. Moccozet, O. Benkacem, P-Y. Burgi, 19th International Conference on Interactive Collaborative Learning, Springer, pp. 453-467, 2016.

Jean-Henry Morin and team:

[59] Jörn Erbguth and Jean-Henry Morin, « Towards Distributed Trustworthy Traceability and Accountability », in Proceedings of 2016 Fall Conference, The Korea Society of Management Information Systems, Nov. 4, 2016, Seoul.

Jolita Ralyté:

[60] Lidia López, Dolors Costal, Jolita Ralyté, Xavier Franch, Lucía Méndez, Maria Carmela Annosi: (2016) OSSAP - a Situational Method for Defining Open Source Software Adoption Processes. Proceedings of the 28th International Conference on Advanced Information Systems Engineering – CAiSE 2016, LNCS 9694, pp.: 524-539, Springer 2016.
[61] Jolita Ralyté, Wanda Opprecht, and Michel Léonard: Reorganizing an Enterprise thanks to its Information System. Proceedings of the 18th International Conference on Enterprise Information Systems – ICEIS 2016, Vol. 2, pp. 567-574, ISBN: 978-989-758-187-8, SCITEPRESS.
[62] Jolita Ralyté, Wanda Opprecht, and Michel Léonard: Defining the Responsibility Space for the Information Systems Evolution Steering. Proceedings of 9th IFIP WG 8.1. Working Conference on The Practice of Enterprise Modeling – PoEM 2016, LNBIP 267, pp.: 179-193, Springer 2016.

Jean-Marc Seigneur and team:

[63] «Smart Cities Online Reputation Quantitative Survey», J.-M. Seigneur, in Proceedings of the Smart City Expo World Congress, 2016.
[64] "Beacon Authpath, Augmented Human Path Authentication", E. Huseynov and J.-M. Seigneur, in Proceedings of the 10th International Conference on Application of Information and Communication Technologies, ISBN 9781509018406, IEEE, 2016.

Figure 4: ITN-DCH project: case study of Asinou church - recreating the pope in 3D © MIRALab

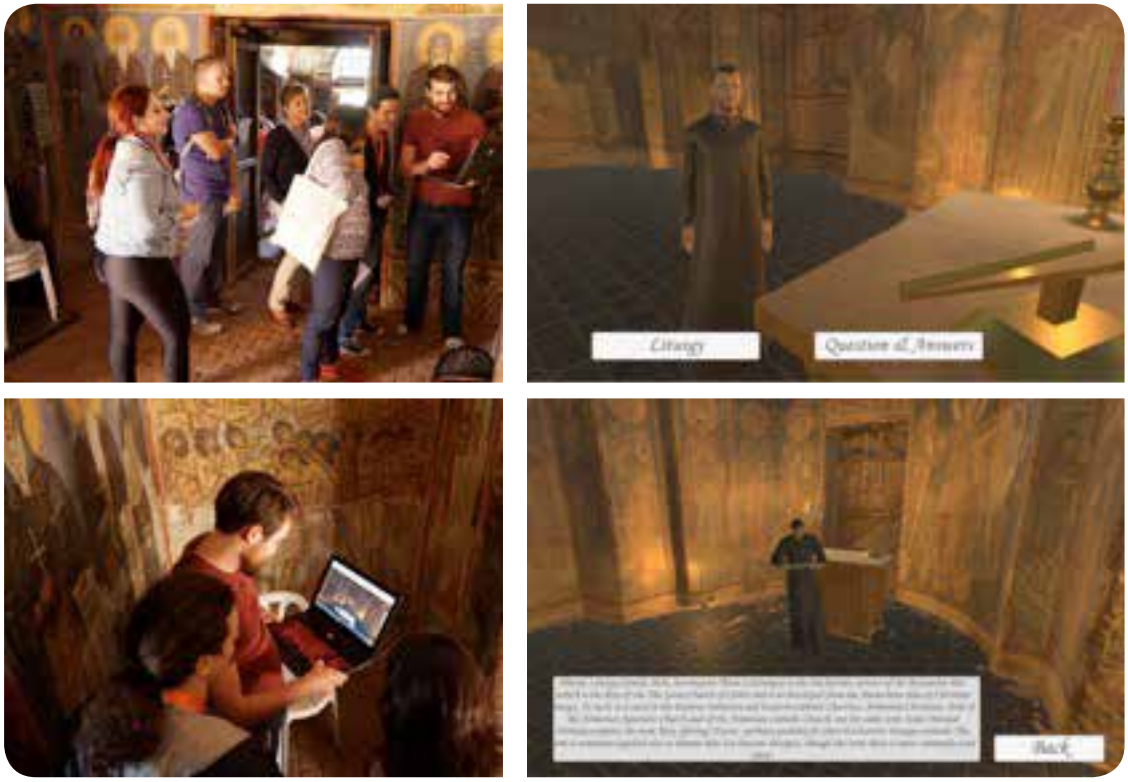

Figure 5: ITN-DCH project – Demonstration on Site © MIRALab

[65] «Efficient Security Adaptation Framework for IoT Networks», T. El Maliki and J.-M. Seigneur, in Proceedings of the International Conference on Computational Science and Computational Intelligence, IEEE, 2016.

[66] «Electrosmog Visualization through Augmented Blurry Vision», K. Fan, J.-M. Seigneur, S. Nanayakkara and M. Inami, in Proceedings of the 7th Augmented Human International Conference, ACM, 2016.

[67] «Augmented Winter Ski with AR HMD», K. Fan, J.-M. Seigneur, J. Guislain, S. Nanayakkara and M. Inami, in Proceedings of the 7th Augmented Human International Conference, ACM, 2016.

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Katarzyna Wac and team:

[69] Demant, J., Bruvik Heinskou, M., Wac, K., Schierff, L. (2016). Developing Self–Control Theory: Towards Digital Sensoring by Smartphone Technologies, 72nd Annual Meeting of the American Society of Criminology, New Orleans, LA, USA, November 2016.

[70] Wac, K., Gustarini, M., Ciman, M., Assassi, L., De Massi, A., Fanourakis, M., Tsiourti, C. (2016). mQoL: Experimental Methodology for Longitudinal, Continuous Quality of Life Assessment via Unobtrusive, Context-Rich Mobile Computing in Situ, The International Society for Quality-of-Life Studies (ISQOLS) Conference, Seoul, South Korea, August 2016.

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[72] Ballesteros, L.G.M., Ickin, S., Markendahl, J., Tollmar, K., Fiedler, M., Wac, K. (2016). Energy Saving Approaches for Video Streaming on Smartphone based on QoE Modelling (Work in Progress), 13th Annual IEEE Consumer Communications & Networking Conference (IEEE CCNC 2016), Las Vegas, USA, January 2016. Acceptance Rate: 30%

Full refereed papers in Workshop Proceedings

Gilles Falquet and Claudine Métral:

[73] Tardy, C., Falquet, G., Moccozet, L. (2016) Semantic enrichment of places with VGI sources: a knowledge based approach. In Proc. 9th Workshop on Geographic Information Retrieval in conjunction with ACM SIGSPATIAL Conf., San Francisco, Nov. 2016.

[74] Tardy, C., Moccozet, L., Falquet, G. (2016) A simple tags categorization framework using spatial coverage to discover geospatial semantics. OD4LS Workshop, in conjunction with WWW2016, Montreal, QC, Canada, April 12, 2016

Laurent Moccozet:

[75] A simple tags categorization framework using spatial coverage to discover geospatial semantics, C. Tardy, L. Moccozet, G. Falquet, Open Data for Local Search (OD4LS) Workshop, ACM, 2016.

Jean-Henry Morin and team:

[76] Aman Sabrina Nwatchock A Koul and Jean-Henry Morin, « Towards a Taxonomy of Data and Guiding Principles for Data Markets », to appear in proceedings of Seventh Workshop on Information Security and Privacy (WISP) 2016, Dec 10, 2016, Dublin, Ireland.

Jean-Marc Seigneur:

[77] «Increasing Online Spendings thanks to More Trustworthy Online Ratings», J.-M. Seigneur, The Bright Internet and Global Trust Building, ICIS Conference, AIS, 2016.

Katarzyna Wac and team:

[78] Wac, K., Tsiourti, C., Montanini, L., Vej, J-M., Rivas, H., (2016). Leveraging Wearables for Ubiquitous Burnout Prevention in Students, International Conference On Wearable Technologies, Knowledge Development, And Learning (aWEAR), Stanford, USA, November 2016.

[79] Wac, K., (2016). Mobile Communications And Computing For Quality Of Life Living Lab, 10th World Conference of Gerontechnology, Living labs for health and autonomy (Symposium), Nice, France, September 2016.

[80] De Masi, A., Ciman, M., Gustarini, M., Wac, K., (2016). mQoL Smart Lab: Quality of Life Living Lab for Interdisciplinary Experiments, International Workshop on Ubiquitous Mobile Instrumentation (UbiMI), co-located with the UBICOMP conference, Heidelberg, Germany, September 2016.

[81] De Masi, A., Wac, K., (2016). MIQModel: Predictive Model for Mobile Internet (Poster), International Workshop on Traffic Monitoring and Analysis (TMA), PhD Poster Session, Brussels, Belgium, April 2016.

Books and book chapters

Gilles Falquet and Claudine Métral:

[82] Bucher B., Falquet G., Métral C., Lemmens R. (2016) Enhancing the management of quality of VGI: contributions from context and task modelling. In: European handbook of crowdsourced geographic information, C. Capineri, H. Huang, M. Haklay (Eds), Ubiquity Press, forthcoming

Figure 6: Context-aware information flow

[83] Lemmens, R., Falquet, G., De Sabbata, S., Jiang, B., Bucher, B. (2016) Querying VGI by semantic enrichment. In: European handbook of crowdsourced geographic information, C. Capineri, H. Huang, M. Haklay (Eds), Ubiquity Press, forthcoming.

Nadia Magnenat-Thalmann:

[84] Simon Sénécal, Nedjma Cadi, Marlène Arévalo, Nadia Magnenat-Thalmann, Modelling life through time: cultural heritage case studies, Book Mixed Reality and Gamification for Cultural Heritage, Springer book, 2016

Jolita Ralyté:

[85] Sergio España, Jolita Ralyté, and Carine Souveyet (Eds.) (2016) Proceedings of the IEEE 10th International Conference on Research Challenges in Information Science – RCIS 2016. 1-3 May 2016, Grenoble, France.

Jean-Marc Seigneur:

[86] «Proceedings of the 7th Augmented Human International Conference», J.-M. Seigneur, J. M. Hernandez-Munoz, P. McCullagh, A. Schmidt, T. Terada, W. Woo and P. Mistry, ISBN: 978-1-4503-3680-2, ACM, 2016.

Research and technical reports

Nadia Magnenat-Thalmann:

[87] Several technical reports for the following projects: ANINEX, ITN-DCH, NOTRE, REPLAY and ViMM.

International and national advisory committees

Giovanna Di Marzo Serugendo:

- Management Board Member (2016-) - Swiss Alliance for Data-Intensive Services (NTN KTI)
- Committee Member (2016-2017) – Geneva Canton Committee for the "SmartCanton" project
- Committee Member (2014-2018) – Commission Consultative en matière de protection des données, transparence et archives publiques (CCPDTA)
- Committee Member (2014-2016) – Association Suisse de la Sécurité de l'Information (CLUSIS)
- Member (2015-2019) – Conseil Académique Hepia

Nadia Magnenat-Thalmann:

- 2013-2016: Member of the Scientific Council of the Institute of Mines-Telecom, Paris, France
- 2013-2016: Expert on the advanced grant panel of the European Research Council (ERC)

International and national research programs committees

Giovanna Di Marzo Serugendo:

- ERC Consolidator Grants – project reviewer, August 2016
- CHIST-ERA - Expert Reviewer - April 2016
- COST Actions – Expert Reviewer - November 2015
- Member (2011-2016): Comité de Direction, CADMOS
- Member (2011-2016): Programme Doctoral Romand d'Informatique (CUSO)
- Programme Director (2011-): PhD Programme in Information Systems and Management

Gilles Falquet:

- Evaluator for the EU ERC grants

Verena Kantere:
- Evaluator for EU COST proposals submitted in 2016
- The Dutch Technology Foundation STW, which funds technology oriented academic research in the Netherlands, for proposals submitted in 2016

Dimitri Konstantas:
- Since 2004 : Expert Evaluator for the Commission of the European Union
- Since 2005 : Expert evaluator for the Canadian National research foundation
- Since 2009: Expert evaluator for the Greek Ministry of Education
- Since 2002: Expert evaluator for the Dutch National research foundation
- Since 2002: Member of the eMobility ETP

Nadia Magnenat-Thalmann:
- WACAI 2016, Workshop Affect, Companion Artificial, Interaction 2016, France, June 2016
- CVM 2016, The 4th International Conference on Computational Visual Media, Cardiff, UK, April 2016
- ICAART 2016, The 8th International Conference on Agents and Artificial Intelligence, Rome, Italy, February 2016
- CGI 2016, Computer Graphics International 2016, Heraklion, Crete, Greece, February 2016

Jolita Ralyté:
- Expert for the Research Foundation Flanders (FWO), Belgium. Review of the application for Postdoctoral Fellow, the proposal entitled "PROFEELEARN: PROocess-oriented assessment and FEEdback mechanisms based on LEARNing process data analytics", March 2016.

Jean-Marc Seigneur:
- Expert for the European Union Agency for Network and Information Security

Katarzyna Wac:
- Evaluator for the French National Research Agency (ANR), France
- Evaluator of research projects submitted to the Swiss National Science Foundation, Humanities and Social Sciences division, Switzerland
- Evaluator of research projects submitted to the Patient-Centered Outcomes Research Institute (PCORI), USA
- Evaluator of research projects submitted to the VLIR-UOS Program, Part of the Flemish Interuniversity Council (VLIR), Belgium
- Evaluator of Strategic Basic Research (SBO) projects submitted to The Research Foundation - Flanders (FWO), Belgium
- Evaluator for the «National Plan for Research, Development and Innovation for the period 2015-2020 (PNCDI III)» Programme and the «Experimental Demonstrative Projects» Programme, Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI), Romania
- Evaluator for the «Young Research Teams» Programme, Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI), Romania

PhD Thesis committees

Giovanna Di Marzo Serugendo:
- Maxime Guériau, Systèmes multi-agents, auto-organisation et contrôle par apprentissage constructiviste pour la modélisation et la régulation dans les systèmes coopératifs de trafic, Doctorat de l'Université de Lyon , Claude Bernard Lyon 1, Spécialité Informatique, External Examiner, December 2016

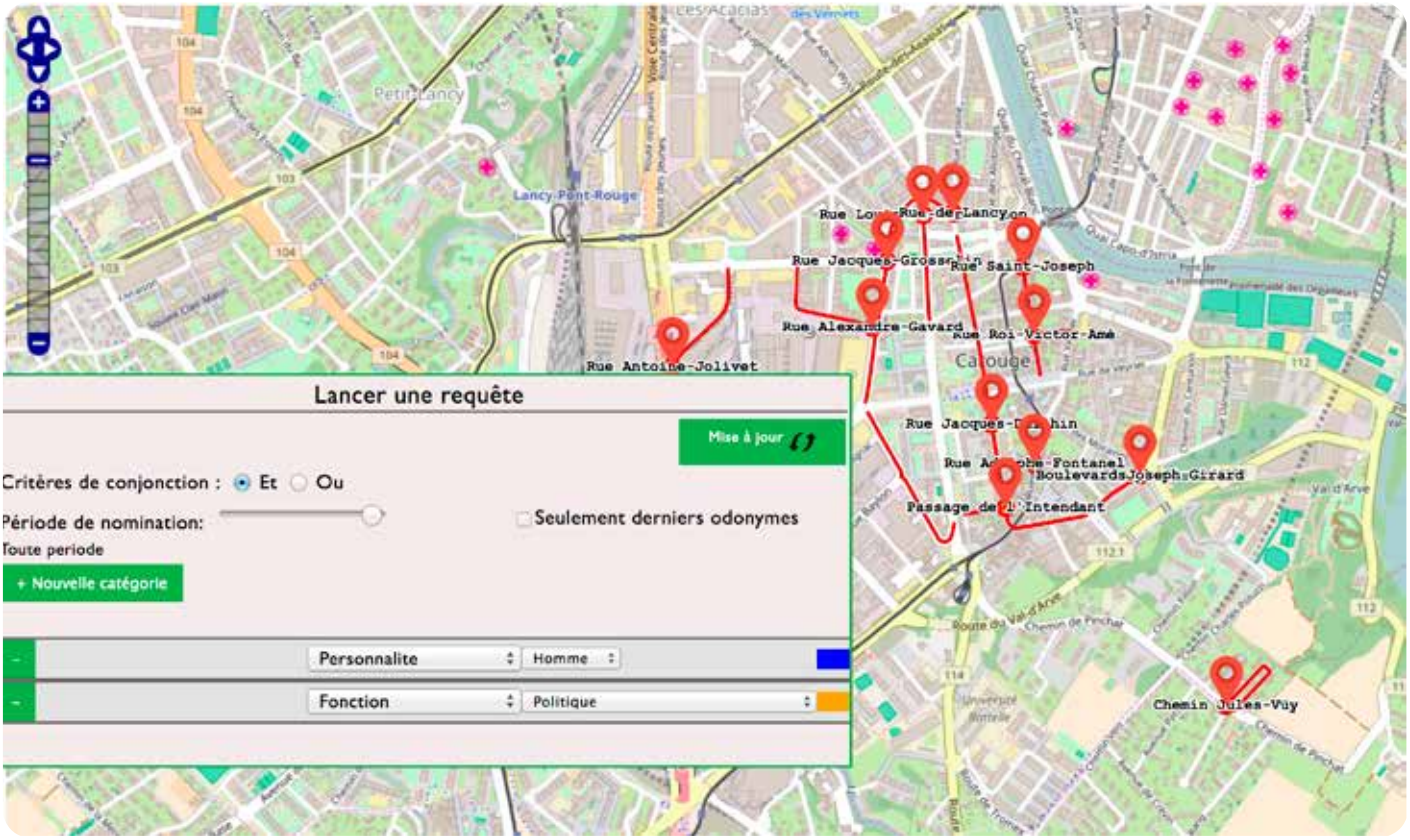


Figure 7: Visualisation of dynamical and toponymical challenges for the Swiss City of Carouge

Figure 8: ThinkData home page (http://thinkdata.ch)

- Garyfallos Fragkidis - The Value Perspective in the Analysis and Design of Service Systems – University of Geneva, Switzerland, Jury member, November 2016.
- Barbara Streimelweger, Human Factor-Based Risk Management to Improve Patient Safety, University of Geneva, Geneva, Switzerland, Jury Member, June 2016.
- Virginie Zimmerli – Usages, usagers et innovation à l'ère du numérique, University of Geneva, Jury's president. June 2016

Gilles Falquet:

- Mattia Gustarini, président, UNIGE

Dimitri Konstantas:

- Garyfallos Fragkidis - The Value Perspective in the Analysis and Design of Service Systems – GSEM, University of Geneva, Switzerland, Thesis Director, November 2016.
- Barbara Streimelweger - Human-Factor-based Risk Management to improve Patient Safety, GSEM, University of Geneva, Thesis Director, June 2016
- Celia Boyer Walther - Methods and tools to retrieve reliable health information on the internet, GSEM, University of Geneva, Switzerland, President of the Jury, Septembre 2016

Nadia Magnenat-Thalmann:

- David Garcia, Supervisor, University of Geneva, Switzerland
- Simon Sénécal, Supervisor, University of Geneva, Switzerland
- Yvain Tisserand, Supervisor, University of Geneva, Switzerland
- Sara Trombella, Supervisor, University of Geneva, Switzerland

Jean-Henry Morin:

- Soo-hyun, Jeon, From Compliance to Empowerment: New perspective on IS Security Policies Compliance, PhD jury member, Korea University Business School, November 2016.

Jolita Ralyté:

- Marcela Ruiz, PhD Thesis in Computer Science "TraceME: Traceability-based Method for Conceptual Model Evolution", Universitat Politècnica de València, Spain, Rapporteur, January 2016.

Katarzyna Wac:

- Anders Markussen, University of Copenhagen, Denmark (Assessment Committee Chair)

Conference organization as chair or co-chair

Verena Kantere:

- Organization of the 1st International Workshop on Multi-Engine Data AnaLytics (MEDAL 2016) collocated with the 19th International Conference on Extending Database Technology (EDBT 2016) http://medalworkshop2016.github.io
- Organization and chairing of the panel European Project Space titled 'Building Europe of 2020 with novel technological endeavours for smart and complex systems, Big Data and Future Internet' as part of conferences SMARTGREENS, WEBIST, CLOSER, VEHITS, which took place on the 24/04/2016.
- Participation after personal invitation in the opening panel of conferences WEBIST, CLOSER and IOTBD, which tool place on the 23/04/2016.
- Participation after personal invitation by the Computer Science and Telecommunications Board of the National Academies of Sciences, Engineering, and Medicine in the 2nd meeting for the exploration of IoT in order to assist the Government Accountability office. Topics explored in the meeting include level and type of use of IoT, challenges in IoT deployment, and key issues around security and privacy.

Nadia Magnenat-Thalmann:
- May 2016, Conference Chair, 29th International Conference on Computer Animation and Social Agents (CASA 2016), Switzerland
- Feb. 2016, Program Co-Chair, 11th International Conference on Computer Graphics Theory and Applications (GRAPP 2016), Rome, Italy

Jean-Henry Morin:
- Co-chair of the Securing the Cloud and Things mini-track, Hawaii International Conference on System Sciences, HICSS-49, Hawaii, January, 2016.

Jolita Ralyté:
- Program Chair of the 10th IEEE International Conference on Research Challenges in Information Science - RCIS 2016, 1-3 June 2016, Grenoble, France.
- Tutorials Chair of the 28th International Conference on Advanced Information Systems Engineering - CAiSE 2016, 13-17 June 2016, Ljubljana, Slovenia.

Jean-Marc Seigneur:
- Chair of the Trust, Reputation, Evidence and other Collaboration Know-how (TRECK) track, ACM Symposium of Applied Computing, Pisa, Italy, April 4-8 2016
- General Co-Chair, 7th Augmented Human International Conference, Geneva, February 25-26 2016

Member of conference/workshop program committees

Giovanna Di Marzo Serugendo:
- IEEE International Conference on Self-Adaptive and Self-Organising Systems (SASO'2016)
- Spatial COllective PErvasive Computer Systems workshop (SCOPES), SASO Workshop 2016
- Workshop on formal methods for the quantitative evaluation of collective adaptive systems (FORECAST 2016).
- Augmented Human International Conference (AH2016)
- ACM Symposium on Applied Computing (SAC'16)

Gilles Falquet:
- IC2016, Journées francophones d'Ingénierie des Connaissances
- EGC 2016, 16e conférence Extraction et Gestion des Connaissances
- JFO 2016, 6ème Journées Francophones sur les Ontologies

Verena Kantere:
- EAI International Conference on ICT Infrastructures and Services for Smart Cities (IISSC) 2016
- International Conference on Very Large Data Bases (VLDB) 2016
- International Conference on Computational Techniques in Information and Communication Technology (ICCTICT) 2016
- International Conference on Very Large Data Bases (VLDB) Demonstrations 2016
- International Conference on Extending Database Technology (EDBT) Posters 2016
- International Conference on Internet of Things and Big Data (IoTBD) 2016
- International Conference on Complex Information Systems (COMPLEXIS) 2016
- International C* Conference on Computer Science & Software Engineering (C3S2E) 2016
- International Database Engineering & Applications Symposium (IDEAS) 2016
- IARIA Datasets 2016.
- IARIA Cloud Computing 2016
- International Conference on Data Engineering (ICDE) 2016
- Hawaii International Conference on Systems Science (HICSS) 2016

Abdelaziz Khadraoui:
- International Conference on Information Systems and Technologies - ICIST 2016, Barcelona, Spain, March, 18 - 20, 2016.
- 34e congrès INFORSID 2016, Grenoble, 31 mai au 3 juin 2016.
- RCIS 2016 (10th IEEE International Conference on Research Challenges in Information Science), May 10-12, 2016, Grenoble, France.

Nadia Magnenat-Thalmann:
- 9th ACM SIGGRAPH Conference and Exhibition on Computer Graphics and Interactive Techniques in Asia (SIGGRAPH Asia 2016) Course on Modeling Behavior for Social Robots and Virtual Humans, The Venetian Macao, Macao, December 05-08, 2016 - (https://sa2016.siggraph.org/en/attendees/courses?view=session&sid=57)
- WACAI 2016, Workshop Affect, Companion Artificial, Interaction 2016, France, June 2016
- 29th International Conference on Computer Animation and Social Agents (CASA 2016), tutorial given on The social Robot Nadine, Campus BIOTECH, University of Geneva, Switzerland, May 23, 2016 - (http://casa2016.miralab.ch/VirtualHumansSocialRobots.html)

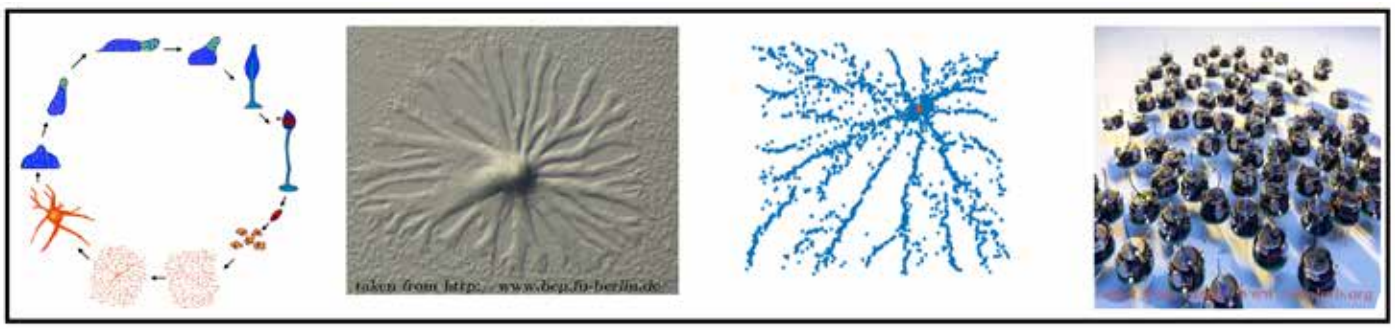


Figure 9: Social Amoeaba Dictyostelium Discoideum as an inspiration for engineering swarm robotics

- 29th International Conference on Computer Animation and Social Agents (CASA 2016), workshop on Digital Cultural Heritage Documentation, Modelling and Simulation of Heritage Dresses, Campus BIOTECH, University of Geneva, Switzerland, May 23, 2016 - (http://casa2016.miralab.ch/ITN-DCH.html)
- 29th International Conference on Computer Animation and Social Agents (CASA 2016), tutorial given on Modelling Human Joints: 20 Years of Research, Campus BIOTECH, University of Geneva, Switzerland, May 23, 2016 - (http://casa2016.miralab.ch/DigitalPatient.html)
- 29th International Conference on Computer Animation and Social Agents (CASA 2016), workshop for EU IRSES project "AniNex" on Modelling 3D Avatar for Virtual Try On, Campus BIOTECH, University of Geneva, Switzerland, May 23, 2016 - (http://casa2016.miralab.ch/AniNex.html)
- CVM 2016, The 4th International Conference on Computational Visual Media, Cardiff, UK, April 2016
- ICAART 2016, The 8th International Conference on Agents and Artificial Intelligence, Rome, Italy, February 2016
- CGI 2016, Computer Graphics International 2016, Heraklion, Crete, Greece, February 2016

Claudine Métral:

- 3D GeoInfo 2016, Athens, 20-21 October
- ISPRS 2016, Prague, 11-19 July

Jean-Henry Morin:

- PC member of the 7th Augmented Human International Conference, AH 2016, Geneva, Feb. 2016.
- PC member of the 2016 International Conference on Collaboration Technologies and Systems, CTS 2016, Oct 31 - Nov 4, 2016, Florida, USA
- PC member of the Eleventh International Conference on Internet Monitoring and Protection, ICIMP 2016, May 22-26, 2016, Valencia, Spain
- PC member of the Eleventh International Conference on Internet Internet and Web Applications and Services ICIW 2016, May 22-26, 2016, Valencia, Spain
- PC member of the 15th Annual Security Conference, Mar 29-31, 2016, Las Vegas, NV, USA.
- PC member of the 8th International Conference on Knowledge Management and Information Sharing, KMIS 2016, Nov. 9-11, 2016, Porto, Portugal.
- PC member of the 7th International Conference on Exploring Service Science, IESS 2016, May. 25-27, 2014, Bucharest, Romania.

Jolita Ralyté:

- 28th International Conference on Advanced Information Systems Engineering - CAiSE 2016, 13-17 June 2016, Ljubljana, Slovenia.
- 35th International Conference on Conceptual Modeling – ER 2015, Gifu, Japan, November 14-17, 2016.
- International Conference on Exploring Modeling Methods in Systems Analysis and Design – EMMSAD 2016, 13-14 June 2016, Ljubljana, Slovenia.
- 7th International Conference on Exploring Services Science – IESS 2015, Bucharest, Romania, 25-27 May 2016.
- 18th IEEE Conference on Business Informatics – IEEE CBI 2016, Paris, France, 29th August - 1st September, 2016.

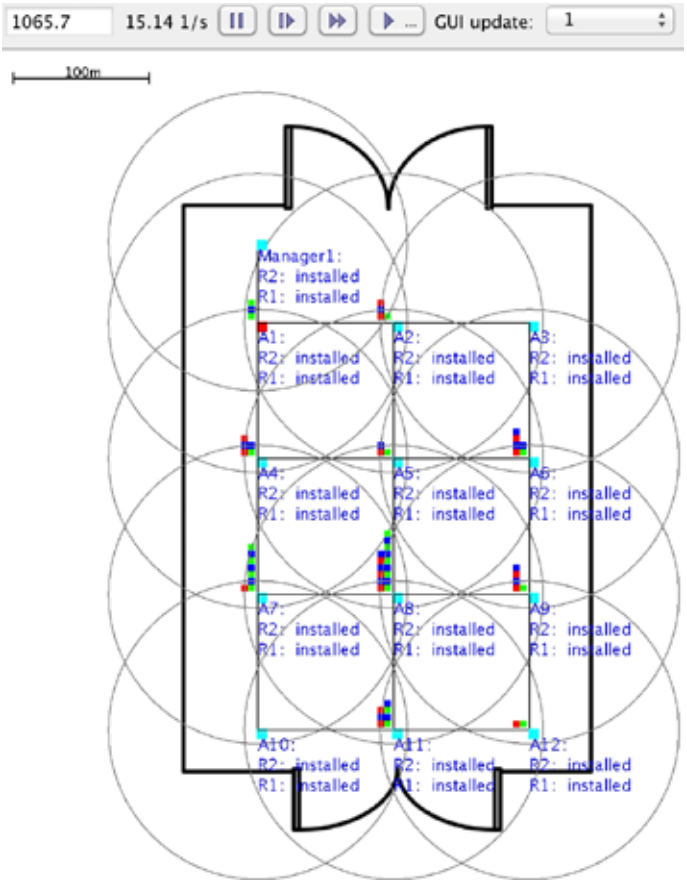


Figure 10: A Spatial Service for real-time hazard detection in a chemical factory - a solution using a logic-based coordination model

- 9th IFIP WG8.1 Working Conference on The Practice of Enterprise Modeling - PoEM 2016, Skövde, Sweden, 9-11 November 2016.
- 12th Asia-Pasific Conference on Conceptual Modelling - APCCM 2016,, Auckland, Canberra, Australia, February 2-5, 2016.
- Aatelier Qualité des Données du Web - QLOD 2016, joint à la conférence internationale francophone EGC 2016, Reims, France, 19 Janvier 2016.
- 8th International Workshop on Service-oriented Enterprise Architecture for Enterprise Engineering - SoEA4EE 2015, in conjunction with EDOC 2016, Vienna, Austria, September 5, 2016.
- 3rd International Workshop on Advances in Services DEsign based on the Notion of Capability - ASDENCA 2016,, Co-located with CAiSE 2016, Stockholm, Ljubljana, Slovenia, June 14, 2016.
- 3nd International Workshop on Conceptual Modeling in Requirements and Business Analysis – MReBA 2016, Co-located with ER 2016, Gifu, Japan, November 14-17, 2016.
- International Workshop on Quality of Modeling and Modeling of Quality – QMMQ 2016, Co-located with ER 2016, Gifu, Japan, November 14-17, 2016.

