HCI 2013 - The Internet of Things

Proceedings of the 27th International BCS Human Computer
Interaction Conference (HCI 2013)

Brunel University, London, UK

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Editors

Dr Kate Hone

Steve Love

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Abstract

The 27th International BCS Human Computer Interaction Conference was organised by the School of Information Systems, Computing and Mathematics at Brunel University in conjunction with BCS, The Chartered Institute for IT. The conference was held on campus at Brunel University from Monday 9 September to Friday 13 September.

The conference theme was 'The Internet of Things' and the challenges it holds for HCI researchers. As you will hopefully agree when you look through these proceedings, this focus provided us with a set of papers that highlighted the diversity and richness of HCI research in the UK and internationally for such a topical area of debate. Papers were presented on topics such as: design methods, sustainability, HCI and education, social media, mobile design, user characteristics, HCI in the work place and innovative interaction styles.

Full Synopsis

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On the basis of a discussion in the industrial panel, we have provided a brief introduction to the full papers that were presented at the conference. The aim here is to hopefully make individuals from both an academic and industrial background more inclined to delve in and discover the richness and quality of the research papers that are available in these proceedings.

As ever, these proceedings are a reflection of the hard work put in by authors who submitted papers (whether they were successful or not), reviewers and the programme committee. So we would like to take this opportunity to thank everyone for all their hard work in making HCI 2013 a very successful and enjoyable conference.

All the best,

Steve Love, Kate Hone and Tom McEwan

Proceedings Editors

Editors

This conference was edited by:

Dr Kate Hone is a reader in information systems in the School of Information Systems and Computing at Brunel University, London, and Director of Brunel Graduate School. From 1995 to 2000 she held teaching and research appointments at the University of Nottingham, UK, first in psychology and subsequently as lecturer in computer science. Her research interests include spoken dialogue systems, affective computing, health informatics and intelligent data analysis.

Steve Love is a senior lecturer in the School of Information Systems, Computing and Mathematics at Brunel University, London. He has led research projects investigating how individual differences affect young people's perception and use of mobile services and applications. In addition, he has worked on projects related to e-learning for adult learners returning to education and schoolchildren's use of mobile technology. He is the author and editor of books such as *Understanding Mobile Human-Computer Interaction* and *The Handbook of Mobile Technology Research Methods*.

Tom McEwan is a senior lecturer in the School of Computing and the Institute for Informatics and Digital Innovation at Edinburgh Napier University. He has won awards for knowledge exchange partnerships and for public communication and takes a human-centred approach to commercialisation of university research. He has served as chair of BCS Interaction SG, and on a number of other BCS committees. He represents the UK on the ACM SIGCHI International Public Policy Committee and the European Society for Socially Embedded Computing (eusset.eu). His first career was as a singer-songwriter, traces of which surface with the search term: `tgmcewan`.

Papers:

Dr. Sarah Eagle and Dr. Peter Bennett Exploring the Internet of Things: an Interdisciplinary Workshop Approach <http://dx.doi.org/10.14236/ewic/HCI2013.1>

David England A Category Theory Approach to HCI <http://dx.doi.org/10.14236/ewic/HCI2013.2>

Koen van Turnhout, Sabine Craenmehr, Robert Holwerda, Mike Menijn, Jan-Pieter Zwart, René Bakker
Tradeoffs in Design Research: Development Oriented Triangulation
<http://dx.doi.org/10.14236/ewic/HCI2013.3>

B. Agarwal, W. Stuerzlinger WidgetLens: A System for Adaptive Content Magnification of Widgets
<http://dx.doi.org/10.14236/ewic/HCI2013.4>

Dena Al-Thani, Tony Stockman, Anastasios Tombros Cross-Modal Collaborative Information Seeking (CCIS): An Exploratory Study <http://dx.doi.org/10.14236/ewic/HCI2013.5>

Maxime Cordeil, Christophe Hurter, Stéphane Conversy and Mickaël Causse Assessing and Improving 3D Rotation Transition in Dense Visualizations
<http://dx.doi.org/10.14236/ewic/HCI2013.6>

