INTERACTIVE MULTIMODAL INFORMATION MANAGEMENT

Issue N° 64 / March 2013

Editor : Léonore Miauton
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IM2 Newsletter

www.im2.ch

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Event

IM2 FINAL EVENT

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

The program with Keynote speakers and sessions will be published on the IM2 website very soon.

Please do mark your calendar.

Cover Story

ICC'2012 and IM2 spin-off EmoGen receives The Ark Scholarshop and wins the Venture Kick competition

Recently two excellent news broke for the project EmoGen, which pursues the goal of infusing synthetic voices with emotion. At the end of February, the project obtained a The Ark Scholarship. This award of CHF 10'000 will allow the project leaders to prepare the creation of their company. Shortly afterwards, EmoGen passed with success the first step of the Venture Kick competition.

The principal objective of EmoGen is to valorize the work realized by Ms Lakshmi Saheer within in the framework of her PhD thesis at Idiap. The latter deals with automatic translation of spoken language. Ms Lakshmi Saheer has studied and developed methods for the adaptation of natural and synthetic voices, intonations and emotions amongst other things.
The idea to create a company based on this work was born during the International Create Challenge 2012 (ICC'2012) in Martigny. The three weeks of the Challenge allowed the realization of a demonstrator of the technology that adds emotions to a voice.

Strong potential
Because of the state of the art of emotion in synthetic voices, which today is still a domain in its infancy, EmoGen is a project with a good potential. The proposed technology can be applied to the natural voice as well as to any synthetic voice, which opens numerous degrees of usage.

These arguments have convinced the The Ark Foundation to award a scholarship for a duration of three months. This period will allow to identify the potential users of this technology, to develop the product concept and to propose different business plans. The Ark's Grant Scheme will also permit the EmoGen team to prepare the creation of their company. The project is based at the IdeArk Incubator in Martigny.

Jury seduced
EmoGen's idea has also seduced the jury of the Venture Kick start-up competition. EmoGen has successfully passed the first step of the competition and received an award of CHF 10'000.-. These two types of support will certainly help the project to get under way and grow serenely.

Source: *www.theark.ch*

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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.

idiap RESEARCH INSTITUTE

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

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Call for the second edition of the International Create Challenge (ICC) open

International Create Challenge
Martigny • Switzerland

After the great success of the ICC'2012 (see IM2 Newsletter Issue 63), the call for its second edition has been opened on the official website of the event (www.createchallenge.org). The goal of the International Create Challenge 2013 is to foster the creation of start-ups within the framework of Human & Media Computing. The ICC'2013 is an initiative supported by the National Centre of Competence in Research (NCCR) on Interactive Multimodal Information Management (IM2), via its association (AIM2), and the Idiap Research Institute (Idiap).

The ICC'2013 is a free of charge 3-week immersive technology transfer accelerator program that seeks to attract highly motivated "entrepreneurs" and to give them the unique opportunity to develop their original idea towards a "Minimum Viable Product'' (e.g., demonstrator, product prototype).

The formula of the ICC'2013 combines the availability of state-of-the-art technologies, cutting edge research, mentor-led coaching, and micro-seed investment. The global value of the endowments and awards (cash as well as in-kind rewards) amounts to about 100'000 CHF. The ICC'2013 can accommodate up to 30 participants, ideally split into 10 teams of 3 people.

The call is split into two successive competitive steps. More information is available at www.createchallenge.org

- Call for participation
- Terms and Conditions
- Apply now

Step 1	Application deadline:	14 June 2013
Step 1	Notification of decision:	21 June 2013
Step 2	Submission deadline:	26 July 2013
Step 2	Notification of decision:	26 August 2013

ICC'2013

Start:	21 September 2013
Closing ceremony:	11 October 2013

Contact and information
For questions and additional information please contact icc@idiap.ch

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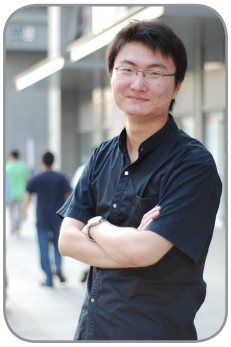
PhD THESIS HUI LIANG

DATA-DRIVEN ENHANCEMENT OF STATE MAPPING-BASED CROSS-LINGUAL SPEAKER ADAPTATION



Work in this thesis set out to understand human perception of speaker identity. Test results demonstrated that differentiating between speakers across languages was an achievable task. The underlying challenge in cross-lingual speaker adaptation is how to apply speaker adaptation techniques when the language of adaptation data is different from that of synthesis models. The main body of the thesis work was devoted to the analysis and improvement of HMM state mapping-based cross-lingual speaker adaptation.

