EDITORIAL

Special issue on interaction with coupled and public displays

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Recent developments have seen the widespread proliferation of both large public displays and small personal display technologies. In parallel, novel forms of human–computer interaction such as multi-touch technology have transformed these devices from passive displays into interactive systems. Examples of such small displays include PDAs, Tablets and iPhones while examples of large interactive surfaces (multi-touch driven displays) include the Diamondtouch and Microsoft Surface. With these, users can now interact directly with the displayed objects by simply touching the display, creating a sense of immediacy and natural interaction. This sense of immediacy gives rise to a range of human–computer interactions along with support for multi-device or public display collaborative activities. Furthering Weiser's vision, the ultimate aim is to weave such new forms of seamless interaction and computation into the fabric of our lives until they are indistinguishable from it.

Large interactive surfaces offer great potential for face-to-face work and social interaction and provide natural ways to directly manipulate virtual objects. Small devices afford the individual a personal workspace or "scratch space" to formulate ideas before bringing them to a wider audience. Recent research demonstrates that advanced visual interfaces can be built around large public touch-driven displays or as a combination of both private and public displays coupled together. Such computer-mediated multi-device interaction between local touch-driven displays and shared public ones presents a number of novel and challenging research problems.

The special issue is based on an open call and extended versions of papers presented during PPD08. PPD08 was an international workshop on designing multi-touch interaction techniques for coupled public and private displays at AVI 2008, the International Working Conference on Advanced Visual Interfaces held in May 2008 in Napoli, Italy. A number of papers included in this special issue focus on interaction with public displays, while others concentrate on specific areas and applications of coupled multi-device interaction. Boerdonk, Tieben, Klooster and van den Hoven report on the design and evaluation of a multi-user interactive canvas called TouchMeDare to support social interaction. Wallace, Scott, Stutz, Enns and Inkpen report on a comprehensive user study on the impact of display configuration and software interface design on taskwork and teamwork in multi-display groupware systems. They highlight the significant impact of various display configurations on performance. Terrenghi, Quigley and Dix provide a comprehensive taxonomy for the analysis of Multi-Person Display Ecosystems and a detailed analysis of many reference examples. This taxonomy and

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analysis offer criteria for critically evaluating the design of coupled multi-person-display ecosystems. Aliakseyeu, Lucero and Martens report on remote device interaction techniques and a user study of a Sketch Radar prototype. This study shows that users customise such map interfaces for particular tasks and personal preferences. Echtler reports on a system for coupled private and large public displays. Casual interactions with this system are studied through a user study of a coupled multi-user Sudoku game. Sakurai, Kitamura, Subramanian and Kishino report on a multi-user public display system which offers different levels of visibility through the use of a revolving polarizer. Through a "Mysterious POND" application, they report on a user study to understand the potential and limitations for this approach. Finally Rohs, Schleicher, Schoning, Essl, Naumann and Kruger report on two comprehensive user studies investigating the effect of visual context in hand-held augmented reality interfaces. Here, a personal display is coupled to a printed public display showing a map and they show that the density of the items has the largest effect. As such, visual context is most effective for sparsely distributed items.

We would like to thank all the authors who submitted papers to this special issue, not all of which could be accepted. All papers presented here have undergone a rigourous process of international peer review and we thank all those who helped review papers for this special issue.