

Editorial Preface

Special Issue: Collection of Best Papers from Selected MobileHCI'2015 Workshops

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Welcome to the latest issue of the *International Journal of Mobile Human Computer Interaction* (IJMHCI). This issue follows on from the repeated success of similarly themed issues over the past five years. It has been collated to showcase the best papers from a selection of the workshops run during the 17th International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI'2015) in Copenhagen, Denmark. The organizers of each of the MobileHCI'2015 workshops were invited to nominate their best paper for inclusion in this themed issue. Four of the workshops nominated a best paper and I am delighted to be able to present to you extended versions of these best papers in this themed issue. In addition, whilst unable to nominate best papers, the organizers of two MobileHCI'2015 workshops have contributed position papers which each provide extended insight into the topic of their respective workshop: these make a valuable addition to this themed issue. As is always the case with the MobileHCI workshops, the 2015 workshops covered an interesting spectrum, as is outlined below.

WORKSHOP ON MOBILE, SOCIAL AND CULTURALLY ORIENTED LEARNING (MOBISCOOL 2015)

- **Organisers:** A.A. Nanavati (IBM Research, India), N. Rajput (IBM Research, India), M. Turunen (University of Tampere, Finland), H. Knoche (Aalborg University, Denmark), and M. Rehm (Aalborg University, Denmark)
- **Best Paper:** *Map-Based Visual Analytics of Moving Learners* by Christian Sailer (ETH Zurich, Switzerland), Peter Kiefer, (ETH Zurich, Switzerland), Joram Schito, (ETH Zurich, Switzerland), and Martin Raubal (ETH Zurich, Switzerland)

“There are two simultaneous transformative changes occurring in education: the use of mobile and tablet devices for accessing educational content, and the rise of the MOOCs. Happening independently and in parallel are significant advances in interaction technologies through smartphones and tablets, and the rise in the use of social-media and social-network analytics in several domains.

The goal of the Mobiscool workshop was twofold: (a) to understand the usage, and student behaviour in this new environment (MOOCs and mobile devices); and (b) to design experiments and implement them to make these new tools more effective by tailoring them to the individual student's personal, social and cultural settings and preferences.

The selected best paper from this workshop presents two nice contributions. Firstly, it provides an overview of the current location tracking platforms and the challenges associated with them. Secondly, it provides interesting ways in which the location-time traces of an individual or a group of students (or even student-teachers) can be analyzed to understand the learning behaviour of students. This is

particularly useful for courses that involve exploration in physical spaces.” [Workshop Overview and Best Paper Introduction by A.A. Nanavati (IBM Research, India), N. Rajput (IBM Research, India), M. Turunen (University of Tampere, Finland), H. Knoche (Aalborg University, Denmark), and M. Rehm (Aalborg University, Denmark)].

WORKSHOP ON INTERACTIVE DISPLAYS THROUGH MOBILE PROJECTION

- **Organisers:** Katrin Wolf (University of Stuttgart, Germany), Markus Funk (University of Stuttgart, Germany), Pascal Knierim (University of Stuttgart, Germany), Markus Löchtefeld (DFKI Saarbrücken, Germany), and Sebastian Boring (University of Copenhagen, Denmark)
- **Position Paper:** *Survey of Interactive Displays through Mobile Projection* by Katrin Wolf (BTK – University for Art & Design Berlin, Germany), Markus Funk (University of Stuttgart, Germany), Pascal Knierim (University of Stuttgart, Germany), and Markus Löchtefeld (DFKI, Germany)

“Projectors shrink in size, are embedded in some mobile devices, and the next generation of mobile projections – drone-carried or wearable projectors – are graspable. The technology may be ready for a radical change in mobile interaction towards personal projected displays that are, in contrast to the milestone work of Pinhanez, not limited to static setups, but the applications and interactions for such novel and exciting technologies are not designed yet. In the MobileHCI’15 workshop on “Interactive Displays through Mobile Projection”, we raised the question to what extent mobile projections will change mobile interactions. In a hands-on workshop the participants sketched interactions with mobile projectors. The ideated interaction concepts were structured, analyzed, and discussed regarding their potential to extend the current limitations of mobile interaction, i.e. displaying content only on the embedded screen.” [Workshop Overview by Katrin Wolf (BTK – University for Art & Design Berlin, Germany)].