Niloofar Dezuli, Jochen Huber, Elizabeth F. Churchill and Max Mühlhäuser CoStream: Co-construction of Shared Experiences through Mobile Live Video Sharing
<http://dx.doi.org/10.14236/ewic/HCI2013.7>

Tiago Gonçalves, Ana Paula Afonso, Maria Beatriz Carmo, and Paulo Pombinho Comparison of Off-screen Visualization Techniques with Representation of Relevance on Mobile Devices
<http://dx.doi.org/10.14236/ewic/HCI2013.8>

Lilit Hakobyan, Jo Lumsden, Dympna O'Sullivan and Hannah Bartlett Designing a Mobile Diet Diary Application with and for Older Adults with AMD: A Case Study
<http://dx.doi.org/10.14236/ewic/HCI2013.9>

Jean D. Hallewell Haslwanter and Geraldine Fitzpatrick The Development of a sensor-based System for older People: A Case Study <http://dx.doi.org/10.14236/ewic/HCI2013.10>

Claudia Krehl, Sarah Sharples and Martin Flintham Less is More: Classifying Mobile Interactions to Support Context Sensing in Journeys <http://dx.doi.org/10.14236/ewic/HCI2013.11>

Juha Leino Recommending additional study materials: Binary ratings vis-à-vis five-star ratings
<http://dx.doi.org/10.14236/ewic/HCI2013.12>

Siân Lindley, Xiang Cao, John Helmes, Richard Morris and Sam Meek Towards a Tool for Design Ideation: Insights from Use of SketchStorm <http://dx.doi.org/10.14236/ewic/HCI2013.13>

Diana Loeffler, Anne Hess, Andreas Maier, Joern Hurtienne and Hartmut Schmitt Developing Intuitive

User Interfaces by Integrating Users' Mental Models into Requirements Engineering
<http://dx.doi.org/10.14236/ewic/HCI2013.14>

Marisela Gutierrez Lopez and Saila Ovaska A Look at Unsociability on Facebook
<http://dx.doi.org/10.14236/ewic/HCI2013.15>

Serge Offermans, Harm van Essen, Berry Eggen Exploring a Hybrid Control Approach for
enhanced User Experience of Interactive Lighting <http://dx.doi.org/10.14236/ewic/HCI2013.16>

Janet C Read, Matthew Horton, Daniel Fitton, Linda Little, Russell Beale and Nicola Toth On Being Cool
– Exploring Interaction Design for Teenagers <http://dx.doi.org/10.14236/ewic/HCI2013.17>

Francois Roubert, Mark Perry Putting the Lab in the Lab Book: Supporting Coordination in Large, Multi-
site Research <http://dx.doi.org/10.14236/ewic/HCI2013.18>

Paul Schmieder, Andrew Luxton-Reilly, Beryl Plimmer and John Hosking Visual Guides for
Comprehending Digital Ink in Distortion Lenses <http://dx.doi.org/10.14236/ewic/HCI2013.19>

Julia Seebode, Robert Schleicher, Ina Wechsung, Sebastian Möller Investigating the Affective
Impression of Tactile Feedback on Mobile Devices <http://dx.doi.org/10.14236/ewic/HCI2013.20>

Helen Sharp, Nicole Lotz, Richard Blyth, Mark Woodroffe and Dino Rajah, Turugare Ranganai A
protocol study of novice interaction design behaviour in Botswana: solution-driven interaction design
<http://dx.doi.org/10.14236/ewic/HCI2013.21>

Jeff K.T. Tang and Takeo Igarashi CUBOD: A Customized Body Gesture Design Tool for End Users
<http://dx.doi.org/10.14236/ewic/HCI2013.22>

Diego Alvarado, Paloma Díaz and Pedro Paredes ChiCo: A Platform to Support Children Co-
Design <http://dx.doi.org/10.14236/ewic/HCI2013.23>

