

People and Computers XIX – The Bigger Picture

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and David Benyon (Eds)

People and Computers XIX – The Bigger Picture

Proceedings of HCI 2005

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Contents

Preface: The Bigger Picture	ix
H — HCI at the Human Scale	1
“Looking At the Computer but Doing It On Land”: Children’s Interactions in a Tangible Programming Space <i>Ylva Fernaeus & Jakob Tholander</i>	3
The Usability of Digital Ink Technologies for Children and Teenagers <i>Janet C Read</i>	19
PROTEUS: Artefact-driven Constructionist Assessment within Tablet PC-based Low-fidelity Prototyping <i>Dean Mohamedally, Panayiotis Zaphiris & Helen Petrie</i>	37
The Reader Creates a Personal Meaning: A Comparative Study of Scenarios and Human-centred Stories <i>Georg Strøm</i>	53
What Difference Do Guidelines Make? An Observational Study of Online-questionnaire Design Guidelines Put to Practical Use <i>Jo Lumsden, Scott Flinn, Michelle Anderson & Wendy Morgan</i>	69
Designing Interactive Systems in Context: From Prototype to Deployment <i>Tim Clerckx, Kris Luyten & Karin Coninx</i>	85
Using Context Awareness to Enhance Visitor Engagement in a Gallery Space <i>Peter Lonsdale, Russell Beale & Will Byrne</i>	101
Engagement with an Interactive Museum Exhibit <i>Naomi Haywood & Paul Cairns</i>	113

User Needs in e-Government: Conducting Policy Analysis with Models-on-the-Web <i>Barbara Mirel, Mary Maher & Jina Huh</i>	131
Fit for Purpose Evaluation: The Case of a Public Information Kiosk for the Socially Disadvantaged <i>B L William Wong, Suzette Keith & Mark Springett</i>	149
A Visuo-Biometric Authentication Mechanism for Older Users <i>Karen Renaud</i>	167
C — HCI in the Greater Cultural Context	183
A Computer Science HCI Course <i>Beryl Plimmer</i>	185
Use and Usefulness of HCI Methods: Results from an Exploratory Study among Nordic HCI Practitioners <i>Ida Bark, Asbjørn Følstad & Jan Gulliksen</i>	201
Building Usability in India: Reflections from the Indo-European Systems Usability Partnership <i>Andy Smith, Jan Gulliksen & Liam Bannon</i>	219
Visualizing the Evolution of HCI <i>Chaomei Chen, Gulshan Panjwani, Jason Proctor, Kenneth Allendoerfer, Jasna Kuljis, Serge Aluker, David Sturtz & Mirjana Vukovic</i>	233
“I thought it was terrible and everyone else loved it” — A New Perspective for Effective Recommender System Design <i>Philip Bonhard & M Angela Sasse</i>	251
Rich Media, Poor Judgement? A Study of Media Effects on Users’ Trust in Expertise <i>Jens Riegelsberger, M Angela Sasse & John D McCarthy</i>	267
Cultural Representations in Web Design: Differences in Emotions and Values <i>Claire Dormann</i>	285
Interaction Design for Countries with a Traditional Culture: A Comparative Study of Income Levels and Cultural Values <i>Georg Strøm</i>	301

