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IM2 Newsletter

www.im2.ch

Contents

Event

OSEZ TOUS LES MÉTIERS

November 11, 2010
In different institutions in Valais

Idiap Research Institute, through the IM2 Advancement of Women framework, presented the types of scientific careers to 9 teenage girls during a full day.

http://www.im2.ch/events/all-events/job

IM2 Summer Institute 2010

SAANENMÖSER, SEPTEMBER 13TH - 15TH 2010

At the IM2 Summer Institute 2010 (Saanenmöser, Sept.13 - 15 2010), the participants experimented different workshops:

Pratical applications

The explicit purpose of this workshop was to have groups of IM2 researchers who normally do not work together to interact, use visual clues and key-words to discuss, consider and provide a brief description of potential practical applications of research.

The implicit purpose was to strengthen teambuilding, networking and communication as well as to compel researchers to consider without 'over analysis' the practical aspects of their research and options for individual career paths.

Career relay race

The explicit purpose of this workshop was to build networking skills by compelling researchers (PhDs, PostDocs, Supervisors and Representatives

Cover Story

from Start-Ups) to efficiently and effectively communicate their background and the area of research in which they are working.

The implicit purpose was to develop individual communications skills, build upon their actual network and consider their career path.

In addition, teambuilding was a major underlying rationale for the exercise whether or not the individuals found the process useful for them individually.

The sense of chaos, discomfort and time pressure leads to a sense of bonding in the exercise.

New products

The explicit purpose of this workshop was similar to the first workshop in terms of compelling individuals from IM2 to work with new contacts and to consider practical applications as well as potential 'target clients' for present and future research.

idiap RESEARCH INSTITUTE

FNSNF
FONDS NATIONAL SUISSE
SCHWEIZERISCHER NATIONALFONDS
FONDO NAZIONALE SVIZZERO
SWISS NATIONAL SCIENCE FOUNDATION

IM2 Summer Institute 2010 (continued)

The implicit purpose was to build upon networking skills, teambuilding and consideration of the breadth of practical applications and potential employers or clients overall.

Work-Life balance workshop

The explicit purpose of these workshops was to have teams of researchers who normally do not work together consider various issues which affect work-life balance.

The implicit purpose was to consider the breadth of issues which affect career development for individuals from different backgrounds and situations, explore the issue of responsibility regarding individual versus 'management' capacity and obligations, and to consider concrete resources and approaches to address the various issues.

All the results of these wokshops are available on the website at: http://www.im2.ch/summer-institute-2010

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Completed Thesis, Khaled Bachour - CRAFT, EPFL
AUGMENTING FACE-TO-FACE COLLABORATION WITH LOW-RESOLUTION SEMI-AMBIENT FEEDBACK

On November 1st, 2010, Khaled Bachour successfully defended his thesis at the Center for Research and Support for Training and Its Technologies (CRAFT) at EPFL under the supervision of Pierre Dillenbourg and Frédéric Kaplan. Among the members of the jury was IDIAP's Daniel Gatica-Perez.

In his thesis, Khaled developed an interactive meeting table called Reflect that monitors the conversation taking place around it via a thee-microphone beamforming array, and uses a matrix of 8x16 multi-color LEDs to display information in different forms. He studied two versions of the table. The first shows the amount of speech of each participant, and studies showed that, under certain conditions, participants become more balanced in terms of how much they speak when their participation levels are displayed on the surface of the table. This is beneficial for certain situations where balance in participation is necessary for good collaboration to take place, such as situations of collaborative learning where all learners need to participate more or less equally to improve learning gains for the group.

The other version of the table uses prosodic analysis of participants' voices to determine which participants are more or less interested in the collaboration by measuring what called vocal arousal of emotion (which is a measure of how vocally active the person is). This is measured through four prosodic features: pitch, pitch variance, intensity and speech rate.

Another experiment conducted with the table showing levels of vocal arousal showed that the display has different effects on male and female subjects. Male subjects increased their vocal arousal when it was displayed on the table, but female subjects did not.

Khaled also investigated the use of the table outside the laboratory as a tool for communication training. It is now in use at the Centre d'Education Permanante pour la Fonction Publique in Lausanne, and trainers collaborating with the center are working on new ways of conducting role-playing and other activities for communication training courses that benefit from the use of this table.

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The interactive meeting table and the visualizations used to display information.

