INTERACTIVE MULTIMODAL INFORMATION MANAGEMENT

Issue N° 51 / November 2009

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IM2 Newsletter

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8th Site Visit of the Review Panel
November 12 - 13, 2009
ETH Zurich

Cover Story

Technology Transfer: Two IM2 spin-offs successful

RESULTS OF THE CALL FOR PROPOSALS TO JUMPSTART THE SWISS ECONOMY

On 20 August 2009, and after internal evaluation, the NCCR Research Council officially announced their decision to fund two of the four projects submitted by IM2. The two following projects have started on the first of October 2009:

EPFL and nViso

Matteo Sorci, former IM2 PhD student under Prof. Jean-Philippe Thiran, founded his spin-off company called nViso, dedicated to facial expression analysis in market research.

The company was founded in March 2009 and is established in Chavannes-près-Renens. The collaborative project between Viso and EPFL has been granted 150k CHF and will run for two years.

A presentation of nViso is available in the article, page 2: "*nViso - Measuring Emotions in Consumer Research*".

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UniGE, ETHZ and kooaba

The University of Geneva, ETH Zurich and kooaba have started a collaboration on multi-modal, large-scale data mining. The project has been granted 390k CHF and will run for two years.

kooaba, as a spin-off of the Computer Vision Lab at ETHZ, was working together with ETHZ already in the context of a CTI project. The company is very excited about the new collaboration with Stephane Marchand-Maillet's VIPER team in Geneva, a high-profile IM2 partner in the area of search and retrieval.

At ETHZ, work will continue on better feature extraction and faster hashing.

Herbert Bay, CEO of kooaba, said "*This new SNF project - K-Content - will allow kooaba to keep on improving its existing portfolio of visual services including recognition of objects such as media covers, consumer products, and printed matters from simple mobile phone snapshots*".

Till Quack, CTO, added "*VIPER has crucial expertise in areas such as clustering, query-by-example search, and user feedback. Increasingly, we do not only want to present users with information about the objects and products they have photographed, but also offer related information they may be interested in. VIPER's technologies can play a vital role there*".

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IM2 is the Swiss National Centre of Competence in Reseach (NCCR) on Interactive Multimodal Information Management, lead by the Idiap research institute in Martigny, Switzerland. The National Centers of Competence in Research are managed by the Swiss National Science Fundation on behalf of the Federal Authorities.

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nViso - Measuring Emotions in Consumer Research

A NEW IM2 SPIN-OFF COMPANY

Advertising, and particularly consumer advertising, although a multi-billion dollar industry in the United States alone, is an area wherein workers find it extremely difficult to create and reproduce what prove to be consistently successful advertising campaigns. While it is often easy to predict that the response to a particular proposed advertisement or campaign will be unfavourable, it is not known how to assure success on a consistent basis.

To tackle this problem, nViso, a spin-off company of EPFL, founded by Dr Matteo Sorci in February 2009, has taken a pioneering approach, by combining the latest advances in computer science and web technologies to objectively measure and analyze the impact of emotions on the appeal of the customer to a set of marketing stimuli across the internet. The mission of nViso is to make available an affordable and simple set of online software tools to combine emotional insights of customers into traditional market research data using real-time automatic facial expression analysis technologies.

While precise tools for measuring physiological activities, like galvanic skin response, heart beat rate, blood pressure or neurological activity like fMRI-scanning are currently used in consumer research for emotion analysis, they are however impractical and very expensive if adapted to studies that demand a large sample. The cost is high and the time carrying out these types of experiments is quite long. In conclusion these advanced research tools only become available to a very narrow group of companies able to pay for those.

The solutions proposed by nViso overcome these limitations and enable marketers to track consumers' conscious and unconscious feelings about brand and advertising. Their approach is fast and inexpensive, given its simplicity, is applicable to large samples, which are a necessary condition for valid and statistical inference. It reduces significantly the cost of making more accurate decisions and is accessible to a much larger audience of practitioners. This will allow companies to have a complete picture of customer behaviour, enabling businesses to make smarter decisions that will ultimately drive growth.