Firstly, the effect of unsupervised cross-lingual adaptation was investigated. The comparison of paired supervised and unsupervised systems shows that the performance of unsupervised cross-lingual speaker adaptation is comparable to that of the supervised fashion. Then the effect of the language mismatch between synthesis models and adaptation data was investigated. The mismatch is found to transfer undesirable language information from adaptation data to synthesis models. Thirdly, in order to tackle the problems caused by the language mismatch, a data-driven adaptation framework using phonological knowledge is proposed. Its basic idea is to group HMM states according to phonological knowledge in a data-driven manner and then to map each state to a phonologically consistent counterpart in a different language. Finally, a two-layer hierarchical transformation framework is developed, where one layer captures speaker characteristics and the other compensates for the language mismatch.

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PHD THESIS SANCHEZ-CORTES DAIRAZALIA

COMPUTATIONAL METHODS FOR AUDIO-VISUAL ANALYSIS OF EMERGENT LEADERSHIP IN TEAMS

Face-to-face interactions are part of everyday life, ranging from family to working in teams and to global communities. Social psychologists have long studied these interactions with the aim of understanding behavior, motivations, and emergence of interaction patterns. An organization is an environment rich in daily interactions including structured periodic meetings, planning, brainstorming, negotiations, decision-making and informal gatherings and leaders play a key role in many of them. Leader face problems, propose solutions, make decisions, and often are the main source of inspiration of the employees. Identifying emergent leaders at early stages in organizations is a key issue in organizational behavioral research. The study of this phenomenon requires sensing of natural face-to-face interactions, automatic extraction of behavioral cues and reliable machine learning algorithms to identify emergent leaders. In this work, we propose a fully automatic computational framework to analyze emergence of leadership in small groups using multimodal audio and visual features in face-to-face interactions.

Léonore Miauton
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Start-up news: NivPat nominated

The company NivPat was among the finalists of the Mobile App Showdown at CES, the International Consumer Electronics Show, held in Las Vegas in January. With NivPat's technology, developed at the Computer Vision Lab of the ETH Zurich, it is possible to photograph patterns, e.g. on personalized clothing, and get direct access to online content, e.g. to a personal social media profile of the person who decided to wear such clothes. The jury much appreciated the speed of the recognition, which is comparable to that of QR code reading.

About NivPat

NivPat, a startup of ETH Zurich, officially launched its new Non-invasive pattern recognition solution at the Consumer Electronic Show (CES) 2013. CES is held every January in Las Vegas and represents the largest hi-tech conference in the world. There NivPat was voted the second best app of the venue, ensuring a lot of media exposure for the young startup. The two co-founders Alessandro Prest and Luca Boschin presented the technology on stage during the popular Mobile Apps Showdown event. A video of the presentation can be seen at: http://www.youtube.com/watch?v=OONorAHzBvM NivPat's advanced image recognition technology has the potential to become a primary catalyst for the next major phase of social networking. It can serve as a platform for individuals and companies to create and promote their own digital brand.

NivPat supports the creation of millions of variations on an artwork by slightly altering its visual elements. These variations are then each recognized by a smartphone app that associates the image with a particular person, company, group or brand. NivPat calls these variations non-invasive, as they do not compromise the aesthetics that the artwork is meant to deliver – unlike QR codes, for example.

This advanced solution can be used in fashion, logos, security and anti-counterfeiting applications. As an initial real-life application of its technology, NivPat offers the first line of digital apparel through its online store. However, practical areas of use are legion and developers wishing to incorporate Nivpat technology into their own applications can do so by utilizing Nivpat's APIs.