Jean-Marc Seigneur:
- ACM SAC 2016
- IFIP Trust Management 2016
- ACM Augmented Human 2016

Katarzyna Wac:
- 6th EAI International Symposium on Pervasive Computing Paradigms for Mental Health (MindCare 2016)
- International ITU Kaleidoscope Conference (ITU Kaleidoscope 2016)
- International Workshop on New Frontiers of Quantified Self (frontiersQS) collocated with the International ACM Conference on Ubiquitous Computing (UbiComp 2016)
- IEEE International Conference on Next Generation Wired/Wireless Advanced Networks and Systems (IEEE NEW2AN 2016)
- Quality of Experience for Multimedia Communications Workshop (IEEE QOEMC 2016) at the IEEE GlobeCom
- Reviewer for the International ACM Conference on Ubiquitous Computing (UbiComp 2016)
- 9th Nordic Conference on Human-Computer Interaction (ACM NordiCHI 2016)
- 18th ACM International Conference on Multimodal Interaction (ACM ICMI 2016) (reviewer)
- Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE EMBC 2016: Biomedical Sensors and Wearable Systems)
- International Conference on Smart Objects and Technologies for Social Good (GOODTECHS 2016)
- International Workshop on Experiences with Design and Implementation of Smart Objects (SMARTOBJECTS 2016) at ACM MobiCom 2016
- International Workshop on Quality of Multimedia Experience (QoMEX 2016)
- EAI International Conference on Future Internet e-Health (EAI FI-eHealth 2016)
- EAI International Conference on Games fOr WELL-being (EAI GOWELL 2016) at eHealth360° Summit 2016
- IEEE International Workshop on Quality of Experience-based Management for Future Internet Applications and Services (QoE-FI) at IEEE ICC 2016
- IEEE International Conference on Biomedical and Health Informatics (IEEE BHI 2016)
- International Conference on Wearables in Healthcare (EAI HealthWear 2016)
- Augmented Human International Conference (AH 2016)
- Association for the Advancement of Artificial Intelligence (AAAI) Spring Syposium Series, theme «Wellbeing computing: AI meets health and happiness science» (AAAI 2016)
- International Conference on Pervasive Computing Technologies for Healthcare (PervasiveHealth 2016)
- International Workshop on Information Quality and Quality of Service for Pervasive Computing (IQ2S 2016) organized in conjunction with IEEE PerCom 2016

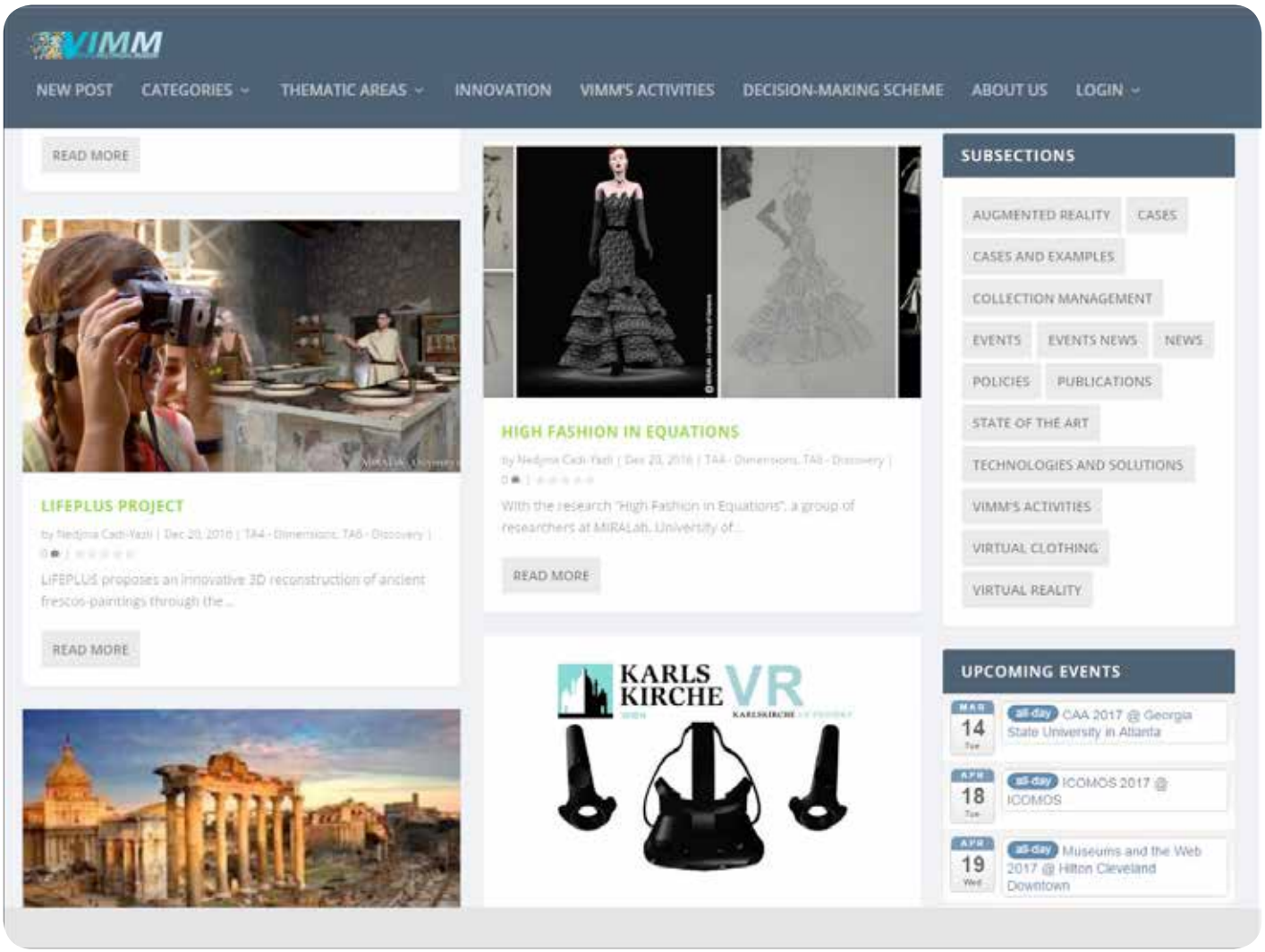


Figure 11: ViMM project – Dissemination and Communication platform © MIRALab

Refereeing

Giovanna Di Marzo Serugendo:
- Science of Computer Programming, Elsevier

Gilles Falquet:
- Journal of Location Based Services
- International Journal of Information Technology & Decision Making
- Journal on Data Semantics

Verena Kantere:
- IEEE Transactions on Parallel and Distributed Systems
- Information Sciences
- IEEE Transactions on Electron Devices
- Data and Knowledge Engineering
- International Journal of Cooperative Information Systems
- The Computer Journal
- The VLDB Journal Special Issue on Data Management for Mobile Services
- The IEEE Network
- IEEE Transactions of Knowledge and Data Engineering
- International Journal of Cooperative Information Systems
- Distributed and Parallel Databases
- Acta Informatica
- IEEE Internet Computing
- Concurrency and Computation: Practice and Experience
- Peer-to-Peer Networking and Applications
- American Journal of Applied Sciences
- The Journal of Computer Science

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

Figure 13: Object localisation - EDLAH project

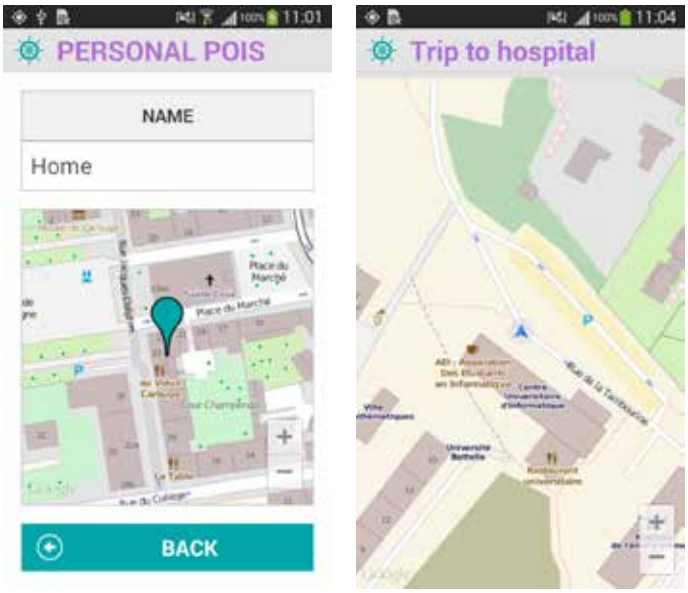


Figure 12: Indoor positionning & Navigation adapted to seniors - Virgilius project

Claudine Métral:
- Computers, Environment and Urban Systems (CEUS)

Jolita Ralyté:
- DECSUP - Decision Support Systems
- IJISMD – International Journal of Information Systems Modeling and Design
- IJISSS – International Journal of Information Systems in the Service Sector
- REEN – Requirements Engineering Journal
- ISI – Revue Ingénierie des Systèmes d'Information
- CSIMQ – Complex Systems Informatics and Modeling Quarterly
- Computing and Informatics
- IJSOI – International Journal of Services Operations and Informatics
- IJBIS – International Journal of Business Information Systems

Jean-Marc Seigneur:
- Augmented Human Research (Springer Journal)

Katarzyna Wac:
- IEEE IEEE Transactions on Mobile Computing
- IEEE Pervasive Computing
- IEEE Communications Magazine
- IEEE Transactions on Network and Service Management
- European Transactions on Telecommunications (Wiley)
- IET Communications Journal
- ACM Computing Surveys
- ACM Transactions on Cyber-Physical Systems
- Pervasive and Mobile Computing (Elsevier)
- Personal and Ubiquitous Computing (Springer)

- IEEE Transactions on Affective Computing
- Sensors (MDPI)
- Interacting with Computers (Oxford)
- Human-Computer Interaction (Frontiers ICT)
- International Journal of Technology and Human Interaction (IGI Global)
- International Journal of Information Technology and Management (Inderscience)
- Behavior Research Methods (Springer)
- Applied Research in Quality of Life (Springer)
- IEEE Journal of Biomedical and Health Informatics (previously IEEE Transactions on Information Technology in Biomedicine)
- IEEE Journal of Translational Engineering in Health and Medicine
- Journal of Medical Internet Research (JMIR Publications Inc.)
- International Journal of Medical Informatics (Elsevier)
- Computer Methods and Programs in Biomedicine (Elsevier)
- International Journal of Electronics and Communications (Elsevier)
- International Journal of Telemedicine and Applications (Hindawi)
- PLoS ONE (Public Library of Science)

Editorial responsabilities

Giovanna Di Marzo Serugendo:
- Editorial Board Member: Multiagent and Grid Systems - An International Journal. ISSN: 1574-1702.
- Editorial Board Member: International Journal of Intelligent Information and Database Systems. Inder-Science.
- Editorial Board Member (2013 -) - TCAASA

Verena Kantere:
- Lead Guest Editor: Journal of Scientific Programming, Hindawi Publishing Corporation Special Issue on Big Data for Bioinformatics (announcement expected).
- Member of Editorial Board: International Journal of Applied Engineering Research (IJAER), Research India Publications http://www.ripublication.com/ijaer.htm
- Member of Editorial Board: Open Journal on Big Data (OJBD), RonPub UG http://www.ronpub.com/ojbd
- Member of Editorial Board: Open Journal of Databases (OJDB), RonPub UG http://www.ronpub.com/OJDB
- Book editor: European Space project on Smart Systems, Big Data, Future Internet» «Towards serving the grand societal challenges», INSTICC - ongoing.

Nadia Magnenat-Thalmann:
- Since 2014 Associate Editor, Frontiers in Robotics, Nature Publisher
- Since 2010 Editorial Adviser of the journal of Graphical Models published by Elsevier
- Since 2000 Editor-in-Chief of the Journal The Visual Computer published by Springer Verlag, Germany
- Since 2000 Editor of the Journal of Computational Geometry published by Elsevier, Holland
- Since 1990 Co-founder and Co-editor-in-chief, Computer Animation and Virtual Worlds, John Wiley and Sons.

Laurent Moccozet:
- Member of the scientific committee for the International Conference on Education and New Developments since 2013
- Member of the program committee of the International workshop on Interactive Environments and Emerging Technologies for e-Learning
- Member of the program committee of the Augmented Human International Conference since 2016
- Reviewer for the ISPRS International Journal of Geo-Information
- Reviewer for the International Journal of Educational Technology in Higher Education

Jean-Henry Morin:
- Associate Editor of the Asia Pacific Journal of Information Systems (APJIS), ISSN 2288-5404, Since 2014.
- Editorial board member of the Journal of Service Science Research (JoSS), ISSN: 2093-0720, Springer, Journal no. 12927, since 2009.
- Editorial board member of the International Journal On Advances in Systems and Measurements, ISSN: 1942-261x, IARIA, since 2008.

Jolita Ralyté:
- Editorial Board Member of the International Journal of Information Systems Modeling and Design – IJISMD, since 2009.
- Editorial Board Member of the International Journal of Information Systems in the Service Sector – IJISSS, since 2010.
- Special Issue Editor: Agnès Front, Jolita Ralyté, Numéro spécial "Une vision SI de l'ingénierie des documents ", Revue Document Numérique, Vol. 19(1), Lavoisier, 2016.

Jean-Marc Seigneur:
- Co-Editor in Chief, Springer Journal "Augmented Human Research"

Katarzyna Wac:
- Associate Technical Editor (ATE) for the IEEE Communications Magazine

Working groups / Standard Bodies participation

Giovanna Di Marzo Serugendo:
- ERCIM SERENE Working Group – Member

Jean-Henry Morin:
- Co-founder and President-Elect of the Association for Information Systems (AIS) Swiss chapter, Since June 2013.
- Membre du Conseil Scientifique de La Muse, Fondation pour la Créativité Entrepreneuriale (FCE), Genève.
- Membre commission d'experts, VigiSwiss, Swiss Data Center Association, since Feb 2016.
- Membre du comité d'organisation du Forum Economie Numérique du Canton de Genève.
- Co-founder and President of ThinkServices, Think(do) Tank on Services Science and Innovation, Geneva, Since 2010. Leader of the ThinkGroup on Data, Society and Transparency, initiator of ThinkData (http://thinkdata.ch/)
- Member of the Researchers cooperative cooperation Social-IN3
- Swiss Representative to the IFIP TC14 on Entertainment

Computing
- ThinkGroup ThinkServices sur Cloud Societal Responsibility. http://tg-csr.org/

Jolita Ralyté:
- Chair of the IFIP WG 8.1: Design and Evaluation of Information Systems. 2016 - 2018.

Jean-Marc Seigneur:
- Member of the ITU SG13 Correspondence Group on Trust

Katarzyna Wac:
- Dr Wac is an Associate Expert of the International Telecommunication Union (ITU) European Regional Initiative for mHealth (since 2012).
- Co-Chair of Interest Group on Multimedia Communication Systems, IEEE Multimedia Communication Technical Committee (2014-2016)
- Associate Expert of the International Telecommunication Union (ITU), ITU Academy on Quality of Service Training Program (QoSTP), ITU, Geneva, Switzerland

Events

Giovanna Di Marzo Serugendo:
- Co-Chair - Politiques publiques à l'ère du numérique – Nov 29th 2016
- Co-Chair - ICTs and Governance in Europe and China – Workshop Nov 25th 2016
- Co-Chair Smart Urbanism(s) – The Chinese and Swiss Experience Compared, Nov 24th 2016
- Journée des SITG – Special Session on Smart Cities, April 19th 2016

Nadia Magnenat-Thalmann:
- 29th International Conference on Computer Animation and Social Agents (CASA 2016), Campus BIOTECH, University of Geneva, Switzerland, May 23-25, 2016

Jean-Henry Morin:
- Co-organisation de la 10ème Journée de la Protection des Données 2016, Cloud Computing & Safe-Harbor, Jan 28, 2016, IDHEAP, Lausanne Switzerland
- WeChair - Crowdfunding for Academic Chairs, Lift16 Prototyping Lab, Feb. 10-12, 2016, Geneva, Switzerland.
- Digital Switzerland, What's next? Lift16 Panel, Feb. 12, 2016, Geneva, Switzerland.
- Adopt a Skill @Battelle, programme de mise en relation étudiants en informatique avec les entreprises locales, 29 février 2016 + 17 octobre 2016, CUI, Genève, Suisse.

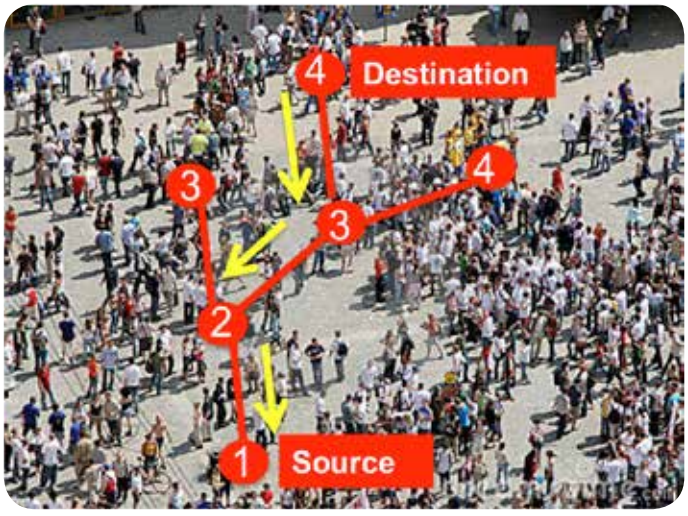


Figure 15: Crowd Steering


Figure 14: Confidential channel over MANET

- First Rezonance, La Suisse, laboratoire d'innovation sociales: le travail dans tous ses états, 8 mars 2016, Université de Genève.
- Open Battelle Hackathon, CUI, 15-17 avril 2016, Genève.
- GovJam 2016, CUI, Battelle, 31 mai - 1er juin 2016.
- Lift Urban Entrepreneurs idetion challenge, Korea. Nov. 12, 2016, Google Campus, Seoul, South Korea.

Jean-Marc Seigneur:
- 7th Augmented Human International Conference, Feb 25-26 2016

Invited talks

Giovanna Di Marzo Serugendo:
- Engineering adaptivity, universal autonomous systems, Ethics and compliance issues, Panel Discussion - ISOLA'2016
- Digital (R)Evolution – impact on existing and new jobs, ICTO'16, Paris
- Smart Services – Swiss Consulting Association, February 2016, Geneva

Nadia Magnenat-Thalmann:
- The 15th ACM SIGGRAPH International Conference on Virtual-Reality Continuum and its Applications in Industry (VRCAI 2016), «Social robotics: new avenues of research with Nadine humanoid robot Abstract», Zhuhai, China, December 03-04, 2016 (http://www.vrcai.org/2016/keynotespeakers/)
- The 2016 IAES International Conference on Electrical Engineering, Computer Science and Informatics (EECSI 2016), « Virtual Humans and Social Robots from both sides: on the creative and technical challenges», Semarang, Indonesia, November 23-25, 2016 (http://iaesonline.com/eecsi/2016/expo-speakers/)
- The 22nd ACM Symposium on Virtual Reality Software and Technology (VRST 2016), «Seeing Through Virtual Humans in motion: from the skin to the molecules», Munich, Germany, November 02-04, 2016 (http://www.vrst2016.lrz.de/keynotes-award/)
- The 38th International Conference of Data Protection and Privacy Commissioners (ICDPPC), «In-depth Discussion: Robotics and Artificial Intelligence», Marrakesh, Morocco, October 16-21, 2016 (https://www.privacyconference2016.org/sites/default/files/38econf-global-program-en.pdf)
- The International Social Security Conference 2016 (ISSC 2016), « High Tech Ageing: Improving Lives Today», Kuala Lumpur, Malaysia, August 10-11, 2016 (https://secure.kwsp.gov.my/microsite/issc/day2.jsp)

- The International Society For Photogrammetry and Remote Sensing (ISPRS 2016), «Automatic modelling of Virtual Humans», Prague, Czech Republic, July 12-19, 2016 (http://www.isprs2016-prague.com/img/speakers/abstracts/ISPRS_Keynote%20Abstract_Nadia_Thalmann.pdf)
- The 33rd Annual Conference in Computer Graphics International (CGI 2016), «Nadine: A Human-like sociable and emotional Robot that remembers facts and people», Heraklion, Crete, Greece, June 28 – July 1, 2016 (http://www.ics.forth.gr/CGI2016/?page_id=297)
- Zeppelin Museum Friedrichshafen, «Der humanoide Roboter Nadine: Ein Begleiter für Bürger?», Friedrichshafen, Germany, May 19, 2016 (http://www.zeppelin-museum.de/downloads/zm-qp2-screen.pdf)
- University of Oxford, «Modelling Behaviour for Virtual Humans and Social Robots: recent developments and what next?», University of Oxford, Oxford, United Kingdom, April 26, 2016 (https://www.cs.ox.ac.uk/seminars/1514.html)
- Heinz Nixdorf MuseumsForum, «The humanoid robot Nadine: A companion for citizens», Paderborn, Germany, April 21, 2016 (http://www.hnf.de/termine/vortraege/am-anfang-warada/date/2016/04/21/cal/event/tx_cal_phpicalendar/der_humanoide_roboter_nadine_ein_begleiter_fuer_b uerger.html)
- Leibniz University Hannover, «Social Robotics: What is new Case study with Nadine a social robot?», School of Electrical Engineering and Computer Science, Leibniz University Hannover, Hannover, Germany, April 20, 2016 (http://www.welfenlab.de/vortrag-nadine-a-new-social-robot-.html)

Jean-Henry Morin:

- Participation au débat sur la surveillance de masse, dans le cadre de la projection de Citizenfour et Ex Machina, Cinema Politica, 23 mars 2016 et 13 avril 2016, Université de Genève.
- Conférence sur la Révolution Numérique, Cité Seniors, Ville de Genève, 8 avril 2016.
- Paneliste, FORUM, VigiSwiss, le coffre-fort numérique s'organise: un enjeu économique et stratégique pour la Suisse, 11 mai 2016, Genève.
- Panelist, WSIS Forum 2016, Engaging Digital Actors, Fostering Effective Digital Policy and Monitoring Digital Governance, 2 mai, 2016, Genève.
- Panelist, Colloque Transdisciplinaire sur l'image, L'image et le Droit à l'Oubli, 3 juin 2016, Université de Genève.
- Talk on Design Thinking given at the Hightech Marketing Group seminar series, Korea University Business School, Sept. 22, 2016, Seoul, South Korea.
- Introduction to blockchain, Fasoo.com, Sept. 28, 2016, Seoul, South Korea.
- Conférence donnée au Colloque TIC et formation du CTIE 2016, L'identité numérique, l'école et ses acteurs, Swiss Education Days BERNEXPO, Identité Numérique, fédéralisme, subsidiarité et politique publique numérique, 9 novembre 2016, Berne, Suisse.
- Graduate talk at Hanyang University, Blockchain Technology: from concept to demo and beyond, Dec. 2, 2016, Seoul, South Korea.

Jolita Ralyté:

- Towards a Framework for Enterprise Information System Evolution Steering. Research seminar. University of Paris 1 – Panthéon Sorbonne. Paris, France, February 8, 2016.

Jean-Marc Seigneur:

- Invited speaker at the Bright Internet and Global Trust Building Workshop in December 2016 in Dublin Ireland
- Selected speaker at Smart City Expo World Congress Barcelona in October 2016
- Invited speaker at the ITU Workshop on Trust in June 2016 in Geneva
- Speaker at the eCom Conference in Geneva in April 2016

Katarzyna Wac:

- 10.2016 Panel: "Compter ses pas, mesurer la tension artérielle, calculer les calories: Une meilleure santé grâce au «self-tracking» et aux «wearables»?", Symposium by The Swiss Society for Public Health (public-health.ch), Bern, Switzerland.

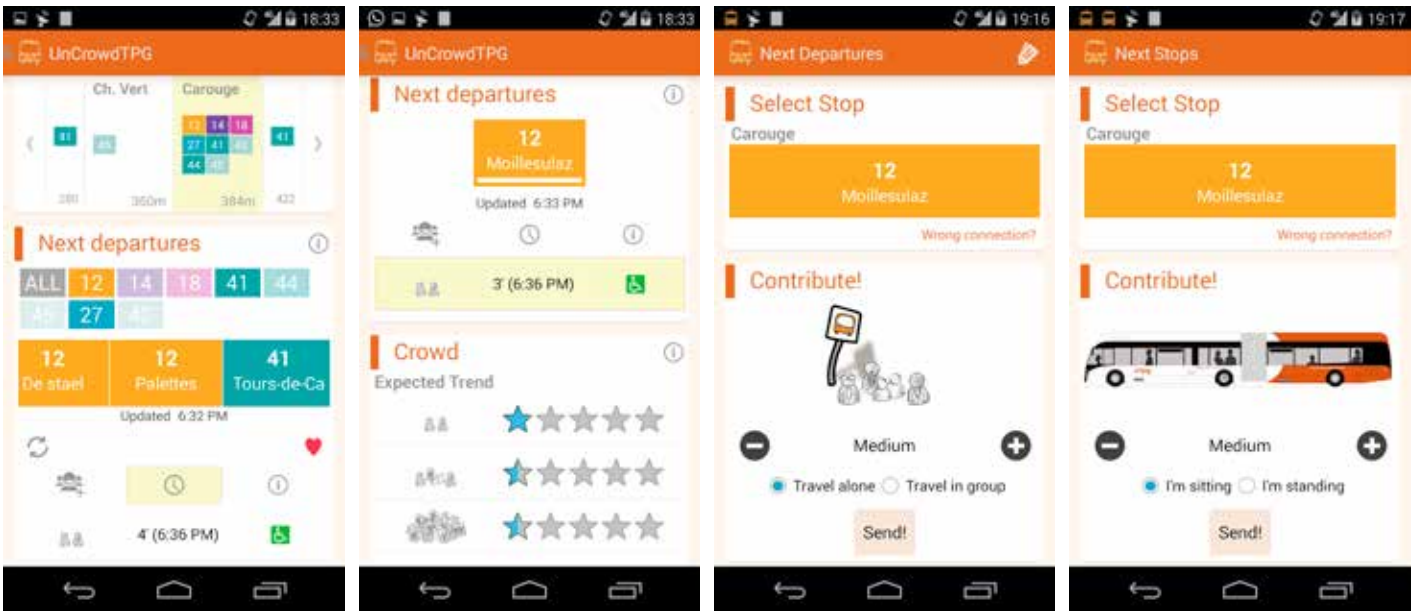


Figure 16: UnCrowdTPG is a TPG open data API contest winner. It is a smartphone application that let people know which are the less crowded trams and buses for a more comfortable commute. It is based on the collaboration between people to engage them and be part of the general society and family of TPG raiders

- 9.2016 "5G-enabed Digital Health Technologies for Quality of Life Enhancements", Wireless World Research Forum (WWRF) Working Group meeting on e/m-Health with particular focus on 5G systems (at IEEE HealthCom Conference), Munich, Germany.
- 6.2016 "Leveraging Mobile Apps and Wearables to Improve Patient's Self-Efficacy of Activities Contributing to Health", International Society for Wearable Technology in Healthcare (WATCH-Society), Stanford, USA
- 5.2016 Panel: "Research and Technology – How Can It Help Achieve Patient Outcomes?", 360° Growth Hormone Diseases Europe Meeting, Lisbon, Portugal
- 5.2016 Panel: "Innovations for Global Health Challenges", ITU-WHO Policy Dialogue on Digital Health for "Healthy Lives and Wellbeing for All (SDG3)" in parallel to the World Health Assembly, Geneva, Switzerland.
- 3.2016 Keynote: "Star Trek's Tricorder: Science Fiction or Future Science?", European Association of Hospital Pharmacists (EAHP), Vienna, Austria (3500 registered participants)

Participation in TV and radio programs

Jean-Marc Seigneur:
- Video interview by Le Temps Swiss national newspaper on the status of augmented human technologies during the 7th Augmented Human International Conference organized in Geneva on Feb 25-26 2016
- Radio interview during the a program of the Swiss national radio RTS "La Première" on the future of digital advertisement in 2016

Nadia Magnenat-Thalmann:
- Could robots replace your job? Channel NewsAsia, Talking Point, 23 Jun, 9.30pm
- Singapore Tonight heads outdoors, Channel NewsAsia, 10 Mar 2016, 10pm

Jean-Henry Morin:
- RTS la 1ère, On en Parle, Jean-Henry Morin, Big Data: un réveil des consciences est urgent et nécessaire!, 28 Jan. 2016, disponible sur Avis d'Experts: http://avisdexperts.ch/videos/view/4839
- RTS la 1ère, Invité de la Rédaction, Agenda Numérique dans le cadre de la Conférence Lift16, 12 février 2016, disponible sur Avis d'Experts: http://avisdexperts.ch/videos/view/4905
- Léman Bleu, 3D Eco, Data Centers, 15 février 2016, disponible sur: https://goo.gl/607v8Q
- RTS Le 19h30, Apple contre FBI, la police gagne le bras de fer, 29 mars 2016, disponible sur Avis d'Experts:http://avisdexperts.ch/videos/view/5121
- RTS 36.9°, Magazine Santé, Votre santé numérique : un trafic lucratif, 11 mai 2016, disponible sur: https://goo.gl/ME2uOi
- RTS la 1ère, On en Parle, Jean-Henry Morin, Les nouvelles identités digitales, 3 juin 2016, disponible sur Avis d'Experts:http://avisdexperts.ch/videos/view/5367
- RTS Six heures - Neuf heures, le samedi, La Suisse est-elle vraiment déconnectée du numérique, 17 septembre 2016, disponible sur Avis d'Experts: http://avisdexperts.ch/videos/view/5753

Press release

Michel Deriaz:
- Bilan Luxe: La connexion dans la peau / Smarte Welt - http://tam.unige.ch/assets/documents/press/20160316_BilanLuxe.pdf
- SERI: AAL project EDLAH presented in the SERI brochure - http://tam.unige.ch/assets/documents/press/20160711_SERI_AAL_en.pdf

Giovanna Di Marzo Serugendo:
- ICT Journal - Interview, Politiques publiques à l'ère du numérique - http://www.tdg.ch/geneve/actu-genevoise/etat-penche-defis-numeriques/story/16294618
- Journee SITG 2016 - http://www.tdg.ch/geneve/actu-genevoise/ville-intelligente-discute-geneve/story/20969966

Nadia Magnenat-Thalmann:
- IL MONDO DEI ROBOT TECNOLOGIA EVOLUTA, Il Giorno, 08 Oct 2016, Italian
- Il Mio Robot Che Non Portra Mai Amare, Grazia Magazine, 05 Oct 2016, Corsican
- Robot sociali in mostra a Bergamo Scienza, Robotica News, 30 Jul 2016, French
- Singapore eyes a slice of the AI pie, The Straits Times, Digital, 20 Apr 2016
- Pourquoi il est si difficile de créer un robot à l'apparence humaine, Le Monde.fr, 06 Apr 2016, French
- Are We Ready For Human-Like Robots In The Workplace?, Seeker Network, 11 Mar 2016
- Look who's talking now: Nadine the robot, International Business Times, 10 Mar 2016
- Now you're talking: human-like robot may one day care for dementia patients, Japan Today, 10 Mar 2016
- People with dementia could be supported by robots in the future, homecare.co.uk, 09 Mar 2016
- This 'social' robot could be the face of a revolution in care for children and the elderly, Bailiwick Express, 09 Mar 2016
- Robot to Care for Unattended Children, Dementia Patients, Financial Tribune Daily, 09 Mar 2016
- Human-like robot may one day care for dementia patients, The Nation, 08 Mar 2016
- Now you're talking: human-like robot may one day care for dementia patients, The Star Online, 08 Mar 2016
- Meet Nadine, the 'emotionally intelligent' companion robot, Science Alert, 08 Mar 2016

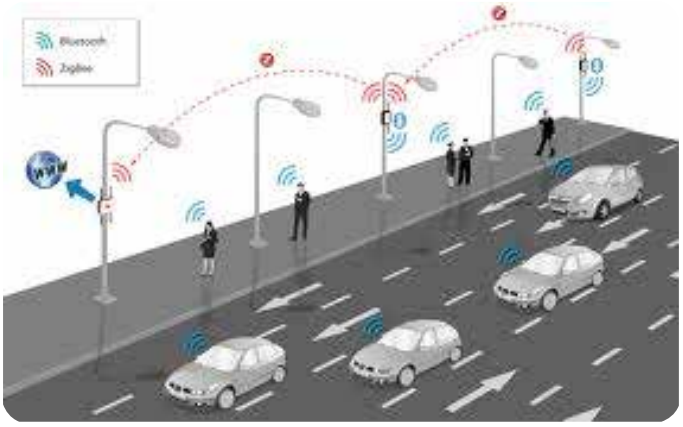


Figure 17: Spatial Services

Figure 18: ThingVibe, Internet of Things (IoT) social network and application store