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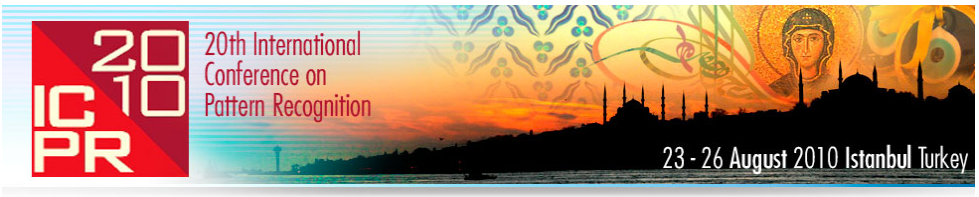
IM2 Partner chosen to organize 2 contests for ICPR 2010

AUGUST 23-26, 2010 AT THE ISTANBUL CONVENTION & EXHIBITION CENTRE (ICEC), ISTANBUL, TURKEY



ICPR 2010, the 20th conference of the International Association for Pattern Recognition (IAPR), is an international forum for discussions on recent advances in the fields of Computer Vision; Pattern Recognition and Machine Learning; Signal, Speech, Image and Video Processing; Biometrics and Human Computer Interaction; Multimedia and Document Analysis, Processing and Retrieval; Bioinformatics and Biomedical Applications.

The Idiap Research Institute has been chosen to organise two contests during the ICPR 2010 *(http://www.icpr2010.org)*:

1) ImageCLEF@ICPR *(http://www.imageclef.org/2010/ICPR)*.

This challenge proposes four tasks:

- Visual concept detection task: automatically annotating a set of images with key words of an ontology in a multi-label classification scenario.
- Robot vision task: classify images taken from a robot into a predefined set of rooms/places.
- Information fusion task: release of the best four visual and textual runs of the ImageCLEF medical image retrieval task; participants need to combine these runs to obtain the best overall performance (training data from a comparable task of the past).
- Interactive retrieval task: interactive retrieval at the ICPR conference with "bring your own laptop".

Organizers: Barbara Caputo, Idiap Research Institute (CH); Stefanie Nowak, Fraunhofer IDMT (DE); Jana Kludas & Henning Müller, University of Geneva (CH); Andrzej Pronobis, Royal Institute of Technology, (SE); Jayashree Kalpathy-Cramer, OHSU (USA).

2) MOBIO Face and Speaker Verification Evaluation *(http://www.mobioproject.org/icpr-2010)*

This contest will focus on evaluating the performance of uni-modal face and speaker verification techniques in the context of a mobile environment, thus offering challenging recording conditions (adverse illumination, noisy background). The availability of common benchmark databases, together with evaluation protocols has been partly responsible for the significant gains made in biometric person recognition in recent years. We believe that such evaluations should be continued. Databases and more importantly unbiased evaluation mechanisms should be spread across the scientific community making it possible for scientists to evaluate their progress.

Pre-registeration: You are encouraged to pre-register (with no obligations to participate later) for the competition by sending an email to Sébastien Marcel *(marcel@idiap.ch)*.

Organizers: Sébastien Marcel & Chris McCool, Idiap Research Institute (CH); Timo Ahonen, University of Oulu (FN); Honza Cernocky, Brno University of Technology (CZ).

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New book published on multi-modal signal processing

FROM EPFL, IDIAP RESEARCH INSTITUTE, TECHNICAL UNIVERSITY OF CATALONIA

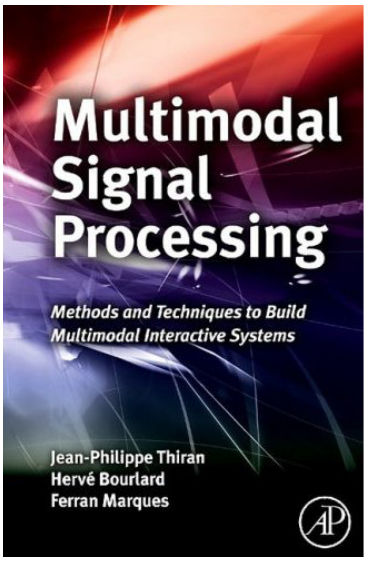
With contributions from the leading experts in the field, the present book should serve as a reference in multimodal signal processing for signal processing researchers, graduate students, R&D engineers, and computer engineers who are interested in this emerging field.

Title: Methods and techniques to build multimodal interactive systems
Authors: Jean-Philippe Thiran, Herve Bourlard, Ferran Marques
Series: Machine Perception and Artificial Intelligence
Page: 448
Publisher: Academic Press (Nov 27 2009)

Summary

Multi-modal signal processing is an important new field that processes signals from a variety of modalities - speech, vision, language, text- derived from one source, which aids human-computer and human-human interaction.

