

Interfaces

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British
HCI
Group
www.bcs-hci.org.uk



OPEN HCI



HCI... but not as we know it

 2007



Group communications

Andy Dearden

Spring is here and it's a time get NEW things under way. But before introducing new faces and images, I need to thank old hands. In particular, Greg Leplatre has been acting as the moderator of BCS-HCI News for nearly five years now, and has finally decided that it is time to step down. I am sure that every one of us has benefited directly from information gleaned from the jiscmail mailing list, so we owe a huge debt of thanks for Greg's quiet work behind the scenes moderating our mail each week. And remember "Don't ask what the group can do for you, ask what you can do for the group" – we need new volunteers to contribute to all our activities.

The new logo is rolling out and you will have seen it on publicity for HCI 2007 and CREATE 2007. We are also learning some of the pragmatic aspects of using the logo in different settings and on different scales (yes, even logos have to adapt to context!).

To remind you, the new (black & white version of the) 'full' logo is:



We call it the 'full logo' because the strap line 'A Specialist Group of the British Computer Society' is intended for a general audience, who may not recognise the acronym 'BCS'. For a simpler visual balance you may prefer our 'shortname' logo:



This works well when it is the main logo in text or on a website. But it may be problematic when it needs reducing as the text becomes hard to read.



For these settings, we have a simplified logo that omits the strapline: For example, when we are minor sponsor to conferences organised by others, we need to use the interaction 'blank' logo, as below.



As well as these logos, we have a supply of related logos that we can work with to link in our other communication assets. We even have a draft logo for future conferences.



So look out for our new image as we roll it out. Its next outing is likely to be on www.bcs-hci.org.uk, which is currently getting a face-lift and new content management software.



Editorial

John Knight

This edition of *Interfaces* includes some specially commissioned articles on Open HCI. What is Open HCI, I hear you ask? Well, it is a loose term for emerging technologies and roles for users – including but not limited to Open Source Software (OSS) and Web 2.0. As well as two articles on OSS, our regular contributors also discuss the challenges of Open HCI and the changing role of users. Furthermore, we have a report from a research project expanding interaction into the real world and also one on how even our research might benefit from more openness. Lastly, Rod McCall gives us some practical insights for using OSS tools in HCI design. So what are the challenges and opportunities of Open HCI?

- 1 Increased beta development processes. Rather than delivering one product, short release cycles involve users directly in beta testing and development, e.g. Google.
- 2 Increased user generated content. Rather than content being controlled and created for users, it becomes social capital but is also dependent on a critical mass of users for success, e.g. YouTube.
- 3 Self-organisation rules built into UI. For example, content is provided based on relevance to the user but also social interaction is moderated by technology.
- 4 Increased modularisation of UI allowing for Mash-ups and increased end-user programming enabled by open operating systems, e.g. Linux.
- 5 Multiple modalities mean that interaction with products and services occurs across touchpoints, which means that interaction has to be scalable and flexible including ambient interaction.



John Knight is a User-Experience Manager in the mobile communications industry. Before this he was Director of User-Lab at Birmingham Institute of Art and Design and has worked as a

freelance designer and researcher. John is also chair of IDEC4, which will be at NordiCHI 2008.

Contents

- 2 Group communications
Andy Dearden
- 3 Editorial
- 4 This issue's guest contributors
- 5 View from the Chair
Russell Beale
- 6 Deflections
Gilbert Cockton
- 7 To Google or not to Google
Alistair Edwards
- 8 User Experience for OpenOffice.org
Matthias Müller-Prove
- 10 To do or not to do: Usability in open source development
Lene Nielsen & Mads Bødker
- 12 Putting the C back into HCI
Rod McCall
- 14 Haptics in User-lab, BIAD, UCE Birmingham
David Prytherch
- 15 Experiencing design
Robert St Amant
- 16 User interaction with ambient intelligence
Marketta Niemelä
- 18 Cultural issues and the graphic user interface
Hsiu-Feng Wang
- 20 A passage to India
Andy Dearden
- 21 Introducing... The Interaction Lab at City University, London
Panayiotis Zaphiris and Russell J Sese
- 22 TAUCHI: Tampere Unit for Computer-Human Interaction
Roope Raisamo and Kari-Jouko Rähkä
- 24 *Interfaces* Reviews
Shailey Minocha
- 25 The BCS HCI Group response to *International Perceptions of the UK Research Base in ICT*
- 26 Profile
Janet Read
- 28 HCI Executive contact list

Interfaces welcomes submissions on any HCI-related topic, including articles, opinion pieces, book reviews and conference reports. The deadline for issue 72 is **8 June 2007**. The deadline for issue 73 is 15 October 2007. Electronic versions are preferred: MS Word, RTF, or plain text via email or on CD; but copy will be accepted on paper or fax.

Please send to John Knight, John.Knight@intiuo.com

To receive your own copy of *Interfaces*, join the British HCI Group by filling in the form on page 27 and sending it to the address given. PDFs of *Interfaces* issues 35–70 can be found on the British HCI Group website, www.bcs-hci.org.uk/interfaces.html

With thanks to commissioning editors:
Interfaces Reviews: Shailey Minocha, S.Minocha@open.ac.uk
Profile: Alan Dix, alan@hcibook.com

Photo credits: cover: Lancaster University.



This issue's guest columnists



Lene Nielsen is an assistant professor at the Center for Applied ICT, Copenhagen Business School. Her main interest is understanding users and how to communicate the understanding with a focus on the persona method.

Mads Bødker is post doctoral fellow at the Center for Applied ICT. Apart from the TYPO3 project, his research interests include critical/reflective approaches to HCI, theories about trust in technology and socio-cultural perspectives on 'users' in design.



Matthias Müller-Prove played a significant role in designing the user interface of the web editor Adobe GoLive before he joined Sun Microsystems to work on OpenOffice.org in 2002. He is now co-lead of the OpenOffice.org User Experience Project.

Matthias holds a BSc and Diploma in Computer Science from the University of Hamburg with special focus on human-computer interaction and the history of hypertext and graphical user interfaces.

<http://www.mprove.de>



David Prytherch is a Research Fellow in Haptics & Computer Interface Design for Crafts at UCE, Birmingham Institute of Art and Design, and an internationally renowned glass engraver/sculptor. Research interests include haptic (tacit) education; haptics in skill development, particularly in the arts; haptic implications in activity satisfaction; issues surrounding tool use and material embodiment; and development of inclusive interface systems to facilitate transparent access to creative processes for people with physical disabilities.



Dr. Marketta Niemelä is a researcher in the Human-Driven Design team in VTT. Her background is in psychology, computer sciences, and information systems. Her research focus is on user interfaces and interaction with ambient intelligence and ubiquitous computing systems. Her particular interests are in human-centred design at the system level for usability and acceptability.

