

IM2 Newsletter

Contents

COVER STORY

- IM2 Final Event 1

FOCUS

- Program of the IM2 Final Event 2
- Prof. Hervé Bourlard receives ISCA Fellow Award 2
- Completed Thesis:
- Afsaneh Asaei, Idiap 3
- ICC 2013,
Congratulations to the
10 selected teams 3

INSIDE IM2

- News
- Selected publications

Event

IM2 FINAL EVENT

As the NCCR is reaching its
12 years, we are organizing
a Final Event on
October 17-18 2013
at the **Rolex Learning Center,**
EPFL, Lausanne.

Cover Story

IM2 Final Event – October 17-18, 2013
Rolex Learning Center, EPFL



After 12 years of intensive collaborative research across Swiss institutions in the area of Interactive Multimodal Information Management, the IM2 NCCR is now approaching its end in December 2013. To present you with its achievements, a Final Event is organized on **October 17-18, 2013** at the **Rolex Learning Center, EPFL, Lausanne** (www.im2.ch/final-event).

Although the NCCR will be survived by AIM2, the association that will keep IM2 alive, we want to celebrate the end of 12 years of research, development, and technology transfer with **an open 2-days workshop, targeting a general audience** (scientists, industry representatives, scientific policy makers, and media representatives).

This workshop will be an opportunity to discuss some of the achievements of IM2, current state-of-the-art in the field, as well as scientific and structural impacts of such long-term collaborative project.

Besides **IM2 talks and interactive posters sessions**, we will have talks by key senior representatives in some of the IM2 fields:

- **Dr. Jerome R. Bellegarda**, Apple Distinguished Scientist in Human Language Technologies at Apple Inc, Cupertino, California;
- **Prof. Maja Pantic**, Professor of Affective and Behavioral Computing and leader of the i•BUG group; and
- **Prof. Mor Naaman**, assistant professor at Cornell Tech NYC.

The 2-days workshop will conclude with a **round table discussion** about the impact and pertinence of such long-term projects. The panelists will include a couple of IM2 scientists, a few scientists involved in similar initiatives outside Switzerland, one SNSF NCCR representative, and one representative of the Science Foundation Ireland (where they are running a few similar large programs).

Léonore Miauton
Leonore.Miauton@idiap.ch

Program of the IM2 final event (October 17-18)

Thursday, October 17	Friday, October 18
9.00-09.15 Opening talk by NCCR Director	9.00-09.10 Introduction by NCCR Deputy Director
9.15-10.00 Dr. Jerome Bellegarda, Apple Inc.	9.10-10.00 Prof. Maja PANTIC, Imperial College
10.00-10.30 Coffee Break	
10.30-12.10 IM2 Scientific talks - Dr. David Imseng, Idiap - Dr. Ke Sun, Uni Geneva - Dr. Joan Biel Tres, Idiap - Dr. Fabien Ringeval, Uni Fribourg	10.30-11.30 Start-Up Success Stories - nVisio: Dr. Matteo Sorci - Klewel: Dr. Maël Guillemot - Pomelo: Dr. Jean-Baptiste Keller - Koemei: Dr. John Dines
	11.30-12.30 IM2 Follow Up Projects - Valais*Wallis Digital: Dr. Andrei Popescu-Belis - ICC'2013: Dr. François Foglia - MAAYA: Prof. Stéphane Marchand-Maillet - Human-IST: Dr. Denis Lalanne
12.10 / 12.30-14.00 Lunch	
14.00-16.00 Interactive poster sessions & Coffee	14.00-15.00 Prof. Mor Naaman, Cornell Tech NYC
	15.00-15.30 Coffee break
16.00-17.00 IM2 Alumni - Dr. Hayley Hung, TU Delft - Dr. Silèye Ba, RN3DLab Innovation - Dr. Francesca De Simone, Telecom ParisTech - Dr. Eric Bruno, Firmenich	15.30-16.30 Round table discussion
	16.30-16.45 Conclusion talk by NCCR Director
19.00 Dinner	

Idiap and IM2 NCCR Director, Prof. Hervé Boulard, receives International Speech Communication Association (ISCA) Fellow Award



Prof. Hervé Boulard, Idiap Director and EPFL Full Professor, has been named as a Fellow by the International Speech Communication Association (ISCA).

The award, recently announced at Interspeech 2013 in Lyon, France, recognizes significant contributions to the field of speech

communication science and technology.

Hervé Boulard was honored for his fundamental contributions to research and leadership in the fields of statistical and neural network-based speech recognition.

Léonore Miauton
Leonore.Miauton@idiap.ch

PhD Thesis Dr. Afsaneh Asaei

MODEL-BASED SPARSE COMPONENT ANALYSIS FOR MULTIPARTY DISTANT SPEECH RECOGNITION



This thesis takes place in the context of multi-microphone distant speech recognition in multiparty meetings. It addresses the fundamental problem of overlapping speech recognition in reverberant rooms.

Motivated from the excellent human hearing performance on such problem, possibly resulting of sparsity of the auditory representation, our work aims at exploiting sparse component analysis in speech recognition front-end to extract the components of the desired speaker from the competing interferences (other speakers) prior to recognition. More specifically, the speech recovery and recognition are achieved by sparse reconstruction of the (high-dimensional) spatio-spectral information embedded in the acoustic scene from (low-dimensional) compressive recordings provided by a few microphones.