NivPat was established in March 2010 by co-founders Luca Boschin and Alessandro Prest. After 2 years of development it officially launched at CES 2013. NivPat has the ultimate objective of disrupting the way we search for information about a person, brand or product. Its headquarters are located in Zurich, at the Computer Vision Laboratory (ETH) led by prof. Luc Van Gool, while its US base of operations is located in Ft. Lauderdale, Florida.

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News

ACM Multimedia 2013 in Barcelona

ACM Multimedia 2013 will be held in Barcelona, Spain, on October 21-25, 2013. The conference General Chairs are Alejandro Jaimes (Yahoo!), Nicu Sebe (University of Trento), and Nozha Boujemaa (INRIA).

The Program Chairs are Daniel Gatica-Perez (Idiap), David A. Shamma (Yahoo!), Marcel Worring (University of Amsterdams), and Roger Zimmermann (National University of Singapore).

Important deadlines

Full and Short Papers: March 8, 2013
Brave New Idea Papers: March 15, 2013
Doctoral Symposium : April 5, 2013
Tutorials and Panels: April 8, 2013
Technical Demos: April 21, 2013
Open Source Software: May 13, 2013

http://acmmm13.org/

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Idiap and IM2's participation in the technical workshops at the festival "Hérisson sous Gazon"

On June 15-16, the Idiap Research Institute and IM2 will participate in the kids festival "Hérisson sous Gazon" (http://herisson-sous-gazon.ch/). The event, which celebrates its 5th anniversary in 2013, takes place in Charrat/Valais and proposes a wide range of activities and shows especially conceived for its young audience. As part of the scientific workshops, Idiap and IM2 will organize different presentations and demonstrations around the theme of "machine learning". In a playful way – for example via the encounter with the robot NAO - the children will discover the technologies developed at Idiap as well as within the framework of IM2. Besides triggering the children's curiosity for science, Idiap and IM2's participation in the festival will also allow to increase the visibility of these institutions and their work with a diversified and primarily non-scientific public.

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Congratulations to Mrs. Lakshmi Saheer

We are happy to congratulate Mrs. Lakshmi Saheer after successfully defending her PhD thesis last November, and wish her luck for the imminent public defence. For the past four years, Lakshmi has been working on features for speech synthesis. Although the focus of her work was on vocal tract length normalisation, she has shown in general that it is possible for techniques from speech recognition to improve speech synthesis and vice-versa. She received the Idiap best student paper award in 2012 for this work. More recently, Lakshmi was one of the more successful participants in the IM2 International Create Challenge, winning several awards for her potential company Emogen. She will remain at Idiap not only as a post-doctoral researcher, but also in order to put into practice the ICC experience to make Emogen a reality.

Phil Garner
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Selected publications

FaceTube?: Predicting Personality from Facial Expressions of Emotion in Online Conversational Video
J.-I. Biel, L. Teijeiro-Mosquera, and D. Gatica-Perez
In Proc. ACM Int. Conf. on Multimodal Interaction (ICMI), Santa Monica, Oct. 2012.

Proceedings of the 2012 ACM Workshop on Personalized Access to Cultural Heritage,
Johan Oomen, Lora Aroyo, Stephane Marchand-Maillet and Jeremy Douglass.
PATCH'12 (co-located with ACM Multimedia 2012), November 2, 2012, Nara, Japan. ACM

Introducing the RECOLA Multimodal Corpus of Remote Collaborative and Affective Interactions
F. Ringeval, A. Sonderegger, J. Sauer and D. Lalanne,
2nd International Workshop on Emotion Representation, Analysis and Synthesis in Continuous Time and Space (EmoSPACE?), in proceedings of IEEE Face & Gestures 2013, Shanghai (China), April 22-26 2013

Real Time 3D Face Alignment with Random Forests-based Active Appearance Models
Gabriele Fanelli, Matthias Dantone, Luc Van Gool
International Conference on Face and Gesture, 2013. Ad-hoc Microphone Array Calibration from Partial Structured Information submitted to the ICASSP 2013 IEEE conference

Comparative Study of Trust Modeling for Automatic Landmark Tagging
I. Ivanov, P. Vajda, P. Korshunov, T. Ebrahimi
IEEE Transactions on Information Forensics and Security, Special Issue on Privacy and Trust Management in Cloud and Distributed Systems, June 2013

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