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Dr Panayiotis Zaphiris is a Senior Lecturer at the Centre for HCI Design, School of Informatics, City University, London. He gained his PhD in HCI at the Institute of Gerontology at Wayne State University. Research interests in HCI span inclusive design, social aspects of computing, and issues related to the elderly and people with disabilities. He is also interested in internet related research including web usability, online communities, e-learning, and web based digital libraries.
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Russell J Sese is the Interaction Lab Manager at the Centre for Human-Computer Interaction Design of City University, London. He is also studying towards his MSc in Human-Centred Systems at City University. He got his BSc in Computer Science from University College London. His interests lie in social software and computer supported cooperative work. He is also interested in online communities, e-learning, and the web of data.
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Roope Raisamo is a professor of computer science in the University of Tampere. He has been doing research on human-computer interaction since 1995 and received his PhD in 1999. He specialises in multimodal interaction and constructive user interface research. Presently he is working on haptic interaction, multimodal information presentation, intelligent environments and multimodal interfaces for visually impaired children. Department of Computer Sciences, FIN-33014 University of Tampere, Finland

Contribute to *Interfaces*

Do you disagree with something in *Interfaces*?

Would you like more coverage of a certain topic?

Have you just completed a great piece of research that you want to share?

Have you been to a conference that you can report on?

Are you at the end of a project that the rest of the HCI community would like to know more about?

Have you read a brilliant book more people should know of?

Do you think your department has done great work and the HCI community would be interested in it?

If you would like to contribute to *Interfaces* please contact us by email john.knight@intiuo.com

The next issue deadline is **8 June 2007**.

Interfaces Competition Winners

In *Interfaces 71* we asked who was cited as the inventor of the mouse in Bill Moggridge's new book *Designing Interactions*. Two readers correctly identified Douglas Engelbart from the review. Rosemary Dale receives a copy of Bill's book and Syariffanor Hisham gets a copy of *Hertzian Tales* by Tony Dunne.

Issue 71 Competition

Win a copy of *Information Please: Culture and Politics in the Age of Digital Machines* by Mark Poster, pub. Duke University Press. Just answer this question: which university HCI lab was partly sponsored by Vodafone Foundation? Send your answer to John.Knight@intiuo.com

View from the Chair

A dash of source

Russell Beale

I'm a fan of some of the principles behind the open software movement. For example, open file formats allow ongoing retrieval of documents and data created years ago, without reliance on one provider to continue supporting it – and I still recall colleagues running a very ancient computer, praying that it would boot each day, since it was only on that machine that some old software would run that enabled them to access their hard-won data – and it had no export capability, so they lavished much care and attention on this decrepit box.

I like the principle behind group contributions to software development, building on the codebase of others, reshaping a system to meet individual needs without having to develop it from scratch. I like the idea of some free software – something for nothing is always appealing. However, I don't support calls for all software to go this way, or for open source to be equated with company-bashing. Many of the active developers of open source have day jobs to pay the bills – and they often work in developing software, for which they expect to be paid. For this reason, I'm in favour, in principle, of software patents, since they allow companies to protect their intellectual endeavours and provide jobs for people. But again, it has to be appropriate – I see a role for individual development that is not penalised by accidental infringement, for example.

Why am I mentioning open source? Well, it can hardly have failed to attract your attention that the group is beginning to rebrand, to better communicate its aims to a wider audience. As part of this, the group's website is in the process of change, in both look and feel, and, more importantly, in function and content development. The vision for the site is as a portal for HCI activities, providing support, help and information that is of use both to our community – active HCI researchers, practitioners, educators, commercial, not-for-profit, all-for-fun, and so on – and to the wider world. To achieve this, we have altered the model for content on the site, so that many more people can contribute news, events, articles, pages, resources and suchlike to the site without the direct intervention of the webmaster. This allows the site to evolve over time, with the webmaster providing direction and some measure of control, and the community contributing to its development. This means that it becomes, for example, a good resource for dissemination (ideal for those EPSRC proposals!).

UsabilityNews does a great job as the news service – so the site syndicates news content from it – but there is a need for a parallel site, the first point of call for HCI-related issues. To achieve this complex content management (and it is complex – events show up in a calendar, and expire after they have finished; news stories have a lifetime, whereas articles don't; the front page summarises all the new and critical information automatically) the system is built on top of an open source content management system, allowing us to install, configure and populate the site in a matter of hours, rather than months (and thanks to Mike Voong for doing this). But as we know, technology is not the solution – the site needs development in terms of content, material and pointers to useful stuff – please keep an eye on <http://www.bcs-hci.org.uk> and contribute what you can, when you can.

And talking of contributing, the HCI conference will be on us in the not too distant future. One of my regrets is that it used to be the annual gathering place for the community, where trends, gossip, research and beers were freely swapped, discussed and digested. For numerous reasons, many people feel that the conference is less relevant to them now – they haven't got a paper in, they don't want to travel to Lancaster, others won't be there – but this is actually changing. The conference is attracting more submissions (78 full papers, 11 workshops, nine tutorials are all currently in review as I write this), and a gentle buzz of anticipation is building: there are some interesting developments in the space, lots of people are actually intending to come (so they tell me) – it would be a shame to miss out. As a community, we are a diverse bunch – different interests, backgrounds, approaches, and so on, and we need a time to get together to share ideas, support each other, and generally reinforce our shared values. Up-and-coming students and researchers need the visible support and interaction with the more senior people, who in turn need to keep abreast of the developments in other groups, politically, and remain visible. HCI is the best UK opportunity to achieve that – missing it would be a missed opportunity. Well, I think so, anyway – if you agree with me, I'll see you there. If you disagree, do come along and discuss it with me ☺.



Russell Beale leads the Advanced Interaction Group in the School of Computer Science at the University of Birmingham. His research focus is on using intelligence to support user interaction. Before returning full time to academia and research in 2003, he co-founded, ran, or worked for various internet-related companies.

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Call for Participation

ISTAS 2008

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on Technology and Society

26 – 28 June 2008

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ISTAS is an annual international forum exploring
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Submission deadline: December 17, 2007

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www.youtube.com/watch?v=oy8gf049gio



Deflections

It's nearly all probes, so always be open

Gilbert Cockton

In a sunlit November 2002 Xerox PARC foyer, I shuffled post-its into CHI 2003's full paper sessions. Papers chairs Tom Erickson and Victoria Bellotti were actively involved, along with several associate chairs, providing knowledge of each paper. Alison Woodruff's intrigue at this process hardly distracted me, but had I thought aloud more for her, I may have realised I was less informed than I thought. Although papers pretty much ended up in the right sessions, I drew the hasty conclusion that we'd got full paper sessions that were 35% UIST, 35% CSCW and 30% other with too many dull safe controlled experiments. I later indulged in a General Co-Chair's flamelet. Tom responded with his unfailing diplomacy and understanding, suggesting politely and sensitively that I was mistaken.

CHI full papers sheep take time to separate themselves from the goats. Some claim that one in six CHI papers are never cited. Others enjoy a crescendo of citations over several years. This has let me steadily appreciate just how wrong I was to lay into the papers' chairs for allegedly overseeing acceptance of another predictable gaggle of safe undemanding CHI papers. Two have been very influential: Gaver et al.'s *Ambiguity as a resource for design* and the mob authored *Technology probes*, which I did notice when struggling to keep co-timed sessions on one programme page. Even though Bill Gaver co-invented the *cultural probes* from which technology probes were derived, I've only recently discovered a common lineage.