WORKSHOP ON DESIGNING WITH OLDER ADULTS: TOWARDS A COMPLETE METHODOLOGY

- **Organisers:** Emma Nicol (University of Strathclyde, UK), Mark Dunlop (University of Strathclyde, UK), Andreas Komninou (University of Strathclyde, UK), Marilyn McGee-Lennon (University of Strathclyde, UK), Lynne Baillie (Glasgow Caledonian University, UK), Lilit Hakobyan (Aston University, UK), Jo Lumsden (Aston University, UK), Parisa Eslambolchilar (Swansea University, UK), Pin Sym Foong (National University of Singapore, Singapore), Paul Gault (Aberdeen University, UK), Fábio Danilo Giraldo Velásquez (University of Quindío, Colombia), and Ann-Marie Horcher (Nova Southeastern University, USA)
- **Best Paper:** *Mobilizing Senior Citizens in Co-Design Work* by Lone Malmberg (IT University of Copenhagen, Denmark), Katharina Werner (Vienna University of Technology, Austria), Thomas Raben (Frederiksberg Rådhus, Denmark), Jörn Messeter (IT University of Copenhagen, Denmark), and Erik Grönvall (IT University of Copenhagen, Denmark)

“This workshop was the second in a series concerned with designing for older adults, the first of which was held at MobileHCI’2014 in Toronto. Themes emerging from that first workshop turned the focus this year to methodologies for designing with older people. In the absence of a complete methodology for working with older users, designers are often left to improvise their own methods, which can result in co-design relationships being compromised and weak design insights emerging. In this workshop we aimed to explore how we could best adapt or modify existing methods for working with older people.

The workshop featured 6 presentations based on peer reviewed papers with topics such as the deployment of cultural probes to investigate the meaning of independence in old age to the challenges of designing virtual reality games to assist older people who are experiencing mild cognitive impairment. The workshop attendees enjoyed a keynote address from Professor Anne Marie Kanstrup of the University of Aalborg in Denmark who drew on her experiences of setting up Living Labs in Danish care homes.

The winning paper, *Mobilizing Senior Citizens in Co-design Work* by Lone Malmborg, Katharina Werner, Thomas Raben, Jörn Messeter and Erik Grönvall describes their experiences of the Give&Take project, which explored concepts for service sharing in local communities in Austria and Denmark and led to the design of a tablet-based app service. By exploring ideas of design culture, communities of everyday practice and situated elderliness they discuss methodological issues related to involving older people in co-design laboratories. Reviewers agreed that the paper was successful in providing insights and practical suggestions that would assist the HCI community in understanding how participatory design approaches could be adopted to support co-design with older adults.” [Workshop Overview and Best Paper Introduction by Emma Nicol (Strathclyde University, UK)].

WORKSHOP ON MOBILE COLLOCATED INTERACTIONS WITH WEARABLES

- **Organisers:** A. Andrés Lucero (University of Southern Denmark, Denmark), Danielle Wilde (University of Southern Denmark, Denmark), Simon Robinson (Swansea University, UK), Joel E. Fischer (University of Nottingham, UK), James Clawson (Georgia Institute of Technology, USA), and Oscar Tomico (Eindhoven University of Technology, The Netherlands)
- **Best Paper:** *Co-Designing Wearable Technology Together with Visually Impaired Children* by Héctor Caltenco (Lund University, Sweden), Charlotte Magnusson (Lund University, Sweden), Bitte Rydeman (Lund University, Sweden), Sara Finocchietti (Italian Institute of Technology, Italy), Giulia Cappagli (Italian Institute of Technology, Italy), Elena Cocchi (Chiossone Institute, Italy), Lope Ben Porquis (Italian Institute of Technology, Italy), Gabriel Baud-Bovy (Italian Institute of Technology, Italy), and Monica Gori (Italian Institute of Technology, Italy)

“Research on mobile collocated interactions has been looking at situations in which collocated users engage in collaborative activities using their mobile devices. In previous workshops at MobileHCI 2011 and CHI 2015, several challenges were identified as core to this research area: group size, physical distance, device-binding, operating systems, privacy, extending to public displays and tabletops, and in-the-wild evaluations. As computers get smaller, more powerful, and closer to our bodies, mobile collocated interactions research is inevitably moving towards wearables. The focus of this workshop was to bring together a community of researchers, designers and practitioners to explore the potential of extending mobile collocated interactions from, through and around the body using wearable technologies.

