Editorial Preface

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Welcome to the latest issue of the International Journal of Mobile Human Computer Interaction (IJMHCI). In this exciting issue, we once again benefit from an eclectic collection of interesting articles. In the first paper – "From Touchpad to Smart Lens: A Comparative Study on Smartphone Interaction with Public Displays" by Matthias Baldauf, Peter Fröhlich, Jasmin Buchta, and Theresa Stürmer – we read about a lab-based experimental study of four current (but previously un-compared) mobile-display interaction techniques, namely touchpad, pointer, mini video, and smart lens. Comparing their use across three different task types – targeting, dragging 'n' dropping, and drawing – Baldauf et al. determined that the suitability of the techniques for interfacing to public displays is highly contingent on the task and the specifics of the use case. For instance, they identified that for standard target acquisition, the touchpad-based metaphor proved highly accurate, albeit time consuming. Both mini video and smart lens (the more direct techniques) were found to have comparably good completion times, with the former being especially suited to drawing – i.e., to visual manipulation tasks. In contrast, smartphone-based pointing was found to be inferior to the other three methods. Based on their findings, the authors explore examples for the application of the various techniques to real-world scenarios.

The second article is by Kimiko Ryokai and Alice Agogino and is titled "Off the Paved Paths: Exploring Nature with a Mobile Augmented Reality Learning Tool". In this, the authors assert that, as yet, we know little about which aspects of mobile augmented reality interfaces can enhance student learning and engagement. In part to address this issue, they conducted a series of field observations and interviews with experts as well as formative studies to investigate how mobile learners navigate spaces via different interfaces in order to design, implement, and ultimately evaluate an MAR application – GreenHat – to support learning about biodiversity and sustainability issues in the natural environment. Upon evaluation, Ryokai and Agogino found that GreenHat, in comparison to a digital map, encouraged students to more carefully examine physical field sites and make more "personal discoveries" concerning the material being studied. In this article, the authors report on the design

process and explore both their results and their consequent implications for design of future mobile learning tools.

In "A Systematic Literature Review on Usability Heuristics for Mobile Phones", Luis Henrique A. Salazar, Thaísa Lacerda, Juliane Vargas Nunes, and Christiane Gresse von Wangenheim visit the hotly debated topic of mobile device evaluation. Their research was motivated by the observation that assumptions about user interactions inherent from desktop systems don't hold for mobile technologies and, as such, they questioned the availability of appropriate usability heuristics for mobile technologies. They reviewed the available literature on heuristics, mapping those they identified to the original set proposed by Nielsen and identifying a set of additional heuristics specific to mobile technologies. They conclude that comparatively little research has been done to develop mobile usability heuristics, noting that most of the heuristics they encountered are strongly tied to the traditional heuristics originally developed for desktop systems. They argue that such heuristics fail to adequately consider the characteristics unique to mobile device use. They present their survey as an overview of the current state of play as well as a kick-off point for evolution of more appropriate heuristics – that is, heuristics specifically tailored to the complexities of mobile technologies and their use.

The final paper is titled "Participant Experiences of Mobile Device-Based Diary Studies" and is by Sun Xu, David Golightly, Joanne Cranwell, Benjamin Bedwell, and Sarah Sharples. In this article, the authors assert that mobile diary-based studies have the potential to address limitations of traditional paper-based diary studies for capturing contextual usage data. They argue that, although studies have been reported to illustrate the power of the mobile device-based diary approach, we (prior to their research) knew little about the participants' experience of being involved in such studies. Their research reports on a series of case studies in which mobile diaries were deployed for data capture; they illustrate user experiences of such studies and explore how this understanding can be used to inform the design of appropriate methodology.

All that remains for me now is to welcome you again to this latest issue and hope that you enjoy and are inspired by the research included within!

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Joanna Lumsden (PhD) is a senior lecturer/researcher in the School of Engineering & Applied Sci¬ences 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.