Artist-designer probes apply contemporary art's core philosophy of shaping understandings through audience response. Probes let designers admit to uncertainty and ignorance, freed from scientific expertise that knows more about context and usage purposes than users themselves. Good contemporary art should challenge: ambiguity is key to this, and thus to good probes too. What I can now see in these two papers, and the stream of related ones since, is a convergent symbiosis of approaches that are, in keeping with this *Interfaces* issue's theme, *open* to interpretation, and, consequently and vitally, *open* to user appropriation.

User appropriation drives Web 2.0's social computing. The openness of interactive digital media and the extensive editing tools shaped by the HCI community lets users shape on-line resources to their own ends. Thus *MySpace* quickly became *OurDemoTapes* independently of original sponsor purpose. I can also misappropriate by sharing my daughter's band's friendid=58376912 with you, so now it's *MyEmbarrassinglyProudDad* too!

Probes were introduced as a radical situationist intervention into the interaction design space. Technology probes moved beyond the user research of cultural probes to *in situ* designs such as Equator's *Drift Table*, letting users experience rather than just imagine unenvisioned potential uses. Even so, probes were still seen as specialised. I now wonder if the reverse is true, and that instead probes are the rule: the rest are exceptions.

Has any major internet success from e-business to social computing been anything but a probe? User-led shifts in design and business purpose underpin them all, despite the prescient interventions of giants such as Amazon, Google and

Yahoo. We now witness the perversely situationist capitalism of co-creation, where entrepreneurs genuinely do not know which specific purposes products and services will come to serve, or how, to what extent, or with what success. Effective co-creation, as with the Equator project's probes, depends on sensitive open empathetic reading of user activities and responses, extensive logging of usage (with data mining and reporting tools), and a willingness to constantly reshape designs, experimenting in a spirit of co-creation. This has reached the business mainstream. Last year's *Time* 'Man/Person of the Year' cover (December 17th) used a mirrored surface to communicate the arrival of *Outside Innovation* (Patricia Seybold, Collins, 2006).

So what isn't a probe? My recent alt.chi paper forms design quadrants from purpose (for you or me?) and scope (tweaking vs. innovating). So are probes designed for you (the user) or me (the creator)? Are they broadly innovative or narrowly tweaking in scope? My view is that they are innovative, but mostly for the creators (didn't Equator get more from the Drift Table than anyone else?) If I don't know what you (could) want or need, or how you will respond, how can I fully design for you? In public art there can be substantial elements of service, but the creator's curiosity generally predominates. This isn't a criticism, but something to celebrate as much as the professional designer innovating for your well-understood market need, inventors tweaking for imagined needs, and even HCI's staid engineering designers optimising for you via experiments on their minor tweaks. Probes are outnumbered three to one here on category count, but don't be deceived: in reality, we begin and remain in the probe quadrant most of the time. We need to revise and reshape all of our design and evaluation methods accordingly.

Gaver, W.W., Beaver, J. & Benford, S., 2003. Ambiguity as a resource for design. *CHI 2003*, 233-240.

Gaver, W.W., Bowers, J., Boucher, A., Gellersen, H., Pennington, S., Schmidt, A., Steed, A., Villars, N., & Walker, B., 2004. The drift table: designing for ludic engagement. *CHI 2004 Extended Abstracts*, 885-900.

Hutchinson, H., Mackay, W., Westerlund, B., Bederson, B. B., Druin, A., Plaisant, C., Beaudouin-Lafon, M., Conversy, S., Evans, H., Hansen, H., Roussel, N. & Eiderbäck, B., 2003. Technology probes: inspiring design for and with families. *CHI 2003*, 17-24.



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Exchange, a HEIF Centre of Knowledge Exchange. Gilbert is also a NESTA fellow, developing worth-centred approaches to interaction design.

To Google or not to Google

Alistair D N Edwards

I had my submission to HCI 2006 rejected. This is not going to be a moan about the quality of the reviewing and how unfair the process was; it was a hurriedly written paper and the reviewers quite correctly spotted its flaws. No, what I want to do here is to raise a long-standing doubt of mine about the review process of many conferences – including HCI: the anonymisation of submissions. I think anonymous submission is a pointless exercise that should be discontinued.

If a referee receives an anonymous submission, then they are in one of two situations. If the subject of the paper is close to their own research interests they are almost certain to guess its origins. In that case the referee may or may not allow their judgement to be influenced. If they are influenced, that might be in favour of or against the paper, depending on their relationship with the author. In this case the anonymisation has worked *against* the interests of fairness because the referee can submit a review which is biased, but pretend that it is not – because they had not been told the author's identity.

Alternatively the paper may not be in an area that the referee knows well. In that case they have probably never heard of the authors anyway, so a credited paper would be just as anonymous.

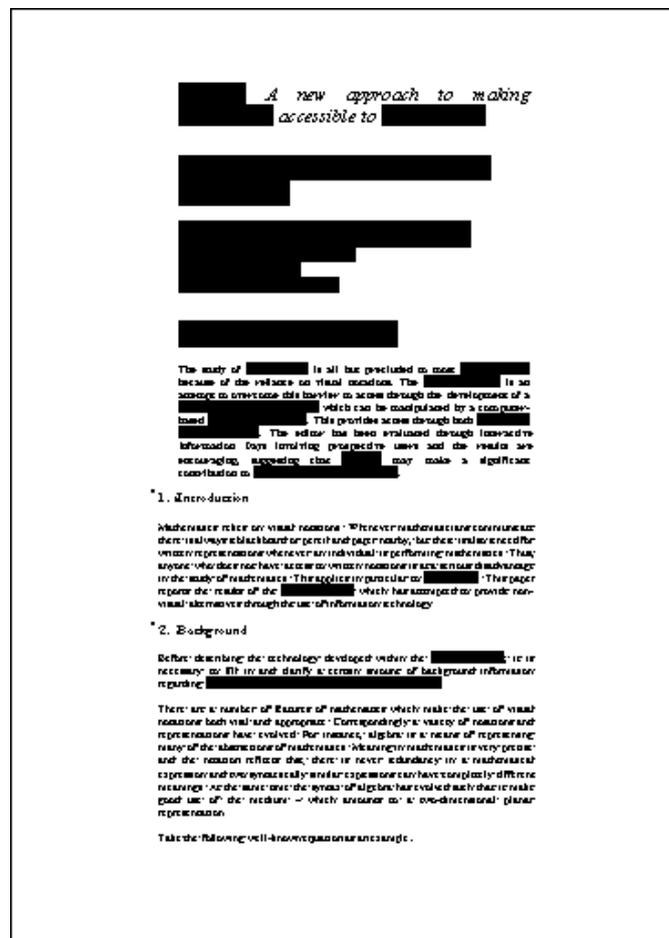
The pointlessness of anonymous review is illustrated by the *OpenConf* system, which seems to have become the most popular on-line reviewing system. It includes the following standard question for reviewers: 'If from reading the paper you know who the author is, how different is this from earlier papers on the same topic by the same author?' In other words, if you can guess who the author is (or think you can) then you should give a different assessment from a truly anonymous paper.