The selected best paper presents an exceptional exemplar of work on the topic of this workshop. The work is well grounded in the literature; it presents initial interesting empirical results from several studies ‘in the wild’. In particular, it presents a simple, yet innovative wearable technical solution that is sensitive and appropriate to the collocated social situation for which it was designed. The work has the potential to be extended into a significant contribution to the literature on collocated mobile interaction.” [Workshop Overview and Best Paper Introduction by Andrés Lucero (University of Southern Denmark, Denmark)].

WORKSHOP ON SMARTTENTION, PLEASE! INTELLIGENT ATTENTION MANAGEMENT ON MOBILE DEVICES

- **Organisers:** Benjamin Poppinga, Nuria Oliver (Telefonica Research, Spain), Martin Pielot (Telefonica Research, Spain), Karen Church (Yahoo! Labs, USA), Niels Henze (University of Stuttgart, Germany), and Alireza Sahami (Yahoo! Labs, USA)
- **Best Paper:** *Notification Display Choice for Smartphone Users: Investigating the Impact of Notification Displays on a Typing Task* by Lauren Norrie (University of Glasgow, UK) and Roderick Murray-Smith (University of Glasgow, UK)

“Many users of mobile devices are continuously confronted with a huge variety of information: notifications from Facebook; new application updates; won badges; or reminders. All these notifications lead to an information overload, which makes it hard to stay focused. The goal of this workshop was to discuss how exactly information overload through mobile notifications affect the users’ experiences, and how artificial intelligence, adaptive user interfaces or clever, multimodal interaction techniques can help them to focus on the most essential information. We further wanted to discuss various meta-aspects of these smart attention management systems, for example, how they can be configured, trusted or how their dynamics can be communicated to the users. The overall objective was to identify and summarize recent challenges in the design and development of smart attention management systems.

The selected best paper systematically studies a set of the most common notification indication techniques and is therefore very relevant for the workshop. Such a structured investigation of this topic has not yet been done in research and, thus, the presented findings are novel. What we particularly liked about the paper is the combination of quantitative and qualitative user feedback, which is able to give the reader comprehensive insights how the users experienced the individual notification indication techniques. We were surprised how badly most of the state of the art indication techniques, i.e., the notification bar, were perceived and were excited about the teaser on the situated display approach, which would allow users to handle notifications in intimate co-located situations.” [Workshop Overview and Best Paper Introduction by Benjamin Poppinga, (freelance researcher and entrepreneur in (HCI))].

WORKSHOP ON FROM MOBILE TO WEARABLE – USING WEARABLE DEVICES TO ENRICH MOBILE INTERACTION

- **Organisers:** Stefan Schneegass (University of Stuttgart, Germany), Thomas Olsson (Tampere University of Technology, Finland), Sven Mayer (University of Stuttgart, Germany), and Kristof Van Laerhoven (University of Freiburg, Germany)
- **Position Paper:** *Mobile Interactions Augmented by Wearable Computing: a Design Space and Vision* by Stefan Schneegass (University of Stuttgart, Germany), Thomas Olsson (Tampere University of Technology, Finland), Sven Mayer (University of Stuttgart, Germany), and Kristof Van Laerhoven (University of Freiburg, Germany)

“The workshop “From Mobile to Wearable – Using Wearable Devices to Enrich Mobile Interaction” connects researches which are interested in mobile human-computer interaction and wearable computing. Mobile phones have more and more sensors and actuators integrated. However, some inherent requirements such as including everything in a single hand-held device and the focusing on touch-based input limit the interaction possibilities. In this workshop, we had eight interesting contributions exploring different aspects of how to augment mobile interaction using wearable sensors and actuators as well as focus on the design and evaluation of such systems. Each of the paper focused

on different aspects and helped shaping the design space of mobile interaction enriched by wearable devices. During the workshop we conducted hands-on sessions and discussions in which participants generated ideas and functional prototypes of systems augmenting the mobile interaction.” [Workshop Overview by Stefan Schneegass (University of Stuttgart, Germany)].

As always, I sincerely hope that you enjoy reading the broad spectrum of articles included in this themed issue of the IJMHCI! Finally, I would like to personally thank my postdoc research assistant – Dr Victoria Lush – for her assistance in collating this issue.

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