- Human-like robot could help people living with dementia, Metro, 08 Mar 2016, also reported by Fox News (US), Toronto Sun (Canada), Huffington Post, News Max (US), Deccan Chronicles (US) and Times of India.
- Now You're Talking: Human-Like Robot May One Day Care For Dementia Patients, NDTV, 07 Mar 2016
- Now you're talking: human-like robot may one day care for dementia patients, Reuters, 07 Mar2016
- Robot Companions Being Developed to Help Care for Dementia Patients, Breitbart, 07 Mar 2016
- 'Lifelike Siri' robot with 'moods and emotions' could soon be working in youroffice, Irish Mirror, 07 Mar 2016
- Meet Nadine, the humanoid robot set to become your PA and even care for dementiapatients, The Daily Mail, 07 Mar 2016
- Emotive humanoids may one day care for people with dementia, The Japan Times, 07Mar 2016
- Siri Is Real: A Full-Blown Female Robot May Be Coming To Your Workplace, The Friskey, 07Mar 2016
- Creepy humanoid Nadine a social robot that may one day care for the elderly, torontosun.com, 7 Mar 2016
- Robot secretaries are a real thing now, New York Post, 29 Feb 2016
- Nadine, The World's Most Human-like Robot Unveiled, i-HLS Israel Homeland Security, 22 Jan 2016
- Robots Taking Over: A Future Perspective of our Robotic Society, IGI Global, 21 Jan 2016
- Meet Nadine, a humanoid social robot created by NTU, Press Telegraph, 13 Jan 2016
- Nadine The Social Robot Unveiled By Singaporean Lab, Ebuzz, 10 Jan 2016
- Nadine, the 'emotional' social robot, Star2, 08 Jan 2016
- Meet Nadine, a life-like robot with a personality of her own, Computer world, 08 Jan 2016
- Nadine & EDGAR, The Friendliest Robots You'll Ever Meet, Asianscientist, 07 Jan 2016
- New Social Robot Introduced In Singapore, News in English, 07 Jan 2016
- Nadine, most human-like robot in the world, Press Telegraph, 05 Jan 2016
- Robot receptionist – Question of the day, Keye TV (CBS), 05 Jan 2016
- Social Robot Nadine Has a Personality, The Telegraph Voice, 05 Jan 2016
- Nadine emotional robot debuts in Singapore, Leader Standard, 05 Jan 2016
- Mark Zuckerberg Wants To Build His Own Ai Assistant, Newsweek, 04 Jan 2016
- Socially intelligent robot is friendly and remembers all your nice chats with her, Market Business News, 04 Jan 2016
- Nadine emotional robot debuts in Singapore, ITPro, 04 Jan 2016
- This robot could be your next receptionist, Wired, 04 Jan 2016
- Nanyang Technological University of Singapore unveils Nadine, a social robot, Malaysia Hardware Zone, 04 Jan 2016
- Meet the first social robot, Nadine, Guru Mavin, 04 Jan 2016
- Nadine, the intelligent robot, Le Matin, 04 Jan 2016
- Ex Machina? Meet Nadine, A Human-Like Robot With 'Personality, Mood And Emotions', Inquisitr, 03 Jan 2016
- Meet Nadine, The Emotionally Intelligent Robot, World Report, 03 Jan 2016
- Meet Nadine: The human-like robot with personality, moods and emotions, Christian Today, 03 Jan 2016
- Nadine, a hyper-realistic humanoid coming from Singapore, 4eRevolution, 03 Jan 2016
- Nadine, the Social Robot That Remembers You, Stranger Dimensions, 03 Jan 2016
- Lifelike robot will remember your conversation with her, Charlotte Observer (Pulitzer prize-winning newspaper), 02 Jan 2016
- New Social Robot Nadine Has a Personality, CIO Today, 02 Jan 2016
- Meet Nadine, The New Social Robot Who Will Take Our Jobs, Bustle Magazine, 02 Jan 2016
- Now, a social robot receptionist, The Hindu, 02 Jan 2016
- New Social Robot Nadine Has a Personality, Newsfactor Network, 02 Jan 2016
- Social robot' Nadine can converse with people, adapt their responses and remember previous conversations, Northern Californian, 02 Jan 2016
- Social Robot 'Nadine', Oneworldnews, 02 Jan 2016

- Op-Ed: Robot receptionists — The new social robots, and big questions, Digital Journal, 02 Jan 2016
- This robot secretary is mind-blowingly lifelike, Hello Giggles, 02 Jan 2016
- Robotics Marvels – NTU Researchers develop unique social and tele-presence robots, PerfScience, 02 Jan 2016
- Meet The First Robot With Own Personality: Nadine, Turizmglobal, 02 Jan 2016
- Introducing Nadine, the robot with a human personality, Recorder Journal, 02 Jan 2016
- AMAZING! Scientists Unveil Human-like Robot With Feeling In Singapore, Global Village Extra, 02 Jan 2016
- Nadine, most human-like robot in the world, Fox 5, New York, 01 Jan 2016 (with NTU video)
- New humanoid robot 'Nadine' revealed, WGN TV, Chicago, 01 Jan 2016
- Robot 'Nadine' tremendously different from conventional robots, The Californian Post, 01 Jan 2016
- Meet Nadine, a humanoid robot with own personality and feelings, Wallstreet OTC, 01 Jan 2016
- Meet Nadine, Terrifyingly lifelike 'Social Robotic' that looks and acts like its proprietor, Global Viral News, 01 Jan 2016
- New social and telepresence robots developed in Singapore, Future Timeline, 01 Jan 2016
- For 2016, Social Robots Unveiled, Science 2.0, 01 Jan 2016
- Nadine, the world's most human-like robot, modeled after professor, nytimes, 01 Jan 2016
- Introducing Nadine, the robot with a human personality, Beacon Examiner, 01 Jan 2016

ISS team in 2013

Honours and scientific awards

Jean-Marc Seigneur:

- Google Excellent Research in Academia Award
- Certificate of Appreciation of the University of the Philippines Cebu

Katarzyna Wac:

- 6-8.2016 – K. Wac was a Visiting Scientist at Stanford University, USA, group lead by Prof. H. Rivas (MD)
- 2015 – 2016 K. Wac being a Mentor, Mentoring Program for female academics of the University of Lugano, Switzerland

Others

Dimitri Konstantas:

- Finalist of the AAL Smart Ageing Prize, for the CogniWin project results, http://aal.challenges.org/selected/8/cogniwin/

Nadia Magnenat-Thalmann:

- More than hundred films produced on Nadine social robot on youtube (https://www.google.ch/#q=youtube+nadine+robot&start=130)
- Participation to the Special Exhibition, «IT began with Ada. Women in computer history», Ada Lovelace, Computer Museum in Paderbon, Germany, 2 September 2015 to 10 July 2016

Jean-Henry Morin:

- Lancement du ThinkGroup ThinkServices sur le Testament Numérique en collaboration avec la commission de prospective de la chambre des notaires du Canton de Genève.
- Invited Professor at Korea University Business School and Yonsei School of Business, South Korea.
- Invited Researcher at Fasoo.com, South Korea.

Technology transfer

Jean-Henry Morin:

- www.MobileThinking.ch start-up originated in ISS in 2014 (2 funders from QoL, 1 funder from TaM, 1 funder from the Augmented Human Trust research group); technology transfer to Jody Hausmann (QoL: 2010-2012, TaM: 2013-2014)

Katarzyna Wac:

- QoL team: Technology Transfer to Hospital University of Geneva (HUG), Switzerland: "Interactive medical platform for the remote monitoring of patients with cardiovascular diseases (CVD)"

Funded research projects

Participation to European projects

AAPELE

Architectures, Algorithms and Platforms for Enhanced Living Environments
EU COST Action, AAPELE-IC1303
Period: November 2013 - November 2017
Web site: http://www.cost.eu/domains_actions/ict/Actions/IC1303

ACROSS

Autonomous Control For A Reliable Internet Of Services
EU COST Action, ACROSS-IC1304
Period: November 2013 – November 2017
Web site: http://www.cost.eu/domains_actions/ict/Actions/IC1304

Visualization of enrichment information in enriched 3D city models

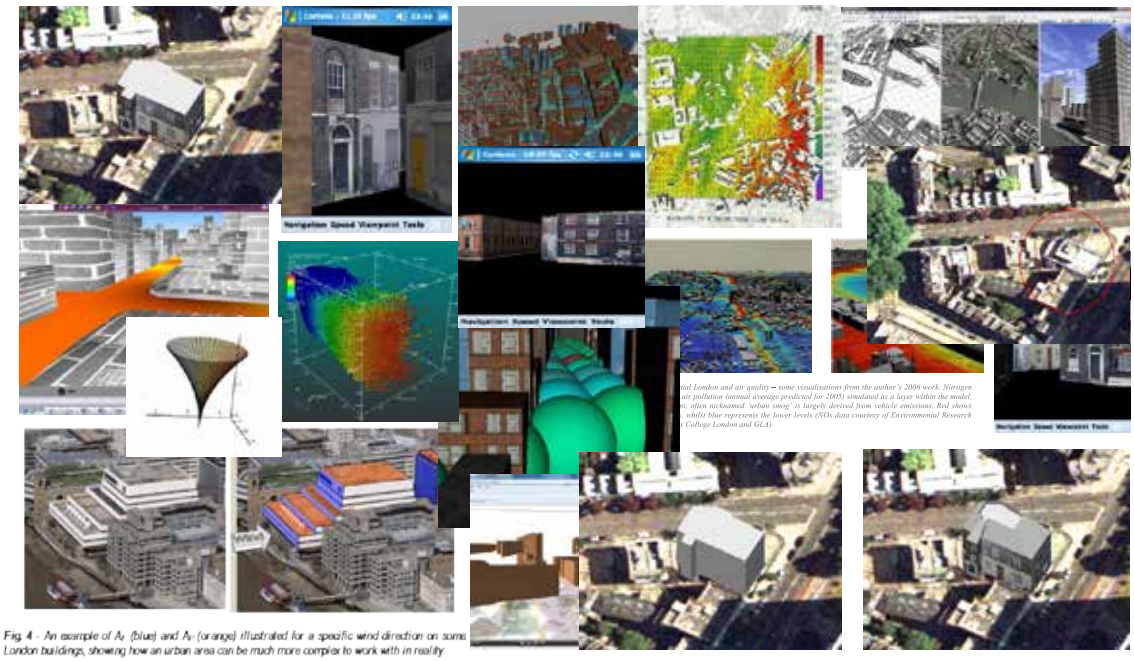
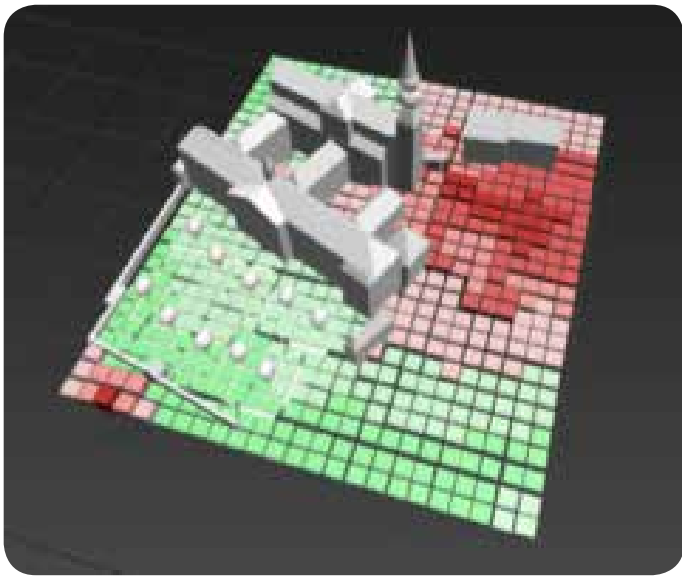


Figure 19: Data and knowledge visualization techniques in urban models

Figure 20: A visualization technique for air quality in a 3D city model



ANIMATE

Ambient Assisted Living project «intergenerAtioNal communIty for coMpAny knowledge TransfEr»
EU COST Action, AAL-ANIMATE, aal-2013-6-071
Partners: Hi iberia, IRB, UNIGE (Katarzyna Wac), Thurrock Council, eLearning Studios
Period: May 2014 - November 2016
Web site: http://www.qol.unige.ch/research/animate.html

ANINEX

User Centred Computer Animation Techniques for Next Generation Digital Creation and Modelling
EU FP7 project, ID 612627
Partners: National Centre for Computer Animation, Bournemouth University – United Kingdom, MIRALab, University of Geneva – Switzerland, National Laboratory for Information Science and Technology, Tsinghua University – China, The State Key Laboratory of Computer Science, Institute of Software, Chinese Academy of Sciences – China, The State Key Laboratory of Computer Aided Design and Computer Graphics, Zhejiang University – China
Period: December 2013 - November 2017
Web site: http://cordis.europa.eu/project/rcn/109867_en.html

ASAP

Architectures, Algorithms and Platforms for Enhanced Living Environments
EU FP7-ICT Grant 619706
Partners: Université de Genève, Institute of Communication and Computer Systems (Greece), Queen's University Belfast (UK), Internet Memory Research (France), WIND Telecomunicazioni (Italy), webLyzard technology (Autria)
Period: March 2014 - February 2017
Web site: http://www.asap-fp7.eu/

CogniWin

Cognitive Support for Older Adults in Work
AAL project (AAL-2013-6-114)
Partners: University of Geneva (Coordinator), ArgYou Ltd, Microsoft Portugal, Instituto Pedro Nunes, Zuyderland, Austrian Institute of Technology, ISOIN, Citard Services Ltd
Period: May 2014 - December 2016
Website: http://cogniwin.eu

CoME

European Ambient Assisted Living project «Caregivers and Me"
AAL-CoME AAL-2014-127
Partners: HI iberia (Spain), IRBLLeida (Spain), University of Geneva (Switzerland) (Katarzyna Wac), Vigisense (Switzerland), ConnectedCare (Netherland), Pannon Business Network (Hungary)
Period: 2015 – 2018
Web site: http://come-aal.eu/

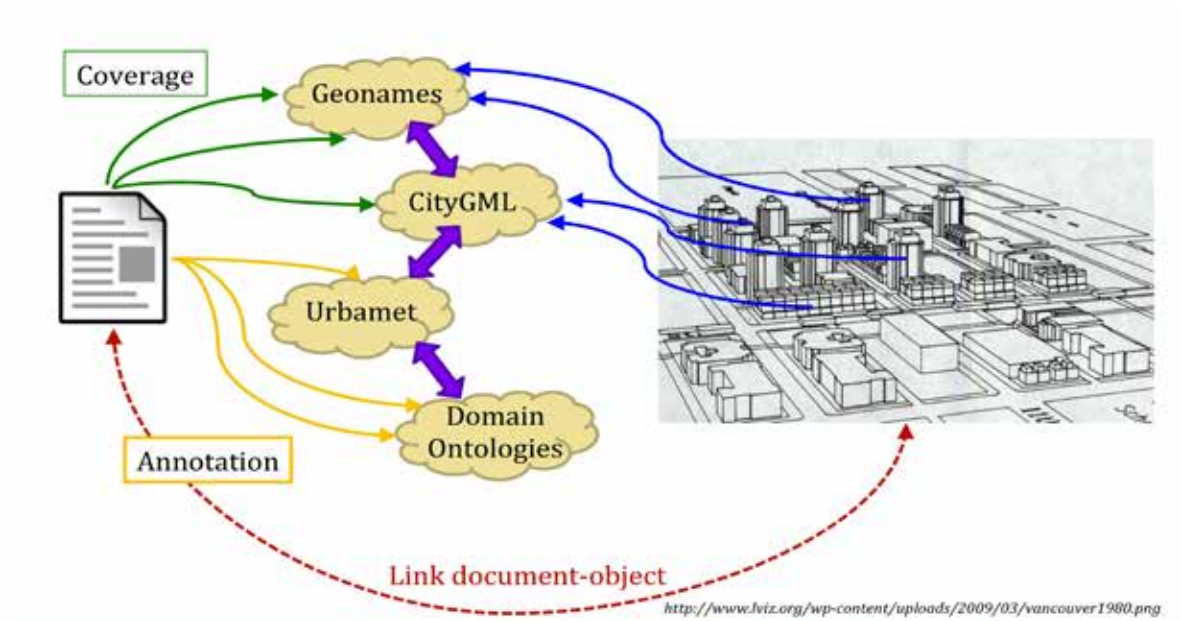


Figure 21: Connecting documents and city objects through ontologies

EDLAH2
AAL project
Partners: karisgroup (England), Université du Luxembourg (Luxembourg), Université de Genève (Switzerland), EverdreamSoft (Switzerland), terzStiftung (Switzerland)
Period: June 2016 - 2018
Website: http://edlah2.eu

ENERGIC
European Network Exploring Research into Geospatial Information Crowdsourcing: software and methodologies for harnessing geographic information from the crowd
EU COST Action IC1203
Partners: Claudine Métral, Gilles Falquet (management committe members)
Period: December 2012 - December 2016
Web site: http://vgibox.eu/

GrowMeUp
EU H2020 project
Partners: Artificial Perception Team (Portugal), University of Cyprus (Cyprus), University of Geneva (Switzerland), ProbaYes (France), PAL Robotics (Spain), CiTARD Services Ltd (Cyprus), Caritas Ciocesana de Coimbra (Portugal), Zuyderland (Netherland)
Period: February 2015 - January 2018
Website: http://www.growmeup.eu/

ITN-DCH
Initial Training Network for Digital Cultural Heritage: Projecting our Past to the Future
EU FP7 project
Partners: MIRALab, University of Geneva - Switzerland, Cyprus University of Technology - Cyprus, National Technical University of Athens - Greece, Universitaet Stuttgart – Germany, Foundation for Research and Technology Hellas – Greece, Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e.v. - Germany, Katholieke Universiteit Leuven – Belgium, Fondazione Bruno Kessler – Italy, Centre National de la Recherche Scientifique - France, Universidad de Murcia - Spain, Univerzav Ljubljani - Slovenia, Arctron 3d Vermessungstechnik-und Softwareentwincklungs Gmbh - Germany, 7Reasons Medien Gmbh - Germany, The University of Warwick – United Kingdom
Period: October 2013 - September 2017
Web site: http://www.itn-dch.org/

KEYSTONE
Semantic keyword-based search on structured data sources
EU COST Action IC1302
Partners: Gilles Falquet, Stéphane Marchand-Maillet (mgt committee and working group members)
Period: October 2013 - October 2017
Web site: http://www.keystone-cost.eu

MiraculousLife
Miraculous Life for elderly Independent Living
EU FP7-ICT project Grant 611421
Partners: AIT, UniGe, UCY, ORBIS, Fh-IGB, Noldus, Citard, Zoobe, MRPS
Period: February 2014 - February 2017
Web site: http://miraculous-life.eu/

NOTRE
Network for Social Computing Research
EU FP7 project
Partners: Cyprus University of Technology (CUT) – Cyprus, Foundation For Research and Technology Hellas (FORTH-ICS) – Greece, IMDEA Networks Institute (IMDEA) – Spain, MIRALab, University of Geneva (UNIGE) – Switzerland, University of Dusseldorf (UDUS) – Germany
Period: January 2016 - December 2018
Web site: http://notre.socialcomputing.eu

REPLAY
Reusable low-cost platform for digitizing and preserving traditional participative sports
EU H2020 project
Partners: Fundacion Centro de Tecnologias de Interaccion Visual y Comunicaciones VICOMTECH – Spain, Dublin City University – Ireland, MIRALab, University of Geneva – Switzerland, IN2 Search Interfaces Development Limited – United Kingdom, Gaelic Athletic Association – Ireland, Centre For Research and Technology Hellas – Greece, Eusko Jaurlaritza-Gobierno Vasco – Spain, Vicon Motion Systems Limited – United Kingdom
Period: March 2013 - February 2016
Web site: http://www.fp7-replay.eu/

SmartHeat
AAL project
Partners: Université de Genève (Switzerland), Modosmart S.L. (Spain), MX-SI S.L. (Spain), Sensor ID s.n.c. (Italy), terzStiftung (Switzerland), Eurag (Austria), Gluk Advice B.V. (Netherland), Teamnet International (Romania)
Period: 2015 - 2018
Website: http://www.smartheat-aal.eu

SpONSOR
SOlutioN for Supporting occupation in the life of Older adults
AAL project
Partners: Luxembourg Institute of Science and Technology (Luxembourg), Coherent Streams (Switzerland), Fondation Suisse pour les Téléthèses (Switzerland), University of Geneva ISS (Switzerland), InTech (Luxembourg), Consiglio Nazionale delle Ricerche (Italy), I+ S.r.l. (Italy), Netwell Centre and Casala, Dundalk Institute of Technology (Itreland)
Period: May 2014 - October 2016
Website: http://sponsor-aal.eu/Home

SPIRIT
Security and PrIvacy foR the Internet of Things
CHIST-ERA European project, R
EPSRC Reference EP/P015956/1
Partners: University of Kent - School of Engineering and Digital Arts, University of La Rochelle - L3i Laboratory, University of Essex - School of Computer Science and Electronic Engineering, University of Geneva - Centre for Computer Science (CUI)
Period: January 2017 - December 2019
Website: -

StayActive
AAL project
Partners: TeamNet (Romania), eLearning Studios (UK), HI-Iberia (Spain), RGB Medical Devices (Spain), CETEMMSA (Spain), Ana Aslan International Foundation (Romania), Université de Genève (Switzerland)
Period: 2014 - 2016
Website: http://stay-active.net

ViMM
Virtual Multimodal Museum
EU H2020 project
Partners: Cyprus University of Technology (CUT) – Cyprus, Foundation For Research and Technology Hellas (FORTH-ICS) – Greece, 7Reasons Medien Gmbh - Germany, MIRALab, University of Geneva (UNIGE) – Switzerland, Stifung Preussischer Kulturesizt – Germany, Universidad Pompeu Fabra – Spain, 7scenes – Netherlands
Period: October 2016 - March 2019
Web site: http://vi-mm.eu/

Vizier
The Elderly Friendly Interface to Modern Online Services and Internet of Things Appliances
AAL project
Partners: University of Geneva (Project coordinator), Dublin City University, Myhomecare, NetUnion sàrl, Verhaert New Products & Services NV, Acapela Group S.A., Familiehulp vzw, VIVA Association, Salaso Health Solutions Ltd.
Period: 2016 - 2018
Web site: http://aalvizier.eu


Video of the coach movement to reproduce


Coach movement transferred on a virtual character


User take the position


Record of the user movement

Evaluation of the user movement

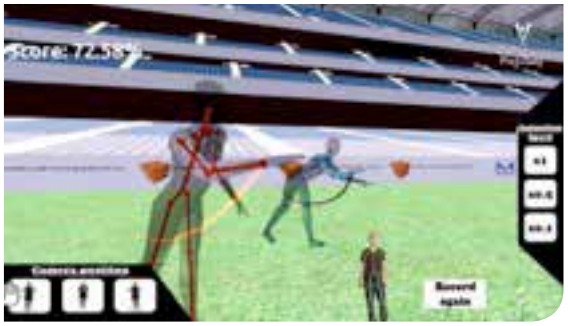

Comparison between the coach movement (in blue) and the user movement (in red)

Figure 22: Replay project – Interactive platform for learning Gaelic football © MIRALab

Participation to National projects

CitiGeo
Citizen-centered Photogrammetry Service Project
CTI project
Partners: Arx IT SA (Switzerland), Etat de Genève (Switzerland), Swiss Federal Office of Topography (Switzerland), University of Geneva (Switzerland)
Period: March 2015 - September 2016
Website: http://www.citigeo.ch/

Finding lost objects in a warehouse with Beacons Low Energy (BLE)
Private mandate
Principal Investigator: Giovanna Di Marzo Serugendo
Period: March - June 2016

GeoFab du Grand Genève
InterReg project
Principal Investigator: Giovanna Di Marzo Serugendo
Period: July 2016 - December 2019
Website: https://www.geofab-grandgeneve.org/

GovLab
Creation of the Geneva Living Lab in connection with the ENOLL network (European Network of Living Labs)
Research grant from the Direction générale des systèmes d'information (DGSI), State of Geneva
Period: January 2016 - December 2016

IDDASS
Interests detection during a shopping session
CTI Project
Period: 2016 - 2017
Website: http://tam.unige.ch/projects/iddass.html

MIQmodel
Context-aware Mobile Internet Quality Model
SNSF-157003
Period: 2015 - 2018
Website: http://p3.snf.ch/Project-157003

PRedict Solar Uv Exposure (PuRSUE)
Ground UV irradiance and 3D rendering techniques to predict anatomical solar UV exposure in Skin cancer research and prevention
SNF project 152803
Institute for Work and Health, Lausanne University Hospital, MeteoSwiss
Period: August 2014 - July 2017
Website:
http://p3.snf.ch/Project-152803

Recover@home
A monitoring solution to be used at home by people who undergo lower body orthopaedic surgery
CTI Project
Period: 2016 - 2018
Website: http://tam.unige.ch/projects/recoverathome.html

Swiss Alliance for Data-Intensive Services
KTI NTN Project
Management Board Member: Giovanna Di Marzo Serugendo
Period: 2017 - 2019
Website: http://www.data-service-alliance.ch/

ThinkDesign
Developing Design Thinking as an academic skillset
University of Geneva – Yonsei University co-fund
Period: September 2015 - August 2018

Toponymy of city roads' names
Metronom project
University of Geneva
Period: 2015 - 2016

Teaching

Giovanna Di Marzo Serugendo:

- **Self-Organising applications: Design Patterns and Quantitative Assessment Framework Quanticol School** , PhD School, (16th International School on Formal Methods for the Design of Computer, Communication and Software Systems: Quantitative Evaluation of Collective Adaptive Systems) - http://www.sti.uniurb.it/events/sfm16quanticol/, June 2016
- **Principes et fonctionnement des ordinateurs**, ISS, Bachelor course, 3 ECTS, 28 hours, 80 students
- **Bases de données**, ISS, Bachelor course, 6 ECTS, 14 hours, 30 students
- **Mashup, contextualisation et qualité des services**, ISS, Bachelor course, 3 ECTS, 28 hours, 15 students
- **Design Science Research**, ISS, Master course, 3 ECTS, 84 hours, 20 students
- **Problèmes des sociétés contemporaines: économie et société numériques** , ISS, Bachelor course, 6 ECTS, 84 hours, 200 students
- **Projet Transverse I, II**
- **CAS Protection des données (Data Protection)** (Director)

Giovanna Di Marzo Serugendo and Jose Luis Fernandez-Marquez:

- **Self-adaptive systems**, ISS, Master course, 4 ECTS, 42 Hours, 6 students

Dimitri Konstantas:

- **Réseaux de communication**, ISS, Bachelor, 48 hours, 12 students
- **Mobile Systems and Services**, ISS, Master, 48 hours, 10 students
- **Design of Multimedia Services**, ISS, Master, 48 hours, 12 students
- **Technologies for Services**, ISS, Master, 48 hours, 11 students
- **InfoSec (program director)**, ISS, Continuing education, 24 hours, 30 students
- **Systèmes d'information et sciences des services**, ISS, Master 2 Gestion d'entreprise / Continuing education, 24 hours, 20 students
- **MAS SCN (program director)**, Continuing education, 6 students

Laurent Moccozet:

- **Service Innovation Lab**, ISS, Master, 3 ECTS, 28 hours, 8 students
- **Introduction à la programmation**, ISS, Bachelor, 6 ECTS, 56 hours, 20 students
- **Services et technologies multimédia**, ISS, Bachelor, 6 ECTS, 56 hours, 60 students
- **Introduction à la sience des services**, ISS, Bachelor, 6 ECTS, 56 hours, 300 students

Jean-Henry Morin:

- **Introduction à la Sécurité, Ethique et Règlementation des Services**, ISS, Bachelor course, 3 ECTS, 28 hours, 50 students
- **Design Science**, ISS, Bachelor course, 6 ECTS, 56 hours, 14 students (2016: Giovanna Di Marzo Serugendo)
- **Systèmes d'Information d'Entreprise**, ISS, Bachelor course, 6 ECTS, 56 hours, 10 students
- **Informatique et Systèmes d'Information I, Public Management**, ISS, Master course, 3 ECTS, 28 hours, 20 students
- **Selected Topics, Advanced Seminar on Industrial & Emerging issues**, ISS, Master course, 3 ECTS, 28 hours, 16 students
- **Service Innovation Lab**, ISS (shared with Laurent Moccozet), 3 ECTS, 28 hours, 9 students
- **Design Science & Design Thinking**, CUSO Doctoral Program in Computer Science, in cooperation with Prof. Yves Pigneur, University of Lausanne, 5 days program, 35 hours, 12 students
- **Introduction to Management Information Systems** (English), Undergraduate Level, Credit Hours 3(3), 80 students, Korea University Business School
- **Internet Business and Electronic Commerce** (English), Undergraduate Level, Credit Hours 3(3), 53 students, Korea University Business School
- **Design Thinking for Innovation**, Undergraduate Level, co-teaching with Prof. Kil-Soo Suh, Credit Hours 3(3), 40 students, Yonsei School of Business
- **Emerging Trends & Development in Global IT Industry** (English), Graduate Level, TRENDS & DEVELOPMENT IN GLOBAL IT INDUSTRY (English), GMBA, Module 2, 41 students, Korea University Business School

Jolita Ralyté:

- **Analyse des objectifs**, ISS, Bachelor course, 3 ECTS, 26 hours, 200 students
- **Gestion de projets**, ISS, Bachelor course, 3 ECTS, 26 hours, 70 students
- **Modélisation et réalisation des services**, ISS, Bachelor course, 6 ECTS, 26 hours, 15 students
- **Bases de données**, ISS, Bachelor course, 6 ECTS, 14 hours, 30 students
- **Service Models and Design**, ISS, Master course, 6 ECTS, 28 hours, 18 students
- **CAS MATIS-GPSI**, Continuing education, 10 ECTS, 40 hours, 8 students

Jean-Marc Seigneur:

- **Intégration et Déploiement de Services Informatisés**, ISS, CUI, Bachelor, 6 ECTS, 56 hours, 13 students
- **e-Réputation et Trust Management**, Continuous education, Medi@LAB, Geneva School of Social Sciences, 12 hours, 27 students
- **e-Commerce**, Continuous education, Medi@LAB, Geneva School of Social Sciences, 12 hours, 27 students
- **Web Marketing et e-Réputation**, ISS, Master Journalisme et Communication, Medi@LAB, Geneva School of Social Sciences, 3 ECTS, 14 hours, 25 students
- **Géolocalisation**, Master Journalisme et Communication, Medi@LAB, Geneva School of Social Sciences, 1.5 ECTS, 14 hours, 8 students
- **Information Stratégique, Veille et Recherche d'Information**, ISS, Master Journalisme et Communication, 3 ECTS, 28 hours, 13 students
- **CAS Smart City Digital Management (program director)**, Continuous education, Medi@LAB, Geneva School of Social Sciences, 15 ECTS

Gilles Falquet:

- **Semantic Web technologies**, ISS, Master, 6 ECTS, 56 hours, 20 students, participation for 28 hours
- **Knowledge organisation systems**, ISS, Master, 6 ECTS, 56 hours, 10 students, participation for 28 hours
- **Systèmes d'information de l'environnement**, Master en sciences de l'environnement (MUSE) course, 3 ECTS, 28 hours, 55 students, participation for 4 hours

Claudine Métral:

- **Semantic Web technologies**, ISS, Master, 6 ECTS, 56 hours, 20 students, participation for 28 hours
- **Knowledge organisation systems**, ISS, Master, 6 ECTS, 56 hours, 14 students, participation for 28 hours
- **Systèmes d'information de l'environnement**, Master en sciences de l'environnement (MUSE) course, 6 ECTS, 10 hours, 55 students, participation for 4 hours
- **GEOTOOLS-DB: Modélisation des bases de données spatiales,** Certificat complémentaire en géomatique, Service course, 3 ECTS, 28 hours, 30 students
- **Space-City: Modèles urbains 3D,** Master en sciences de l'environnement (MUSE), Service course, 3 ECTS, 28 hours, 12 students

Verena Kantere:

- **Advanced Databases**, ISS, Bachelor course, 6 ECTS, 52 hours, 12, students

latl.unige.ch

LATL

Laboratory for the Analysis and Technology of Language

TecDay, Collège Sismondi, 2016 April 19th

Laboratory for the Analysis and Technology of Language

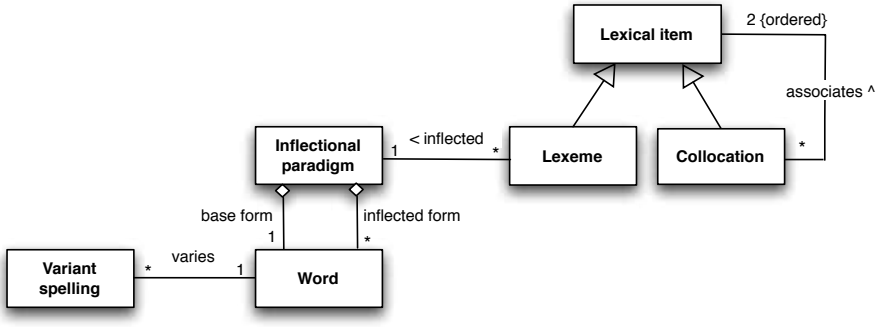
Domain activities

LATL (http://www.latl.unige.ch) has been active in the field of natural language processing since the early 1990's. Its main research focus is the development of a multilingual syntactic parsing model (the Fips parser), as well as the development of large lexicons and dictionaries.