The overarching theme of this book is the application of signal processing and statistical machine learning techniques to problems arising in this field. It gives an overview of the field, the capabilities and limitations of current technology, and the technical challenges that must be overcome to realize multimodal interactive systems. As well as state-of-the-art methods in multimodal signal and image modeling and processing, the book gives numerous examples and applications of multimodal interactive systems, including humancomputer and human-human interaction. This is the definitive reference in multimodal signal processing, edited and contributed by the leading experts, for signal processing researchers and graduates, R&D engineers and computer engineers.



- The first book on the multimodal signal processing, edited and contributed by the world's leading experts
- State-of-art methods for multimodal signal and image modeling and processing
- Numerous examples of systems with different modalities combined
- Advanced applications in surveillance and health monitoring, including computer-based multimodal analysis of human-to-human interaction

Audience

Signal, acoustic, speech, image and video processing university (applied) researchers, R&D engineers, computer engineers

Contents

Signal Processing, Modelling, and Related Mathematical Tools, Multimodal Signal Processing and Modelling, Multimodal Human-Computer Interaction (HCI), Multimodal Human-Human Interaction Modelling, Conclusion

More information

http://www.amazon.ca/Multimodal-Signal-Processing-applications-human-computer/dp/0123748259

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Reporting from ACM-CIVR 2009

THE ACM INTERNATIONAL CONFERENCE ON IMAGE AND VIDEO RETRIEVAL, 8-10 JULY 2009 SANTORINI

The ACM International Conference on Image and Video Retrieval *(http://www.civr2009.org)* has happened in the beautiful Greek island of Santorini on July 8-10, 2009.

IM2 has shown a strong presence in the organizing committee of the conference with Stéphane Marchand-Maillet (Viper, Uni. Geneva - IM2.MCA IP head) as general co-chair, Daniel Gatica-Perez (IDIAP) as Program co-chair, Sébastien Marcel (IDIAP) as Practitioner co-chair and Eric Bruno (Viper, Uni. Geneva) as Special Session co-chair. The conference has included a strong program with 138 submissions from 29 countries among which and after being reviewed by the Program Committee members, 45 were accepted for presentation (18 orals and 27 posters). Additionally, we have two excellent invited presentations given by Prof. Luis von Ahn from Carnegie Mellon University, USA on "Human Computation", and Prof. Luc van Gool, from ETH Zurich (Switzerland) and the University of Leuven (Belgium), also member of the IM2 steering committee on "Mining from large image sets".

The potential of academic results is best communicated through demos. CIVR2009 has therefore included a rich demo session in the program. It has also continued the tradition of VideOlympics initiated 2 years ago. VideOlympics is an informal competition in which several state-of-the-art systems are competing simultaneously on a video retrieval task.

A unique feature of the conference is the high level of participation from practitioners such as content owners, producers, creators, archivists, service providers, and policy makers. CIVR2009 practitioner chairs have gathered an impressive list of speakers representing the key players in the Multimedia Management and Retrieval industry.

The proceedings of the conference are now available in the ACM Digital Library.

Next ACM-CIVR conference will be help in Xi'an, China, in July 5-7, 2010. No doubt that (IM)2 will again have a strong participation there.

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Best Student Paper Award

Idiap Research Institute

Stéphanie Lefèvre (IDIAP) won the Best Student Paper Award at the International Conference on Multimedia and Expo (ICME'09), held in New York, June 2009.

Stéphanie's work is about head pose and facial expression tracking under realistic head behaviors. The award winning paper is "*Structure and appearance features for robust 3D facial actions tracking*", co-authored by Stéphanie Lefèvre and Jean-Marc Odobez.

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IM2 institutions involved in an EIT KIC proposal

TransFICS, a Knowledge and Innovation Community (KIC)

Exploiting the synergy developed in IM2, two IM2 institutions (Idiap Research Institute and EPFL) and three other partners (IMD, SwissMedia, and VentureKick) are involved in the KIC called TransFICS.

From a total of 20 proposals, 18 eligible proposals are now being evaluated for the EIT KIC (European Institute of Innovation and Technology). Evaluation is being conducted by external independent experts and it will be completed on November 10. Then, a final panel will perform a review and prepare a report to the Governing Board. Shortly after the final panel, the top 2 proposals from each priority area (up to 6 proposals in total) will be invited to hearings with the EIT Governing Board on December 16. Immediately after the hearings, the Governing Board will announce the designated 2 or 3 sucessful KICs.

