

# IM2 Newsletter

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## News

### SIGIR 2010

After a competitive process, the ACM Special Interest Group on Information Retrieval (SIGIR) has selected the Viper group from the CVMLab (University of Geneva) to host the 33rd Annual International ACM SIGIR Conference 2010 in Geneva.

### New IM2 call for proposals

By opening a new call, IM2 seeks not only to attract new partners in view of optimizing the internal resources and reinforcing the IM2 themes of research for the next few years, but also to foster competition inside the IM2 community.

<http://www.im2.ch/newsandpress/callforproposals2007>

## Two new IP Heads

Due to the departure of Samy Bengio, head of the individual project (IP) "Multimodal Processing and Recognition" (MPR) and Pierre Wellner, head of the IP "Human-Machine Interaction" (HMI), the IM2 Technical Committee had to vote new IP heads. After taking into account the suggestions of each IP committee, Aude Billard and Alex Jaimes were elected as new IP heads of, respectively, MPR and HMI by the majority of the Technical Committee members.



**Aude BILLARD** is Associate Professor and head of the LASA Laboratory at the School of Engineering at the Swiss Federal Institute of Technology in Lausanne (EPFL). She received her B.Sc. (1994) and M.Sc. (1995) in Physics from EPFL, with specialization in Particle Physics at the European Center for Nuclear Research (CERN), a MSc. In Knowledge-based Systems (1996) and a Ph.D. in Artificial Intelligence from the Department of Artificial Intelligence at the University of Edinburgh. She worked as a Post-doctoral Fellow at IDSIA and LAMI (EPFL, 1998-1999), then as Research associate (1999-2000), Research Assistant Professor (2000-2004) at the department of Computer

Sciences at the University of Southern California, where she retains an adjunct faculty position to this day, and Assistant Professor (2002-2004) at EPFL. Prof. Billard is President of the EPFL General Assembly and a member of the Administrative Committee of the IEEE Robotics and Automation society. She is also a member of the editorial board of the Interaction Studies journal (published by John Benjamins). She served on the organizing or program committees of more than 20 international conferences, including the IEEE international conferences Humanoids'03-06, ICRA'05, Bio-Rob'06, HRI'06, ICEC'05, ICDL'05-06, the international Conferences in Machine Learning (ICML'00-02-06), the International Conference on Simulated and Adaptive Behavior (SAB'04), as well as Epirobotics' 02-06, ECAL'99-02, AISB'99-06.

Research conducted at the LASA laboratory within IM2 is concerned with the interpretation and recognition of gesture and with the acquisition and interpretation of non verbal communication, based on multimodal cues.



**Alejandro JAIMES** is scientific manager and senior researcher at IDIAP Research Institute, Martigny, Switzerland. His research focuses on developing computer vision techniques that use machine learning, involve humans directly, and are rooted in principles, theories, or techniques from cognitive psychology, the arts, and information sciences. Prior to joining IDIAP, Alejandro was Advanced Multimedia Specialist at Fuji Xerox in Japan where he performed research on multimedia analysis and interaction in the context of a smart conference room project, including developing techniques for automatic meeting video analysis and camera-based interaction in personal and collaborative

spaces. Alejandro received a PhD in electrical engineering from Columbia University in 2003 and a M.S. in Computer Science also from Columbia University in New York City in 1997.

The IM2 management wishes all the best to Aude and Alex in their new duties and warmly thanks Samy Bengio and Pierre Wellner for their excellent work carried out.

Cover Story

## Winter Institute 2007 feedback



As announced in the last IM2 newsletter, the IM2 Winter Institute took place at Murten/Morat, in the Loewenberg Centre, February 19-22, 2007. This major IM2 event gathered nearly 100 researchers (Phd Students, Postdocs and professors) which exchanged their experience over 3 days.

There were a total of 15 hours of tutorials given by IM2 seniors. The tutorials recordings are available on the IM2 intranet (only for IM2 project partners) or on the MultiModal Media (mmm) fileservers (<http://www.idiap.ch/mmm/talk-webcast>). Two appreciated poster sessions were organized in which 57 posters covered all the themes (individual projects) of IM2.