I was prompted to think about this again with my recent submission because one of the comments from one of the referees was that I had not been sufficiently diligent in removing all traces of authorship from the paper; I had left in the URL of the project's web site. That in turn made me think about how one would achieve true anonymity. In these days of the Internet and search engines, it is surely practically impossible. For example, not only should I have removed the URL, but I should not have named the project – for typing the name into Google would surely have immediately yielded the forbidden URL.

I went back to the paper and tried to remove all traces that could be linked back to its authors. The result of doing this to the first page of the paper is shown in the figure – and starts to resemble a document reluctantly released by MI5, not an academic paper aiming to spread knowledge.

Supposedly anonymous reviewing is frequently subverted. For instance, I have often read papers in which the authors have carefully deleted their names and addresses from the headings and then have inserted something along the lines of 'This work builds on our previous work, reported in [1], [2] and [3]', and there in the references are their names.

So, let us abandon these efforts at anonymity. We could start with the HCI Conference, but perhaps we could spread to the wider academic community. Is it too much to ask that the programme committee can rely on the integrity of the referees?



Another trend I think I have observed in refereeing papers is a lack of detail in references. When I was a research student my supervisor insisted that I must give sufficient detail in any reference such that a reader could obtain a copy. What has changed is the amount of information required to achieve that criterion. Once again, it probably only takes a few keywords and the first-named author and Google is very likely to turn the paper up, so why bother going to the trouble of finding and including all the details?

The demise of paper has long and frequently been forecast – and still has not happened. Nevertheless, there has clearly been a migration towards information sources being web-based. If it ever happens that all our sources become part of one massive hypermedia then I suppose standards of attribution and citation would inevitably change, but as long as we do use paper (and I think we will for quite some time) I would hope we could stick to the old standards.

And my paper? I re-wrote it with the assistance of the HCI reviewers' comments and I have had it accepted elsewhere (non-anonymous review).

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User Experience for OpenOffice.org

Introduction

Open source software (OSS) is a paradigm for developing software in a non-proprietary fashion by leveraging virtual communities of independent software engineers. Within these communities, software engineers share source code, contribute new features, and provide bug fixes and patches to a common code base. Eric S. Raymond provided the framework for OSS development in *The Cathedral and the Bazaar* by discussing the motivations and the social context of individual developers (Raymond, 1999). The first rule of open source development is also the reason for an inherent usability problem: "Every good work of software starts by scratching a developer's personal itch."

The result is a self-referential system – developers develop for themselves rather than for the average user or the target audience. Usability engineering is considered as a superfluous extra (cf. Nichols & Twidale, 2003). However, to provide a good user experience, it is the user's itch that needs to be scratched.

This article presents user experience activities in the context of OpenOffice.org. The author – co-lead of the User Experience Project – will discuss the status of building an open source community of usability professionals to improve the usefulness and usability of the application.

OpenOffice.org

OpenOffice.org is the leading open source office suite with about 85 million downloaded copies worldwide. Since Sun Microsystems open-sourced StarOffice in October 2000, OpenOffice.org has become available for all major platforms and has been localised for almost 100 languages. The real size of the community is hard to measure. However, there are 62,000 registered mailing list subscribers, and 720 organisations signed the Joined Copyright Assignment to actively support the project (Goldman & Gabriel, 2005, 131). One of the most important accomplishments is the development of the XML-based OpenDocument format (ODF) for text documents, spreadsheets, presentations, and drawing files. ODF became an ISO standard in 2006 and is further discussed by a technical committee at OASIS.

For many years Sun has sponsored a team of user experience professionals to work on StarOffice and OpenOffice.org. We have created a specification workflow process that governs the participation of engineering, quality assurance, user documentation and – last but not least – the user experience expertise for the development of each feature. Only when all representatives of the 'implementation team' (iTeam) agree on design and code, can the modification be integrated into OpenOffice.org's master build. The contributions of the user experience team are competitive analysis, dialogue and interaction design, UI terminology reviews, and in many cases writing the specification document. To that extent user experience is very well integrated into the development processes of OpenOffice.org.

In addition to competitive analyses, we conduct usability tests and perform site visits to distil overarching goals for the product. Despite the fact that these can be very time-consuming activities, they are necessary to bring us into a position to play a significant role in defining the strategy for the product. Speaking practically, user requirements can only be based on

actual user data, which is collected with usability studies and user research.

User Experience Project

Quite recently – in January 2007 – a new User Experience Project was approved by the community. The main objective is to consolidate usability activities that are currently scattered all over the project in concept documents, specifications, the bug-tracking system, newsgroup discussions, private email conversations, etc., and to create a visible and active open source community of usability professionals and interaction designers for OpenOffice.org.

The communication infrastructure has been rolled out: we have a home page, a wiki, a mailing list and an internet relay chat (IRC) channel for discussions. Furthermore, we blog on Sun's engineering weblog for OpenOffice.org.

The official home page is located at the subdomain ux.openoffice.org. The way this site is hosted makes it a bit cumbersome to grant wide write access in a way that fosters contributions. Therefore we use a wiki as a space that invites people to collaborate on topics that matter to improve the usability of OpenOffice.org. The third channel of communication is our mail alias. This medium is well suited to actually drive discussions because mail messages are literally pushed to the subscribers. Last but not least, blog postings to Sun's engineering weblog GullFOSS are tagged with 'user-experience'. They inform the entire community and have the potential to attract new members from the blogosphere to our project.

All this integrates seamlessly with OpenOffice.org's existing infrastructure, which makes us a good community team player. In other words, we do not require any special procedures to collaborate with other members of the community.

On the other hand, this might be the reason why it is so difficult for people other than engineers to approach and join an existing open source project. We are aware of this issue and try to be very clear about the scope of our project and how it is presented on the web.

Community building

According to Esther Dyson, there are four basic principles that need to be observed for any community to prosper (Dyson, 1998, 49). Otherwise the group can collapse. She says:

Each participant should be clear about what he is giving and what he hopes to get. Overall, those desires should mesh, although they may well be different for each individual.

There should be a way of determining who is in the community and who is outside it. Otherwise the community is meaningless.

Community members should feel that they have invested in the community, and that therefore it is tough for them to leave. [...]

The community's rules should be clear, and there should be recourse if they are broken.

To a certain extent, building a community *is* user-centred design. To choose to join and contribute, usability professionals who are interested in our open source project need to understand who we are, what we are doing, and how we communicate with each other. Therefore, user experience has an identity stated in a charter on our home page and expressed

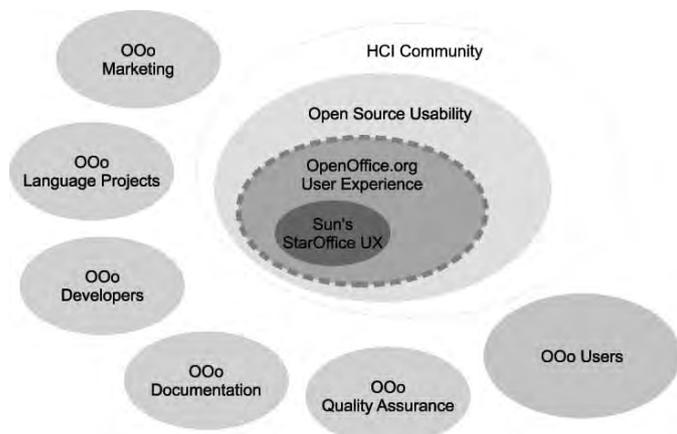


Figure 1 User Experience Community Outreach

with a logo on every page that belongs to us. A membership list on the wiki makes us distinct from a casual gathering, and a ToDo list – also on the wiki to foster participation – shows the current issues for the team.