Arthur Money, Anita Atwal, Georgia Spiliotopoulou, Michele Turko and Anand Unadkat Feasibility of
Utilising 3D software in Occupational Therapy Practice <http://dx.doi.org/10.14236/ewic/HCI2013.24>

Reinout Roels and Beat Signer An Extensible Presentation Tool for Flexible Human-Information
Interaction <http://dx.doi.org/10.14236/ewic/HCI2013.25>

James Sutton, David Bell and Stanislaos Lauria Feeding a Finch with social media: A bird that responds
to tweets! <http://dx.doi.org/10.14236/ewic/HCI2013.26>

Sara Tena, Ignacio Aedo and Paloma Díaz Achieving Shared Understanding in Face-to-Face
'Tabletop' Exercises <http://dx.doi.org/10.14236/ewic/HCI2013.27>

Simon Wells, Paula Forbes, Judith Masthoff, Silvia Gabrielli and Antti Jyllha SUPERHUB:
Integrating Digital Behaviour Management into a Novel Sustainable Urban Mobility System
<http://dx.doi.org/10.14236/ewic/HCI2013.28>

Adam Bradley, Duncan P. Brumby, Anna L. Cox and Jon Bird How to Manage Your Inbox: Is a Once a
Day Strategy Best? <http://dx.doi.org/10.14236/ewic/HCI2013.29>

Nela Brown and Tony Stockman Examining the Use of Thematic Analysis as a Tool for Informing Design of New Family Communication Technologies <http://dx.doi.org/10.14236/ewic/HCI2013.30>

Brendan Cassidy, Claire Louise Haywood and Gavin Sim Investigating the Extent to Which Children Use Mobile Phone Application Stores <http://dx.doi.org/10.14236/ewic/HCI2013.31>

Benjamin R. Cowan, Katerina Avramides and Russell Beale Should cool be a design goal? <http://dx.doi.org/10.14236/ewic/HCI2013.32>

Julie Doyle, Antonella Sassu, Teresa McDonagh "We were all the same age once" – Experiences of Intergenerational App Design <http://dx.doi.org/10.14236/ewic/HCI2013.33>

Daniel Fitton, I. Scott MacKenzie, Janet C Read, Matthew Horton Exploring Tilt-Based Text Input For Mobile Devices With Teenagers <http://dx.doi.org/10.14236/ewic/HCI2013.34>

Julia Galliers and Stephanie Wilson An Exploratory Study into the Accessibility of a Multi-User Virtual World for Young People with Aphasia <http://dx.doi.org/10.14236/ewic/HCI2013.35>

Voula Gkatzidou, Kate Hone, Jo Gibbs, Lorna Sutcliffe, Syed Tariq Sadiq, Pam Sonnenberg and Claudia Estcourt A user-centred approach to inform the design of a mobile application for STI diagnosis and management. <http://dx.doi.org/10.14236/ewic/HCI2013.36>

Pedro G. Villanueva, Ricardo Tesoriero, Jose A. Gallud Distributing Web Components in a Display Ecosystem Using Proxywork <http://dx.doi.org/10.14236/ewic/HCI2013.37>

Claudia Iacob, Varsha Veerappa and Rachel Harrison What Are You Complaining About?: A Study of Online Reviews of Mobile Applications <http://dx.doi.org/10.14236/ewic/HCI2013.38>

Kristiina Juurmaa, Janne Pitkänen and Sirpa Riihiö Visual walkthrough as a tool for utility assessment in a usability test <http://dx.doi.org/10.14236/ewic/HCI2013.39>

Fulvio Lizano, Maria M. Sandoval, Anders Bruun, Jan Stage Is Usability Evaluation Important: The Perspective of Novice Software Developers <http://dx.doi.org/10.14236/ewic/HCI2013.40>

Dan Lockton, Rebecca Cain, David Harrison and Luke Nicholson CarbonCulture at DECC: Digital Engagement for Sustainability at Work <http://dx.doi.org/10.14236/ewic/HCI2013.41>

Diogo Marques, Tiago Guerreiro, Luís Duarte, Luís Carriço Under the Table: Tap Authentication for Smartphones <http://dx.doi.org/10.14236/ewic/HCI2013.42>