The Fips parser is currently available for several of the main European languages (English, French, German, Italian and Spanish), with several other languages at various stages of development (Romanian, Greek, Japanese). In 2016 the LATL continued the development of the parsers for the above languages with a special stress on Greek. It is based on a grammatical model inspired by Chomsky's generative grammar and on an object-oriented design for its implementation. The parser and its rich lexical database (Figure 1) are used in a number of applications, including machine translation (Figure 4), terminology extraction, speech-to-speech translation, and computer-assisted language learning.

In collaboration with the Knowledge Engineering group, the LATL works on a project of digital edition of Ferdinand de Saussure's manuscripts. A system for visualizing, annotating and transcribing Saussure's manuscripts is already completed.

Figure 1: The lexical database schema of the Fips parsing system.



Team

Director
Eric Wehrli
Full professor
H-index: 22

Senior researchers
Dr. Vasiliki Foufi
Dr. Yves Scherrer
Mathieu Avenzi
Jean-Philippe Goldman
Luka Nerima

Assistants (PhD students)
Asheesh Gulati
Maria Ivanova
Sharid Loaiciga
Kamel Nebhi
Lorenza Russo

Administration
Lara Broi (till June 2016)
Coralie Grossrieder (from June 2016)
Eva Capitao

Figure 2: Translation of Word in Context (TWiC) is a reading aid system for readers of materiel in foreign languages. Here in use on the Tages Anzeiger newspaper Website

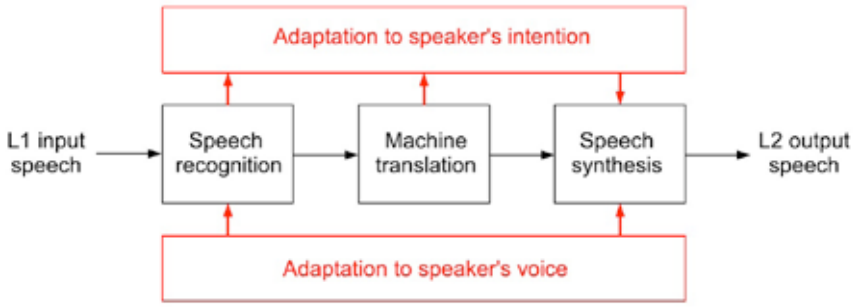


Figure 3: General concept of speech-to-speech machine translation, with SIWIS adaptations in red.

List of publications

Refereed papers in international journals

[1] Avanzi, M. 2016. « Le français régional à substrat picard : étude de géographie linguistique », Bien Dire et Bien Aprandre, 32, 133-158.

[2] Avanzi, M. 2016. « Rôle de la prosodie dans la perception de variétés régionale et non-native du français », Langages, 202, 35-46.

[3] Avanzi, M., Brognaux, S. 2016. « Une analyse multi-niveau du phrasé prosodique des adjectifs en français », Langue française, 191, 107-121.

[4] Loáiciga, Sharid and Cristina Grisot. (2016). "Predicting and Using a Prag- matic Component of Lexical Aspect of Simple Past Verbal Tenses for Improving English-to-French Machine Translation". In: Linguistic Issues in Language Technology 13.3, pp. 1–36.

[5] Yves Scherrer & Philipp Stoeckle: A quantitative approach to Swiss German - Dialectometric analyses and comparisons of linguistic levels. In: Dialectologia et Geolinguistica 24, 92-125

Full refereed papers in Conference Proceedings

[6] Avanzi, M., Barbet, C., Glikman, J., Peuvergne, J. 2016. « Présentation d'une enquête pour l'étude les régionalismes du français ». Actes du 5ème congrès mondial de linguistique française (CMLF), Tours (France), pp. 1-15.

[7] Avanzi, M., Béguelin, M.-J., Diémoz, F. 2016. « De l'archive de parole au corpus de référence. Le corpus oral de français de Suisse romande (OFROM) ». Actes du colloque Corpus de Français Parlés et Français Parlés des Corpus (= Corpus 15), pp. 309-342.

[8] Jean-Philippe Goldman, Pierre-Edouard Honnet, Rob Clark, Philip N. Garner, Maria Ivanova, Alexandros Lazaridis, Hui Liang, Tiago Macedo, Beat Pfister, Manuel Sam Ribeiro, Eric Wehrli and Junichi Yamagishi, «The SIWIS database: a multilingual speech database with acted emphasis», Proceedings of INTERSPEECH 2016, 1532

[9] Loáiciga, Sharid and Kristina Gulordava. (2016). "Discontinuous Verb Phrases in Parsing and Machine Translation of English and German". In: Proceedings of the Tenth International Conference on Language Resources and Evaluation. LREC'16. Portoroz, Slovenia: European Language Resources Association (ELRA), pp. 2839–2845.

[10] Luka Nerima, Violeta Seretan & Éric Wehrli. Un outil multilingue d'extraction de collocations en ligne. In Proceedings of the 23ème Conférence sur le Traitement Automatique des Langues Naturelles (TALN 2016), Paris, France.

[11] Tanja Samardzic, Yves Scherrer & Elvira Glaser: ArchiMob - A corpus of Spoken Swiss German. Proceedings of LREC 2016, Portoroz, Slovenia

Figure 4: VoiceÄpp Interface for dialect prediction based on automatic speech recognition.

[12] Yves Scherrer & Nikola Ljubesic: Automatic normalisation of the Swiss German ArchiMob corpus using character-level machine translation. Proceedings of KONVENS 2016, Bochum, Germany

[13] Éric Wehrli, Yves Scherrer & Luka Nerima. On-line Multilingual Linguistic Services. (Demo session) In Proceedings of the 26th International Conference on Computational Linguistics (Coling 2016), Osaka, Japan.

[14] Leonardo Zilio, Rodrigo Wilkens, Luís Möllmann, Eric Wehrli, Silvio Cordeiro and Aline Villavicencio «Joining forces for multiword expression identification» in J. Silva, R. Ribeiro, P. Quaresma, A. Adami and A. Branco (eds) Computational Processing of the Portuguese Language, proceedings of PROPOR 2016, 232-238.

Full refereed papers in Workshops Proceedings

[15] Loáiciga, Sharid, Liane Guillou, and Christian Hardmeier. (2016) "It- disambiguation and source-aware language models for cross-lingual pronoun prediction". In: Proceedings of the First Conference on Machine Translation. Berlin, Germany: Association for Computational Linguistics, pp. 581–588.

Books and book chapters

[16] Éric Wehrli. Parsing language-specific constructions: the case of French pronominal clitics», Festschrift for Jacques Moeschler, Springer Verlag, 2016.

Research and technical reports

[17] Foufi Vasiliki & Éric Wehrli (2016) "FipsCo (a collocation extraction system based on the Fips parser) for Modern Greek", Short-Term Scientific Mission (STSM) Report, PARSEME COST Action (http://typo.uni-konstanz.de/parseme/index.php/stsm-grants/finished-stsms).

International and national advisory committees

- Yves Scherrer, Consultant for the MADAR (Multi-Arabic Dialect Applications and Resources) project, funded by the National Priority Research Program of the Qatar Research Foundation, 2014-2017

Member of conference/workshop program committees

- Luka Nerima, Open Data for Local Search
- Luka Nerima, OD4LS Workshop, in conjunction with WWW2016, April 2016, Montreal, QC, Canada
- Yves Scherrer, 9DSL - 9th Days of Swiss Linguistics, Geneva
- Yves Scherrer, KONVENS - 13th Conference on Natural Language Processing, Bochum, Germany
- Yves Scherrer, RECITAL - Rencontre des Étudiants Chercheurs en Informatique pour le Traitement Automatique des Langues, TALN 2016, Paris, France
- Yves Scherrer, Second Workshop on Computational Approaches to Linguistic Code Switching, EMNLP 2016, Austin, USA
- Yves Scherrer, VarDial - Third Workshop on NLP for Similar Languages, Varieties and Dialects, Coling 2016, Osaka, Japan

Events organised in Geneva

- TecDay Collège Sismondi, «L'ordinateur, ce génie des langues», April 19th
- Nuit de la Science, «Lairë ~Editeur de sonnets», Parc de La Perle du Lac, 9-10 July

Invited talks

Yves Scherrer

- The dialectometrical analysis of French regionalisms - First steps towards localisation prediction. University of Zurich
- Yves Scherrer: Dialektometrische Experimente mit SDS- und SADS-Daten. University of Zurich
- Yves Scherrer: Tagging of Spoken Rusyn - Challenges and results. Slavic Spoken Corpora - Second Network Meeting, Freiburg i. Br., Germany
- Yves Scherrer, Tanja Samardzic & Elvira Glaser: Normalising orthographic and dialectal variants in the ArchiMob corpus of spoken Swiss German. 9th Days of Swiss Linguistics, Geneva
- Yves Scherrer & Philipp Stoeckle: Schweizerdeutsche Dialekte quantitativ - Dialektometrische Analysen und Vergleich linguistischer Ebenen. 13. Bayerisch-Österreichische Dialektologentagung (BÖDT), Erlangen, Germany
- Yves Scherrer (in collaboration with Jean-Philippe Goldman & Mathieu Avanzi): Towards automatic geolocalisation of speakers of European French. Journée Langage & Communication, University of Geneva
- Yves Scherrer: Invitation to the WARDAT workshop on Arabic dialect technologies, NYU Abu Dhabi, UAE

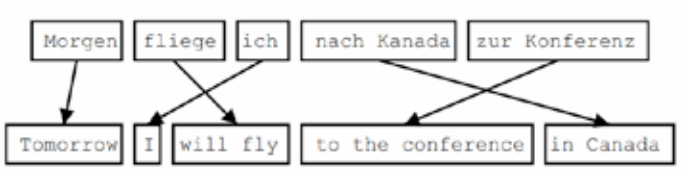


Figure 5: Word alignment in a bilingual parallel corpora

Eric Wehrli

- NLPCR, Costa Rica «Measuring the impact of collocation knowledge on sentence parsing», San Jose, Feb. 2016
- Institute for Language and Speech Processing, Athens, «Parsing and Collocations», June 2016
- Université de Strasbourg, «Collocations et résolution d'anaphores en traduction automatique», novembre 2016

Participation in TV and Radio Programs

- Yves Scherrer, RTS 1 Radio Interview on speech-to-speech machine translation, Forum, 2.6.2016

Funded research projects

Participation to European projects

PARSEME: Parsing and Multi-word Expressions
COST action IC 1207
Partners: 28 European countries
Period: March 2013 - April 2017
Website: http://typo.uni-konstanz.de/parseme/

Participation to National projects

Knowledge engineering models and tools for the digital scholarly publishing of manuscripts
Swiss NSF interdisciplinary project
Principal Investigator: Gilles Falquet (CUI - UNIGE)
Partners: Claire Forel (FTI - UNIGE), Luka Nerima (CUI – UNIGE)
Period: April 2015 – April 2017
Website: http://fds.unige.ch/

Donnez votre français à la science
Funded by DGLFLF (Délégation générale à la langue française et aux langues de France)
Principal Investigator: J.Ph. Goldman (CUI - UNIGE) and Y. Scherrer (CUI - UNIGE)
Period: 2016 - 2017

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 use its POS-Tagger: Acapela Group, a European Speech synthesis company, and ShareWizMe, a French innovative company specialized in real time analysis of contributions (ideas, feedback, comments).

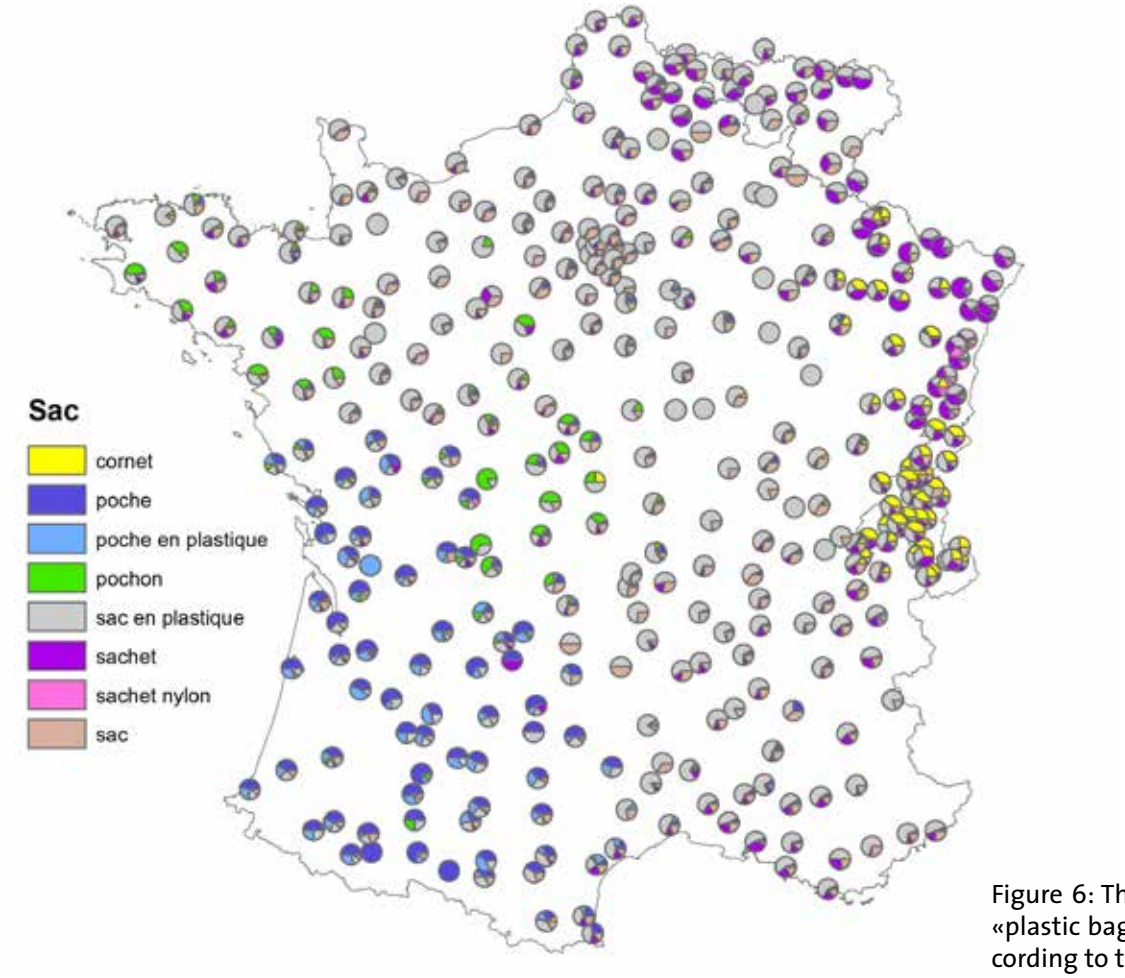


Figure 6: The denominations of the «plastic bag» in regional French, according to the results of [6]

Others

- Vasiliki Foufi, Luka Nerima and Eric Wehrli «Identification of Modern Greek collocations with a syntactic parser», Poster Presentation, Parseme workshop, Dubrovnik, Croatia, September 2016.
- Sharid Loáiciga (2016). Bourse Doc.Mobility du FNS (P1GEP1_161877). Projet: Pronominal Anaphora for Machine Translation.
- Loáiciga, Sharid, Liane Guillou, and Christian Hardmeier. (2016) "It- disambiguation and source-aware language models for cross-lingual pronoun prediction". Poster Presentation. The Sixth Swedish Language Technology Conference (SLTC 2016). Umeå University, 17-18 November, 2016
- Luka Nerima, Invited panellist at the Workshop on the French Sign Language, LIMSI - CETIM, 17-18 November 2016, Toulouse, France.
- Yves Scherrer, Character-level machine translation. Tutorial, CorpusLab, University of Zurich
- Yves Scherrer, Co-organizer of the weekly research seminar of the Department of Linguistics, University of Geneva

Teaching

Luka Nerima:

- **Databases**, Computer Science for the Humanities, Bachelor, 12 ECTS, 112 hours, 17 students
- **Databases - Laboratory sessions**, Computer Science for the Humanities, Bachelor, 6 ECTS, 56 hours, 8 students
- **Informatics II - Java seminar**, Computer Science for the Humanities, Bachelor, 6 ECTS, 28 hours, 8 students
- **Informatics II - Object Oriented Project**, Computer Science for the Humanities, Bachelor, 6 ECTS, 56 hours, 8 students
- **Information and Communication Technology**, Computer Science for the Humanities, Bachelor, & Master, 12 ECTS, 112 hours, 12 students

Yves Scherrer:

- **Informatics I - Web programming**, Computer Science for the Humanities, Lecture, Bachelor, 6 ECTS, 56 hours, 30 students
- **Informatics I - Algorithms and programming**, Computer Science for the Humanities, Laboratory sessions, Bachelor, 6 ECTS, 56 hours, 10 students
- **Empirical approaches to natural language processing and script languages**, Project supervision, Bachelor, 6 ECTS, 56 hours, 3 students
- **Empirical approaches to natural language processing**, Computer Science for the Humanities, Laboratory sessions, Master, 4 ECTS, 56 hours, 10 students
- **Natural language processing - linguistic and empirical approaches**, Laboratory sessions, Master, 56 hours, 10 students

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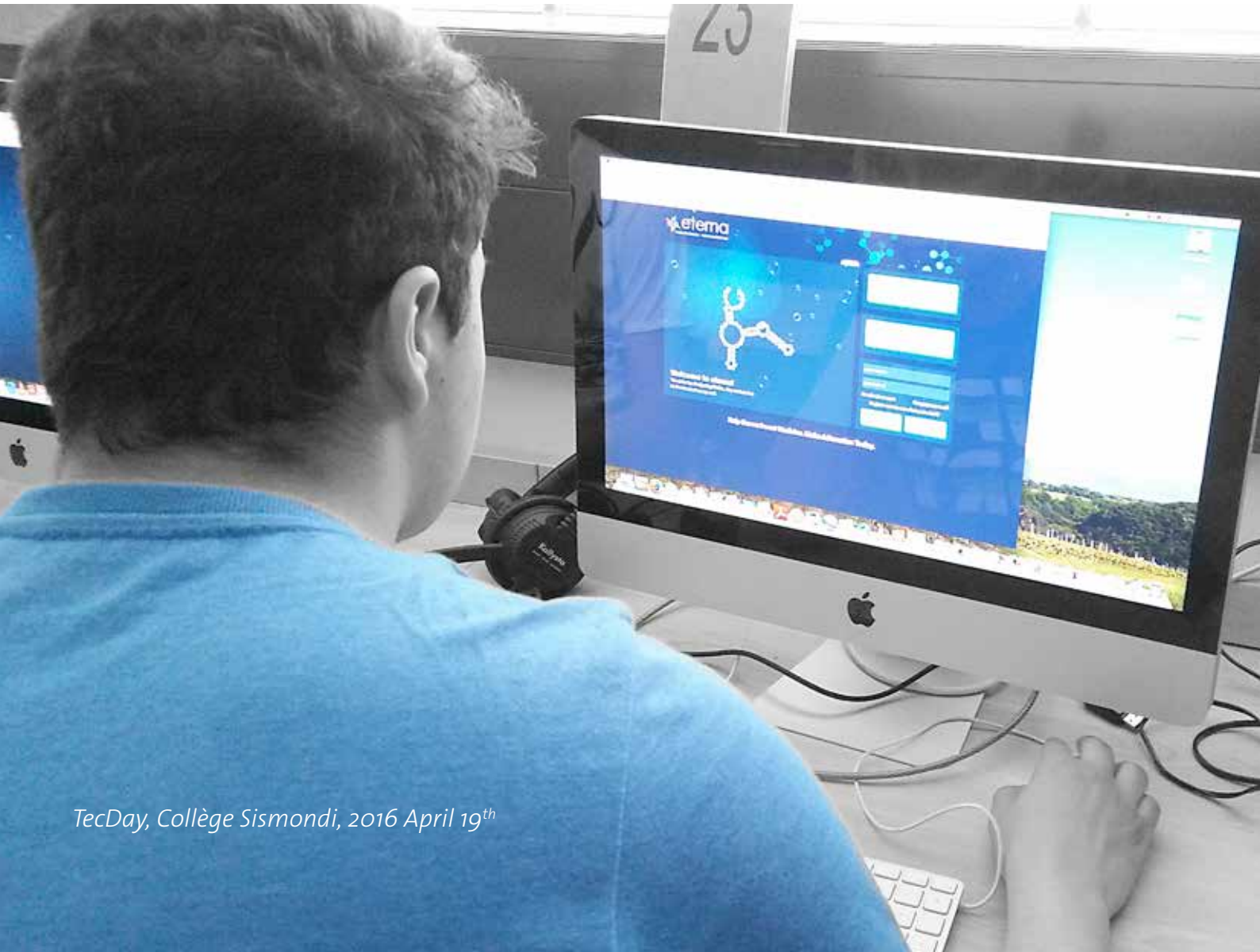
CUI UNI GE

PIG

Proteome Informatics Group



TecDay, Collège Sismondi, 2016 April 19th

Proteome Informatics Group

Domain activities

The Proteome Informatics Group (PIG) is involved in bioinformatics. Bioinformatics is a recently created discipline in which computer technology is applied to the understanding and effective use of biological data (see http://www.sib.swiss/bioinformatics-for-all/what-is-bioinformatics). At PIG, we concentrate on the study of proteins that are the active molecules of the cell. Extracting and studying proteins from a cell or a tissue requires the use of sophisticated experimental methods which generate large datasets. The analysis of this experimental data entails the identification and quantification of proteins, the determination of their cellular location, modifications, interactions and, ultimately, their function. This information is crucial to decipher cellular processes. This strongly motivates our group to develop software and databases that support data analysis and knowledge discovery in cooperation with Life scientists. These resources are made available through the ExPASy server (http://www.expasy.org). Our software tools mainly support experimental mass spectrometry data analysis, focused on the detection of posttranslational modifications. Our databases store knowledge of carbohydrates attached to proteins as well as protein-carbohydrate interactions.

Team

Director
Frédérique Lisacek
MER
H-index: 26

Senior researchers
Dr. Markus Müller
Dr. Marcin Domagalski
Dr. Alessandra Gastaldello

Assistants (PhD students)
Davide Alocci
Emma Ricart
Thibault Robin
Thomas Stricker (co-direction)

Developers / Designers
Julien Mariethoz

Internship Fellow
Marie Ghraichy

PIG team in 2016

List of publications

Refereed papers in international journals

[1] Gastaldello A, Alocci D, Baeriswyl JL, Mariethoz J, Lisacek F (2016) GlycoSiteAlign: glycosite alignment based on glycan structure. J Prot Research 15(10):3916-3928. PMID: 27523326

[2] Vandenbrouck Y, Lane L, Carapito C, Duek P, Rondel K, Bruley C, Macron C, Gonzalez de Peredo A, Couté Y, Chaoui K, Com E, Gateau A, Hesse AM, Marcellin M, Mear L, Mouton-Barbosa E, Robin T, Burlet-Schiltz O, Cianférani S, Ferro M, Freour T, Lindskog C, Garin J, Pineau C (2016) Looking for missing proteins in the proteome of human spermatozoa: an update. J Proteome Res. 15(11):3998-4019. PMID: 27444420

[3] Horlacher O, Lisacek F, Müller M (2016) Mining large-scale MS/MS data for protein modifications using spectral libraries, J Prot Research 15(3):721-731. PMID: 26653734

[4] Bilbao A, Lisacek F, Hopfgartner G (2016) Dedicated software enhancing data-independent acquisition methods in mass spectrometry. Chimia (Aarau) 70(4):293. PMID: 27131118

[5] SIB Swiss Institute of Bioinformatics Members (2016) The SIB Swiss Institute of Bioinformatics' resources: focus on curated databases. Nucleic Acids Res. 44(D1):D27-37. PMID: 26615188

[6] Mariethoz J, Khatib K, Alocci D, Campbell MP, Karlsson NG, Packer NH, Mullen EH, Lisacek F (2016) SugarBindDB, a resource of glycan-mediated host-pathogen interactions. Nucleic Acids Res. 44(D1):D1243-50.

International and national advisory committees

- F. Lisacek (since August) member of the Advisory Board of the MIRAGE project, http://www.beilstein-institut.de/en/projects/mirage, Beilstein Institute, Frankfurt, Germany

International and national Research Programs Committees

- F. Lisacek, grant submission reviewer, Medical Research Council (MRC: http://www.mrc.ac.uk), Swindon, UK, January 2016
- F. Lisacek, grant submission reviewer, Research Foundation - Flanders (FWO: http://www.fwo.be), Brussels, Belgium, June 2016

PhD Thesis Committees

- Thilo Muth, Reviewer (F. Lisacek), University of Magdeburg, Germany
- Yoann Dufresne, Rapporteur (F. Lisacek), Université de Lille, France
- Baptiste Schindler, Rapporteur (F. Lisacek), Université de Lyon 1, France
- Ana Planninc, Evaluator (F. Lisacek), Université Libre de Bruxelles, Belgium

Member of conference/workshop program committees

- F. Lisacek in Program committee of PRIB 2016 (The 10th IAPR, International Conference on Pattern Recognition in Bioinformatics), http://prib-2016.cicese.mx, Cancun, Mexico, Dec 1st-3rd
- F. Lisacek in Program committee of ECCB16 (15th European Conference on Computational Biology), http://www.eccb2016.org, The Hague, NL ,September 3rd-7th
- F. Lisacek in Program committee of Bioinformatics and Artificial Intelligence workshop at IJCAI (25th International Joint Conference on Artificial Intelligence), http://bioinfo.uqam.ca/IJCAI_BAI2016/, New-York, USA, July 11th
- F. Lisacek in Program committee of 9th International Biocuration Conference, http://www.sib.swiss/events/biocuration2016/,Geneva, April 10th-14th

Refereeing

- M. Müller and F. Lisacek regular reviewers for Journal of Proteome Research (JPR), PROTEOMICS, Journal of Proteomics, Nucleic Acid Research, Molecular&Cellular Proteomics

Editorial Responsabilities

- Editorial Board Member, PLOS One, Peer J, Biochimica et Biophysica Acta (BBA): Proteins and Proteomics, Clinical Applications in Proteomics

Events organised in Geneva

- Biocuration 2016, Workshop co-organised by F.Lisacek: Information extraction for glycobiology: building a wishlist for a toolbox, http://www.sib.swiss/events/biocuration2016/workshops#WS10, April 13th
- TecDay Collège Sismondi, «Des souris et de l'informatique», April 19th

Invited talks

- Warren Workshop 2016, http://warrenworkshop2016.glycoinfo.org/, F. Lisacek: "Glycomics@ExPASy: Bridging the gap", Hokkaido, Japan, August 24th-26th
- SPS & SMSS 2016, Joint Swedish Proteomics Society and Swedish Mass Spectrometry Society annual meeting, http://www.malmokongressbyra.se/spssmss, F. Lisacek: "Can bioinformatics reveal hidden treasures in MS data?", Gothenburg, Sweden, November 20th- 21th

Funded research projects

Participation to European projects

GastricGlycoExplorer: Systems glycobiology of gastric cancer
Partner of ITN (FP7-PEOPLE-2012-ITN)
(coordinator NG Karlsson, Uni. Gothenburg, Sweden)
Period: May 2013 - May 2017

Participation to National projects

Funded by SERI for bioinformatics services via the Swiss Institute of Bioinformatics.

Open software and databases

Glycomics@ExPASy

Title of the service/product/process: Glycomics@ExPASy, Bioinformatics services on ExPASy server fully hosted at SIB
Type: Databases + data analysis and search tools
External partners involved in the development (if any): CSEM
External partners involved in the development: University of Gothenburg, Sweden + University of Macquarie, NSW, Australia
Client or End user(s) : Life Science community
Brief description: The Glycomics@ExPASy backend is built on top of three databases (Host-pathogen interactions, Experimental mass spectrometry data of glycans and Glycoproteins). Tools are developed around the databases. They are either dedicated to solve a specific question (information extraction) or can be used in several applications and across the databases (data mining).
Website: http://www.expasy.org/glycomics

Others

- Best poster award for "Glycomics@ExPASy" by Julien Mariethoz, Davide Alocci, Marie Ghraichy, Marcin Domagalski, Alessandra Gastaldello, Thibault Robin, Oliver Horlacher, Elisabeth Gasteiger, Markus Müller, Frédérique Lisacek, At SIB Days 2016, Bienne, June 7th-8th
- Best short talk award for "Bioinformatics support for investigating glycan-binding proteins in inflammation" by Davide Alocci , At MedLem16, Geneva, November 17 (https://www.unige.ch/medecine/fr/carousel/17-novembre-medlem-2016)

Teaching

- **Protein expression and interaction**, Master, 42h, 4 ECTS
- **Introduction to Systems Biology** , Master, 40h, 3 ECTS
- **Elements of bioinformatics**, Master, 42h, 5 ECTS
- **Principes de fonctionnement des ordinateurs**, 14h, 4 ECTS (Thibault Robin, tutor)
- **Systèmes informatiques**, 28h, 5 ECTS (Davide Alocci, tutor)

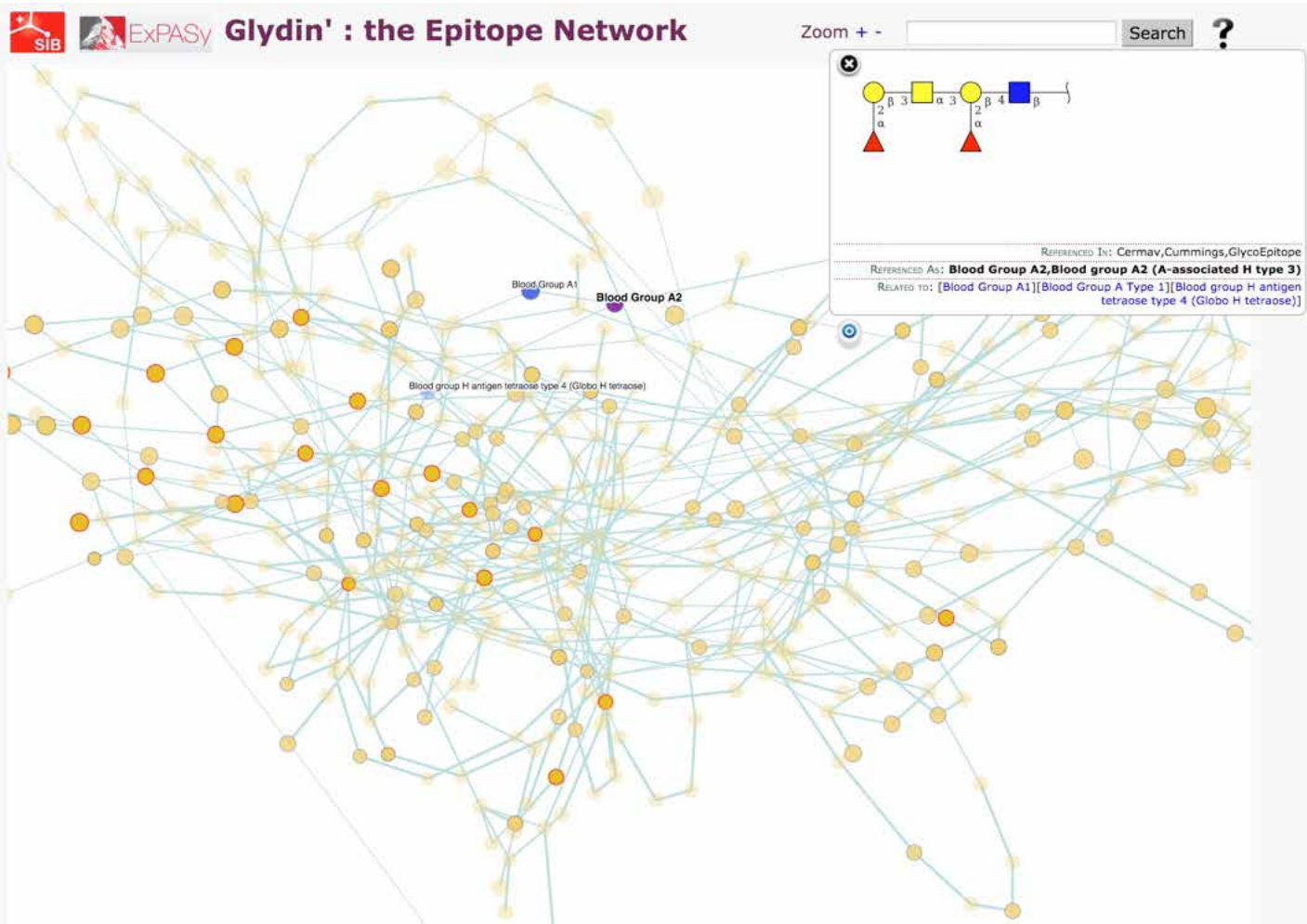


Figure 1: Graph-based and interactive visualisation of structural similarities between of carbohydrate-binding motifs collected from several independent sources. (the network is accessible at: http://glycoproteome.expasy.org/epitopes)

smv.unige.ch

CUI UNI GE

SMV

Software Modeling and Verification

Science Me competition (Nuit de la science), Parc de la Perle du Lac, 2016 July 9th

Software Modeling and Verification

Domain activities

Symbolic Model Checking was developed with the idea of verifying complex high level models with a reasonable amount of work for the user. In particular we propose to separate the model to the informa- tions for performing eficiently model checking (clustering, anony-mization, partial unfolding). The introduction of new kind of decision diagrams (Σ-DD) based on a generalization of the Shannon decom- position principles allow us to perform model checking for models with huge combinatorial explosion of states (around 10E4500 symbolic states). We are currently exploring the systematic use of rewriting of set of terms principles based on decision diagrams and operational control based on strategies as a metalevel in model checkers.