Researching Culture and Usability — A Conceptual Model of Usability <i>Gabrielle Ford & Paula Kotzé</i>	317
I — HCI Down at the Interface	335
Distinguishing Vibrotactile Effects with Tactile Mouse and Trackball <i>Jukka Raisamo, Roope Raisamo & Katri Kosonen</i>	337
HyperGrid — Accessing Complex Information Spaces <i>Hans-Christian Jetter, Jens Gerken, Werner König, Christian Grün & Harald Reiterer</i>	349
Mixed Interaction Space — Expanding the Interaction Space with Mobile Devices <i>Thomas Riisgaard Hansen, Eva Eriksson & Andreas Lykke-Olesen</i>	365
Static/Animated Diagrams and their Effect on Students' Perceptions of Conceptual Understanding in Computer Aided Learning (CAL) Environments <i>Ruqiyabi Naz Awan & Brett Stevens</i>	381
Media Co-authoring Practices in Responsive Physical Environments <i>Carlo Jacucci, Helen Pain & John Lee</i>	391
Cognitive Model Working Alongside the User <i>Ion Juvina & Herre van Oostendorp</i>	409
Revisiting Web Design Guidelines by Exploring Users' Expectations, Preferences and Visual Search Behaviour <i>Ekaterini Tzanidou, Shailey Minocha, Marian Petre & Andrew Grayson</i>	421
Comparing Automatic and Manual Zooming Methods for Acquiring Off-screen Targets <i>Joshua Savage & Andy Cockburn</i>	439
Forward and Backward Speech Skimming with the Elastic Audio Slider <i>Wolfgang Hürst, Tobias Lauer, Cédric Bürfent & Georg Götz</i>	455
Design Patterns for Auditory Displays <i>C Frauenberger, T Stockman, V Putz & R Höldrich</i>	473

Closing Keynote of HCI2005: The Bigger Picture	489
Grand Challenges in HCI: the Quest for Theory-led Design <i>Alistair Sutcliffe</i>	491
Author Index	507
Keyword Index	509

Preface: The Bigger Picture

Human–Computer Interaction was once a narrowly focused discipline — the study of the interaction *between* human and computer — one of a new breed of multi-disciplines with its roots in ergonomics, cognitive psychology and so on. No-one thinks like that now. At the very least, the discipline concerns the interaction of humans *through* computers, with the technology put in its rightful place: a mediating artefact, between human and human, and between human and information, and between systems of activities undertaken by groups of humans in their cultural context. In this preface we summarize the content and structure of this volume, in the context of the conference and our keynote speakers.

We present here the bigger picture of HCI, a communal self-portrait of a multi-discipline that is now “all grown up” and making its way in the world. The relative youth and identity of HCI is a recurring theme. Mayes [1991] describes a discipline now past infancy, Shneiderman [2003] wonders whether HCI was child, adolescent or adult, Preece et al. [2002] sees Interaction Design as a discipline beyond HCI. It’s twenty years since the first British HCI conference at the University of East Anglia. This is the 19th People and Computers volume. With two joint conferences (INTERACT’90 and INTERACT’99) this is our 21st birthday. We believe that that HCI has the “keys of door”, is graduating from college and finding a role in industry and society. It makes all sorts of partnerships, some ill-advised and temporary (though perhaps exciting and memorable), some enduring (but perhaps a little less exciting).

This volume is snapshot of the best of current HCI. This is no longer just British HCI: the majority of the accepted papers are from overseas, with thirteen other countries represented here. (The Nordic nations are particularly present, a consequence of a conscious decision to involve the NordiCHI community in running this conference. This has been a delightful partnership — and many of its natives see Scotland as a Nordic nation anyway!).

Herein are the finest of over three hundred submissions for HCI2005: The Bigger Picture. This is substantially higher than in recent years, and left your editors and the programme committee with a considerable dilemma. Ninety-two ‘full-paper’ submissions were each subject to an average of four reviews by carefully matched experts from the formidable list of reviewers on Page xv. We are delighted to thank reviewers publicly for their huge contribution. The reviews were of a very high standard, often running to several pages of thoughtful appraisal and almost all were completed within a tight deadline. The reviews were then meta-reviewed

by members of the programme committee, who prepared a detailed analysis for discussion. Conferences cannot run without an army of unpaid reviewers and committee members, and it is they that you, and we, must thank for this volume. Collectively our reviewers rated sixty-two full papers worthy of publication and the programme committee had a hard time cutting these back to the thirty we have space for here. We'd also like to thank unsuccessful submitters and offer them every encouragement in their work.