Although we are in the early stages of building the usability community for OpenOffice.org, the future looks promising. Since our inception, the number of participants who have expressed interest in the project has increased by a factor of four. Thus, compared to Sun's user experience team of five usability experts for OpenOffice.org, the current project has 20 experts signed up. It turned out to be a good idea to announce our project at OpenUsability.org (Mühlig, 2006), because a couple of people signed up after OpenOffice.org was added to the platform and started looking for usability support.

Accomplishments and challenges

During the past five years the StarOffice User Experience Team has established a good reputation among the engineers and other stakeholders. Our contributions are rarely seen as unnecessary effort that slows down the development process; rather, they are viewed as an important element that improves the usability of the product for our users. A series of usability tests – conducted by Sun during the development of StarOffice 8 / OpenOffice.org 2.0 – has convinced even the sceptical engineers that we contribute valuable and actionable usability issues to the tracking system. In addition to the daily work on iTeams, the creation of application specific guidelines has started to keep consistency among the modules of the office suite.

Despite our usability work becoming part of the open source process, we must continue to ensure that the user experience team remains responsive and agile. As new people join the project, they bring new user experience objectives and methods to our team, possibly even shifting our focus. Integration of new views should be seen as a positive change that increases our ability to improve OpenOffice.org for the end user.

Compared to the open source projects NetBeans and GNOME (Benson et al., 2004; Benson 2004) four challenges remain:

1 A proper definition of OpenOffice.org's target audience is missing. User research might deliver scenarios and typical use cases, or even encapsulate site-visit data as personas supporting feature development. In general, requirements engineering is an area that needs more emphasis in the future to be well prepared for planning the next release.

- 2 Concept workshops can also be effective, especially if all participants are at the same location. If they are conducted in a remote situation, brainstorming sessions with fast concept scribbles cannot be applied successfully. This is a challenge for any work group, and a distributed user experience team is no exception. The upcoming OOoCon 2007 in Barcelona will be a good opportunity to fill this gap.
- 3 We are also looking for a collaborative, visual space to support a distributed team of user interface designers. As Bill Buxton said at CHI 2004, "a sketch without a social life is not a sketch". Some kind of electronic cork board is needed to expose mockups and future design studies to foster innovation among the user experience team (cf. Goldman & Gabriel, 2005, 274) and to stimulate the attention of OpenOffice.org's engineering and steering committees.
- 4 Finally, the specification process needs to be adjusted to allow open source participation. An additional wiki version of the specification template is a step in this direction.

Summary

The user experience community is a newly formed team with a growing significance for OpenOffice.org. We collaborate with the existing teams like marketing, development, QA – just to name a few – to improve the usability of the office suite. On the other side, we are still in the early stages of building the community itself; hence we have to continue to attract usability professionals to the project and to incorporate their points of view.

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To do or not to do

Usability in open source development

Introduction

During 2006 we launched a project that initially aimed at improving the usability of the Open Source Software (OSS) content management system TYPO3 (see box). The main aim of the project was to improve the user friendliness of a forthcoming iteration of the system by introducing usability concepts to the developer community. This proved to be quite a challenge and looking back we found three areas that prevented the inclusion of usability perspectives in the development process: the OSS community's 'culture of doing', the OSS ideology, and finally our role as researchers which emphasised differences in understandings of praxis.

The usability project

The usability project fell in two distinctively different interventions: understanding users and introducing heuristics. The interventions took place in the context of an HCI discussion list (the TYPO3 HCI community), set up to officially indicate that an initiative directed at improving TYPO3 usability was in progress [1]. Beforehand, we had decided that our role was to be interventionists, focusing on generating understanding in the community of the differences among end-user and use situations.

Before the first intervention – understanding users – we gathered data that allowed us a preliminary understanding of the end-users' problems with the system. Data consisted of observations and meetings with actual TYPO3 users, documented on video. In the first intervention, we asked the TYPO3 HCI community to investigate their users and share their knowledge with the other participants in the community. The aim was to create end-user personas intended for use in the distributed development process. Contributions were sparse and only a few provided user descriptions. Descriptions were too few to allow for plausible persona descriptions. This made us close down the project and begin our second intervention.

The second intervention was an introduction of a set of usability heuristics developed specifically for the TYPO3 CMS. The aim was to provide the participants on the HCI list with a common vocabulary for usability, supposing that having some form of contextually relevant knowledge of usability, equally available to all developers, would set reflections upon end-user issues in motion. The motive for using high-level usability heuristics (such as consistency or 'recognition rather than recall') is obvious: in a design process, you can generally assume that users will need some form of consistency for the system to be user friendly. This intervention failed as well, since the developers did not consider any of the heuristics in their discussions on solutions.

Meanwhile, discussions on the HCI list continued, even if not in the way we had planned or hoped for when we initiated the project. Discussions were centred on finding solutions to well-described problems, without considering end-users. Today the HCI list still exists; discussions are not as frequent as in the beginning, but they are still focused on solutions. A recent example is the discussion on 'A new approach to a less frightening start with TYPO3' (8 February 2007). The discussion in this thread aims at redesigning the interface, but

The TYPO3 system

TYPO3 is a widely used Content Management System (CMS) under an Open Source licence. The system is aimed at small organisations as well as huge companies (see www.typo3.com). TYPO3 has been publicly available for five years, and currently has approximately 320 active contributors.

Participants in the TYPO3 community have never signed up for a formal membership. Rather, it consists of people who join the TYPO3 mailing lists, newsgroups and more formal groups, for example the R&D group and the Core development group. The community is organised in several subgroups and communication takes place in discussion lists as well as in occasional physical subgroup meetings. The discussions seen at the TYPO3 community (see the typo3.org website) are generally oriented towards the implementation of extensions to the system, or bug fixing.



Figure 1 The backend part of the TYPO3 CMS system

problems and characteristics of inexperienced users never turn up in the discussion.

Culture of doing

As previously mentioned, introducing concepts of usability and, more broadly, an understanding of and empathy with users, into the OSS development community proved to be a challenging undertaking. Retrospectively assessing our interventions, we find that the development community is committed to functional problem solving – looking for solutions to well-defined problems. This approach is at odds with current usability methods that focus on understanding problems.

As Weber points out, there is a satisfaction to be had in solving one's own problem and solving someone else's problem as well [2]. What guides the developers' practice is not applying abstract ideas, but proving one's worth as a practitioner. OSS development is a zero-sum game where the provably best piece of code is adopted into the system while the less functional ones are abandoned [3]. This could be seen in the TYPO3 HCI community that we followed, as an obvious meritocracy – a hierarchy of ability: those who could come up with functional solutions to well-described problems were lauded, while 'talkers' or those who committed themselves to more abstract discussions were ridiculed or ignored.