We currently develop several tools such as StrataGEM for the set rewriting principles, Stew as an abstraction over StrataGEM and Ardoises a meta-environment for mana-ging formalisms and their veri cation tools. We also continue to organize a model checking contest in the conference Petri Nets in order to be able to compare existing model checkers on significant benchmarks. We unify modular Petri Nets using an extension of the CO-OPN synchronization composition operators. This model gathers all modu- lar extensions of Petri nets in an elegant way. The interest of this approach is also to contribute to the standardization efforts made in the context of the ISO organization for Petri Nets. We also develop methods to adapt our formalisms to the domain of modeling and verification of cyber-physical systems.

Several application domain have been covered by the team such as the development of a domain specific language for computing on sets (Trexmo Tool for the SECO). This language is applied successfully for expressing various models of toxicology analysis in the context of health in the workplace.

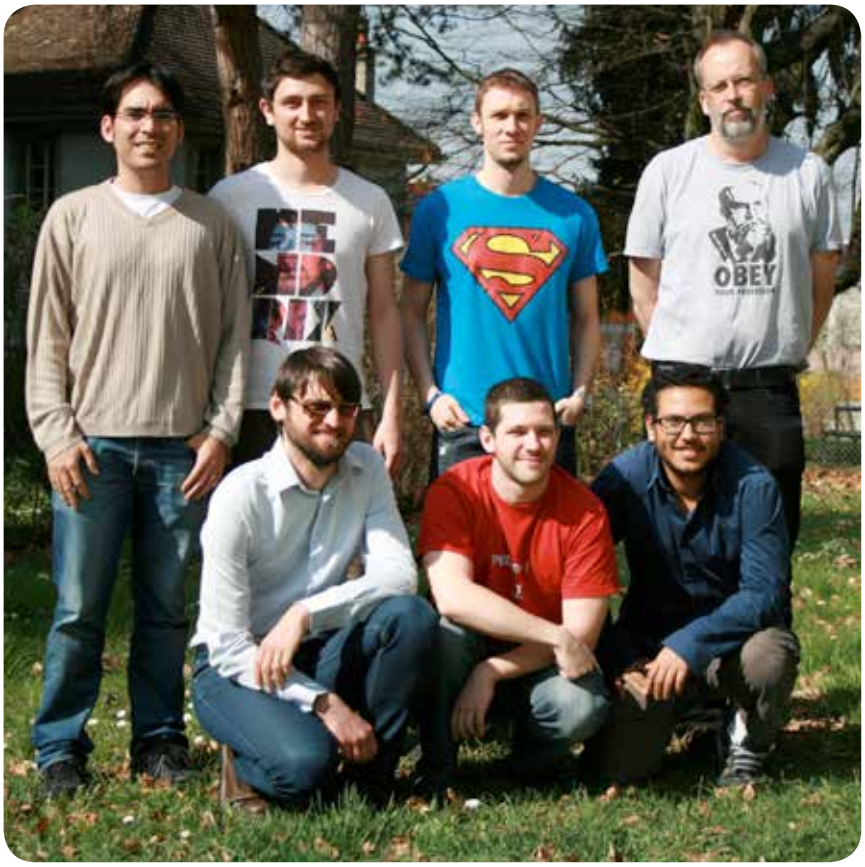
Team

Director
Didier Buchs
Full professor
H-index: 18

Senior researchers
Dr. Alban Linard
Dr. Steve Hostettler

PhD students
Sahar Aljalbout
Stefan Klikovits
David Lawrence
Dimitri Racordon

Administration
Maëlle Rümbeli
Lara Broi



SMV team in 2014: Edmundo Lopez, Stefan Klikovits, David Lawrence, Didier Buchs, Mihai-Lica Pura, Maximilien Colange, Dimitri Racordon

List of publications

Refereed papers in international journals

[1] Bruno Barroca and Vasco Amaral and Didier Buchs, Semantic languages for developing correct language translations, Software Quality Journal, 2016

[2] Nenad Savic, Dimitri Racordon, Didier Buchs, Bojan Gasic and David Vernez, TREXMO: A Translation Tool to Support the Use of Regulatory Occupational Exposure Models, Ann. Occup. Hyg., 2016, pp. 1?18.

Refereed papers in Conference Proceedings

[3] Istvan David, Eugene Syriani, Clark Verbrugge, Didier Buchs, Dominique Blouin, Antonio Cichetti and Ken Vanherpen,Towards Inconsistency Tolerance by Quantification of Semantic Inconsistencies., CommitMDE, Models, Saint Malo, oct. 2016.

[4] Alban Linard, Benoit Barbot, Didier Buchs, Maximilien Colange, Clement Demoulins, Lom-Messan Hillah, Alexis Martin: Layered Data: A Modular Formal Definition without Formalisms. PNSE @ Petri Nets 2016: 287-306

[5] Mihai Lica Pura, Luciana Morogan, Didier Buchs, Generation of the path to counter-examples by backward state space traversal in symbolic model checking based on term rewriting, 2016 International Conference on Communications (COMM) ISBN New-2005 DVD 978-1-4673-8196-3.

[6] Dimitri Racordon, Didier Buchs: Verifying Multi-core Schedulability with Data Decision Diagrams. SERENE 2016: 45-61

[7] Lawrence, David P. Y. , Gomes, Claudio , Denil, Joachim , Vangheluwe, Hans and Buchs, Didier, Coupling Petri Nets with Deterministic Formalisms Using Co-simulation, Proceedings of the Symposium on Theory of Modeling and Simulation,TMS-DEVS '16, 2016, Pasadena, California, 6:1–6:8, Society for Computer Simulation International, San Diego, CA, USA

[8] S. Klikovits, D.P.Y. Lawrence, M. Gonzalez-Berges, D. Buchs, Automated test case generation for ctrl using pex: lessons learned, SERENE 2016, LNCS, Gothenburg, Sweden, Sept 5-6, 2016

[9] The Experiment Model and Validity Frame in M&S, Authors: Joachim Denil, Stefan Klikovits, Pieter J. Mosterman, Antonio Vallecillo and Hans Vangheluwe, TMS-DEVS '17, Virginia Beach, VA, USA

Refereed papers in Workshop Proceedings

[10] S. Klikovits, M. Gonzalez-Berges, D. Buchs, Towards Language Independant (Dynamic) Symbolic Execution, 24th minisymposium of the department of measurement and information systems, mynisy 2017, Budapest, Hungary, January 30-31, 2017

PhD Thesis committees

- Hadrien Bride, Rapporteur, Besançon, France, October 2016

Conference organization as chair or co-chair

- Didier Buchs, General Chair of Model Checking Contest @ Petri Nets 2016, june 2016, Torun., Poland.

Member of conference program committees

- Program Committee of RSP'2016, Int. Conf. on Rapid System Prototyping, part of ESWeek, October 6-7, 2016, Pittsburgh, PA, USA.
- Program Committee of SERENE 2016, Sept. 2016, Goteborg.
- Program Committee of PNSE 2016, June 2016, Torun, Poland.
- Program Committee of Petri Nets 2016, June 2016, Torun, Poland.

Funded research projects

Participation to European projects

Multi-Paradigm Modelling for Cyber-Physical Systems (MPM4CPS)
ICT COST Action IC1404
COST action management committee
Period: 2014 - 2017
Website: http://www.mpm4cps.eu/

Participation to National projects

CPS-MOVE: Cyber Physical Systems Modeling and Verification
Hasler Project
Period: 2016 - 2019

—

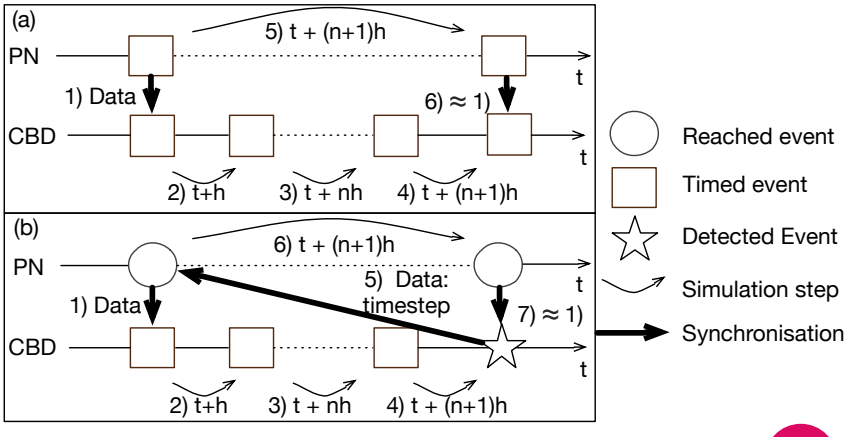
CERN
PhD support on testing control systems
Partners: Didier Buchs (UNIGE), Dr. Manuel Berges & Dr. Paul Burkimsher (CERN)
Period: 2014 - 2016

—

Toxicology
Occupational Exposure Models SCATH and IST (TREXMO) Support by SCATH and SECO
Partners: Didier Buchs (UNIGE), Dr. David Vernez (IST), Bojan Gasic (SECO)
Period: 2014 - 2016

—

Figure 1: Synchronisation diagrams for the co-simulation in cyber-physical systems (PN= Petri net model, CBD= causal block diagram)



Stratos
Strategy based Term Rewriting for Analysis and Testing Of Software
FNFS 156068
Partners: Didier Buchs (UNIGE)
Period: April 2015 - March 2017

Others

Refereeing

- Journal of Software and Systems Modeling, 2016
- Science of Computer Programming, SCICO, 2016

Editorial responsabilities

- Editorial board, TOPNOC Journal, Springer Verlag.

Events organised in Geneva

- DSM-TP 2016, August 2016, 12 students
- TecDay Collège Sismondi, «Des souris et de l'informatique», April 19th
- Nuit de la Science, «C'est qui le chef?», Parc de La Perle du Lac, 9-10 July

Participation in TV and Radio Programs

- David Lawrence et Dimitri Racordon, Nuit de la science, «Cooking with algorithm».

Technology transfer

Trexmo project

Teaching

- **Software Engineering Course**, Computer Science, Bachelor, 4 ECTS, 56 hours, 15 students
- **Formal Tools for Modelling Systems**, Computer Science, Bachelor, 4 ECTS, 56 hours, 40 students
- **Semantics of Programming Languages**, Computer Science, Bachelor, 4 ECTS, 56 hours, 15 students
- **Modeling and Verification**, Computer Science, Master, 4 ECTS, 56 hours, 20 students
- **Advanced Formal Tools** (Optional), Computer Science, Master, 4 ECTS, 56 hours, 4 students
- **Computer Science Project**, Computer Science, 3rd year Bachelor, 28h course and 56h. lab work, approx. 10 students. In collaboration with Prof. Stéphane Marchand-Maillet, 15 students
- **Compilateurs et interprètes**, Computer Science, 3rd year Bachelor, 6 ECTS, 56 hours

International Training schools

- COST Training school, Stefan Klikovits, 21-24 March, Tallinn, Estonia
- Stefan Klikovits, Dimitri Racordon, 29 April-7 May, Campam Barbados
- Halmstad Summer School of Testing, Stefan Klikovits, 12-17 June, Halmstad, Sweden
- COST Malaga, Stefan Klikovits, 23-25 November, Malaga, Spain

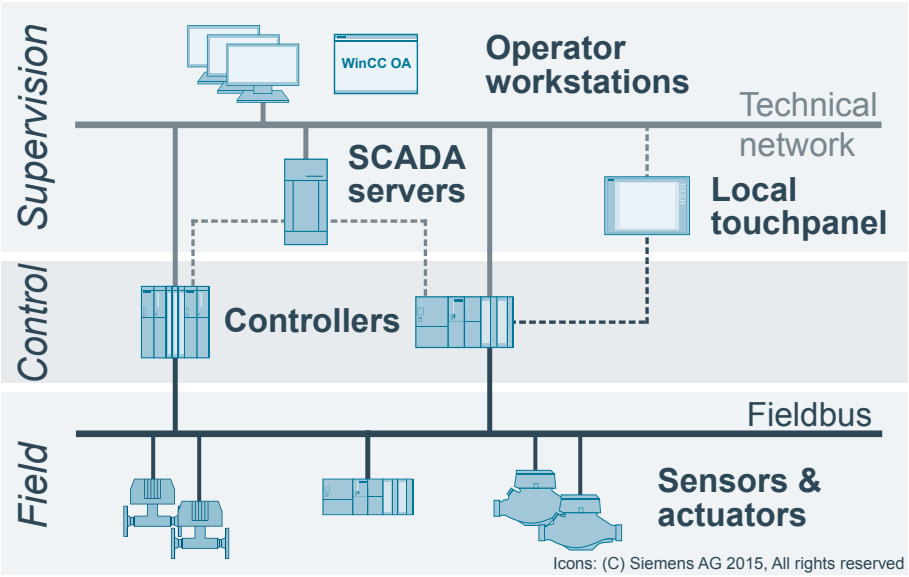


Figure 2: Layer model depicting the connection of field objects, frontend controllers (e.g. PLCs) and Operator Work Stations through SCADA (Supervisory Control and Data Acquisition) applications at CERN LHC

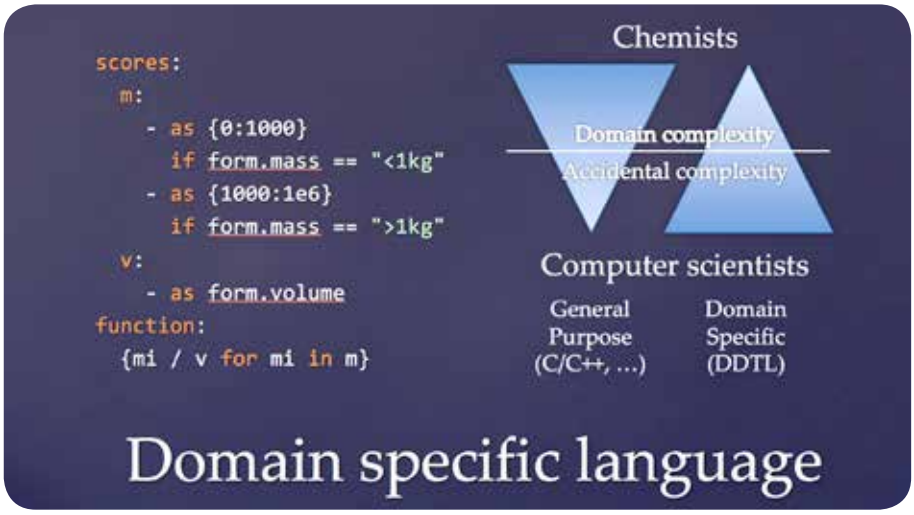


Figure 3: TREXMO is a tool built for chemical safety assessment, using multiple models of exposure. It is the result of a joined effort between the University of Geneva, the Institute for Work and Health and the State Secretariat for Economic Affairs.

Because the result of these models can vary for a given situation, it is desirable to have a tool able to run a scenario against multiple models with little to no user overhead. However, building such a tool can be rather complex, because of the complexity induced by the models translations, which is beyond the expertise of chemists.

In order to address this issue, we offered them a domain specific language that hides out this "accidental complexity" and let them deal with their "domain complexity".

spc.unige.ch

SPC

Scientific and Parallel Computing

Nuit de la science, Parc de la Perle du Lac, 2016 July 9th

Scientific and Parallel Computing

Domain activities

A 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 theses questions. Parallel programs and algorithms are developed to implement the simulation on large PC clusters, supercomputers or GPUs to discover, explain or reproduce new phenomena. In particular we keep developing and improving the PALABOS software, a powerful open-source Lattice Boltzmann solver. We are also strongly involved in the development of HPC resources for UNIGE, in particular through our active participation to CADMOS and the management of the university cluster Baobab.

Biomedical applications and multiscale problems are an important research direction. In the H2020 CompBioMed we are partner of a center of excellence formation High Performance biomedical simulations. In particular we developed numerical models for the transport of red blood cells and platelets, in order to study various pathologies.

In the European project Sophocles, we have studied the way information is processed in complex systems. The results are applied to simple dynamical systems, but also to financial and twitter data.

Within the SystemX project EpiPhysiX, in collaboration with Prof Milikovithch, Gonzalez-Gaitan and Roux from the Biology section, we are developing a cell-based numerical model of epithelia subject to mechanical constraints. Other activities concerned the development of new, massively parallel algorithms for phylogeny (FNS project in collaboration with N. Salamin, UNIL).

The PASC project „Optimal deployment of multiscale applications on a HPC infrastructure“ is a Swiss national project aimed at designing advance scientific platform for High Performance Computing. Within a collaboration with the Earth Science Department at UNIGE and the HESSO, we are deploying a distrtibuted multiscale methodology and environment on the CSCS HPC machines. As a test application we are developing and integrating models for a volcanic plume and the transport of volcanic ashes, their aggregation and sedimentation on the ground.

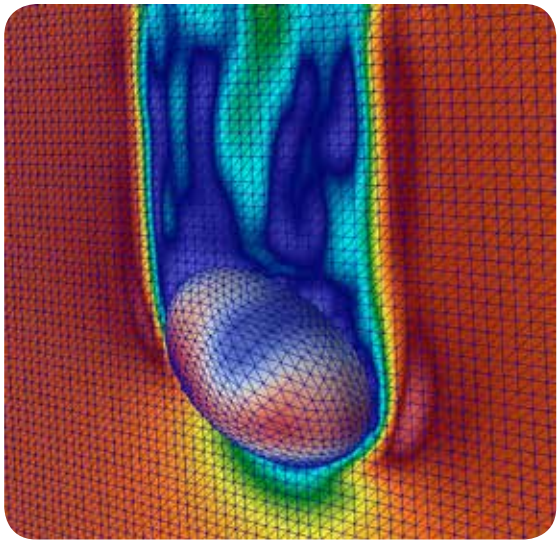


Figure 1: Simulation of an ellipsoid falling in the air, due to gravity. The goal is to develop a numerical model to study the sedimentation speed of the particles ejected in a volcanic eruption. These particles have very irregular shapes and fall with complex movements that are poorly approximated by a sphere. Simulation with the Palabos lattice Boltzmann solver (Jonas Latt).

Team

Director
Bastien Chopard
Full professor
H-index: 41

Senior researchers
Dr. Mohamed Ben Belgacem
Dr. Jean-Luc Falcone
Dr. Jonas Latt
Dr. Orestis Malaspinas

PhD students
Anthony Boulmier
Gregor Chliamovitch
Anton Golub
Pierre Kunzli
Sha Li
Aziza Merzouki
Xavier Meyer
Yann Thorimbert

Internship Fellow
Lea Kauffman

Visiting Academic Guests
Dr. Sébastien Leclaire

Administration
Anne-Isabelle Giuntini

PhD Thesis

- Xavier Meyer, Breaking Computational Barriers: Application of computational science on high performance computers, July 21, 2016

List of publications

Refereed papers in international journals

[1] Kamil Chodzynski, Daniel Ribeiro, Axel Van Rossom, Gregory Coussement, Luc Vanhamme, Frank Dubois, Omer F. Eker, Alain Bonaffé, Bastien Chopard, Jean-Philippe Thiran, Guy Courbebaisse and Karim Zouaoui Boudjeltia. Does the gravity orientation of saccular aneurysms influence hemodynamics? An experimental study with and without flow diverter stent, Journal of Biomechanics, 2016. Volume 49, Issue 16, Pages 3808–3814.

[2] Yann Thorimbert, Jonas Latt, Lorenzo Cappietti and Bastien Chopard. Virtual Wave Flume and Oscillating Water Column Modeled by Lattice Boltzmann Method and Comparison with Experimental Data. Int. J. of Marine Energy (IJOME), vol. 14, pp 41--51, 2016. DOI: 10.1016/j.ijome.2016.04.001

[3] Pierre Kunzli, K. Tsunematsu, P. Albuquerque, J.-L. Falcone, B. Chopard and C. Bonadonna. Parallel Simulation of Particle Transport in an Advection Field Applied to Tephra Dispersal, Computers & GeoSciences, Volume 89, 174–185, 2016.

[4] Orestis Malaspinas, Alexis Turjman, Daniel Ribeiro de Souza, Guillermo Garcia-Cardena, Martine Raes, Phuc-Thien Thomas Nguyen, Yue Zhang, Guy Courbebaisse, Christophe Lelubre, Karim Zouaoui Boudjeltia and Bastien Chopard. A spatio-temporal model for spontaneous thrombus formation in cerebral aneurysms. J. of Theoretical Biology, vol 394, p 68-76, 2016.

[5] Xavier Meyer, B. Chopard, N. Salamin. Accelerating Bayesian Inference for Evolutionary Biology Models. Bioinformatics 1-8, 2016 https://doi.org/10.1093/bioinformatics/btw712

[6] Mingzi Zhang, Hitomi Anzai, Bastien Chopard and Makoto Ohta.Toward the patient-specific design of flow diverters made from helix-like wires: an optimization study. Computational and Experimental Methods for Biological Research: Cardiovascular Diseases and Beyond, BioMedical Engineering OnLine, 15, 371–382. doi:10.1186/s12938-016-0257-z, 2016

[7] Anton Golub, Gregor Chliamovitch, Alexandre Dupuis and Bastien Chopard. Multi-scale Representation of High Frequency Market Liquidity. Algorithmic Finance, vol 5, pp 3-19, 2016.

[8] Aziza Merzouki, Orestis Malaspinas and Bastien Chopard.The properties of a cell-based numerical model of epithelium under stretching constraints. Soft Matter 12, 4745-4754, 2016. DOI: 10.1039/c6sm00106h

[9]Sébastien Biass, Jean-Luc Falcone, Costanza Bonadonna, Federico Di Traglia, Marco Pistolesi, Mauro Rosi, Pierino Lestuzzi. Great Balls of Fire: A probabilistic approach to quantify the hazard related to ballistics — A case study at La Fossa volcano, Vulcano Island, Italy. Journal of Volcanology and Geothermal Research 325:1-14 • October 2016, DOI: 10.1016/j.jvolgeores.2016.06.006

Full refereed papers in Conference Proceedings

[10] Sébastien Leclaire, Kamilia Abahri, Rafik Belarbi, Jonas Latt, Bastien Chopard and Rachid Bennacer. A Geometrical approach for simulating static contact angles in multiphase flows with a lattice Boltzmann Method. ICOME 2016, LA Rochelle, France.

[11] Charles De Santana, Aziza Merzouki, Orestis Malaspinas, Bastien Chopard and Andreas Wagner. Robustness of tissue structure to perturbations in mechanical forces. CCS 2016, satellite conference on «Robustness, Adaptability and Critical Transitions in Living Systems»

[12] Guy Courbebaisse, Yue Zhang, Bastien Chopard, Makoto Ohta and Leonardo Florez. Investigation of Porosity Effect on Stent Flow Diverter Efficiency in Intracranial Aneurysms. ICFD 2016, Japan.

[13] Bastien Chopard, Orestis Malaspinas and Karim Zouaoui-Boudjeltia. Modeling thrombosis in cerebral aneurysms. in A.G. Hoekstra (Editor), VPH2016, book of abstracts, University of Amsterdam, (Amsterdam), ISBN 978-90-826254-0-0, 2016.

International and national advisory committees

- Advisory board for the H2020 ComPat project, 2015-2018
- CADMOS, Director of the steering committee
- CUSO, Representative for the Doctorate program in computer science
- SwiNG, Representative of UNIGE
- COINF, Representative of the Faculty of Sciences

PhD thesis committees

- Claudio Quiodran, June 28, 2016 , Rapporteur, University of Geneva (Biology)
- Liana Manukyan, August 2016, Rapporteur, University of Geneva (Biology).

Conference organization as chair or co-chair

- Chair of the Computer Science/Mathematics track, PASC 16, EPFL, 8-10 June, 2016
- Chair, CADMOS Day, June 9, 2016, EPFL

Member of conference program committees

- ACRI 2016, Fes, Morroco, September 5-8, 2016
- DSFD 2016, Shenzhen, China, July 4-8, 2016

Funded research projects

Participation to European projects

CompBioMed: A Centre of Excellence in Computational Biomedicine
H2020-EU.1.4.1.3, grant agreement No 675451
Period: October 2016 - September 2019
Partners: University College London, University of Edinbugh, Barcelona Supercomputing Center, University of Geneva, CBK Sci Con Limited, LifeTec Group, Evotec AG, Janssen, University of Amsterdam, SURFsara, University of Oxford, University of Sheffield, University Pompeu Fabra, Acellera, Bull (atos)
Web Site: http://www.compbiomed.eu/

Participation to National projects

Optimal deployment of multiscale applications on a HPC infrastructure
PACS Project
Coordinator: Bastien Chopard (UNIGE)
Partners: Co-PIs: Costanza Bonadonna (UNIGE), Paul Albuquerque (HES)
Period: July 2014 - December 2016

SystemX : EpiPhysiX
Coordinator: M. Milinkovitch (UNIGE)
Partners: M. Gonzales, A. Roux (UNIGE), A. Wagner (UNIZH)
Period: 2013 - 2016
Web Site: http://www.systemsx.ch/

Direct numerical simulation of three-phase crystallien suspensions in magmatic flows
FN 200021_165984
Principal Investigator: Jonas Latt
Period: June 2016 - May 2018

A 3D Cell-Based Simulation Framework for Morphogenetic Problem
Sinergia
Partner: ETHZ
Period: 4 years

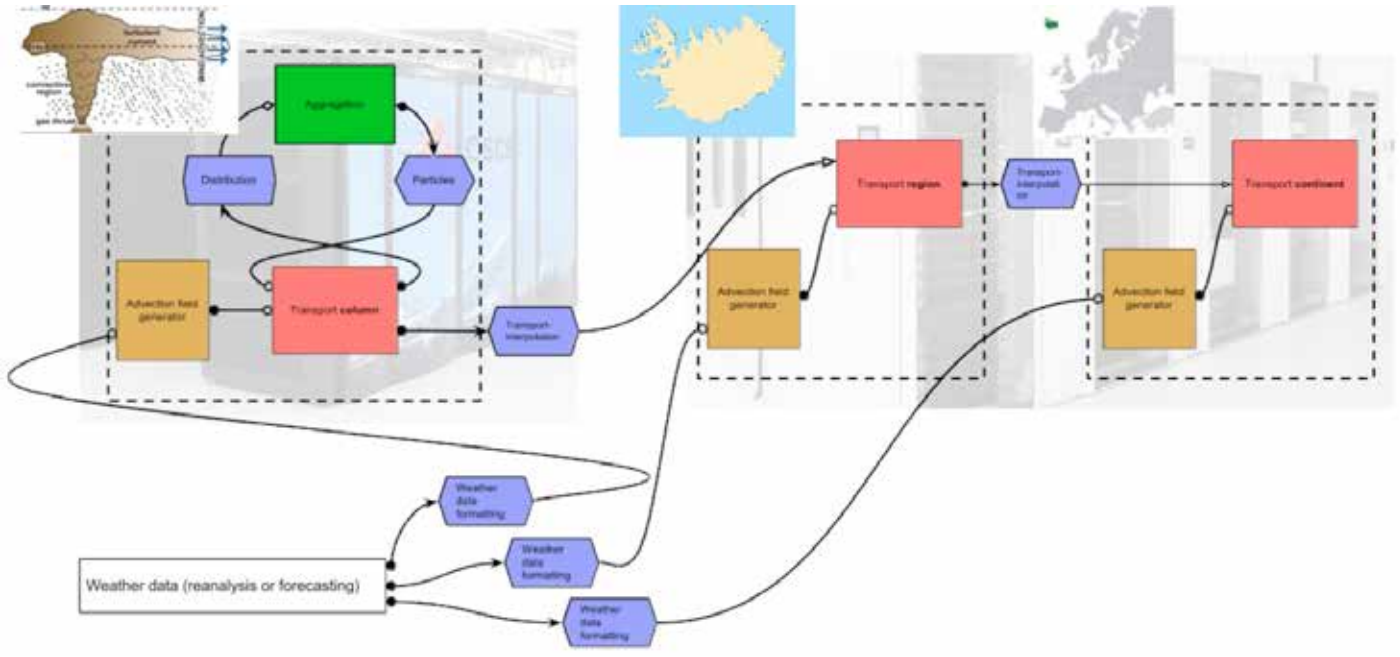
Numerical simulation of blood flow with fully resolved red blood cells
Fondation E. Boninchi
Period: 1 year

Efficient and accurate comparative genomics to make sense of high volume low quality data in biology

PNR 75 Big Data
Principal Investigator: Nicolas Salamin, UNIL
Period: 4 years

Modeling settling-driven gravitational instabilities from volcanic clouds
SNF 200021_169463
Principal Investigator: Costanza Bonadonne
Period: 3 years

Figure 2: TETRAS software is an advance simulation tool to predict the transport and deposition of volcanic ashes at 3 different scales (around the volcano, regional and continental). The technology developed for this project allows a cycylic workflow across several supercomputers.