This approach exploits the natural parsimonious structure of the data pertained to the geometry of the problem as

well as the information representation space.

Our contributions are articulated around four blocks. The structured sparse spatio-temporal representation of the concurrent sources is constituted along with the characterization of the compressive acoustic measurements. A framework to simultaneously identify the location of the sources and their spectral components is derived exploiting the model-based sparse recovery approach and, finally, the acoustic multipath and sparsity models are incorporated for effective multichannel signal acquisition relying on beamforming.

This work is evaluated on real data recordings. The results provide compelling evidence of the effectiveness of structured sparsity models for multi-party speech recognition. It establishes a new perspective to the analysis of multichannel recordings as compressive acquisition and recovery of the information embedded in the acoustic scene.

Afsaneh Asaei
Afsaneh.Asaei@idiap.ch

ICC'2013: Congratulations to the 10 selected teams



The organizers of the ICC'2013 are proud to announce that 10 promising teams and projects have been chosen to participate in this year's edition of the International Create Challenge.

After the reception of 32 project proposals, the ICC'2013 Jury set to work with the mission of selecting the best projects and teams amongst them. At the end of last week, the results were announced and the successful teams invited to participate in the three week challenge in Martigny.

The organizers of the ICC'2013 are happy to welcome the following teams from September, 21 to October, 11:

- Online Healthcare Analytics Platform,
- HoReCast
- Meeting Recorder Prototype
- BabelBytes
- POWZY
- Turbo analysis oil exploration
- Luma7
- AGE - Affective Gaming and Education
- Creative World
- GuideMe/CloudGuide.

Furthermore, the organizers would like to thank all participants for their work and commitment and encourage them to keep working on their projects in the future.

Martina Fellay
Martina.Fellay@idiap.ch

News

KeyLemon secures a \$1.5 million Series A round

KeyLemon, a Spin-Off of the Idiap Research Institute and a leading provider of face and speaker recognition solutions for authentication purposes, has closed a Series A investment. The investment round was co-led by Debiopharm Investment and Swisscom Ventures.

Since its foundation in 2008, KeyLemon has established itself as a technology leader in the perceptual computing space for authentication solutions. The company offers both embedded and cloud based solutions and has partnerships with several of the large blue chip technology companies across a wide range of use-cases and sectors.

KeyLemon secures Series A Investment (Press Release)

<http://techcrunch.com/>

(Article Ref. By Steve O'Hear. Is That Really You? Face And Speaker Authentication Startup KeyLemon Raises \$1.5M Series A)

<http://blog.theark.ch>

(Article Ref. By Cédric Luisier - 03.09.2013. KeyLemon lève 1,5 million de dollars!)

Léonore Miauton
Leonore.Miauton@idiap.ch

Koemei has been selected as a World Economic Forum Technology Pioneer 2014

After a vigorous and thorough evaluation process, we are pleased to inform that Koemei has been selected as a World Economic Forum Technology Pioneer 2014.

This year, the pool of candidates was exceptionally strong and diverse, making the process all the more difficult and challenging. Candidates were judged on their compliance to the selection criteria: innovation, growth and sustainability, proof of concept, potential impact and leadership.

Léonore Miauton
Leonore.Miauton@idiap.ch

Selected publications

Multiple Local Curvature Gabor Binary Patterns for Facial Action Recognition

Yuce A., Arar N.M. and Thiran J.Ph.

in Human Behavior Understanding, 4th International Workshop on, in conjunction with ACM Multimedia, October 2013.

Hi Youtube! Personality Impressions and Verbal Content in Social Video

J.-I. Biel and D. Gatica-Perez
in Proc. ACM Int. Conf. on Multimodal Interaction (ICMI), Sydney, Dec. 2013.

Watching MOOCs Together: Analyzing Collocated Study Groups in MOOCs

N.Li, H.Verma, A.Skevi, J.Blom, G.Zuffery, P. Dillenbourg
special issue on MOOCs of the Journal of Distance Learning

Improved Overlap Speech Diarization of Meeting Recordings using Long-term Conversational Features

Sree Harsha Yella and Hervé Bourlard

in: IEEE ICASSP, 2013, Vancouver, Canada

Human Pose Estimation using Body Parts Dependent Joint Regressors

M. Dantone, J. Gall, C. Leistner, and L. Van Gool.

IEEE Conference on Computer Vision and Pattern Recognition, Portland, USA, June 2013

On the Influence of Emotional Feedback on Emotion Awareness and Gaze Behavior

F.Ringeval, A.Sonderegger, B.Noris, A.Billard, J.Sauer and D.Lalanne

in proc. of Affective Computing and Intelligent Interaction - ACII, Genève (Switzerland), September 2-5 2013.

Investigating the Impact of Language Style and Vocal Expression on Social Roles of Participants in Professional Meetings,

A. Sapru and Herve Bourlard
in Affective Computing and Intelligent Interaction, pages 6, 2013

Advanced processing of sEMG signals for high-accuracy user independent gestures recognition

A. Doswald, F. Carino and F. Ringeval

in proc. of Medical and Biological Engineering and Computing (Medicon), Sevilla (Spain), September 25-28, 2013

Estimating Phoneme Class Conditional Probabilities from Raw Speech Signal using Convolutional Neural Networks

D. Palaz, R. Collobert, and M. Magimai-Doss
in Proc. of Interspeech 2013