End-users, from the point of view of the OSS developers, constituted a relatively abstract entity with abstract problems. Since the developers did not identify end-users as part of the



network they were involved in, they did not recognise their problems.

Ideology

Apart from the culture of doing, the OSS ideology of sharing and transparency was also challenging. The OSS ideology seems to rely strongly on classical democratic tropes of sharing and equal relationships between peers [4]. OSS is by definition developed 'con amore' and with no direct economic incentives. Hence there is no perceived obligation to have any kind of empathy for those outside the loosely coupled group of developers who share knowledge, skills, values, and vocabulary. Therefore sharing and transparency are attributes that are at work within the community of developers themselves, not something that is related to end-users. In short, we can say that the open source incentive structure and the non-hierarchical community arrangement, as well as the strong sense of emotional belonging that the community commands, tends to preclude the possibility of seeing beyond the developers' own motivations. As Eric Raymond, states "Every good work of software starts by scratching a developer's personal itch" [5], p. 23.

Some of the central posts on the HCI list (those generating the most discussions) were indeed concerned with issues about why OSS developers should develop for 'users' (meaning here end-users) since what they do is essentially for free and since they do it simply because they enjoy programming. This was reflected, for instance, in HCI list postings along the lines of "a core developer has no responsibility beyond his personal motivation" (13 October 2006) or "why it is unnatural for everyone to scratch one's itch" (12 October 2006).

In this way, the community ideology itself presents a challenge to the introduction of user-centred thinking – there is simply no obvious incentive.

Cultural differences

As researchers, entering the community with an academic pedagogic tradition, our intention was to 'raise the bar' in thinking about end-users, with the hope of inspiring the development of more user-friendly iterations of the TYPO3 CMS. We wanted the developers to reflect and deliberate on the fact that there are end-users who use the system, and that end-users are most often different from developers. 'Reflect' and 'deliberate', however, did not fit well with what De Jooode has characterised as the practice culture of OSS [3]. Furthermore, we can attribute our problems in stimulating a more user-centred approach in development to our own inability 'to do' or to explicitly show how user-centred design can be done.

As we turned our intervention strategy towards the HCI list with the hope of intervening directly in the preferred communication medium of distributed OSS development communities, we expected that we could generate a shared understanding of end-user needs and problems. However, attempting to facilitate a discussion about end-users in the forum reiterated the challenges inherent in what we, and others, have identified as a 'culture of doing'. Our intervention was based primarily on providing developers with usability concepts and heuristics

that we supposed would enable them to better identify and articulate problems that users might experience with their product. As researchers, then, we saw the list as a medium to facilitate discussions, but the developers used it as a place where concrete problems could be identified, solutions proposed, briefly discussed, and then applied.

Assuming the role of researchers restrained us from participating actively in the 'culture of doing'. Judging by the way the developers consistently ignored our heuristics, our 'rules of thumb' were perceived as useless. We did not adequately suggest practical implications of the heuristics to solutions that the developers proposed, but left them to make their own inferences from our brief introduction of common usability heuristics.

Conclusion

The extent to which Open Source Software has encouraged end-users into development processes has, traditionally, been quite insignificant. While bug reporting and functionality requests do imply 'users', these are often found or recruit themselves from within the development community [6]. The usability concept of users, traditionally conceptualised as the (non-expert) end-users of finished products, has had no serious impact on the OSS development community. Our interventions did not alter this condition, but they did disclose how the OSS community is inclined to value functional problem solving over abstract notions of users. A post on the Extension Coordination Team list expresses the problem-solving nature of development candidly: "Some projects will be successful and produce results. Other projects will silently slumber until some people take them up again and to produce results. TYPO3 is a 'meritocracy'. Activity and results are the measures". (17 July 2006). Intervening in a community that values results over abstractions demands that usability experts make themselves meritable in a way that resonates with the community. If usability wants to have an impact on the future of OSS development, it must participate in the 'culture of doing' and not just communicate understanding of problems.

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Putting the C back into HCI

Introduction

If there is one thing I have noticed about HCI it is that it is often possible to have a lot of (seemingly) nice ideas, but it is sometimes a little more difficult to explain these ideas to other people, and trying to get the 'others' or developers to build what you ask for is sometimes about as much fun trying to get British Airways and Iberia to find the luggage they so kindly lost for you. It was with this in mind that at the start of my ERCIM Fellowship I decided to start building some of the ideas which I was prattling on about – after all, given some of my demands on developers in the past, it's only fair! Don't worry, this article will not delve into actual programming but will rather take a brief look at the open source solutions which are available to help you create prototypes and even full systems with relative ease.

Over the years when the need arose I have tried a variety of programming languages; however, I had largely deserted the world of hardcore programming so I decided it was time to start with an almost clean slate and look around for something which:

- 1 can interface with a range of technologies from speech recognition through to 3D graphics;
- 2 has a simple and intuitive language;
- 3 is free, preferably open source and has a range of free libraries;
- 4 is suitable for rapid prototyping, and finally
- 5 is easy to learn and use.

I also had no desire to use multiple languages, for example C++ for one task and Java for another. After much looking around, Python seemed to be the obvious choice; what's more it's cross platform and building executables is quite easy. Python, unlike other proprietary systems, also has the advantage of outliving any one vendor – if developer tools company X goes bankrupt you can often find yourself stuck. With Python if that occurs and you are using a commercial IDE you can simply move to another vendor or a free equivalent.

Python environments come in various forms from the totally free which you can download from www.python.org and the free Stani's Python Editor IDE through to commercial IDEs from the likes of Wingware (www.wingware.com) and Active State (www.activestate.com). ActiveState also provide a free online cookbook which has a wealth of very useful timesaving examples. If you are intending to build a prototype which works with multi-user or multimodal input then Stackless Python (www.stackless.com) can make implementing such systems much easier.

GUIs

Most of the free GUI building tools in Python are (unsurprisingly) not quite as polished as the commercial offerings. However, that aside, the free tools are OK for most tasks and if you are feeling brave then writing the code manually leads to more innovative interfaces. Moreover, there are a range of GUI toolkits available which means you can find one that matches

your needs, these range from the free cross platform wxPython (www.wxpython.org) through to QT (www.trolltech.com), which offers both GPL and commercial licences. There are also more specific ones for use in games environments or to develop multimedia application (discussed later). To date I have found wxPython more than adequate for most tasks.

Games and multimedia

For simple 2D games PyGame (www.pygame.org) provides a nice wrapper which could be useful for rapid prototyping. Although I have not tried it myself, I believe you can create games which feel like 3D using PyGame and some other free software. For real 3D games we will turn now to Crystal Space (www.crystalspace3d.org), which is an open source games engine. Although written in C++ you can use most if not all of its features from within Python, thus avoiding the need to write a single line of C++. Moreover it works well with the Cal3D character animation library (<https://gna.org/projects/cal3d/>). If something a little more integrated is what you are looking for you could do worse than try out Panda3D (www.panda3d.org), which is a joint project between Disney and Carnegie Mellon University. Panda3D, while not as advanced as Crystal Space, is designed to have the lowest possible learning curve and let you create games quickly; having played around with it myself it is quite fun and you can produce some 'interesting' results.