Others

Refeereeing

- Referee for many intenational journals

Editorial responsibilities

- Int. J. of Mod Phys, Editorial Board Member
- J. of Computational Sciences (JoCS), Editorial Board Member
- J. of Cellular Automata, Editorial Board Member
- Natural Computing Journal (NACO), Editorial Board Member

Invited talks

- Les Rencontres de Venise : Peut-on Mathématiser le vivant ? Mathématiques et description de l'Univers Venise, January 8th, 2016
- GCC techLunch: Modélisation et simulation de processus physiques et industriels par la méthode de Boltzmann sur réseau, CUI Battelle, Feb 11, 2016
- PASC 16, Heterogeneous computations on HPC infrastructures. Part 1: theoretical framework, EPFL, June 9, 2016
- SIB seminar, Understanding thrombus formation in cerebral aneurysms through numerical modeling and simulations, Lausanne, June 1st, 2016
- ACRI 2016, Discrete numerical methods for biomedical applications, Fes Morroco, Sept 5, 2016
- Course of Practices of Simulation and Data Science : master program in computational science, University of Lugano, Computer modeling and simulation of natural phenomena, USI Lugano, 18 Oct 2016
- Seminar of Analyse numérique, Department of Mathematics, Discrete models for natural processes, UNIGE, 22 Nov, 2016

Other achievement

- Rapporteur for the HDR of Dr Julien Favier, Nov. 16, University of Aix-Marseille

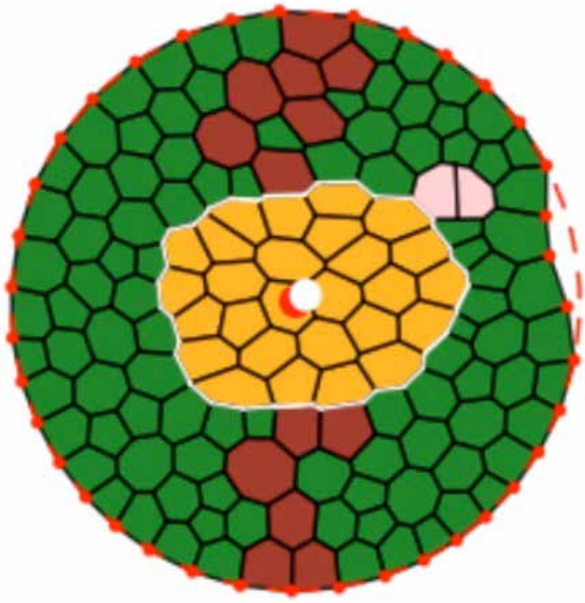


Figure 4: Simulation of the competition between two type of growing cells, for the case of the Acomys mouse. Projet EpiPhysiX, image A. Merzouki.

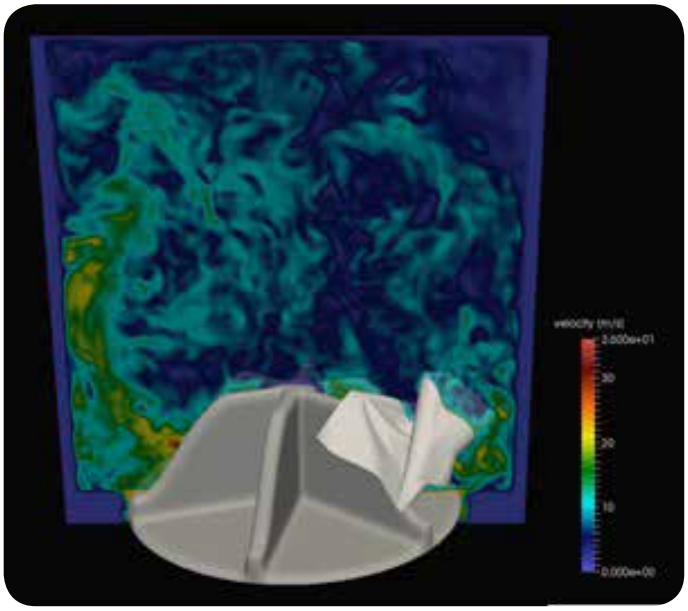


Figure 3: Simulation of a cloth in a washing machine. Palabos software, Jonas Latt

Teaching

- **Méthodes Heuristiques d'apprentissage et d'optimisation**, Computer Science, Master, 6 ECTS, 70 hours, 20 students
- **Parallelisme**, Computer Science, Bachelor, 4 ECTS, 56 hours, 15 students
- **Algorithmique**, Computer Science, Bachelor, 4 ECTS, 56 hours, 15 students
- **Algorithme paralleles/probabilistites**, Computer Science, Master, 4 ECTS, 56 hours, 6 students
- **Modélisation et simulation de phénomènes naturels**, Computer Science, Master, 4 ECTS, 56 hours, 15 students
- **Systèmes Informatiques fonctionalités**, Computer Science, Bachelor, 84 hours, 5 ECTS, 15 students
- **Programmation pour biologistes**, Computer Science, Bachelor, 84 hours, 3.5 ECTS, 58 students
- **Introduction à l'infromatique pour mathématiciens**, Computer Science, Bachelor, 75 hours, 4 ECTS, 40 students
- **CADMOS HPC Course**, Computer Science, Advanced Course, 20 hours, 20 students

Supervision of Bachelor thesis

- Romain Mencattini (with P. Kunzli)
- Florian Cabot
- Aurelier Coet (with J.-L Falcone)
- Damien Morard

tcs.unige.ch

CUI UNI GE

TCS

Theoretical Computer Science

TecDay, Collège Sismondi, 2016 April 19th

Theoretical Computer Science

Domain activities

Experimental driven research on Topology Control Protocols for Wireless Sensor Networks (WSN) using transmission power and throughput rate feedback schemes. The goals include link qualification in terms of symmetry and coherence and link quantification. Transmission power constitutes the link «generator» and throughput rate the link «regulator» to meet the qualitative and quantitative criteria for links between WSN nodes .

Research on designing a geographic routing algorithm for large scale networks, which is an extension to the Virtual Raw Anchor Coordinate localization based geographic routing. The goal is to perform routing in wireless ad-hoc network in a hierarchical manner, where in the top level routing is done between two geographic regions and in the bottom level performing routing to the exact node. A randomized protocol is designed and evaluated with simulations.

Design of a distributed publish/subscribe algorithm for an ubiquitous sensing scenario. We consider unstructured and free-geocoordinates sensing networks in which no network protocol is provided. Our solution, which avoids implying all the nodes of the network in the dissemination process, uses a distributed notification service defined by Directional Random Walks (DRW). A DRW is a probabilistic technique able to go forward into the network following a loop-free path. The principle assumed in our research is that two lines in a plane cross.

Also research on Future Networks, Internet of Things and Crowdsensing. Our efforts focus on problem modeling aspects and incentive formulation regarding the crowd participation in tasks that aim at optimizing spatial and temporal coverage issues.

Also, research on radiation aware wireless networking; studying the cumulative impact on ERM caused by multiple wireless sources in terms of numbers, topology, protocol, etc.

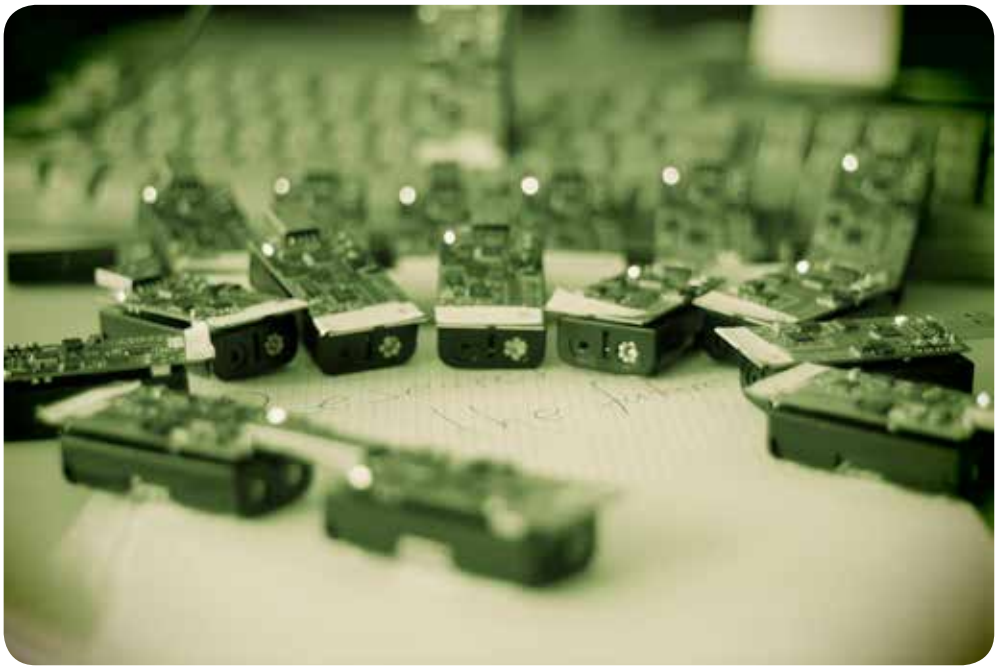


Figure 1: Testing experimental algorithms and models on Wireless Sensor Networks (WSN)
© Orestis Evangelatos

Team

Director
José Rolim
Full professor
H-index: 23

Senior researchers
Dr. Pierre Leone (MER)
Dr. Konstantinos Marios Angelopoulos
Napoleon-Orestis Evangelatos
Dr. Marios Karagiannis
Dr. Ricardo Wehbe

Lecturer
Eduardo Solana

Assistants (PhD students)
Julia Buwaya
Stéphane Kündig
Eugenio Noto
Kasun Wijesiriwardana Samarasinghe

Administration
Lara Broi
Coralie Grossrieder

PhD thesis

- Kasun Wijesiriwardana Samarasinghe. Geometric Routing over Virtual Coordinate Systems: Algorithms, Protocols and Applications, 29.11.2016
- Cristina Muñoz Illescas, A Distributed Event-Based System based on Fragmented-Iterated Bloom Filters, 19.1.2016, Supervisor: Pierre Leone

List of publications

Refereed papers in international journals

[1] Constantinos Marios Angelopoulos, Sotiris E. Nikoletseas, Dimitra Patroumpa, Christoforos Raptopoulos: Efficient collection of sensor data via a new accelerated random walk. Concurrency and Computation: Practice and Experience 28(6): 1796-1811 (2016)

[2] Pierre Leone, Kasun Samarasinghe: Geographic routing on Virtual Raw Anchor Coordinate systems. Elsevier Theoretical Computer Science 621 :1-13 (2016)

[3] Pierre Leone, Sotiris E. Nikoletseas, José D. P. Rolim: Randomized Energy Balance Algorithms in Sensor Networks. Encyclopedia of Algorithms 2016: 1741-1745

[4] Pierre Leone, Kasun Samarasinghe: Every Schnyder Drawing is a Greedy Embedding. CoRR abs/1609.04173, Submitted

[5] Pierre Leone, Steve Alpern: Search-and-Rescue Rendezvous. CoRR abs/1611.05205

Full refereed papers in Conference Proceedings

[6] Panagiotis Alexandrou, Constantinos Marios Angelopoulos, Orestis Evangelatos, Joao Fernandes, Gabriel Filios, Marios Karagiannis, Nikolaos Loumis, Sotiris Nikoletseas, Aleksandra Rankov, Theofanis Raptis, Jose Rolim: A Service Based Architecture for Multidisciplinary IoT Experiments with Crowdsourced Resources [2016] [AdHocNow 2016: 15th International Conference on Ad-Hoc Networks and Wireless, July 4 – 6, 2016, Lille, France]

[7] Julia Buwaya and José D. P. Rolim, «Bounding Distributed Energy Balancing Schemes for WSNs via Modular Subgames», In Proceedings of International Conference on Distributed Computing in Sensor Systems (DCOSS), pp. 153-160, IEEE, May 2016.

[8] Pierre Leone, Kasun Samarasinghe, "Greedy Routing on Virtual Raw Anchor Coordinate (VRAC) System" In Proceedings of International Conference on Distributed Computing in Sensor Systems (DCOSS), pp. 52-58, IEEE, May 2016.

[9] Panagiotis Alexandrou, Constantinos Marios Angelopoulos, Orestis Evangelatos, João Fernandes, Gabriel Filios, Marios Karagiannis, Nikolaos Loumis, Sotiris E. Nikoletseas, Aleksandra Rankov, Theofanis P. Raptis, José D. P. Rolim, Alexandros Souroulagkas:

[10] A Service Based Architecture for Multidisciplinary IoT Experiments with Crowdsourced Resources. ADHOC-NOW 2016: 187-201

[11] Sébastien Ziegler, José D. P. Rolim, Sotiris Nikoletsea: Internet of Things, Crowdsourcing and Systemic Risk Management for Smart Cities and Nations: Initial insight from IoT Lab European Research project. AINA Workshops 2016: 6616616

Full refereed papers in Workshop Proceedings

[12] Stéphane Kündig, Pierre Leone, José D. P. Rolim: "A Distributed Algorithm Using Path Dissemination for Publish-Subscribe Communication Patterns" in MobiWac 2016: 35-42

[13] Kasun Samarasinghe, Ricardo Wehbe, Pierre Leone, "Greedy Zone Routing: Robust and Scalable Routing in Wireless Ad-hoc Networks" in IEEE Advanced Information Networking and Applications 2016

Books and book chapters

[14] Klaus Jansen, Claire Mathieu, José D. P. Rolim, Chris Umans: Approximation, Randomization, and Combinatorial Optimization. Algorithms and Techniques, APPROX/RANDOM 2016, September 7-9, 2016, Paris, France. LIPIcs 60, Schloss Dagstuhl - Leibniz-Zentrum fuer Informatik 2016, ISBN 978-3-95977-018-7

[15] Constantinos M. Angelopoulos, Julia Buwaya, Orestis Evangelatos, José D. P. Rolim, «Strategies for Wireless Recharging in Mobile Ad-Hoc Networks», Book chapter in Wireless Power Transfer Algorithms, Technologies and Applications in Ad Hoc Communication Networks, Springer, Dec. 2016.

[16] Panagiotis Alexandrou, Constantinos Marios Angelopoulos, Orestis Evangelatos, João Fernandes, Gabriel Filios, Marios Karagiannis, Nikolaos Loumis, Sotiris Nikoletseas, Aleksandra Rankov, Theofanis P. Raptis, José Rolim, Alexandros Souroulagkas. "A Service Based Architecture for Multidisciplinary IoT Experiments with Crowdsourced Resources", Ad-hoc, Mobile, and Wireless Networks: 15th International Conference, ADHOC-NOW 2016, Lille, France, July 4-6, 2016, Proceedings, Springer International Publishing, 2016, 187-201

[17] Ziouvelou, X.; Alexandrou, P.; Angelopoulos, C. M.; Evangelatos, O.; Fernandes, J.; Loumis, N.; McGroarty, F.; Nikoletseas, S.; Rankov, A.; Raptis, T.; Ståhlbröst, A. & Ziegler. Crowd-Driven IoT/IoE Ecosystems: A Multidimensional Approach Beyond the Internet of Things: Everything Interconnected, Springer International Publishing, 2017, 341-375

[18] Constantinos Marios Angelopoulos, Sotiris E. Nikoletseas, Theofanis P. Raptis: Wireless Power Transfer in Sensor Networks with Adaptive, Limited Knowledge Protocols. Wireless Power Transfer Algorithms, Technologies and Applications in Ad Hoc Communication Networks 2016: 465-502

[19] Stéphane Kündig, Pierre Leone, José D. P. Rolim: A Distributed Algorithm Using Path Dissemination for Publish-Subscribe Communication Patterns. MobiWac 2016: 35-42

Research and technical reports

[20] Pierre Leone, Kasun Samarasinghe, Every Schnyder Drawing is a Greedy Embedding. CoRR abs/1609.04173

[21] Pierre Leone, Steve Alpern: Search-and-Rescue Rendezvous. CoRR abs/1611.05205

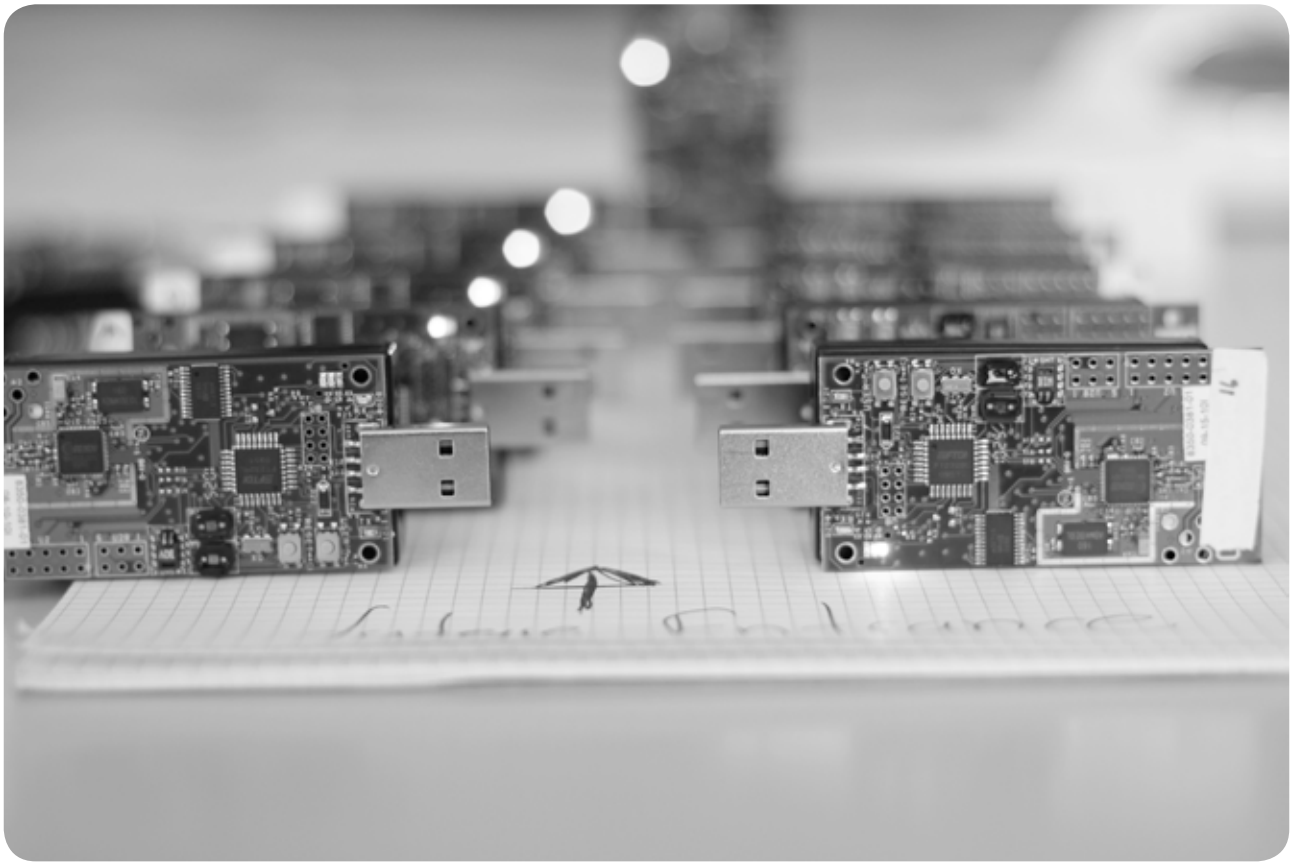
Conference organization as chair or co-chair

- DCOSS 2016 IEEE International Conference on Distributed Computing in Sensor Systems, Washington, US ,May 2016 - chair steering committee: Jose Rolim
- APPROX 2016 – 19th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems – Paris, September 2016 - chair steering committee: Jose Rolim
- RANDOM 2016 - 20th International Workshop on Randomization and Computation – Paris, September 2016 -chair steering committee: Jose Rolim
- SEA 2016– 15th International Symposium on Experimental Algorithms –May –St. Petersburg, Russia - chair steering committee: Jose Rolim
- ALGOSENSORS 2016 - 12th International Workshop on Algorithms for Sensor Systems, Wireless Ad Hoc Networks and Autonomous Mobile Entities –Aarhus, Denmark - member steering committee: Jose Rolim
- IPDPS 2016 - 28th IEEE International Parallel & Distributed Processing Symposium. May 2016, Chicago, US - member steering committee: Jose Rolim

Member of conference program committees

- Jose Rolim: LATIN 2016 -12th Latin American Symposium, Ensenada, Mexico, April 11-15, 2016
- Jose Rolim: ICDCS 2016 - IEEE 36th International Conference on Distributed Computing Systems - Nara, Japan, June 27th -June 30th, 2016.
- Konstantinos Marios Angelopoulos : Kaleidoscope ITU 2016, Bangkok, Thailand ; IEEE ICC 2016, Kuala Lumpur
- Konstantinos Marios Angelopoulos : IEEE COMNETSAT 2016, East Java, Indonesia ; International Conference on Emerging Electronic Solutions for IoT
- Pierre Leone: 5th International Conference on Theory and Practice in Modern Computing 2016, Madeira, Portugal, 2 - 4 July 2016
- Pierre leone: 15th International Conference on Ad Hoc Networks and Wireless (AdHoc-Now) July 4th to 6th 2016 in Lille, France
- Pierre leone: The Tenth International Conference on Sensor Technologies and Applications SENSORCOMM 2016 July 24 - 28, 2016 - Nice, France
- Pierre Leone, The Tenth International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies UBICOMM 2016 October 9 - 13, 2016 - Venice, Italy
- Pierre Leone The Eighth International Conference on Future Computational Technologies and Applications FUTURE COMPUTING 2016 March 20 - 24, 2016 - Rome, Italy

Figure 2: Designing Topology Control Protocols for Wireless Sensor Networks (WSN) © Orestis Evangelatos



Funded research projects

Participation to European projects

IoT Lab
Researching crowdsourcing to extend IoT testbed infrastructure for multidisciplinary experiments, with more end-user interactions, flexibility, scalability, cost efficiency and societal added value
FP7-ICT project, grant 610477
Partners: Mandat International MI Switzerland, Dunavnet DNET Serbia, Computer Technology Institute and Press «Diophantus» CTI Greece, Geneva University UniGE Switzerland, Alexandra Institute Alexandra Danemark, Luleå Univers ity of Technology – Centre for Distant Spanning Technology (CDT) LTU Sweden, University of Southampton Soton UK, University of Surrey
Period: October 2013 – September 2016
Website: http://www.iotlab.eu/

Participation to National projects

Swiss Sense Synergy
FNSR CRSII2-154458
Principal Investigator: José Rolim
Partners: University of Bern, University of Applied Sciences and Arts of Southern Switzerland (SUPSI), Chalmers University of Technology
Period: January 2015 - December 2017

Others

Refeereeing

- Dr. Angelopoulos: Reviewer for the following journals: IEEE Transactions on Computers (TC), Elsevier's Computer Networks (COMNET), Elsevier's Computer Communication (ComCom), Elsevier's Simulation Modelling Practice and Theory (SIMPAT).
- Pierre Leone, Reviewer for Zentralblatt MATH, ACM Transactions on sensor networks, Computer Networks Journal (COMNET)
- Pierre Leone, Sensors, ISSN 1424-8220, MDPI
- Pierre Leone, Mobile Information Systems, Hindawi
- Pierre Leone, Elsevier JSS, COMNET, COMCOM
- Pierre Leone, IJCS Manuscript Central

Editorial responsibilities

- International Journal of Distributed Sensor Networks (IJDSN), November 2015- June 2016, Napoleon-Orestis Evangelatos, Guest Editor
- Member of the Editorial Board of the Journal Ad Hoc & Sensor Wireless Networks (Sector Editor), http://www.oldcitypublishing.com/AHSWN/AHSWN.html - Pierre Leone
- Member of the Editorial Board of the journal Algorithm letters, http://scik.org/index.php/al - Pierre Leone
- Member of the Editorial Board of the journal ISRN Sensor Networks, www.isrn.com/journals/sn/ - Pierre Leone
- Member of the Editorial Board of the journal Algorithms, http://www.mdpi.com/journal/algorithms - Pierre Leone
- Member of the Editorial board of the journal Computer Science Review. Jose Rolim
- Pierre Leone, Member of the editorial board of International Journal of Distributed Sensor Networks (IJDSN)
- Pierre Leone, Member of the editorial board of Wireless Communications and Mobile Computing

Events organised in Geneva

- Search problems, decentralized distributed control, and game theory (CUSO Doctoral Program in CS), 20th May, Geneva, Organizers: Bastien Chopard, Pierre Leone

Invited talks

- SOFTEC ASIA 2016, Software testing Conference 2016, Future Aspects of Internet of Things and Mobile Crowdsensing Systems; and Internet of Things and Wireless Sensor Network enabling technologies. Kuala Lumpur, Malaysia. 6-8 September 2016
- South Africa, U. of Pretoria, Workshop on Advanced Sensor Networks with IoT Focus, Dr. K.M. Angelopoulos invited talk

Best Paper Award

- Muñoz, C., Leone, P. : Fragmented-Iterated Bloom Filters for Routing in Distributed Event-Based Sensor Networks. In: Proc. 8th Intl. Conference on Internet and Distributed Computing Systems, IDCS (2015), Windsor, United Kingdom.

Others awards

- Award granted by the "Swisscom Innovation Award 2016" to Blaise Carron for conducting his bachelor thesis under the supervision of Dr. Pierre Leone and Dr. Napoleon-Orestis Evangelatos.
- Dr. Angelopoulos among the 10 researchers selected for the Academy Industry Training programme 2015 organised by Swissnex, EPFL, Venture Lab.

Teaching

- **Distributed Algorithms for Wireless Sensor Networks**, Computer Science, Master, 4 ECTS, 56 hours, 12 students
- **Complexité et calculabilité**, Computer Science, Bachelor, TP, 4 ECTS, 56 hours, 24 students
- **Langages Formels**, Computer Science, Bachelor, TP, 4 ECTS, 56 hours, 39 students
- **Logiciels et réseaux informatiques**, Computer Science, Bachelor, 6 ECTS, 112 hours, 60 students
- **Réseaux informatiques**, Computer Science, Bachelor, 4 ECTS, 56 hours, 18 students
- **Programmation des Systèmes, systèmes concurrents et distribués, réseaux informatiques**, Computer Science, Semester lecture, 4 ECTS
- **Cryptographie et sécurité**, Computer Science, Bachelor, 4 ECTS, 56 hours, 15 students
- **Securité des Systèmes d'Information**, Computer Science, Master, 4 ECTS
- **Intelligence Artificielle**, Bachelor, 4 ECTS, 56 hours, 25 students

Highlights

Géofab Grand Genève

G. Di Marzo Serugendo / ISS

Lancement du Géofab du Grand Genève : des géodonnées dédiées aux projets innovants franco-suisse.

Aider les entrepreneurs établis de part et d'autre de la frontière à créer de nouveaux services numériques grâce aux géodonnées du Grand Genève : c'est l'ambition du projet Interreg « Géofab du Grand Genève », porté conjointement par l'Université de Genève (UNIGE), le Canton de Genève et l'ARC Syndicat mixte du Genevois français (ARC), accompagnés de nombreux partenaires techniques et institutionnels.

Les institutions publiques françaises et suisses du Grand Genève et leurs partenaires experts dans les domaines des données géographiques et cadastrales, ont choisi de mettre l'Aménagement et le Développement Economique au coeur d'un nouveau projet Interreg France Suisse : « Géofab du Grand Genève ». François Longchamp, Président du GLCT Grand Genève, Président du Conseil d'Etat de la République et Canton de Genève, Gabriel Doublet, Vice-président de l'ARC Syndicat mixte du Genevois français et Yves Flückiger, Recteur de l'UNIGE, Université de Genève ont ainsi lancé ce mardi 4 avril le premier appel à candidatures pour un accès privilégié aux données numériques géographiques et des journées d'expertise, dédié aux porteurs de projets français ou suisses, privés ou publics.

Sur tout le territoire du Grand Genève, un grand nombre de données numériques spatiales, cadastrales, géographiques, accessibles en opendata, a été collecté et structuré avec une rigueur scientifique tant par le Système d'Information du Territoire à Genève (SITG), Swisstopo, etc. côté suisse que par l'Institut national de l'information géographique et forestière (IGN) côté français. Ces « géodonnées » seront accessibles gratuitement pendant deux ans et fournies par les experts aux lauréats.

Le principe de Géofab ? Faciliter l'exploitation de ces « géodonnées » en sélectionnant et soutenant des projets numériques innovants franco-suisse par le biais de 4 appels à projets sur 2 ans.

L'initiative Géofab du Grand Genève a l'ambition:

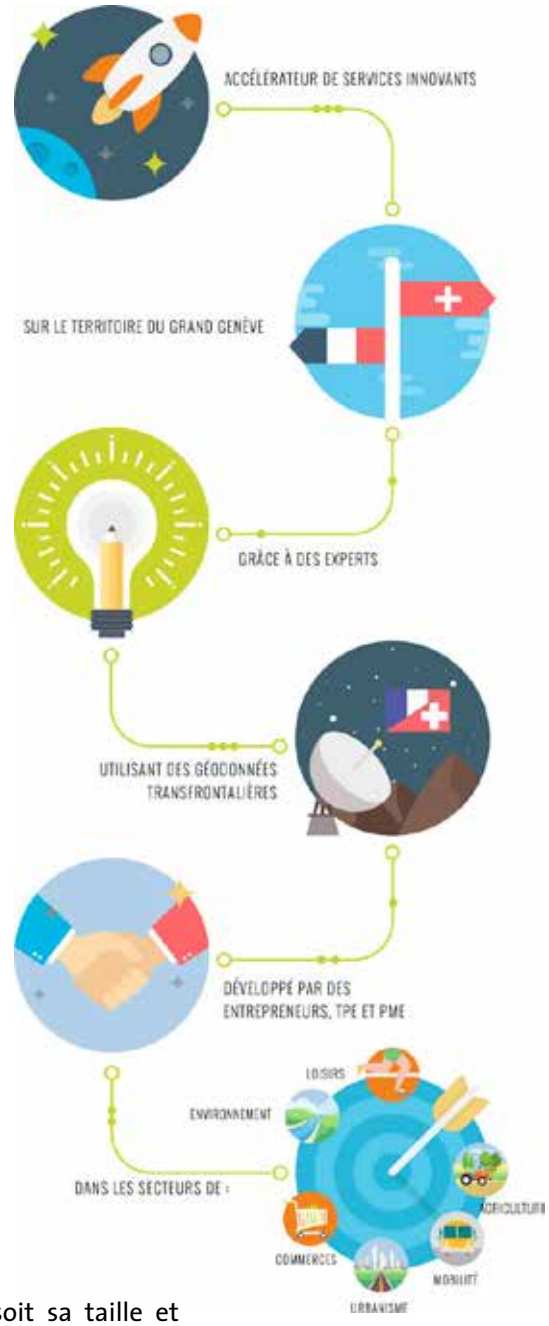
- d'aider des porteurs de projet publics et privés à mettre sur le marché leurs services numériques innovants;
- de favoriser l'accès aux données numériques géographiques auprès des porteurs de projet sur le périmètre géographique du Grand Genève;
- de développer le marché du numérique à une échelle transfrontalière.

Des lauréats accompagnés dans leurs démarches

Suivant la qualité et l'évaluation des dossiers déposés, les porteurs de projets lauréats du concours pourront être accompagnés et bénéficier de :

- **20 jours d'expertises « développement de services »**, permettant de mettre sur le marché un service numérique, dans les 9 à 18 mois, ou d'améliorer une solution commerciale; éventuellement à un projet académique de développer un démonstrateur dans les 9 à 18 mois. Prix décerné aux 2 meilleurs.
- **5 jours d'expertises « coups de pouce de l'expertise »**, permettant d'apporter des compétences spécifiques supplémentaires à un projet. Prix décerné aux 4 autres lauréats.

Un annuaire d'experts constitué par les membres du Géofab permettra de répondre aux besoins spécifiques de chaque projet retenu. Les lauréats pourront sélectionner dans cet annuaire les expertises dont ils auront besoin.



Entrepreneurs, PME, TPE, start-ups, chaque porteur de projet, quelque-soit sa taille et son domaine peut déposer un dossier de candidature directement sur le site internet www.geofab-grandgeneve.org

Computer vision applications for a smart walker

S. Cloix, V. Weiss, G. Bologna, D. Hasler, T. Pun / CVML

The EyeWalker project aims at developing a small device for walkers to assist elderly people in their daily tasks. We present two applications. First, we propose a real-time descending stairs detector using a passive stereo camera. We examined the performance of our detector with respect to the camera resolution and power consumption. It successfully differentiates dangerously approaching stairs from safe situations with an accuracy of 98.9% at very low resolution. Second, we present a new approach to scale-invariant object recognition. Tested on our new dataset, it assessed an excellent recognition rate greater than 90% despite a scale variation of about 200%. Our versatile light-field image dataset, CSEM-25, was built with the Raytrix R5 plenoptic camera and made available for research purposes.

Widely spread among the elderly, the rollator helps its users keep a safe mobility but can lead to falls especially in urban zones and buildings. The goal of the EyeWalker project is to develop a low-cost, ultra-light clip-able computer vision-based device for users with mobility problems.

For the first approach[ ], we are interested in the falls related to the loss of balance caused by the change of the ground elevation. The detection relies on a three-bin classifier as depicted in Figure 1. The final decision is made from the binary classification of the two upper and lower sub-images.

Figure 1: (left) prototype with stereo camera; (right) (top) a safe situation, (middle) a warning situation, the danger is located in the half upper part of the image and (bottom) a dangerous situation.