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Award for Outstanding PhD Thesis - Effrosyni Kokiopoulou
SIGMM AWARD FOR OUTSTANDING PHD THESIS IN MULTIMEDIA COMPUTING, COMMUNICATIONS AND APPLICATIONS

The 2010 winner of the ACM Special Interest Group on Multimedia (SIGMM) award for Outstanding PhD Thesis in Multimedia Computing, Communications and Applications is Effrosyni Kokiopoulou.

Dr. Kokiopoulou received the award for her thesis - Geometry-Aware Analysis of High-Dimensional Visual Information Sets – that she has done at the Signal Processing Laboratory (LTS4), Ecole Polytechnique Federale de Lausanne (EPFL), Lausanne, Switzerland. Dr. Kokiopoulou is currently a postdoctoral research associate at the Seminar for Applied Mathematics at ETH Zurich.

The ACM SIGMM Outstanding PhD Thesis award, given in recognition of outstanding contributions in the researcher's PhD thesis, cited Dr. Kokiopoulou's results in "formulating novel geometric-aware techniques and associated analysis for high dimensional data". Her work addresses "important issues related to classification, namely flexible data representations for joint coding and classification, robust classification in the case of large geometric transformations and classifications with multiple object observations". The novelty of the work lies in the proposed solutions for semantic approximation and transformation invariance. These fundamental solutions can improve the efficiency and robustness of classification across multimedia sensor networks, in both centralized and distributed settings.

The SIGMM award was presented at the ACM International Conference on Multimedia 2010 that was held October 25-20 2010 in Florence, Italy.

ACM is the professional society of computer scientists, and SIGMM is the special interest group on multimedia.

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New start-up issues from IM2 at the University of Fribourg
SUGARCUBE OR HOW TO COMBINE THE SKILLS OF HUMANS AND MACHINES

sugar**cube** aims to sweeten the life of users by proposing simple interactive technologies for restructuring, processing and generating digital information. These technological solutions are the result of the unusual wedding of two distinct research domains: (printed) document analysis and human-machine interaction!
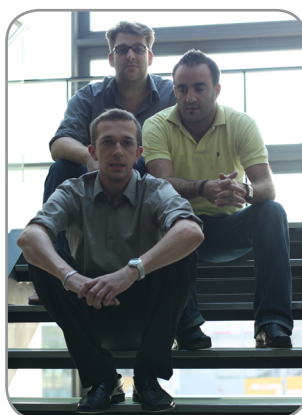
The origin and the services
Jean-Luc Bloechle and Maurizio Rigamonti developed the main technologies of sugar**cube** in the context of the IM2 project. In particular, during their PhD thesis, their collaboration led to the conception and integration of interactive methods for the restructuring and the understanding of PDF documents with complex layout. The desire to distribute and extend those unique technologies has been the main motivation at the origin of the company.

Furthermore, the experience in IM2.HMI IP was fundamental to develop one mantra of sugar**cube**: the machines need user's competencies for advanced data analysis and the users require good interaction channels to correctly exploit the machines and obtain the expected results. For that reason, the company offers two complementary competencies as services: document analysis and human machine interaction.

The products
During the first months of the sugar**cube** project, the team has been reinforced by a third member, François Jimenez, a senior developer of the NTE Centre at the University of Fribourg. His arrival was beneficial and contributed from both marketing and technological points of view. In fact, he proposed the AGFlexi webget - neologism indicating a delocalized web application - dedicated to municipalities and fitting in the two main domains of sugar**cube**. That first webget is today part of a range of four products targeting administrations and organizations.

Present and future
Even though sugar**cube** is a young association, it already praises some achievements such as the support and coaching of the FriUp organization in Fribourg and the funding offered by Venture Kick (stage I). Furthermore, the consumers of webgets are growing day after day and sugar**cube** is negotiating the first mandates for services in both HMI and document analysis.

sugar**cube**'s visions for the future are obviously related with stabilization and growth, but also with the consolidation of the relationships with the DIVA group at the University of Fribourg to collaborate and expand their respective knowledge.

More information at *http://www.sugarcube.ch*

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News

Coordinator Award 2010

Bern, September 29, 2010

Dr Sébastien Marcel, from Idiap Research Institute, was invited to the first Coordinator Award on September 29, 2010 in Bern organized by Euresearch.