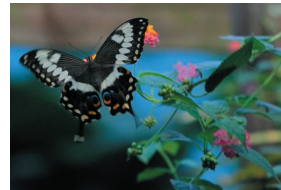
*Tutorials:  
Dr Stéphane Marchand-Maillet, University of Geneva and  
the IM2 Winter Institute audience.*

In the framework of a VentureLab event led by Jordi Monserrat, Yann Guyonvarc'h, successful entrepreneur and former CEO of VisioWave SA, gave the IM2 Winter Institute participants an overview of his own business experience. Then, Jordi Monserrat explained how to start an entrepreneurial project. Finally, he taught how to pitch and get feedback in a non compulsory workshop in which 8 out of 31 very interested people experienced how to make a pitch presenting their own business ideas.



*VentureLab event:  
Maël Guillemot, Yann Guyonvarc'h, Joël Praveen Pinto*

To foster relationships and networking opportunities, an official outdoor activity was organized. At the Papillorama Foundation in Chiètres/Kerzers, the participants discovered a fascinating diversity of plants and animals with hundreds of colourful butterflies and hummingbirds. At the end of the visit, a "networking aperitif" was served. Another activity, unofficial, allowed some of the participants to measure their ability to drive a kart.



At the end of the Winter Institute, a panel of 42 people answered a survey of 13 questions about the program; length of the workshops, organisation, quality of tutorials and poster sessions, accommodations, etc. On a scale of 1 (poor) to 4 (excellent), 8 questions got the mark of 3 and 5 questions got 4. This excellent global result shows that the event was very appreciated and useful. After the success of this 2007 edition, we are keen of setting up the next one.

## Association for Computing Machinery evaluates a recording system developed by IDIAP in collaboration with the University of Fribourg



The Association for Computing Machinery (ACM), the world's oldest and largest educational and scientific computing society in all areas of industry, academia, and government, is recording one of its main events: the ACM CHI 2007 conference in San Jose (USA) for the purpose of evaluating a system developed in the framework of IM2 by IDIAP in collaboration with the University of Fribourg. This system called PAS (Presentation Acquisition System) is a fully automatic system allowing the acquisition, the processing and the delivery of presentations. The system is activated by simply pushing one button. Once the acquisition of a presentation is completed, the data are processed and converted into formats suitable for being accessed through the web with a slide search engine. Find some examples of talks recorded using this system on: <http://www.idiap.ch/mmm/talk-webcast>

## Sileye Ba and Kevin Smith have completed their doctoral degree in the Framework of IM2



**Sileye Ba** started his PhD in October 2002 at IDIAP Research Institute under the supervision of Pr. H. Bourlard Dr. J.-M. Odobez. His PhD was funded by the IM2 project through the MULTiple CAmera Tracking and Activity Recognition (MUCATAR) project. His thesis entitled Joint Head Tracking and Pose Estimation for Visual Focus of Attention had the purpose, in a first part, to study sequential Monte Carlo based head pose

tracking methods. In a second part, he did studies about using the head pose to recognize the visual focus of attention of a person in meeting contexts and outdoor situations.

He defended his thesis the 28th February 2007 in front of a comity chaired by Pr. J. Masic from EPFL and constituted Pr. M. Pantic from Imperial College London, Pr. J. P. Thiran from EPFL and Dr. R. Stiefelhagen from University of Karlsruhe and his supervisors. Since April 2007, he is working at IDIAP as a postdoc with Dr. D. Gatica-Perez and Dr J.-M. Odobez in the Robust Automatic Detection of Meeting events with Audiovisual Perception (ROADMAP) project funded by the Video Analysis and Content Extraction (VACE) project. The project goal is to study the recognition of conversational events or trends and group dynamic analysis using only audiovisual features.



**Kevin Smith** started his PhD in November 2002 on the topic of multi-object tracking, funded by the IM2 MUCATAR project. His thesis, entitled «Bayesian Methods for Visual Multi-Object Tracking and Activity Recognition» proposed new probabilistic models for multi-object tracking, introduced a framework for the objective evaluation of multi-object tracking, applied this framework to state-of-the-art tracking models, and explored ways in which multi-object tracking

can be extended to perform human activity recognition tasks such as detecting when a person abandons a luggage item in a public place or determining if and when a person looks at an outdoor advertisement as they pass.