Past editors have wrestled with the challenge of straitjacketing papers into themes, and usually by the time of the conference we find little correlation between these themes and the conference session structure. In our call for papers, we mentioned a need to play around with the initials of HCI and so (very loosely) partition this volume into three sections — an 'H', a 'C' and an 'I', reflecting three levels of focus and three tracks running through the conference plan. Of course, most of these papers could validly appear in any of the three tracks, so we'd like you to view this structure in the context of the life's work of our eminent and legendary keynote — Ted Nelson, of the Oxford Internet Institute (who makes the final presentation of the opening day of the conference): this volume is a non-linear narrative best enjoyed in a hypermedia form (hence the accompanying CD-ROM and the post-it notes for your own annotation). Production schedules mean that our keynotes' papers generally appear in Volume 2 of the proceedings, this year published in <http://eWiC.bcs.org>, the emerging digital library of the British Computing Society, and Ted's own paper will appear there.

We start, as we should, with the 'H', with the human aspects and actions at the human scale. Fernaeus & Tholander (Sweden) discuss collaborative design using tangible interaction for children, while Read (UK) continues the child-centred theme, exposing usability flaws in digital ink for Tablet PCs, while identifying new opportunities for this emerging technology. Mohamedally et al. (UK) also report on the use of Tablet PCs, as well as the need for developers to use technology to mediate users' needs, describing tools that both permit lo-fi prototyping and allow designers to elicit knowledge from this process. This theme of listening continues with Strøm (Denmark), in the first of two contributions, who compares two other ways for software developers to listen to users' voices: stories and scenarios. We need smarter ways to engage with users and capture information efficiently for future use by developers and designers. At a more formal level of listening, Lumsden et al. (Canada) present a much-needed guide to using online questionnaires.

Of course, increasingly, users don't want to, or can't, articulate their needs, and design for ambient intelligence is a recurring theme in the conference this year. In this vein, Clerckx et al. (Belgium) take a step towards defining an integrated design environment for context-sensitive user interfaces, while Lonsdale et al. (UK) also look at awareness of location in a museum gallery space. Haywood & Cairns (UK) look at interaction in museums too, focusing on engagement and learning for children. Similarly, Mirel et al. (USA) help us understand complex, hard-to-elicited, needs, in this case of experts and how they use online models to carry out knowledge work and advise and create policy in e-government. Wong et al. (UK) also address our need for a much deeper understanding of usability in the public sector with a case study on the fitness for purpose of a public information kiosk for those most at risk

in society. Some of these issues resurface in Renaud's (UK) study of visuo-biometric authentication for older users (which hopefully all of us eventually become).

Centring on the human, means focusing on one part of our bigger picture at a time. Shifting focus and attention, and zooming out and considering the whole display are amongst the research areas in which the conference opening keynote, Dr Mary Czerwinski of Microsoft has a formidable track record. There is no-one more appropriate to launch our theme of the Bigger Picture, and her paper will also appear in *eWiC*.

Our 'C' might stand for canvas, composition or context, but perhaps culture is a more encompassing theme. The challenge for systems designers is to create solutions that continue to work across cultures. We can learn much about this by considering HCI's own various cultures and the different between theory and practice. From the other end of the earth, Plimmer (New Zealand) has a timely reflection on HCI's place amongst other disciplines, and in particular within a small country, and in the preparation of learners for practice. Bark et al. (Norway/Sweden) identify the techniques that Nordic HCI practitioners actually use, and how useful they find each. Smith et al. (UK/Sweden/Ireland) continue the global flavour, and reflect on the evolutionary state of HCI in India and the partnerships that foster development. Chen et al. (USA) literally track HCI's own evolution and relationships within itself, with a citation analysis of a selection of HCI channels. Social network analysis is also intrinsic to Bonhard & Sasse (UK) with an HCI approach to the design of recommender systems, while Riegelsberger et al. (UK) continue this search for expertise, examining the relative richness of different interaction media and how this affects the degree of trust in advisers' expertise.

Three papers, linked by the theme of cultural dimensions, complete this section. Emotion and values are central to Dormann's (Canada) analysis of Web design, and she detects the position along Hofstede's MAS dimension of homepages in different countries. Strøm's (Denmark) second contribution compares interaction design decisions made in a low-income traditional country and in a high-income developed one, and identifies how to take different cultures' views of privacy and honesty into account. Ford & Kotzé (South Africa) concludes this section by finding limitations in cultural dimensions and identifies additional variables to take into account.