Michael Massimi and Daniela Rosner Crafting for Major Life Events: Implications for Technology Design and Use <http://dx.doi.org/10.14236/ewic/HCI2013.43>

Fraser McKay and Michael Kölling Predictive Modelling for HCI Problems in Novice Program Editors <http://dx.doi.org/10.14236/ewic/HCI2013.44>

Andrew Molineux and Keith Cheverst Georeferencing in the Field Using Constellations of Similar You-Are-Here Maps <http://dx.doi.org/10.14236/ewic/HCI2013.45>

- Arthur G. Money and Harry Agius 'Mind the Gap': Evaluating User Physiological Response for
Multi-Genre Video Summarisation <http://dx.doi.org/10.14236/ewic/HCI2013.46>
- Ivo Rafael, Luís Duarte, Luís Carriço and Tiago Guerreiro Towards Ubiquitous Awareness Tools
for Blind People <http://dx.doi.org/10.14236/ewic/HCI2013.47>
- Elisa Rubegni, Luca Colombo and Monica Landoni Design recommendations for the development of
a Digital Storytelling mobile application <http://dx.doi.org/10.14236/ewic/HCI2013.48>
- Martin Schmettow and Jop Havinga Are users more diverse than designs? Testing and extending a
25 years old claim. <http://dx.doi.org/10.14236/ewic/HCI2013.49>
- Katarzyna Stawarz and Rachel Benedyk Bent necks and twisted wrists: Exploring the impact of touch-
screen tablets on the posture of office workers <http://dx.doi.org/10.14236/ewic/HCI2013.50>
- Andrea Alessandrini End-user construction mechanisms for the Internet of Things
<http://dx.doi.org/10.14236/ewic/HCI2013.51>
- Ragaad Altarawneh, Jens Bauer, Patric Keller and Achim Ebert ESSAVis: A 2Dplus3D Visual Platform
for Speeding Up the Maintenance Process of Embedded Systems
<http://dx.doi.org/10.14236/ewic/HCI2013.52>
- Ann Austin and José Abdelnour-Nocera Cognitive Styles in HCI Education and Practice
<http://dx.doi.org/10.14236/ewic/HCI2013.53>
- Matthias Baldauf, Markus Salo, Stefan Suetterle and Peter Fröhlich Display Pointing – A Qualitative Study
on a Recent Screen Pairing Technique for Smartphones <http://dx.doi.org/10.14236/ewic/HCI2013.54>
- Lilian Bosch and Marije Kanis Encouraging Sustainable Fashion with a Playful Recycling System
<http://dx.doi.org/10.14236/ewic/HCI2013.55>
- Tiago Gonçalves, Ana Paula Afonso, Bruno Martins and Daniel Gonçalves ST-TrajVis: Interacting
with Trajectory Data <http://dx.doi.org/10.14236/ewic/HCI2013.56>
- Nan Jiang and Feng Tian A Novel Gesture-based CAPTCHA Design for Smart Devices
<http://dx.doi.org/10.14236/ewic/HCI2013.57>
- Ana Jorge, Teresa Chambel Exploring Movies through Interactive Visualizations
<http://dx.doi.org/10.14236/ewic/HCI2013.58>
- Lorna McKnight "Apps that make things, not apps that do things": appropriation and assistive learning
technologies. <http://dx.doi.org/10.14236/ewic/HCI2013.59>
- Stephen Mokey, Alexander Nalbandian and Brian O'Keefe Location as Interaction: Exploring
Blended Spaces in the Global Village <http://dx.doi.org/10.14236/ewic/HCI2013.60>
- Alwin de Rooij and Sara Jones Motor Expressions as Creativity Support: Exploring the Potential for
Physical Interaction <http://dx.doi.org/10.14236/ewic/HCI2013.61>

Gavin Sim and Brendan Cassidy Investigating the Fidelity Effect when Evaluating Game
Prototypes with Children <http://dx.doi.org/10.14236/ewic/HCI2013.62>