Kevin's thesis was recommended for the 2007 EPFL doctorate award for remarkable PhD thesis by his defense jury on February 2nd. Following his stay at IDIAP, Kevin has accepted a postdoc position with the CVLab at EPFL, where he will work on segmenting and tracking neurons using 3D images from an 2-photon electron microscope.

## IM2 Calls for proposals 2006 and 2007: results and new call for participation

### Results of the 2006 call for proposals

Last July, the IM2 Technical Committee opened a call for project proposals in its areas of activities (multimedia content structuring and access, with particular emphasis on human-human communication scenes). Mid September, a reasonable amount of 16 proposals were received. After a review of each project by the Technical Committee, only 7 were granted in maximizing the quality while also focusing on the review panel comments made during the last Site Visit (November 2006). The Technical Committee thus decided to save 50% of the planned budget to release a new call (description available next column) explicitly targeting multimodal interaction.

### The selected one-year projects (call 2006) which officially started early March 2007 are:

1. Stéphane Marchand-Maillet, UniGe, linked to IM2.MCA
  - Visual object and text modelling for retrieval
2. Alessandro Vinciarelli, IDIAP, linked to IM2.MCA
  - Sociometric Analysis of Media (SAM)
3. Andrei Popescu-Belis, ISSCO, linked to IM2.DMA
  - Multi-Eval: a repository of evaluation metrics for multimodal dialogue annotations
4. Heinz Hügli, UniNe, linked to IM2.VP
  - Attention-based tracking in omnidirectional video
5. Barbara Caputo, IDIAP, linked to IM2.MPR
  - Towards Medical Information Management (ToMed.IM)
6. Denis Lalanne, UniFr, linked to IM2.ISD
  - Total:Recall: Ego-centric Meeting Indexing and Browsing
7. Pierrette Bouillon, ISSCO, linked to IM2.HMI
  - Extending Regulus-Based Spoken Dialogue Applications to Mobile Phones

### New call for participation

By opening a new call, IM2 seeks not only to attract new partners in view of optimizing the internal resources and reinforcing the IM2 themes of research for the next few years, but also to foster competition inside the IM2 community.

The selected projects will be funded for 12 months, with possibility of renewal and full integration within IM2, depending on performance and other factors.

The project proposals should be directly and clearly aligned with the current IM2 activities and addresses any or all of the following themes:

- Multimodal Data Analysis and Management,
- Multimodal Human-Machine Interaction,
- Multimodal applications and their evaluation.

### Deadlines

- Submission is May 15, 2007, midnight.
- Decisions will be sent September 15, 2007
- The selected projects will start November 1, 2007, but not later than January 1, 2008, for a duration of 12 months maximum.

Additional information can be found on the IM2 website:

- <http://www.im2.ch/newsandpress/callforproposal2007>



## Call for participation

### 4th Joint Workshop on Machine Learning and Multimodal Interaction (MLMI'07)

28-30 June 2007  
Brno, Czech Republic  
<http://www.mlmi07.org>

The MLMI'07 workshop, sponsored by IM2 and AMI/AMIDA, will feature two invited talks, fifteen refereed oral presentations, and over forty posters and demos. The technical programme (28-29 June) will be announced soon on the workshop's website, and will be followed by the AMIDA Training Day (June 30). Members of IM2 are encouraged to participate as there are no registration fees for them. A revised version of MLMI papers and selected posters will be published in the post-workshop proceedings: the three previous MLMI have been published as Springer LNCS 3361, 3869, and 4299. MLMI'07 will directly follow from the ACL conference in Prague.

## Upcoming Events

### ACM selects Geneva for its SIGIR Conference in 2010

After a competitive process, the ACM Special Interest Group on Information Retrieval (SIGIR) has selected the Viper group from the CVMLab (University of Geneva) to host the 33rd Annual International ACM SIGIR Conference 2010 in Geneva.

