

EDITORIAL PREFACE

Special Theme Issue: A Collection of Best Papers from Selected MobileHCI'2012 Workshops

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Welcome to the latest issue of the *International Journal of Mobile Human Computer Interaction* (IJMHCI). In the wake of the repeated success of two similarly themed issues over the past two years, this issue once again showcases the best papers from a selection of the workshops run during the 14th International Conference on Human-Computer Interaction (MobileHCI'2012) in San Francisco, USA. As has now become customary, the organizers of each of the MobileHCI'2012 workshops were invited to nominate their best paper for inclusion in this themed issue. Four of the workshops did nominate a best paper and I am delighted to be able to present to you extended versions of these best papers. As is always the case with the MobileHCI workshops, the workshops covered an interesting spectrum from the car as an arena for gaming to speech in mobile and pervasive environments.

Workshop on The Car as an Arena for Gaming

- **Organisers:** Petra Sundström (University of Salzburg, Austria), David Wilfinger (University of Salzburg, Austria), Alexander Meschtscherjakov (University of Salzburg, Austria), Manfred Tscheligi (University of Salzburg, Austria), Al-

brecht Schmidt (University of Stuttgart, Germany), and Oskar Juhlin (Mobile Life, Sweden)

- **Best Paper:** *Using Gamification and Metaphor to Design a Mobility Platform for Commuters* by Rod McCall (SNT/University of Luxembourg, Luxembourg), Vincent Koenig (EMACS Research Unit & SnT University of Luxembourg, Luxembourg), and Martin Kracheel (SNT/University of Luxembourg, Luxembourg)

“The car is such a cool, somewhat unique place to be. Gaming in cars, for safety reasons, cannot be like gaming at home though, but also not should be. But gaming in cars has the potential of making use of all the cool properties of the car itself, the practices of driving, and of driving as a socially shared experience.

For this one day workshop our aim was to gather both practitioners and academics to work out the possibilities and challenges of this design space that to our experience has been slightly forgotten about since Juhlin and colleagues' excellent work on the Backseat Playground system (presented in, e.g., Juhlin, O. (2011) *Social Media on the Road: Mobile Technologies and Future Traffic Research. IEEE Multimedia*).

Our selected best paper (“Using Gamification and Metaphor to Design a Mobility

Platform for Commuters”) uses gaming to raise awareness about some increasingly growing issues – issues with how to take care of our environment. This paper also raises awareness in what we as individuals in our commuting practices can do towards these issues. Not only do we consider the authors thereby as having an important topic for their research, but we also believe that they are familiar with and hold a deep knowledge in the strategy of gaming they use. Gaming is not something that simply can be used or put on top of an important cause. To use gaming to engage users or players there also needs to be good gameplay where whatever good cause there is has been made an integral part.” [Overview and Best Paper Introduction by Petra Sundström, University of Salzburg, Austria].

Mobile Vision (MobiVis) – Vision-Based Applications and HCI

- **Organisers:** Rahul Swaminathan (Telekom Innovation Laboratories, Germany), Michael Rohs (University of Munich, Germany), and Jussi Ängeslevä (Universität der Künste Berlin, Germany)
- **Best Paper:** *Happy Measure: Augmented Reality for Mobile Virtual Furnishing* by Rahul Swaminathan (Telekom Innovation Laboratories, Germany), Robert Schleicher (Telekom Innovation Laboratories & Technische Universität Berlin, Germany), Simon Burkard (Technische Universität Berlin, Germany), Renato Agurto (Technische Universität Berlin, Germany) and Steven Koleczko (Technische Universität Berlin, Germany)

“Integrated digital cameras are arguably the most powerful and versatile sensors of mobile devices. They enable an extremely wide scope of mobile applications, ranging from visual search, augmented reality, marker-based tagging, and gesture recognition, to citizen journalists who stream and broadcast video data.

This workshop aims to take steps to bring together the traditionally separated fields of computer vision and mobile HCI. Our aim is to promote a discussion among researchers and practitioners working in the area of mobile HCI from the standpoint of computer vision as an enabling technology for new forms of mobile interaction and implications for design.

The Program Committee reviewed the submissions and selected eight contributions for presentation at the workshop. The papers cover a range of topics relevant to the workshop, including experiences with the impact of tracking performance in mobile augmented reality evaluations; a framework for vision-based mobile AR applications; tool support for prototyping interfaces for vision-based indoor navigation; and a sensor-fusion approach for real-time heading correction in mobile augmented reality applications.

The workshop emphasizes novelty and discussion, for example on future research directions, rather than finished work. It is meant as a venue for constructive feedback. The workshop provides a unique chance to exchange thoughts between researchers focusing on HCI and researchers focusing on computer vision. We encourage the participants to bring and show prototypes of their recent work.

The submissions for the workshop present a broad range of perspectives on vision based applications for mobile devices. On one end were the theoretical framework papers, discussing interaction paradigms for mobile AR applications and quick prototyping tools for interaction techniques in AR context. On the other end very specific uses present novel use of camera in specific context, and the papers present more technical perspectives on recognition rates and accuracies. “Happy Measure: Augmented Reality for Mobile Virtual Furnishing” successfully combines both of these ends by leveraging the mobile context in a very meaningful way, providing novel interaction techniques as well as demonstrating fully functional application. A vision based AR system enables a measurement, 3D modeling and visualization of furniture in context on a

mobile device. Combining 2D markers and camera as a tool for automatically capturing textures as well as provide the background AR context for the visualization, the system provides an easy to use real world application for furnishing planning. Thus, its implications range from better understanding of how to interact with AR applications on a mobile device, providing clever use of physical props in creating accurate and intuitive use and lay out a clear technological platform for doing so.” [Overview and Best paper Introduction by Prof. Jussi Ängeslevä, Universität der Kunst, Berlin and Prof. Michael Rohs, Leibniz Universität Hannover].