We trained our algorithm on 70% of data randomly chosen from the indoor and outdoor scenes.

We demonstrate: (i) the decrease of the resolution alters the performance; (ii) safe and dangerous situations are clearly differentiable. When we solely focus on the detection of safe and dangerous situations as a binary classification problem, the accuracy remains greater than 94.9% with a 102x76 resolution. The latter resolution makes our detector already portable on an off-the-shelf embedded system (ARM cortex-M4) running at 30 fps for 6.3 hours with a 45 g smartphone battery. A video of our detector in action is available online[ ].

The second approach uses light-field imaging [ ]. It captures not only the light intensity but also the direction of every light ray hitting the sensor. In practice, a light field is captured either by arrays of cameras, or – as in our case – using a dedicated camera that composed of a micro-lens array, also called a plenoptic camera. In our tests we used the industrial 4-megapixel Raytrix[ ] camera.

We first provide a novel dataset[ ] exhaustive enough for many various vision and classification tasks. It is composed of 5 classes of 5 instances of known and similar dimensions acquired with a set-up made of a motorized linear stage, a motorized turntable, a background screen.

The recorded image is a group of micro-images lying on a hexagonal grid (Figure 2). An interesting characteristic is that the content of each micro-image does not vary a lot when highly increasing the distance of the object from the camera; only the number of times a pattern varies significantly across neighboring micro-images. We therefore take advantage of these properties to develop a recognition system that is invariant to the scale induced by the distance.

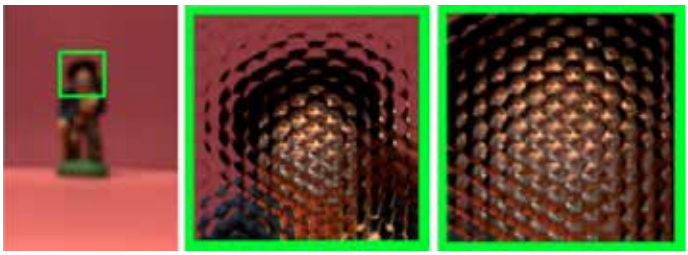


Figure 2: Dataset samples: on unified background, an instance of the «person» class is captured from the farthest distance (left), a zoom region (middle) of the left image and a zoom region at a closer distance to the camera (right).

Our object recognition method is based on bag-of-visual-words strategy: (i) a codebook is built from an unsupervised clustering method and (ii) is used to build a histogram of each image. The histograms of the test images are then compared to each of the training images of the labelled objects.

The codebook is a set of whitened pixel patches learnt from small patches extracted within each micro-image of a training-image set. The training set is made of segmented captures of each object at the closest distance. Each object is represented by a histogram. A test time, the small patches are extracted at a fixed location within a fixed region of interest (ROI). The value of each bin of a histogram indicates the number of occurrence of the corresponding visual word in the ROI. The closer the object, the larger the number of visual words belonging to the object. As the test histogram is expected to have the same shape as of the training image but with a lower magnitude, we scale up the test histogram and compare it to the one of the training images by minimizing a thresholded l1 distance.

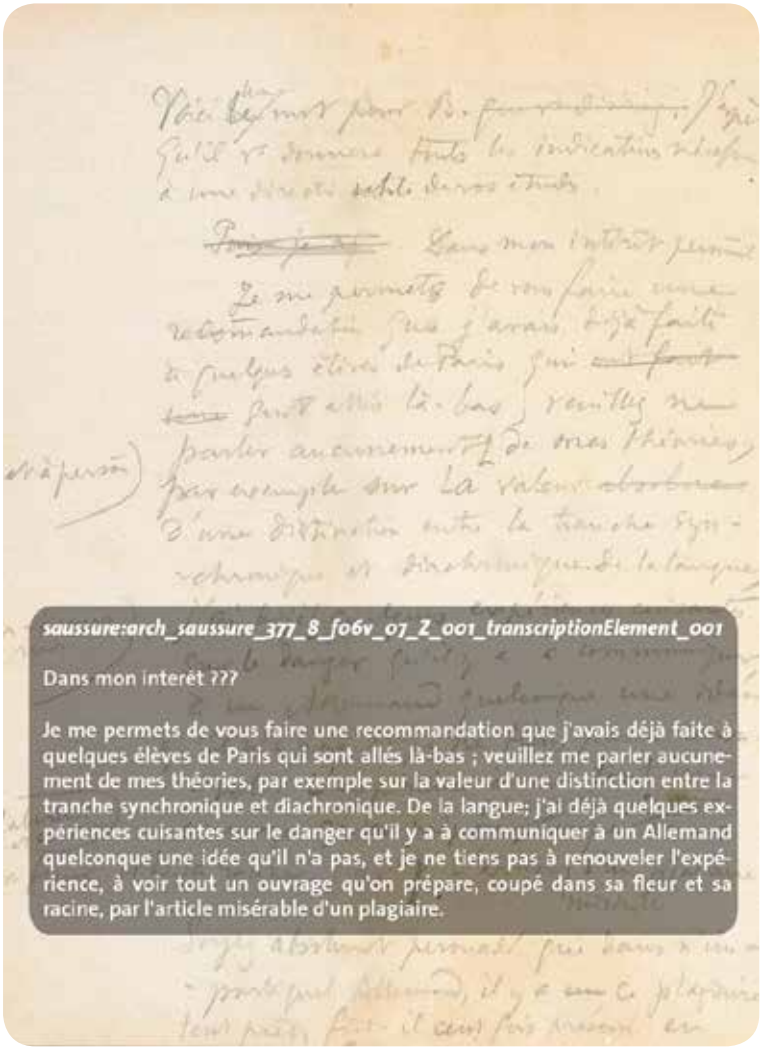
We evaluate our approach on five objects, one instance of each class with various backgrounds. At the closest distance, the recognition rate reaches 100%. The farther the objects, the lower the recognition rate, due to the noise introduced by the background that fills an increasing proportion of the fixed-size detection window. We exceed 90% of correct recognition for each tested distance, the recognition rate expectedly decreasing with the distance. From the optical properties of a plenoptic camera we designed a new real-time recognition approach that is robust to large scale variation with a codebook of a few words (100 visual words)

This work was performed in collaboration with CSEM SA, Vision Embedded Systems and is co-funded by the Swiss Hasler Foundation SmartWorld Program, grant Nr. 11083.

[1] S. Cloix, G. Bologna, V. Weiss, T. Pun, D. Hasler, «Low-power depth-based descending stair detection for smart assistive devices,» EURASIP Journal on Image and Video Processing (2016)
[2] https://www.youtube.com/watch?v=IvxGg4mgpZc
[3] S.Cloix, T.Pun, D.Hasler, «Real-time scale-invariant object recognition from light field imaging,» in Proc. of the 11th Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (4) (2016) 336-344
[4] http://www.raytrix.de/
[5] http://www.csem.ch/csem-25-db

Ferdinand de Saussure digital archive

Information not available at the time of publication



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Dans mon interêt ???

Je me permets de vous faire une recommandation que j'avais déjà faite à quelques élèves de Paris qui sont allés là-bas ; veuillez me parler aucunement de mes théories, par exemple sur la valeur d'une distinction entre la tranche synchronique et diachronique. De la langue; j'ai déjà quelques expériences cuisantes sur le danger qu'il y a à communiquer à un Allemand quelconque une idée qu'il n'a pas, et je ne tiens pas à renouveler l'expérience, à voir tout un ouvrage qu'on prépare, coupé dans sa fleur et sa racine, par l'article misérable d'un plagiaire.

Competing Crowds @swissnex San Francisco

Balancing Loads in Smartphone Applications

J. Rolim, J. Buwaya / TCS Sensor Lab

Research Topics

As part of the program University of Geneva Digital Fellows @swissnexSF we are at Pier 17 in San Francisco exploring the digital innovation of empowering crowds with smartphones to gather environmental information for the community.

Please get in contact with us if you would like to collaborate, share thoughts, or have questions.

These are our (main) research topics:

Empowering crowds with mobile sensing devices

Mobile crowdsensing is a recent and emerging paradigm which leverages the sensing data from the mobile devices of a huge number of people (the crowd) to serve various goals. These include business goals as for example designing and evaluating a health care product. But mobile crowdsensing systems may also be used to improve public and individual services. Concrete examples include weather monitoring in rural areas of East Africa as well as participatory citizen sensing systems for sharing information on water conditions and flooding in Vicenza, Italy and Doncaster, UK.

In current applications of mobile crowdsensing the view point of crowd participants is frequently neglected or extremely simplified. We have conducted several experiments suggesting that this neglect may yield to enormous efficiency loss in terms of costs and time. Crowdsensing can be viewed as a market. Unlike old-known markets where goods are supplied by companies, here the goods are the cumulative product of a large amount of people. The participants in crowdsensing usually operate no specialized business, but qualify due to circumstances that they own desired resources. They obtain benefits for their participation in the form of idealistic, monetary, or other personal rewards. We view the crowd from a perspective, where contributors are aware of their value. We aim to distribute crowdsensing tasks to balance and minimize loads imposed on the participants.

Balancing loads in mobile crowdsensing systems

The efficient operation of mobile crowdsensing systems involves the non-trivial issue of distributing work loads among a huge number of heterogeneous participants to solve crowdsensing tasks. These loads should be balanced to optimize short and long-term system performance with respect to costs, quality of results, user satisfaction and further metrics specific to a certain application.

Consider the following example:
We seek to create an up-to-date tempo-spatial noise level map of an area. We are given a tessellation of this area and a group of crowd participants equipped with smart phones is scattered over the area. Using the external microphones of their smart phones, the crowd participants may provide sensed noise levels with location and time stamp. The question we would like to answer is: How can we cover the whole area while minimizing the amount of time a single participant is involved?
Load balancing provides answers to this question. We will adapt and combine knowledge from resource allocation, scheduling, online optimization, big data analytics, parallel computing and game theory to achieve load balance.

A major part of our research and experiments at swissnex San Francisco is to test the performance of load balancing algorithms for mobile crowdsensing systems.

This project is partially supported by the University of Geneva Rectorate and by the Swiss National Science Foundation (SNSF) - CRSII2-154458 SwissSenseSynergy project.

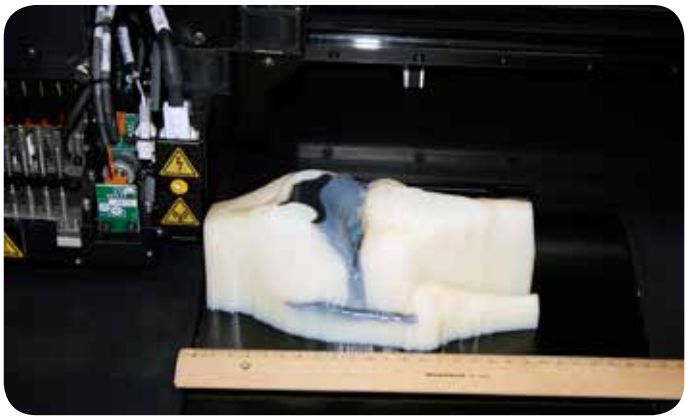
http://crowd.unige.ch/

3D printing @CUI

D. Agulleiro

En début d'été, l'Université a fait l'acquisition d'une imprimante 3D haut de gamme de dernière génération (OBJET260 CONNEX 3 PRINTER). Installée dans un local du Centre universitaire d'informatique (CUI) à Battelle, elle est à la disposition de tous les chercheurs de l'Université. Inventé dans les années 1950, le principe de l'impression 3D repose sur l'idée assez simple d'ajouter de la matière par couches, plutôt que d'en retirer, pour fabriquer un objet. La technologie a trouvé ses premières applications industrielles au début des années 2000, avant de se populariser. Les imprimantes actuelles, comme celle que vient d'acheter l'UNIGE, ont en effet atteint un niveau de performances qui ouvre des perspectives fascinantes pour les chercheurs, aussi bien en sciences appliquées qu'en recherche fondamentale.

C'est le professeur de la Section de biologie Michel Milinkovitch qui est à l'origine de cette acquisition. Avec le concours du professeur d'informatique Bastien Chopard, il a été rejoint par d'autres équipes des Facultés des sciences et de médecine ainsi que par leSIB Institut suisse de bioinformatique qui ont mis en commun des ressources pour l'achat de l'imprimante, avec le soutien du rectorat.



La principale caractéristique de ce nouvel outil est de pouvoir utiliser simultanément jusqu'à trois résines (parmi plusieurs dizaines disponibles) de natures très différentes pour la construction d'une même pièce, l'une solide et opaque, l'autre transparente et une troisième plus souple, par exemple. Chacun de ces composants peut être finement dosé. Il est ainsi possible d'obtenir des matériaux composites plus ou moins rigides et plus ou moins transparents. La taille des objets fabriqués est limitée à environ 30 cm x 20 cm x 20 cm pour ce qui est de la machine installée au CUI.
Les pièces imprimées permettent d'effectuer des simulations, par exemple pour l'écoulement des laves (groupe SPC), systèmes des prises de décision (groupe SMV), structures dermiques (dept.. de Génétique), etc. Dans le domaine de la santé, l'imprimante est aussi très utilisée par différents services des HUG, lors de la préparation des opérations cardiaques par le département de radiologie, pour des opérations reconstructives par le département de chirurgie maxillo-faciale, et prototypage des prothèses par la médecine dentaire.

Press release

- L'impression 3D: Une révolution en médecine (Pulsations TV Novembre 2015) http://www.hug-ge.ch/video/impression-3d-revolution-medecine
- Imprimante 3D: la machine qui transforme le virtuel en réel (Article / Le journal de l'UNIGE / Journal n°107) http://www.unige.ch/communication/lejournal/journal107/article5.html

http://cui.unige.ch/printer3D/doku.php?id=start

Thesis completed

Matthias Becker

Doctor ès Sciences, mention Computer Science

20th September, 2016

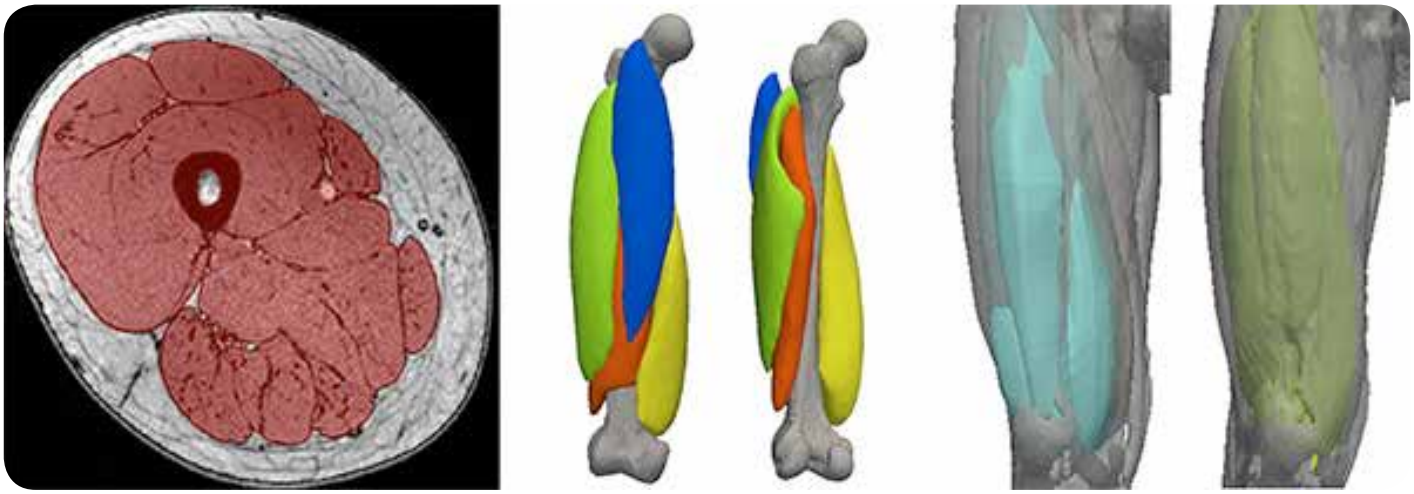
Director: Prof. José Rolim
Co-Director: Prof. Nadia Magnenat-Thalmann

Ef_cient Extraction of Musculoskeletal Structures from Multi-Channel MR Images

In a society with a growing share of elderly, musculoskeletal diseases (MSDs) have become a major burden not only for those affected but also for the health care system and have been found to be the main reason for work time loss in the European Union. MSDs are a group of disorders, including osteoarthritis, which affects body parts like bones, muscles, tendons and joints. They cause pain and reduce mobility and flexibility. A better understanding of these diseases can be achieved by acquiring knowledge of the patient-specific morphology of the involved anatomical structures. Magnetic resonance imaging (MRI) is a non-invasive technique for acquiring volumetric tomographic images. MRI, like other medical imaging techniques, is subject to constant improvement. This concerns, among others, image quality, resolution, acquisition duration and costs. It has led to an ever-growing number of acquisition with higher resolutions, resulting in big numbers of large data sets. The interpretation of MRI data is a lengthy process that requires special training and knowledge about anatomy and imaging properties. Depending on the acquisition parameters, analysing the MR images, e.g. to identify organs or pathological tissue, is a complex and time-consuming task. With higher resolutions, an increase in the total number of scans, and a reduction of medical personnel, there is less and less time left for image interpretation. This requires automated processing of the data to assist the medical personnel. Some MRI protocols can generate multi-channel images, which can highlight different anatomical structures in different channels.

We focus on the extraction of musculoskeletal structures (bones, muscles) from the lower limb. In our work, we have focused on three main objectives: development of an MRI protocol, processing and labelling of the image data, and the exploitation of multi-channel data during the segmentation of individual muscles. All these tasks have been addressed with a focus on efficiency. We propose an MR acquisition protocol that generates seamless, high-resolution images of thigh and calf. The acquired image data is then processed, following our pipeline. This includes stitching, noise and bias field reduction and the identification of different classes of image content. We present a method to identify air and muscle tissue in the image and massively parallel version of the approach.

To identify the individual muscles, we align a muscle template. This template is modified with our deformable model framework under the influence of image forces to match the actual anatomy. This is an iterative process and the image forces use the multi-channel image data to find relevant image features. We propose coupled multi-resolution deformable models that allow working on different resolutions in parallel. This work is aimed at helping the understanding of diseases by providing personalised anatomical models. There is a large number of applications; we show a contribution towards the digital patient and the determination of personalised pennation angles.



Doctorat thesis: Univ. Genève, 2016 - Sc. 4994 - 2016/09/20
http://archive-ouverte.unige.ch/unige:89935

Célia Boyer Walther

Doctor ès Economy and Management, mention Information Systems and Service Science

4th October, 2016

Co-Director: Prof. Gilles Falquet
Co-Director: Prof. Antoine Geissbühler

Methods and tools to retrieve reliable health information on the Internet

The Internet makes extensive medical and healthcare knowledge available to everyone. As a consequence, it has become the starting point for health information searches. To make informed decisions about their health, users need to be able to search efficiently for health information on the Web, retrieve trustworthy Web pages and understand the information they read, not least because such information can have a direct impact on a person's health status.

The goal of the research activities conducted and presented in this thesis is to propose combined tools to improve access to quality health content online. The thesis presents the three pillars of retrieving quality health information: query formulation, readability and trust level. The research conducted on these pillars uses the quality criteria defined for health and medical Web publishers by the Health On the Net (HON) Foundation and used in its HONcode certification process. The HONcode is a set of ethical, honesty, transparency and quality standards covering various aspects of health website content production. It is the most used model for the identification of health sites that are trustworthy and respect quality criteria.

This thesis first explores the automated detection of HONcode principles for health websites. Specifically, it considers the feasibility of such an automated detection, the benchmarking and assessing of natural language processing methods, the multilingual automated detection of the HONcode principles, the identification of documents in English and French according to their complexity level, and how to help refine search results.

It then studies the use of HONcode principle classifiers that can be applied to health Web pages. It also investigates the development of an automated system to detect the reliability level of a document and to classify health documents online.

Thirdly, it examines directions for the integration of the tools into a user-centered health domain search engine dedicated to trustworthy information and the testing of the feasibility of integrating the automated detection system into a dedicated search engine. This includes the development of a generic solution to enable integration in different contexts, such as through a Web browser extension.

And lastly, it delves into the results of usability testing of the integration of the tools into a health search engine, evaluating the benefits of a search engine that provides access to trustworthy websites and the implementation of the filtering capability of trusted sources via the automated tool developed within the research activities.

This thesis brings together the main learnings of a collection of scientific publications published in journals and at conferences with peer-review processes. In sum, it supports the author's hypothesis that an automated system can predict the reliability of health Web pages by identifying elements that correlate with the quality of a website. However, the results obtained differ from a certification process where a human interprets text meanings and where health editors have been trained in the ethical issues and responsibilities surrounding health and medical information on the Web. Additionally, automated systems could provide support for the monitoring of websites and the finding of the pages related to a principle. As this is recurring work of the reviewers, it would give them more time to focus on critical tasks.

Doctorat thesis: Univ. Genève, 2016 - GSEM 35 - 2016/10/04
http://archive-ouverte.unige.ch/unige:88907

Andra Chincisan

Doctor ès Sciences, mention Interdisciplinary

31th May, 2016

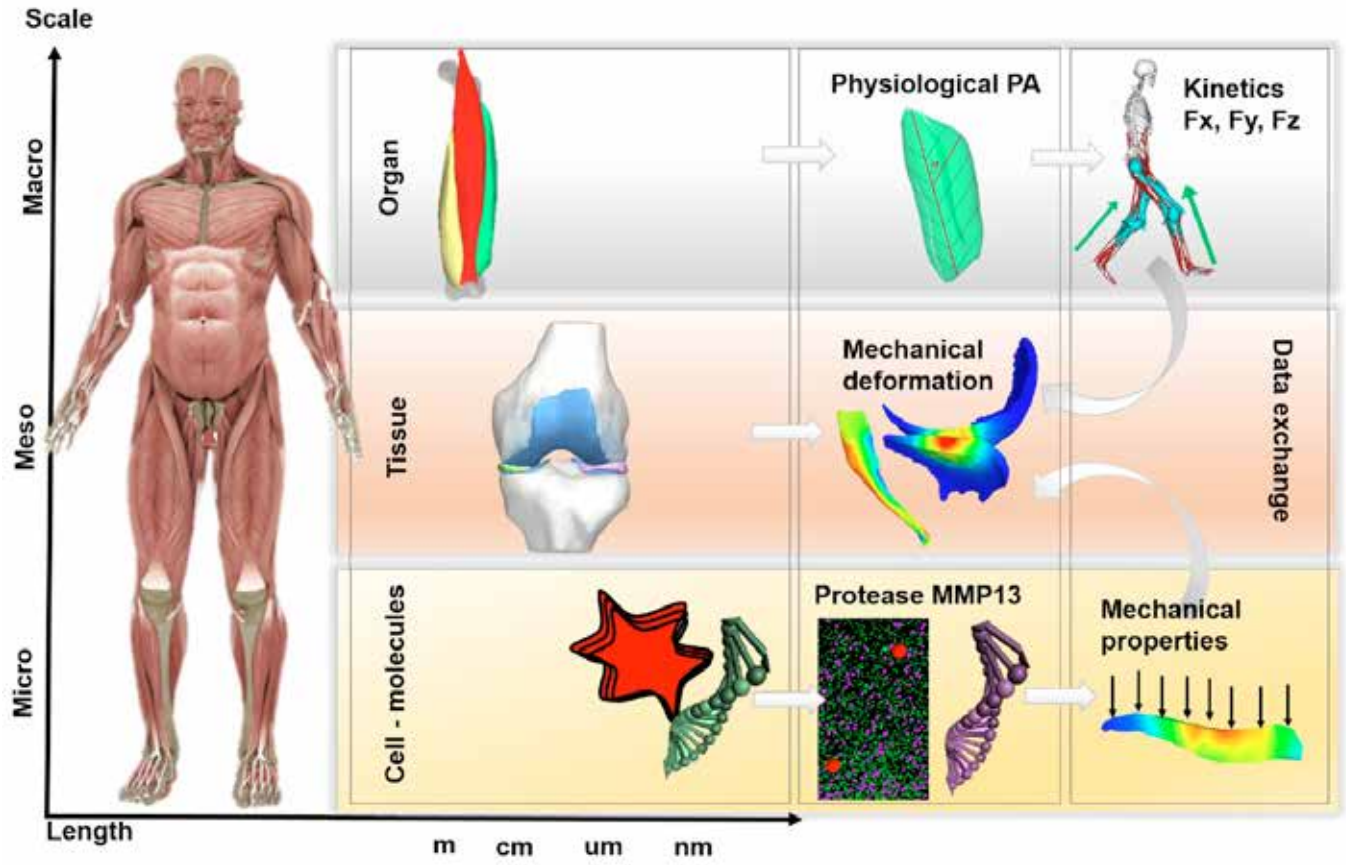
Director: Prof. José Rolim
Co-Director: Prof. Nadia Magnenat-Thalmann

Analysis of 3D Knee Joint Deformation Using a Multiscale Modelling Approach

The human knee joint is the largest and most complex joint of the human body that experiences large loads. The interdependencies encountered in the musculoskeletal system are crucial in understanding musculoskeletal conditions (e.g. osteoarthritis). Patient-specific computational models are promising methods to unravel clinical investigation and diagnosis. However, as the range of medical and experimental data is increasingly expanding, it has become a challenge to integrate data in virtual models in a way that it is comprehensive and reliable for medical diagnosis.

In this thesis we investigated novel modelling paradigms that encompasses mechanics with microscale and physiological data which aims at being practical for clinical investigation. We focused on integrating microstructural and physiological data into articulation simulations, by investigating different biological organization levels such as organ, tissue, cellular, and molecular level. This work provides a quantitative assessment of architectural image–based muscle parameters and their role in improving the accuracy of musculoskeletal and finite element models. The potential of biomechanical simulations in personalized and predictive medicine is also presented. Furthermore, we propose a validated stochastic model of the knee cartilage that simulates intra- and extra-cellular events.

Our results suggest that a multimodal approach for building virtual models of the knee joint taking advantage of a large spectrum of data could contribute to the challenging objective of translating the computational models into clinical decision and prediction.



Doctorat thesis: Univ. Genève, 2016 - Sc. 4949 - 2016/05/31
http://archive-ouverte.unige.ch/unige:86278

Garyfallos Fragkidis

Doctor ès Economy and Management, mention Information Systems and Service Science

1st November, 2016

Director: Prof. Dimitri Konstantas

The Value Perspective in the Analysis and Design of Service Systems

The continuous progress of ICT and the digitalization of life set unique challenges for service research. As information technologies become ubiquitous in the life of people and the services they provide become embedded in the people's life practices, there is an increasing need for the improved understanding of the role of information technologies and the use of services in people's life and for the development of novel approaches for the study, the analysis and design of service systems.

Research in information systems regards conventionally service systems as technological infrastructure and computing functionality that is applied in service operations. However, this view on service systems is incomplete because it ignores significant aspects about the service offering, its use and value for the user in the real world. An expanded and real-world view on service systems would require analyzing next to technologies the business models and the service use patterns and service value for the user. Such a view relates the computing/ digital world of services to the real/ physical world of services for businesses and people and can serve to the development of innovative approaches for the study of service systems.

The thesis aims first of all at the development of an interdisciplinary research framework that adopts this expanded view on service systems and integrates the technological with the business and the user's concerns. Based on this framework, the thesis analyzes further the concept of value in service systems, the role of the user in service processes, and the user's perspective in service analysis and design.

The adopted research methodology aims to harness knowledge from the contemporary service management literature to develop the interdisciplinary research framework for the study of service systems and to provide answers to the key research topics of the concept of service value, the role of the user in service processes, and the user's perspective in service analysis and design.

The interdisciplinary framework for the study of service systems integrates three domains of service research: the Technology Domain, the Business Domain and the User Domain. The framework extends service research in information systems with additional aspects about the service offering, its usage and its value in the real world. The framework suggests the value perspective in the analysis and design of service systems, as value is employed as the underlying concept of service phenomena in the three domains and the common denominator of the different priorities and concerns. The value perspective suggests service value is created in a progressive way along the phases of service development, provision and usage respectively in the three domains, through the direct or indirect interaction of technologies, service providers and users.

The concept of service value is further analyzed and formalized with two conceptual models in order to improve understanding and support the analysis of the value aspects of service systems. The first conceptual model takes a global view on the three-domain framework and portrays value-related concepts and relationship in service ecosystems, while the second conceptual model zooms in the User Domain and emphasizes on the user's perspective in service value.

The role of the user in service processes is approached through the user participation in joint value activities with the provider for the development of the service offering. A categorization of the types of customer participation in design, co-production and innovation activities is suggested. This categorization can support the better understanding of the ways a company can involve the user in service processes and can provide strategic insights for the boost of customer participation in joint value activities.

The user's perspective in service analysis and design emphasizes on the use of service in the life practices of the user. The user's perspective substantiates the User-Service-Technology method for the end-to-end analysis of services across the three domains of the interdisciplinary framework. The method emphasizes on service usage, rather than on service interactions and exchanges between the provider and the user, and it is driven by the analysis of the user's functions that take place in the User Domain, rather than the analysis of the provider's processes for service development and provision.

The thesis makes contribution in service research in information systems in three particular areas: the development of the interdisciplinary research in service information systems, the development of the value perspective in the study of service systems, and the development of the user's perspective in the analysis and design of service systems.

The research outcomes provide several insights for service research in information systems and can inspire various potential uses. Particularly promising can be the research that seeks to integrate a variety of technologies and services with the purpose to facilitate and enable people in their daily life practices.

Doctorat thesis: Univ. Genève, 2016 - GSEM 38 - 2016/11/01
http://archive-ouverte.unige.ch/unige:89306

Mattia Gustarini

Doctor ès Economy and Management, mention Information Systems and Service Science

23th February, 2016

Co-Director: Prof. Katarzyna Wac
Co-Director: Prof. Dimitri Konstantas

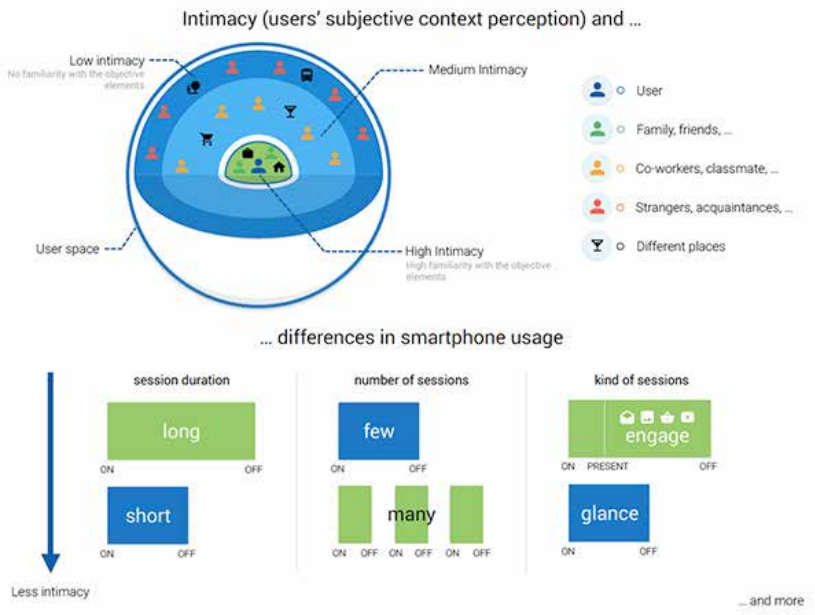
Analysing Smartphone Users "Inner-Self": The Perception of Intimacy and Smartphone Usage Changes

Mobile services and applications use their users' context to provide them new and more intelligent features. Most of these services use the users' location and another context like, for example, the user activity. In future, it will be possible to sense even more users' context. Therefore, mobile services will leverage it even more. It is imperative that we understand how different pieces of context go together and how the end-user perceives them. More importantly, we need to know if the users' perception of their context changes the way they use mobile services. How can we leverage this perception to provide to users even more intelligent services?

To represent the perception of the context of users, we define users' intimacy as their familiarity with their current place, the number of people and kind of people around them. To summarize with an example, we make the following assumption: "when people are at home having a dinner with their families discussing family matters, they feel intimate, while when they are on a bus with strangers, they do not feel intimate." The definition takes into accounts also some specific aspects that are notoriously associate with the classical concept of intimacy that we do not consider to be a part of it, such as privacy and the quality of relations between people.