For more information, visit *http://www.transfics.eu* or subscribe to the LinkedIn group TransFICS *(http://www.linkedin.com/e/vgh/2456265/)*

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SNSF news service

Information fast and personalised

In its constant endeavour to supply information targeted to its users' needs, the SNSF now offers a news-service. Anybody can build their own personal information menu made up of SNSF scientific and foundation news topics, and then subscribe to it.

Up to now, the SNSF has offered a monthly electronic newsletter summarising the main foundation and scientific news items. This offer will remain and has additionally been extended to include regular electronic newsletters on current National Research Programmes (NRP). Now the SNSF is also offering a news service aimed at better catering to the needs of its users.

Select your own topics

Be it foundation or scientific news, visitors to the SNSF website can now create their own individual information menu in the News Service. Besides subscribing to the regular newsletter, users can now select the topics on which they wish to receive information by email daily (at 4 p.m.) or weekly in the «Newsletter & news service» subscription form.

The SNSF is confident that this extended information offering will allow it to inform users more efficiently and promptly about its services.

For more information, visit *http://www.snf.ch*

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NCCR IM2 – 8th Site Visit

Site Visit of the Review Panel

This year, the site visit will mainly focus on IM2 Phase III as requested by the SNSF.

It will be held on November 12 - 13 2009 at ETH Zurich, Sternwartstrasse 7, Zurich.

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Selected publications

Flickr Hypergroups
R.-A. Negoescu, B. Adams, D. Phung, S.Venkatesh, D. Gatica-Perez
Proceedings of the 17th ACM International Conference on Multimedia, Beijing, China, October 19-24, 2009.

HephaisTK: A Toolkit for Rapid Prototyping of Multimodal Interfaces
B. Dumas, D. Lalanne, R. Ingold
In proc. of International Conference on Multimodal Interfaces and Workshop on Machine Learning for Multi-modal Interaction (ICMI-MLMI 2009), Cambridge (MA) (USA), November 02 - 06 2009.

Biometric ID Management and Multimodal Communication
J. Fierrez, J. Ortega-Garcia, A. Esposito, A.Drygajlo, M. Faundez-Zanuy,
Lecture Notes in Computer Science 5707, Springer, Heidelberg, 2009.

Discovering Group Nonverbal Conversational Patterns with Topics
D. Jayagopi and D. Gatica-Perez
In Proc. Int. Conf. on Multimodal Interfaces (ICMI), Cambridge, Nov. 2009.

A Method and Tools for Designing and Prototyping Activity-based Pervasive Applications
P. Bruegger, D. Lalanne, A. Lisowska, B.Hirsbrunner
In 7th International Conference on Advances in Mobile Computing & Multimedia (MoMM2009), ACM, MoMM 09, Kuala Lumpur, December, 2009, accepted for publication.

Description Languages for Multimodal Interaction: a Set of Guidelines
B. Dumas, D. Lalanne, R. Ingold
In Journal on Multimodal User Interfaces: Springer Verlag, Special Issue on The Challenges of Engineering Multimodal Interaction, 2009

User Interface Design in a Just-in-time Retrieval System for Meetings
A. Popescu-Belis et al.
In CHI 2010 (28th ACM Conference on Human Factors in Computing Systems), 10 p, Sept. 2009.

Automatic vs.Human Question Answering over Multimedia Meeting Recordings
Q. A. Le, and A. Popescu-Belis
In proceedings of Interspeech 2009 (10th Annual Conference of the International Speech Communication Association), Brighton, UK, p.624-627

Predicting Remote Versus Collocated Group Interactions using Nonverbal Cues
D. Sanchez-Cortes, D. Jayagopi, D.Gatica-Perez
In Proc. ICMI Workshop on Multimodal Sensor-Based Systems and Mobile Phones for Social Computing, Cambridge, Nov. 2009.

Wearing a YouTube Hat: Directors, Comedians, Gurus, and User Aggregated Behavior
J.-I. Biel and D. Gatica-Perez
In Proc. ACM Int. Conf. on Multimedia (MM), Beijing, Oct. 2009

Verification of Aging Faces using Local Ternary Patterns and Q-stack Classifier
J. Fierrez, J. Ortega-Garcia, A. Esposito, A.Drygajlo, M. Faundez-Zanuy
Biometric ID Management and Multimodal Communication", Lecture Notes in Computer Science 5707, Springer, Heidelberg, 2009, pp. 25-32.

Impact of Combining Quality Measures on Biometric Sample Matching
K. Kryszczuk, J. Richiardi, A. Drygajlo
IEEE Third International Conference on Biometrics: Theory, Applications and Systems (BTAS 09), 28-30 September 2009, Washington DC, USA.

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