Research in the Large

- **Organisers:** Benjamin Poppinga (OFFIS, Germany), Henriette Cramer (Mobile Life, Sweden), Matthias Böhmer (DFKI, Germany), Alistair Morrison (University of Glasgow, UK), Frank Bentley (Motorola Mobility, USA), Niels Henze (University of Stuttgart, Germany), Mattias Rost (Mobile Life, Sweden), and Florian Michahelles (ETH Zurich, Switzerland)
- **Best Paper:** *Research in the Large: Challenges for Large-Scale Mobile Application Research: A Case Study about NFC Adoption using Gamification via an App Store* by Matthias Kranz (Luleå University of Technology, Sweden), Lukas Murmann (Technische Universität München, Germany and University College London, UK), and Florian Michahelles (ETH Zurich Auto-ID Labs, Switzerland)

“Mobile HCI studies are often conducted in a highly controlled environment and with a small convenient sample. The findings cannot always be generalized to the behaviour of real users in real contexts.

In contrast, researchers recently started to use apps and other wide distribution channels as an apparatus for mobile HCI research. Publishing apps in mobile application stores and public APIs for mobile services enable

researchers to study large samples in their ‘natural habitat’. In the LARGE 3.0 workshop experiences, insights and strategies for wide distribution of user studies will be exchanged and discussed.

Our selected best paper (“Research in the Large: Challenges for Large-Scale Mobile Application Research: A Case Study about NFC Adoption using Gamification via an App Store”) investigates the deployment and adoption of NFC solutions by using the increasingly prominent game approach. Thereby, physical artefacts and their immersion in the users’ daily lives are explored, which has not been done before in such a large scale and such a distributed environment. The provided ‘behind the scene’ information about implementation, distribution, and uptake are helpful and we are looking forward to see this work evolve.” [Overview and Best Paper Introduction by Benjamin Poppinga, OFFIS, Germany].

SiMPE: 7th Workshop on Speech (and Sound) in Mobile and Pervasive Environments

- **Organisers:** Amit A. Nanavati (IBM India Research Laboratory, India), Nitendra Rajput (IBM India Research Laboratory, India), Alexander I. Rudnický (Carnegie Mellon University, USA), Markku Turunen (University of Tampere, Finland), Thomas Sandholm (H P Labs, USA), Cosmin Munteanu (National Research Council, Canada) and Gerald Penn (University of Toronto, Canada)
- **Best Paper:** *SpeakRite: Monitoring Speaking Rate in Real Time on a Mobile Phone* by Ahmed Imran (TCS Innovation Labs, Mumbai, India), Meghna Pandharipande (TCS Innovation Labs, Mumbai, India) and Sunil Kumar Kopparapu (TCS Innovation Labs, Mumbai, India)

“The SiMPE workshop (<http://research.ihost.com/SiMPE>) series started in 2006 with the goal of enabling speech processing on

mobile and embedded devices to meet the challenges of pervasive environments (such as noise) and leveraging the context they offer (such as location). SIMPE 2010 and 2011 brought together researchers from the speech and the HCI communities. SIMPE 2012, the 7th in the series, we start to explore the area of speech along with sound. This year, we had a series of excellent invited talks and a keynote talk on “Speech in Learning Games for the Masses” by Prof. John Canny of Berkeley. The invited talks were a good representation of the state-of-technology in the Industry: Bill Meisel of TMA Associates talked about “The Personal Assistant Model: Implications for Technology”, Alex Acero of Microsoft Research gave a fascinating insider account of “Speech Interfaces for Microsoft Kinect” and Yoon Kim of Novauris Technologies talked about the opportunities and challenges of doing business with speech applications and services.

This year’s best paper, “SpeakRite: Monitoring Speaking Rate in Real Time on a Mobile Phone”, argues that speaking rate is a critical factor affecting intelligibility and

comprehension of speech. The authors present SpeakRite—a real-time mobile application that assists and guides a person to converse at the right speed by analyzing his spoken speech. SpeakRite analyzes the speaking rate during a telephone conversation and provides real time feedback (and offline analysis too) to assist the speaker modify his speaking rate. This paper was chosen as the best paper for attacking a novel aspect of the (speech) intelligibility problem.” [Overview and Best Paper Introduction by Amit A. Nanavati and Nitendra Rajput, IBM India Research Laboratory, India].

As I am positive you will once again agree, the papers included in this themed issue of the IJM HCI, which collectively represent a wide cross section of the facets comprising the Mobile HCI discipline, are stimulating and inspiring in their diversity. I sincerely hope that you enjoy reading the broad spectrum of interesting articles included here!

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Joanna Lumsden (PhD) is a senior lecturer/researcher in the School of Engineering & Applied Sciences at Aston University (Birmingham, UK) where she also manages the Aston Interactive Media (AIM) Lab. Prior to moving to Aston University in 2009, Joanna was a researcher with the National Research Council of Canada (NRC) and the designer and lab manager for a state-of-the-art mobile human computer interaction (HCI) evaluation lab within the NRC facility. Joanna is also an adjunct professor with the Faculty of Interdisciplinary Studies at the University of New Brunswick (Canada). She obtained her BSc in software engineering (Hons) from the University of Glasgow (Scotland, 1996), where she also later achieved her PhD in HCI in 2001. Her research interests and expertise are mainly in mobile HCI and associated evaluation techniques. She has served on program committees for several international HCI/general computer science conferences and was also editor of the Handbook of Research on User Interface Design and Evaluation for Mobile Technology.