He had the opportunity to present the EU FP7 project MOBIO (Mobile Biometry) during a Press Conference with the participation of Dr Martine Brunschwig Graf, member of the Swiss Geneva Council of the Geneva Canton, Dr Mauro Dell'Ambrogio, State Secretary for Education and Research in Switzerland, and Prof Roland Siegwart, Vice President Research and Corporate Relations at ETH Zurich.

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Reporting from ACM-SIGIR 2010

UniMail Geneva, July 19th - 23rd 2010

The 33rd ACM International Conference on Information Retrieval, ACM-SIGIR 2010 has taken place this summer within the premises of the University of Geneva (UniMail), co-chaired by Stephane Marchand-Maillet, deputy head of IM2 IP1 - Integrated Multimodal Processing.

This major event in the community of Information Retrieval has gathered more than 550 participants from industry and academia around a main 3-day, triple track scientific program, augmented by 10 tutorials and 11 full-day workshops on various related topics.

Two outstanding keynotes, Donna Harman from NIST and Dr Gary Flake from the Microsoft Live Labs have shared their insightful views on the field, with support from SNSF. Industry has also been heavily involved since most major companies in Information Retrieval such as Baidu, Google, Microsoft Research and Yahoo! Research have sponsored the conference and presented a booth during the event.

Overall, the conference has been very successful, and an opportunity to make fruitful contacts. The event also provided a great opportunity to shed light over the work done within IM2 with, for example, a demo of the Automated Content Linking from Dr. Andrei Popescu-Belis, Idiap.

For more information, please consult the website of the conference at:
http://www.sigir2010.org

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Selected publications

Social Game Epitome versus Automatic Visual Analysis.
P. Vajda, I. Ivanov, L. Goldmann and T. Ebrahimi
In Multimedia Grand Challenge 2010 at the ACM International Conference on Multimedia (ACM MM 2010), October 2010.

Propagation of Geotags Based on Object Duplicate Detection.
P. Vajda, I. Ivanov, J.-S. Lee, L. Goldmann and T. Ebrahimi
In Proceedings of the SPIE International Conference on Optics and Photonics, Applications of Digital Image Processing XXXIII, Vol. 7798, August 2010.

Human Behavior Understanding.
A.Ali Salah, T. Gevers, N. Sebe, A.Vinciarelli (eds.)
Lecture Notes in Computer Science, Vol. 6219, Springer Verlag (2010)

Improving Data Association by Joint Modeling of Pedestrian Trajectories and Groupings.
S.Pellegrini, A.Ess and L. Van Gool
In Proc. of the European Conference on Computer Vision (ECCV)

Subjective Evaluation of Next-Generation Video Compression Algorithms: A Case Study.
F. De Simone, L. Goldmann, J.-S. Lee, T. Ebrahimi and V. Baroncini
In Proceedings of SPIE Optics and Photonic, Applications of Digital Image Processing XXXIII, 7798, August 2010.

Towards High Efficiency Video Coding: Subjective Evaluation of Potential Coding Technologies
F. De Simone, L. Goldmann, J.-S. Lee, T. Ebrahimi
In the Journal of Visual Communication and Image Representation, Special Issue on Emerging Techniques for High Performance Video Coding.

Audio-Visual Synchronisation for Speaker Diarisation.
G.Garau, A.Dielmann and H.Bourlard,
In Proc. of the International Conference on Speech and Language Processing, Interspeech, Makuhari, Japan, 2010.

A Random Walk Framework to Compute Textual Semantic Similarity: a Unified Model for Three Benchmark Tasks.
M. Yazdani and A. Popescu-Belis
In Proceedings of IEEE ICSC 2010 (4th IEEE International Conference on Semantic Computing), Pittsburgh, PA.

Automatic Content Linking: Speech-based Just-in-time Retrieval for Multimedia Archives.
A. Popescu-Belis, J. Kilgour, P.Poller, A. Nanchen, E. Boertjes, and J. de Wit
In the Proceedings of SIGIR 2010 (33rd Annual ACM SIGIR Conference), Demonstration Session, Geneva, p.703.

English Spoken Term Detection in Multilingual Recordings.
P. Motlicek, F. Valente and P. N. Garner
In the Proceedings of Interspeech, Makuhari, Japan, 2010, ISCA, Makuhari, Japan, 2010.

High-dimensional multimodal distribution embedding.
E. Szekely, E. Bruno and S.Marchand-Maillet
In IEEE ICDM 2010 Workshop on Visual Analytics and Knowledge Discovery (VAKD'10), Sydney, Australia.