If you are looking to build interactive installations on Linux or Mac machines then you could do worse than take a look at LibAVG (www.libavg.org). By its own definition this is a high performance multimedia environment based on XML and Python for scripting. It provides an alternative to Macromedia Director. As you have access to a full programming language and also the benefits that Python brings, it should be possible to create innovative multimedia interactive installations which utilise a range of devices... what's more if you stick to the open source libraries it won't cost you a penny to do it! Take a look at the website for some examples of LibAVG in action.

Collaborative systems

In case you didn't know, the popular BSCW collaborative environment (www.bscw.de) is written in Python, so that perhaps gives you some idea as to what it is capable of. In my case I was given a slightly easier task of creating a real-time collaborative tool which would let people view the overall level and type of work that was ongoing within their group via a range of simple visualisations. The intention was also to extend the system over time to include features other than just visualisation. It had (as far as possible) to integrate in with your existing applications, for example being embedded in the Windows Desktop and at a later date within various Office applications. By utilising a range of free and open source solutions I was able to substantially reduce the time to develop the prototype. Firstly there was a need to provide a communications backbone which would let the users send and receive information about their group's work patterns. It would have been tempting to develop an entirely new server platform; however, this need was avoided by utilising the Jabber (XMPP) instant

messaging platform (www.jabber.org). This system is like any instant messaging platform in that you can control who logs in, as well as the nature and type of messages sent, and thus it provided an ideal way to send the visualisations using the SVG graphics format to any computer. As SVG is an XML-based standard, Python is more than capable of parsing and generating such things, so all that was required was either a message containing simple dimensions of the object or the actual SVG/XML itself. Also the Win32 libraries meant that with a few lines of code it was easy to embed the visualisations into the Windows desktop and these would run in the background with little or no user involvement. The only server which was built was used to send and receive information from the group database. This was easily implemented using MySQL and a Python library. Also by customising standard chat clients such as GAIM it is possible to provide new features (such as visualisations) inside a tool which people can use along with their everyday chat systems like MSN and Yahoo – thus avoiding the need for them to download and install multiple clients.

Interesting interfaces

More recently I have become involved in writing location aware mixed reality agents which store and share their own and others' thoughts. For this I needed to implement speech input and output, a data model as well as a way of processing the natural language dialogue – many aspects of the mixed reality environment have already been built within the Morgan framework. The system is far from being completed, although you can chat with the agents about the Cologne cathedral, and it in turn will share its own thoughts as well as those from

previous visitors. Again, thanks to the excellent range of libraries and wrappers available in Python, this task was not too difficult (although ask me again in a few months and I may have changed my mind). For example the parsing of natural language is carried out by MontyLingua, although I am also exploring NLTK-lite. The speech interface was very easy to implement thanks to the Microsoft Speech SDK which can be accessed from Python. Also if you are looking for a single user alternative to MySQL then SQLite which is totally free is a worthwhile alternative.

Final thoughts

I hope this column has not been too far away from the usual world of HCI; however, the main point of it was to illustrate that with the correct tools it is possible for even the most theoretically minded person to try out some of their ideas quickly and easily. I am not suggesting we all suddenly become programmers, rather that you can achieve a lot with what is out there, and that for the most part it is quite fun to play around with your thoughts, for example having strange conversations about Cologne with your computer. It also focuses the mind a little more on how to take your ideas forward and, in many cases, doing that is not as difficult as you may have thought.

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BCS-HCI 2007 21st Annual Conference 3–7 September 2007

Things are hotting up in the organisation of this year's annual HCI conference, the 21st birthday bash, to be held at Lancaster University UK, home of InfoLab21 and gateway to the beautiful Lake District. The theme of this year's conference, *HCI... Not As We Know It*, reflects the rapidly changing nature of the technologies and activities that constitute the domain of HCI. Already the programme for the conference has some exciting highlights, including three keynote speakers:

Stephen Payne, Professor of Interactive Systems Design in Manchester Business School, UK, internationally renowned researcher into the psychology of human-computer interaction, currently researching on-line information, multi-tasking, and social effects of communications technologies.

Elizabeth Churchill, Principal Research Scientist, Yahoo! Research, USA, leading research in the area of Media Experience, social aspects of interactive technology design, sociality on the Internet, mediated collaboration, mobile connectivity, transmedia technologies, and the development of enplaced media spaces.

Jared Spool, CEO and founding principal of User Interface Engineering, USA, leading recognised authority on user interface design and human factors in computing, also a regular tutorial speaker at the annual CHI conference.

More conference news on page 17 ...



Why haptics?

So... why haptics, then, and more particularly, why haptics in a usability laboratory? From my viewpoint, it has to do with what I understand haptics to be. Haptics is more than just the study of touch or an understanding of the neurology of skin, or force feedback computer interfaces, or computer algorithms that simulate interactions in the physical world. Haptics has to do with the fundamentals of perception, a subject as we all know that is fraught with controversy and conflicting theories. The point is, I believe that perception is not something that happens just in the brain. It is, as Alva Noë points out, something that we *do*. There is an activity, a purpose to it and it is fundamentally bound up with the actions of our bodies and how we feel about the world around us.



"The Gossips" from "The Journey", a one man show by David Prytherch at the Jeanette Hayhurst Gallery of Fine Glass. London, 1990. In the permanent collection of Broadfield House Museum of Glass, Kingswinford, West Midlands.

My background consists of 30 years as a professional practitioner in the applied arts, particularly in the sculptural and architectural application of diamond cutting and carving techniques to glass. Now this is, admittedly, a somewhat abstruse sort of art involving some fairly radical processes and requiring a particularly finely tuned sensitivity to haptic feedback. When you do it, however, you take it for granted. This, I've discovered, is a prime characteristic of an activity in which haptics is central. Following a serious road accident late in 1986, I was initially unable to pursue my usual practice at all. I was left with an apparently permanent disability that makes such physically demanding processes difficult to engage with for any length of time and an interest began to develop in the potential of computer systems to compensate for this and allow increased access to sculptural processes via virtual simulation.

Early experiences with the commercially available computers of the time were disappointing and it quickly became clear that a purely visual representation of the object being produced was not only unsatisfying in its representation, but, in some way, the most significant process information was simply not present at all. This resulted in a loss of interest in the sculptural object being worked on, leading to a loss of creative



AHRC Workshop on 'Touch and Object Handling'. User-lab, BIAD, UCE, Birmingham, 1 December 2006

impetus within the process, a situation that rarely occurred in the real world. Further experimentation with a variety of 3D modelling software packages did little to improve the situation.

Initially this was puzzling since the visual aspect of the work being produced had always seemed paramount; however, subsequent reflection on this unproductive situation brought about an epiphany. I had always been rewarded in my professional practice by feelings of satisfaction so indicative of the richness of 'real-world' experiences and this seemed more to do with the progress of the process than the finished object itself, though a good object clearly brought this satisfaction to a fitting closure. The comparison of this rich and deeply satisfying 'real-world' experience with the paucity of such satisfaction within the computer-based process brought the realisation that this fulfilment arose via the senses. Furthermore, it appeared to arise primarily as a result of the operations of the haptic senses, since haptic perception in this virtual context was confined to the author's perception of the operation of the mouse and keyboard, rather than the work itself, as was usual in the real world.