"What does the 'I' stand for anyway?" was a (very) early morning question from Dan Diaper at HCI2004, and a stimulus to our hermeneutic approach to the letters H, C and I. Certainly the answer includes Industry Day, the central day of the conference. At the time of writing we are just appearing on the operational horizons of senior industrialists, so cannot name our industrial keynotes here, but the strong formal industrial representation at British HCI conferences is an enduring and effective part of our tradition. Here, 'I' represents our home territory: interface, interactivity, interaction - aspects which other information technologists defer to us. Perhaps we take this for granted and forget that interface is where we often have the opportunity to hook stakeholders and keep their attention. It's the pixel level of our Bigger Picture. Every interface component has subtle shades of differentiation from previous elements, but the choice of the correct one provides the subtlety and shade required in analysis.

We start our rational disassembly of the senses (apologies to Rimbaud), with the haptic, and Raisamo et al. (Finland) contrasting detection thresholds for mouse and trackball, depending on the variation in either frequency or magnitude of feedback vibration, finding mouse and magnitude to be the most effective combination. We zoom in on the big picture with Jetter et al. (Germany) who extend existing table visualizations by introducing HyperGrid. The navigation of interaction space continues with Hansen et al. (Denmark) and MIXIS, turning a mobile phone with camera into a 3D navigation device. We then look at the interface's effect on the user: Awan & Stevens (UK) contrast the effects of static and animated diagrams in learners accurately assessing their acquired knowledge; Jacucci et al. (UK) find, in children's use of a tangible interface in video authoring, opportunities to exploit constraints to achieve creative outcomes. Juvina & Van Oostendorp (Netherlands) contrast the visual and auditory modalities for navigation support and find gender differences. Tzanidou et al. (UK), delve deeper into the visual in an analysis of web navigation and what this should mean for web design and e-commerce. Savage & Cockburn (New Zealand) report improved performance and reduced subjective workload with speed-dependent automatic zooming, while Hürst et al.'s (Germany) elastic audio slider provides intelligible audio feedback. Frauenberger et al. (UK/Austria) also focus on auditory interfaces, but use this to demonstrate mode-independent patterns of navigation.

As editors, we are especially pleased to welcome the final paper in this volume, the keynote address with which Professor Alistair Sutcliffe will close our conference. This is the first keynote that we have been able to include in volume 1 for several years and a testament to his organization and close involvement with the British HCI Group. This paper leads our community forward from this conference to face the grand challenges of the future.

This is the first return to Scotland for the conference this century, and the first since the Scottish parliament was restored. It coincides with a time when the contributions of the Edinburgh Enlightenment are widely re-evaluated. This period, roughly 1730-1780, coincided with enlightenments in other countries, but Edinburgh has a unique identity that still matters to HCI. This was a time when Scotland was free from the constraints of both church and crown, and before transportation, and then communication, enabled easy control from London. David Hume, Adam Smith and many others had space and time to think and could call upon the resources of four Scottish universities, as they formulated concepts fundamental to the modern world: economics, social sciences, affective components of technology and society. They were free to take a less orthodox view of the industrial revolution and to see the bigger picture of society — that people have a passion to achieve objectives, using whatever technology is at hand, and do so in a rich context of community, laws and division of labour.

The religious police of the time certainly found these ideas heretical, yet were unable to prevent a growing social desire for tolerance and an acceptance of the right not to conform to accepted wisdom. We hope our conference will share this mindset. Fundamentalist 'doctrines' have impeded the success of too many information and communication technology (ICT) systems but it's just as bad to simply identify a

failure to apply HCI knowledge. As HCI comes into maturity, pointing out what's wrong is no longer enough, we need to take responsibility for creating the climate for solutions to emerge. Each of this conference's three sub-themes are relevant: a deeper understanding of how the human body interacts with technology; taking a wide enough picture of the overall context and recognising the role of cultural factors in certain combinations of situations and people; at the character-level of our bigger picture — where actions and activities take place on a human scale, individually or in groups, and where technology offers part of the solution not the problem.

Tom McEwan, Jan Gulliksen & David Benyon

June 2005

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