The International ACM SIGIR Conference is a premium venue for the Information Retrieval community since 1978. The main conference focuses on all aspects of information storage, retrieval and dissemination, including research strategies, output schemes and system evaluations. Several workshops and tutorials on related subjects are organized before and after the main conference. The event generally gathers about 400 attendees with a selective paper acceptance rate around 20% for the main conference.

We look forward to welcoming all IM2 partners at SIGIR 2010.

Link: <http://viper.unige.ch/sigir2010>

## Partner News

### Laurent Uldry receives the prize of Foundation Anaheim for his Master Thesis

Laurent Uldry completed his Master Thesis in March 2007 at the IDIAP research institute, in the Brain-Computer Interface research group of Prof. José del R. Millán. He received the prize of Foundation Anaheim during the 2007 EPFL "Magistrale" ceremony which took place on March 31 in Lausanne. This



Laurent Uldry and prof. Margaritondo  
(Vice president for Academic Affairs)

prize rewards a high-level interdisciplinary Master Thesis seeking to bring together life science and computer science. During his thesis, Laurent Uldry investigated different feature selection methods coupled with inverse models estimating intracranial electrical activity from scalp EEG, in order to improve the performances of a brain-computer interface system.

## IM2 Network

Two former IDIAP Phd students are now postdocs at EPFL thanks to the IM2 network.

**Agnès Just (Lab of Prof. Aude Billard).** Still in the framework of IM2, Agnès is working in the field of hand gesture recognition. She is also currently involved in another project called RobotCub. In that project, she is dealing with imitation gestures of reaching and grasping actions. The goal is to analyse and model these gestures to extract relevant biological information.

**Florent Monay (Lab of Prof. Jean-Philippe Thiran).** In order to build an advanced, vision-based navigation system, a 'visual memory' of a given environment is recorded with an omnidirectional camera. The goal is to match new images from the same environment, but taken with completely different settings, with this 'visual memory'. Such a system would for instance allow to estimate the position of a person wearing a camera, and search what objects from the environment were encountered.

## Major publications

EEG-based synchronized brain-computer interfaces: a model for optimizing the number of mental tasks

*J. Kronegg, G. Chanel, S. Voloshynovskiy, T. Pun*

IEEE Trans. on Neural Systems and Rehabilitation Engineering, Vol. 15, No. 1, March 2007, 50-58.

Audio-Visual Tracking of Multiple Speakers in Meetings

*D. Gatica-Perez, G. Lathoud, J.-M. Odobez, and I. McCowan*

IEEE Trans. on Audio, Speech, and Language Processing, Vol. 15, No. 2, pp. 601-616, Feb. 2007.

Handwriting Recognition of Whiteboard Notes - Studying the Influence of Training Set Size and Type

*Liwicki, M. and Bunke, H.*

Int. Journal of Pattern Recognition and Artificial Intelligence, Vol. 21, No. 1 (2007) 83-98.

A Writer Identification and Verification System Using HMM Based Recognizers

*Andreas Schlapbach and Horst Bunke*

In «Pattern Analysis & Applications», vol. 10(1), pages 33-43, Springer, 2007.

Reliability-based voting schemes using modality-independent features in multi-classifier biometric authentication

*Richiardi J., Drygajlo A.*

To appear in Proc. 7th Int. Workshop on Multiple Classifier Systems, 2007.

FaericWorld: Browsing Multimedia Events Through Static Documents And Links

*Rigamonti, M., Lalanne, D., Ingold, R.*

Accepted for publication at INTERACT'07.

Minimizing Modality Bias when exploring input preferences for multimodal systems in new domains: the Archivus Case Study

*Lisowska, A., Armstrong, S., Betrancourt, M., Rajman, M.*

To appear in CHI'07, San Jose, CA. May 1-3rd, 2007.

Accelerating Distributed Consensus Using Extrapolation

*E. Kokiopoulou and P. Frossard*

IEEE Signal Processing Letters, to appear.

Speakers Role Recognition in Multiparty Audio Recordings Using Social Network Analysis and Duration Distribution Modeling

*A. Vinciarelli*

Accepted for publication by IEEE Transactions on Multimedia.