With a first user study, we validate the intimacy concept, and we confirm that the context variables: place, the number and kind of people around the users represent the users perception of intimacy (familiarity of their context). With the same user study, we evaluate the intimacy correlation to smartphone usage features. We obtain that shorter, more frequent, and less engaging interactions take place when intimacy is lower, while longer, less frequent, and engaging interactions when intimacy is higher. Finally, with the data collected in user study one, we also theoretically define an intimacy model to predict the users' intimacy using the users' smartphones.

With a second user study, we investigate the intimacy predictability in practice. We create a software package that can predict intimacy and we study it in the real users' environment. We discover that location-time features are predictive for the intimacy, and other smartphone-based features can improve the intimacy prediction accuracy. We also analyze the problems of our intimacy model and provide solutions to improve further the intimacy predictions capabilities in future iterations.



Finally, all along our work, we discuss how we can leverage the findings about intimacy and which are its practical implications in the world of mobile applications and services. We can use it for studies on users' context or deploy our intimacy model to help apps developer (to automate services or create better UIX). Advertisers can use it to deliver their content at the right moment, and it can support the innovative projects, as Google Project Tango, to get even better.

Doctorat thesis: Univ. Genève, 2016 - GSEM 26 - 2016/02/23
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Xavier Meyer

Doctor ès Sciences, mention Computer Science

21th June, 2016

Director: Prof. Bastien Chopard
Co-Director: Prof. Paul Albuquerque
Co-Director: Prof. Nicolas Salamin

Breaking computational barriers : application of computational science on high performance computers

Computational science is the application of computing capabilities to obtain solution to problems of the real world. It is omnipresent in our everyday life: for instance, it provides us weather forecast through simulation of meteorological phenomena or helps us to find the best itinerary for our trips by determining the solution to complex optimisation problems. More importantly, computational science makes possible today's scientific challenges, such as the study of colliding particles at CERN or the acquisition of the whole human genome, to be faced.

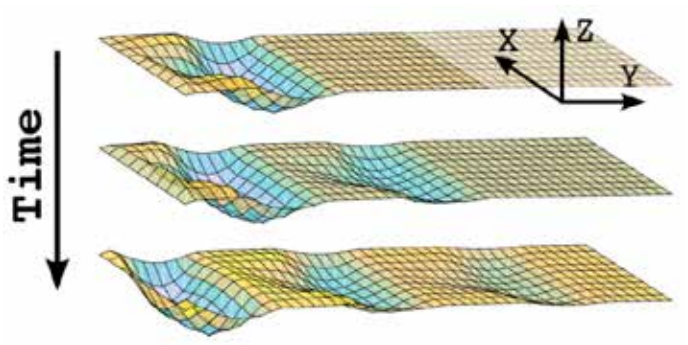
These crucial scientific and engineering problems are tackled using advanced concepts from computer science. Indeed, the calculations underlying to the mathematical models expressing these complex problems are realisable thanks to methods developed during the 20th century such as the Monte Carlo method or the Simplex algorithm. Through years, these methods, as well as their software implementations, were subject to a steady research effort that, jointly with the ever evolving computer architectures, enabled more and more complex problems to be investigated.

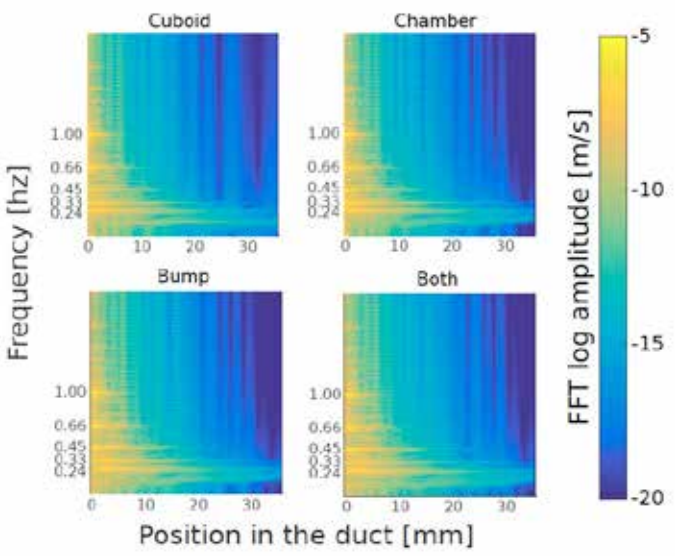
Computational science permitted thus unprecedented scientific projects to be conducted by enabling fast calculations on amounts of data that no person could apprehends in a lifetime. Better algorithms, implementations and hardware helped to broaden the range of investigations practicable by reducing their computing time from years to hours or minutes. However, computational science is not only about accelerating computations: it is also about enabling researchers from multiple horizons to investigate phenomena that are too complex, small, vast or simply not reproducible in laboratory experiments.

The future of computational science is facing serious challenges. Until recently, the computing power of processors was quickly increasing and, consequently, existing software was implicitly accelerated. However, physical limitations in the miniaturisation of computer chips halted this steady source of performance gains. Paradoxically, the computational cost of problems awaiting to be solved never stops to augment. Indeed, the emergence of Big Data in several fields are soliciting an even greater computing power and so are the models that encompass multiple scales of time, space or both.

Breaking these computational barriers is therefore a central concern that emphasises the crucial need for parallel and distributed computing in the future of computational science. Indeed, parallel algorithms and software designed for high performance computing clusters or novel massively-parallel architecture, such as graphical processing units, has never been so important.

In this thesis, we take part to this development by proposing parallel computing approaches for three different challenging problems. In a first part, we study the potential of using graphical processing units to accelerate one of the most important algorithm of the 20th century: the Simplex algorithm. In a second part, we investigate if the vii use of highly-parallel computational fluid dynamics could broaden our understanding of the mechanism of the impenetrable organ of hearing. In the third and final part, we tackle the computational challenges raised by the study of Darwin's theory of evolution that stem from the use of computationally demanding statistical models and methods coupled with the ever growing amount of available molecular data.





Doctorat thesis: Univ. Genève, 2016 - Sc. 4966 - 2016/07/21
http://archive-ouverte.unige.ch/unige:86518

Cristina Muñoz Illescas

Doctor ès Sciences, mention Computer Science

19th January, 2016

Director: Dr. Pierre Leone

A Distributed Event-Based System based on Fragmented-Iterated Bloom Filters

The purpose of this thesis is to design a distributed-event based system for wireless sensor networks that constructs an overlay layer using: (1) Directional Random Walks, (2) Compressed and (3) Fragmented-Iterated Bloom Filters. Moreover, we study an innovative application to use on top of our system based on Searchable Symmetric Encryption.

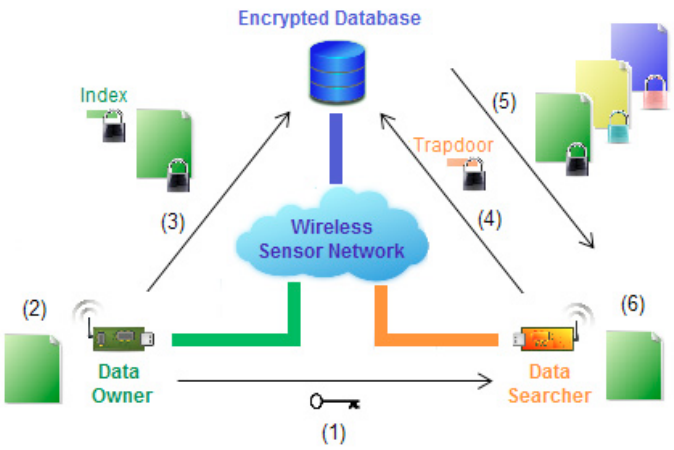
The dissemination of sensing data requires the participation of different sources and destinations. Typically, in an ubiquitous sensing scenario some nodes provide data and other nodes use these data as actuators. Then, a distributed event-based system may be used to exchange information. In such a system, publishers and subscribers do not have any information about each other. They depend on the event notification service to match publications with subscriptions. In distributed networks, this service is implemented using a network of broker nodes. A broker node is any node in the network that has information about any single or set of subscriptions. Publishers must contact a broker node to route events. Similarly, subscribers rely on broker nodes to save subscriptions.

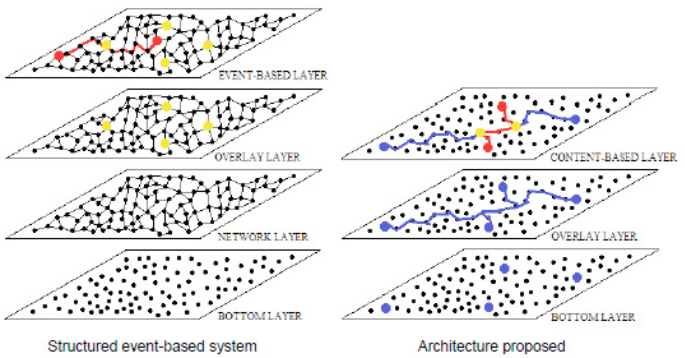
The selection of broker nodes in a structured network requires the use of an overlay layer on top of the network layer. We propose to merge the network and the overlay layers of distributed event-based systems so that no other network protocol is needed. Paths between publishers, subscribers and brokers are well-defined using Directional Random Walks (DRWs). The main idea behind a DRW is that two lines in a plane cross if they are not parallel. The advantage of this strategy is that it is unnecessary to maintain the information concerning the network topology. The main consequence is that nodes, which do not actively participate in the system, do not keep any information about topology. This leads to save energy and computing resources in those devices.

With the aim of providing forwarding capabilities to broker nodes we propose to implement a novel architecture of Fragmented-Iterated Bloom Filters (FIBFs). A Bloom Filter (BF) is defined as a probabilistic data structure that efficiently manages membership of a certain number of elements. Each broker node implements FIBFs at each interface of communication. FIBFs effectively save a set of subscriptions that use conjunctive and disjunctive operations. When a publication arrives to a certain interface, the corresponding FIBFs are checked to decide if it has to be forwarded or not. A publication is forwarded if there are subscribers behind that interface, which are waiting for that specific type of events.

Broker nodes of our distributed-event based protocol require to update the FIBFs by contacting their broker neighbors. The purpose is to decrease the number of transmitted bits to reduce the bandwidth and the latency required. Besides, this strategy also improves the performance of radios because less data is transmitted so that energy is saved. The methodology followed requires a compression algorithm. As a result of this compression, the probability of false positives of FIBFs is reduced.

Finally, we study a future application that may use our system based on Searchable Symmetric Encryption (SSE) that allows to search for documents in an encrypted domain. Secure Indexes based on BFs are used to locate the appropriate encrypted documents. We improve the construction of Indexes in terms of security and performance. Our approach relies on index blinding based on a given entropy level. Moreover, we focus on the performance evaluation of different strategies to securely populate BFs using cryptographic hash functions and a cryptographic algorithm plus a fast hash function.





Doctorat thesis: Univ. Genève, 2016 - Sc. 4890 - 2016/01/19
http://archive-ouverte.unige.ch/unige:86019

Barbara Streimelwenger

Doctor ès Economy and Management, mention Information Systems and Service Science

28th June, 2016

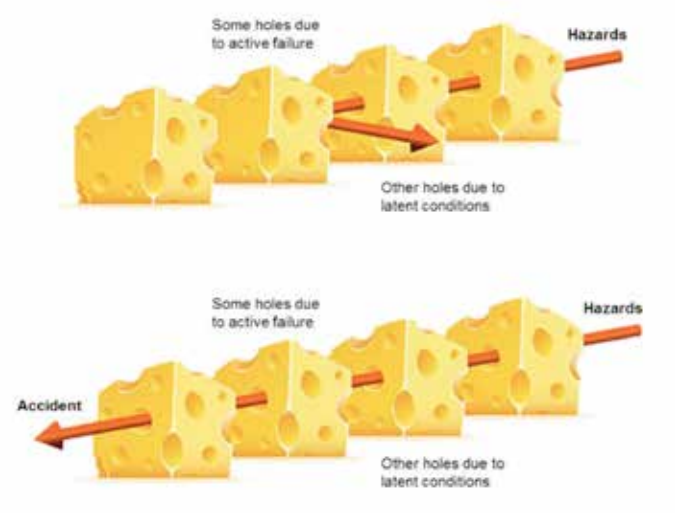
Co-Director: Prof. Katarzyna Wac
Co-Director: Prof. Dimitri Konstantas

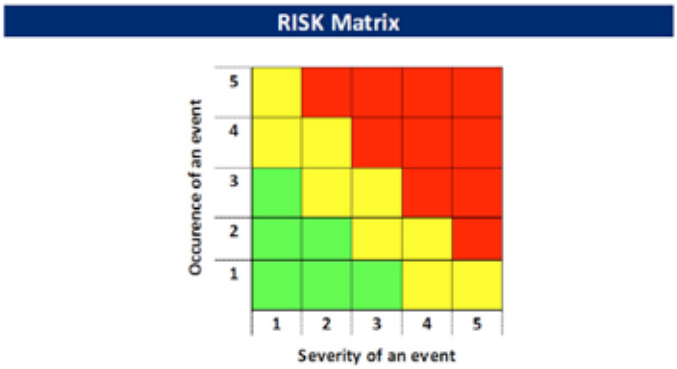
Human-Factor-based Risk Management to improve Patient Safety

Managing risks and chances with RiDeM by using HFdFMEA

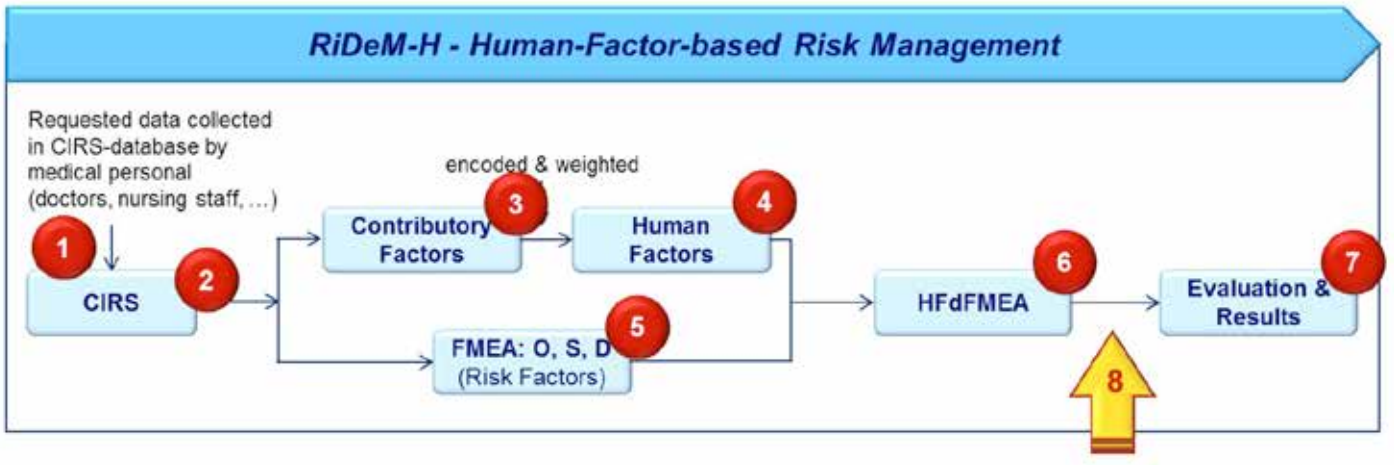
Biomedical engineering and healthcare have always been fascinating topics to me. In 2004 I was the Project Coordinator of HealthService24, a European pro- ject under the e-ten framework. The project was about a mobile patient monitor- ing system (Konstantas, et al., 2006), (Herzog, et al., 2006), (Streimelweger & Konstantas, 2006). The system was developed with the intention to help people to support them in their daily life, amongst others people with COPD (Chronic Obstructive Pulmonary Disease, e.g. monitoring oxygen saturation), people with heart problems (e.g. monitoring electrocardiogram – ECG) and pregnant women (e.g. monitoring cardiotocography – CTG). This was also the first time working together with Dimitri Konstantas, who was the Scientific Officer of the project, and Katarzyna Wac. Both patient safety and Risk Management were important topics to us in reference to the mobile patient monitoring system. Another im- portant discussion point was the aspect of human factors. For example the monitored data were sent to a healthcare centre. What could happen to a pa- tient, if the operator in a healthcare centre was neither a doctor nor a medical professional? How good would the service or help have been?

Risk Management and Safety as well as the aspect of the human factors have been my motivation drivers to write the thesis Improving Patient Safety through Human-Factor-based Risk Management – Managing risks and chances with RiDeM. The results of the enhanced model named Human-Factor dependent FMEA (HFdFMEA), which is based on the well-known method FMEA (Failure Mode and Effects Analysis), has been published (Streimelweger, Wac, & Seiringer, 2015) and presented. In this work in terms of the proposed model, the results of the analysis and the conclusions are referred to the corresponding points of the publication.





Occurrence of an Event		Severity of an Event		Detection of an Event	
rarely	1	none	1	obviously	1
unlikely	2	minimal	2	detectable	2
imagineable	3	moderate	3	possible	3
possible / probabl	4	heavy / severe	4	hardly detectable	4
assured / certainh	5	catastrophic	5	almost undetecta	5



Doctorat thesis: Univ. Genève, 2016 - GSEM 29 - 2016/06/28
http://archive-ouverte.unige.ch/unige:86381

Sara Trombella

Doctor ès Sciences, mention Interdisciplinary

20th September, 2016

Director: Prof. José Rolim
Co-Director: Prof. Nadia Magnenat-Thalmann

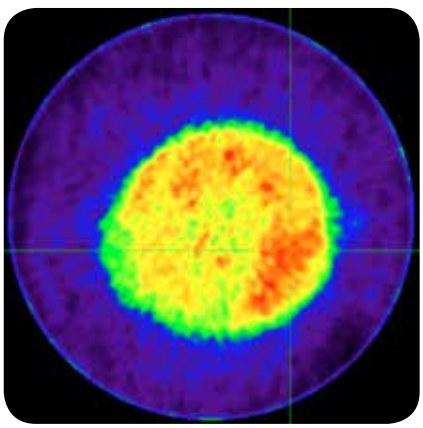
Assessment of Muscular Activity by Positron Emission Tomography using [11C]Acetate

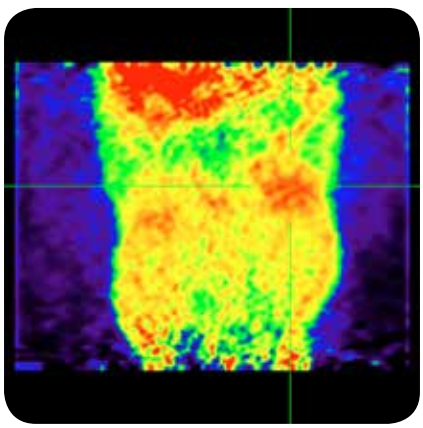
Musculo-Skeletal Diseases (MSDs) stands for a whole group of diseases that can affect the human musculoskeletal apparatus, being cause for pain and a sensitive reduction in the mobility extent of the involved joints, resulting for the affected patient in a progressive loss of physical autonomy, up to the complete inability to perform specific movements and daily tasks. Among this class of pathologies, Osteoarthritis (OA) is a chronic disease that causes significant social, psychological, and financial burdens to patients, and can most commonly interests the knee joint - Knee Osteoarthritis (KOA).

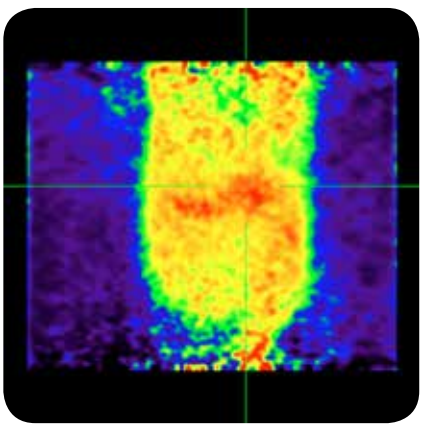
Declines in leg strength, particularly in the quadriceps of both the knee affected with KOA as well as the quadriceps of the contralateral knee that is asymptomatic for KOA have been observed in the literature. Among biomechanical factors causing OA, the potential contribution of quadriceps muscle weakness to disease pathogenesis has been the target of several investigations. The quadriceps muscle contributes with a primary role to both functional knee joint stability and knee joint loading. Weak quadriceps muscle may be unable to provide adequate control of tibial translation during ambulation, thus compromising dynamic knee joint stability and consequently increasing risk of damage to joint structures. Moreover, weak muscles may fatigue easily leading to poor neuromuscular control, which could allow pathologic joint movement. An impairment in quadriceps sensorimotor function may also lead to an anomalous and injurious loading of articular structures. Thus, there is nowadays an increasing literatural and clinical evidence that muscle weakness might play a contributory role in the onset and progression of OA.

Positron Emission Tomography (PET) allows to study tissue metabolism in vivo in a non-invasive way. In particular, it enables to quantitatively characterise several physiologic processes in the skeletal muscle, such as muscle perfusion and oxygen consumption. In the literature, an alternative well-established approach to measure muscle metabolic activity, with respect to traditional Electromyography (EMG), is PET with [18F]2-fluoro-2-deoxy-D-glucose (FDG). A relatively poorly investigated PET tracer when dealing with the investigation of skeletal muscle activity, is acetate, or acetic acid, a molecule that is quickly assimilated by cells and converted into acetyl-CoA by acetyl-CoA synthetase, and in this form involved it can be oxidized to CO_2 and H_2O by the Tricarboxylic Acid Cycle (TCA), thus producing energy. Due to this versatile uptake mechanism, it can result useful in many diagnostic fields, such as cardiology and oncology. Acetate uptake was investigated in the human limbs' skeletal muscle, however, up to our best knowledge, just a few number of studies in the literaturature investigated the metabolic fate of acetate in the skeletal muscle at rest and after exercise by PET.

The purpose of the present study is to investigate exercise-related changes in the skeletal muscle by PET and [11C] acetate, in the animal and the human. At this purpose, a pre-clinical and a clinical protocol were implemented. The veterinary experiment involved the application of kinetic analysis to investigate the metabolism of the skeletal muscle of the rat and the comparison to more conventional quantitation approaches.







Doctorat thesis: Univ. Genève, 2016 - Sc. 5038 - 2016/12/19
http://archive-ouverte.unige.ch/unige:92504

Kasun Wijesiriwardana Samarasinghe

Doctor ès Sciences, mention Computer Science

29th November, 2016

Director: Dr. Pierre Leone

Geometric Routing over Virtual Coordinate Systems: Algorithms, Protocols and Applications

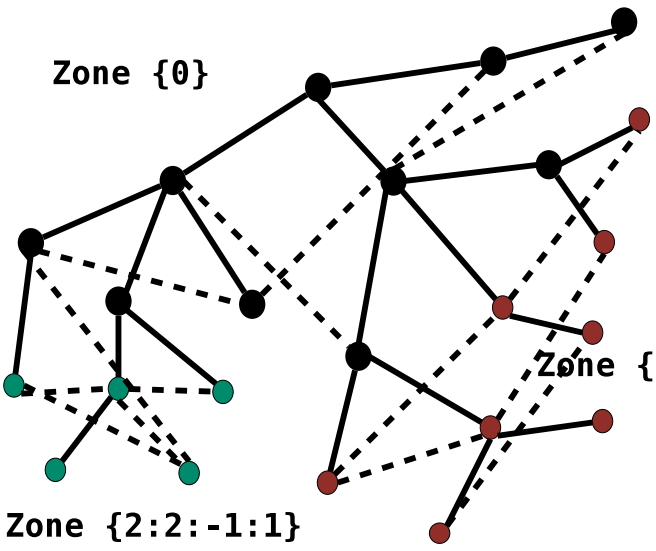
Advancements in hardware development have given rise to a novel paradigm of computing called ubiquitous computing. In ubiquitous computing, applications provide various services across heterogeneous hardware platforms, over standard protocols. These hardware can range from mobile devices to small devices with wireless communication capabilities, which can be embedded into appliances utilized in daily life.

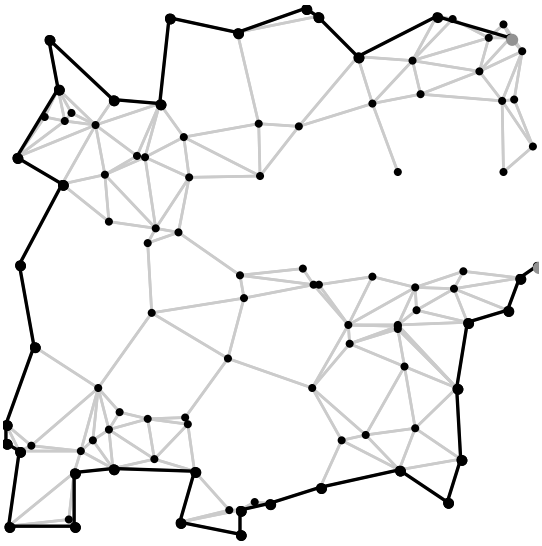
Wireless ad-hoc networks is an important ingredient in the deployment of ubiquitous computing applications. It acts as the communication backbone, which enables the flexible deployment of devices required by most of the ubiquitous applications. In general, wireless ad-hoc networks do not have a pre-defined topology, hence form a mesh network over wireless communication medium. Routing in wireless ad-hoc networks is a challenging task compared to fixed infrastructure networks. It has to deal with the dynamics of the network topology, due to the unpredictable wireless communication behavior.

Geographic routing is a routing paradigm, especially proposed for wireless ad-hoc networks. In geometric routing, routing decisions are made based on the geometric position of the nodes. Initially geometric routing tries to forward a packet to the closest node towards the destination, namely greedy routing. If greedy routing fails, it explores the graph systematically to reach the destination, namely face routing. As routing is based on the geometric coordinates of the nodes, it avoids building and maintaining the routing tables as in classical routing protocols. Hence, it provides scalability and robustness in networks with dynamic topologies.

Despite the ingenuity of seminal proposal in geometric routing, it has not thrive to become a standard for wireless ad-hoc networks. This is mainly due to the unrealistic assumptions of the algorithms. Also as geometric routing requires the nodes to be equipped with geometric coordinates, an auxiliary location service has to be in place. Such a service can be expensive and unrealistic in most of the wireless ad-hoc network deployments.

In this thesis, geometric routing is investigated on virtual coordinate systems. In the first contribution of the thesis, an efficient coordinate system called virtual raw anchor coordinates (VRAC) has been investigated and geometric routing algorithms are formulated on it. Further more, it establishes results on the possibility of greedy routing with delivery guarantees on VRAC. Second contribution of the thesis is the proposal of greedy zone routing protocol considering the reliability and scalability aspects of large scale wireless ad-hoc networks. Greedy zone routing protocol design not only free of unrealistic assumptions but also based on simple techniques which can be applied in real network settings. In the third contribution, an application layer framework is presented over existing routing protocols for wireless ad-hoc networks. This framework is then applied to solve a smart building use case.





Doctorat thesis: Univ. Genève, 2016 - Sc. 5035 - 2016/11/29
http://archive-ouverte.unige.ch/unige:91967

Administrative Staff


Lara Broi


Marie-France Culebras


Anne-Isabelle Giuntini


Coralie Grossrieder


Maëlle Rümbeli

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

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

- **Elie Zagury** is direction assistant.

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

- **Lara Broi** is secretary, till June 2016;
- **Marie-France Culebras** is secretary;
- **Anne-Isabelle Giuntini** is part-time secretary (50%);
- **Coralie Grossrieder** is secretary, since June 2016;
- **Maëlle Rümbeli** is part-time secretary (50%).

IT: Two systems-engineers manage the basic computer infrastructure of CUI (data storage, backups, servers, network, etc.) using Linux, Mac 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.


Daniel Agulleiro

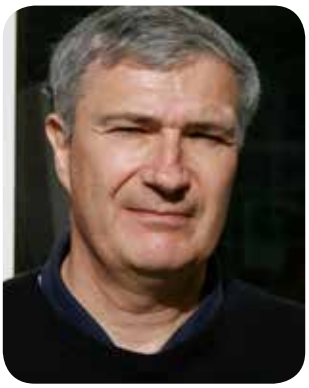

Nicolas Mayencourt


Elie Zagury

Library: The CUI Library provides services and tasks as any specialized library of an universitary center. It is part of the library network of the University of Geneva (http://www.unige.ch/biblio/sciences/infos/cui.html) and is proud to offer some specifities in its field. Its current collection contains approximately 10'000 books and 25 specialized print journals.

- **Amélia Bossard** is head librarian;
- **Jérôme Napoléon** is librarian.


Amélia Bossard


Jérôme Napoléon

Financial Report

CUI

Staff	CHF 858'711.-
• Academic	CHF 271'806.-
• Administrative and Technical	CHF 428'647.-
• Employer's social contributions	CHF 158'258.-
Operating costs - Investment	CHF 117'700.-
Operating costs - Others	CHF 190'060.-
CUI subtotal	**CHF 1'166'471.-**

Faculty of sciences (Computer Science Department)

Staff	CHF 3'129'211.-
• Academic	CHF 2'398'823.-
• Administrative and Technical	CHF 153'705.-
• Employer's social contributions	CHF 576'683.-
Operating costs - Investment	CHF 97'644.-
Operating costs - Others	CHF 33'840.-
Sciences subtotal	**CHF 3'260'695.-**

Geneva School of economics and management & Geneva School of Social Sciences (ISS)

Staff	CHF 1'563'174.-
• Academic, incl. Charges	CHF 1'219'594.-
• Administrative and Technical, incl. Charges	CHF 46'762.-
• Employer's social contributions	CHF 296'818.-
Operating costs - Investment	CHF 0.-
Operating costs - Others	CHF 0.-
Economics and management subtotal	**CHF 1'563'174.-**

Faculty of humanities (Unit of Computer Science for the Humanities)

Staff - Academic, incl. Charges (estimation)	CHF 800'377.-
Operating costs	CHF 20'000.-
Humanities subtotal	**CHF 820'377.-**

TOTAL BUDGET	**CHF 6'810'717.-**

External funding obtained by the professors	Credit
CUI	
Swiss-funded Projects	CHF 0.-
CUI subtotal	**CHF 0.-**
Faculty of sciences (Computer Science Department)	
UE-funded Projects	CHF 177'182.-
Swiss-funded Projects	CHF 1'804'450.-
Sciences subtotal	**CHF 1'981'632.-**
Geneva School of economics and management & Geneva School of Social Sciences (ISS)	
UE-funded Projects	CHF 1'315'604.-
Swiss-funded Projects	CHF 1'083'512.-
Economics and management subtotal	**CHF 2'399'116.-**
Faculty of humanities (Unit of Computer Science for the Humanities)	
UE-funded Projects	CHF 2'500.-
Swiss-funded Projects	CHF 186'779.-
Humanities subtotal	**CHF 189'279.-**
TOTAL CREDIT	**CHF 4'570'027.-**

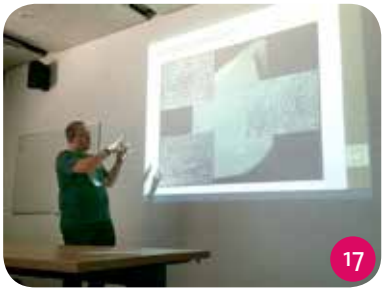
Journée d'info
Uni Mail
2016 March 2nd

Dinara Sanikidze, Enzo Borel, Giacomo Longhi (CUI students)

Nuit de la science
Parc de la Perle du Lac
2016 July 9th

Manon Hill (Humanities student)

TecDay
Collège Sismondi
2016 April 19th



Dr. Corentin Ribeyre (Postdoc in CLCL)

Journée d'info
Uni Mail
2016 March 2nd

Dimitri Racordon, Raphaël Burkhardt, Romain Mencattini, David Ducry, Marc Adams, Grégoire Baud (Computer Science students)

TecDay
Collège Sismondi
2016 April 19th

College student

TecDay
Collège Sismondi
2016 April 19th

College students

TecDay
Collège Sismondi
2016 April 19th

College student

Science Me comp. (Nuit de la science)
Parc de la Perle du Lac
2016 July 9th

Dimitri Racordon, David Lawrence (Computer Science PhD students)

Nuit de la science
Parc de la Perle du Lac
2016 July 9th

Théo Giovanna (Computer Science student). Dimitri Racordon (Computer Science PhD student)

TecDay
Collège Sismondi
2016 April 19th

College students

illustrations CUI UNI GE

Centre Universitaire d'Informatique
Battelle - Bâtiment A
7, route de Drize
CH-1227 Carouge

UNIVERSITÉ DE GENÈVE