My shared experience of the significance of this type of satisfaction feedback suggested that this was typical of other artists' and makers' fundamental motivation also and so began a personal programme of research to investigate and define the links between creative satisfaction in art making processes, fundamental motivation in tacit skill development and the operation of the haptic senses.

I'm hoping, that by now, the observant amongst you will have noticed that what I've been describing here could almost equally be used as a description of a definition of usability. Usability studies look at the most important factor in the interaction between human and object. Whether that object is a computer being used for 3D modelling or web browsing, or a stereo, or an electric kettle, the same things are still important. The experience of the person using it must be good. They must be able to use the object effectively, comfortably and, I believe most importantly, in a highly satisfying manner, and the best way of learning about this is by studying, observing, and most



importantly listening to the views of the user.

Which brings me back to where I started... I spent 30 years working at a very abstruse and not necessarily always well-paid, but highly skilled, activity. I did this largely for the pleasure it gave me and this pleasure arrived via my haptic system. It felt really good! I believe that this is why haptics research belongs in the centre of usability studies in general, and HCI in particular. HCI is all about making the technology work better for us and that to me, is all about how the experience of it *feels*. (I include in that notion of the word, how it feels to be looking at it or listening to it, incidentally.) Here in User-lab, we've finally reached a position where we have a good range

of equipment, software, and observation and recording facilities to study these and many other questions about usability, perceptual processes, design processes, creativity, quality judgement and what links them all together. Most importantly, we have a broad and eclectic skill and experience set within our new team and an eagerness to both learn and inform. I'm really looking forward to the next few years!

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Experiencing design

Robert St Amant

As visual creatures, we are intensely aware of spatial relationships, including their aesthetics and function. In *Towards a New Architecture*, Le Corbusier writes,

The Architect, by his arrangement of forms, realises an order which is a pure creation of his spirit; by forms and shapes he affects our senses to an acute degree and provokes plastic emotions; by the relationships which he creates he wakes profound echoes in us, he gives us the measure of an order which we feel to be in accordance with that of our world, he determines the various movements of our heart and of our understanding; it is then that we experience the sense of beauty.

In user interface design, while aesthetics issues are important, they are secondary to more mundane functional issues: we would like to steer users along paths appropriate for the activities supported by the software. We work with the order and grouping of objects, their alignment and size, and the white space between them. Often, we would like users to find the visual arrangement of a user interface as familiar as the rooms they walk through every day (on a large scale), or as comfortable as a well-designed physical set of controls (on a smaller scale).

Of course, controls in the real world are not always designed well, especially when mechanical systems are upgraded to be controlled electronically. The user may face a row of identical buttons, with little idea about which button does what:

I live on a family farm. A few years ago we bought a new tractor that was supposed to be the nicest and most modern one on the market. When you sat in the seat, there was a row of eight switches to your right. Each switch was labeled with an 'I' on one side and an 'O' on the other. These switches made using the tractor almost impossible. At night you couldn't tell what was turned on and what wasn't until it was too late. On several occasions, machinery got torn up because new drivers weren't used to what the switches did. We ended up trading in the tractor for one that has mechanical instead of electronic controls. The new tractor has levers organised in a more logical way, with different sizes and colours so you can tell them

apart. This design may not be as high-tech but it's a lot more user friendly.

A 'more logical' design might rely on symmetries in spatial mappings, as I wrote about in a past column: working a lever on the left controls an attachment on the left of the tractor; pushing a lever downward lowers a tractor attachment to the ground. But in other cases, even for seemingly simple systems, users may need more information than the layout of controls provides:

At the airport in my city there's a machine for validating parking tickets. It's pretty confusing to use. The slot to insert your ticket to pay for your parking spot looks a lot like the slot to insert your credit card, which also looks a lot like the slot where you can put in cash. There are labels on all of the slots, but the slots themselves aren't arranged very well – you can tell this because there are numbered arrows winding from one slot to the next to help you figure out the order to do things in.

Sometimes mechanical constraints may force compromises in the usability of an interface, though it's easy to imagine that such constraints were put in place before usability was considered (if it was considered at all).

As with many real-world design problems, there are straightforward implications for interface design. The spatial layout of an interface should ideally reflect a simple progression in a task that the user is carrying out; functionality and the relationships between controls should be visible by inspection. These are obvious considerations, but they are sometimes neglected even in simple user interfaces.



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User interaction with ambient intelligence

Two project examples

Introduction

Ambient intelligence (AmI) refers to invisible computing that is embedded into the environment, thus providing versatile information and services to users whenever needed, without disturbing the user but allowing natural interaction such as voice and gesture. Ideally, AmI interactions between the user and the system should be natural and intuitive (e.g. ISTAG 2001, 2004); especially if the opportunities of such technology are to be realised. Our vision for AmI interaction scenarios includes using expressions, movement and presence as well as large displays.

Applying and combining these interaction technologies in a way that people feel is natural and are comfortable with is a difficult task. In order to realise the benefits of AmI the NASE project was set up by VTT in Finland. VTT is a government funded research centre in Finland and the deliverables of the project included designing an easy-to-use tool for building simple interactions for personal applications. The first realistic platform for everyday AmI applications is probably the mobile phone (e.g. Abowd et al., 2005) as there are over a billion personal mobile phones in the world. Their small size lets people carry them everywhere and this makes it possible to gather profile and activity data as well as deliver information relevant to the time and context. In addition, the wireless local networking capability of the mobile phone allows for interaction with nearby devices. VTT also sponsored the MIMOSA project through which a vision was developed of the user experience for mobile AmI devices.

Mobile device based interaction

MIMOSA¹ (the Microsystems platform for MOBILE Services and Applications; 2004–2006) highlighted the role of the mobile phone as the user's gateway to AmI services by developing an open technology platform for mobile phone based AmI services and applications. The platform is based on wireless sensors and RFID technology, and integrates readers for RFID tags and sensors (for further information, see Kaasinen et al., 2005). The MIMOSA approach aimed to provide the users with a smooth transition from current mobile services to AmI services.

The MIMOSA project envisioned AmI as including everyday objects and surroundings embedded with RFID tags and sensors. The user is able to read different information and

sensor measurements from the world with a reader integrated in the mobile phone. An RFID tag (or a sensor) is activated for reading when the user touches or points at the tag with the mobile phone. *Touching* means selecting the link by bringing the terminal very close to the link, and *pointing* is a directional long-range selection method, analogous to a TV remote control (Välkkynen et al., 2003). The information transmitted to the mobile phone can be any digital information, such as a poster (Figure 1a) that has RFID tags embedded in it.

The evaluations of the MIMOSA vision with users and domain experts have resulted in user requirements for mobile-centred AmI architecture (Kaasinen et al., 2006). In particular, we have evaluated the usability of touching and pointing and explored the preliminary conditions by which users choose between touching and pointing (Välkkynen et al., 2006). For this purpose, we built a prototype system that allows the users to touch, point, and scan for tags in the nearby environment (Figure 1b).

In the evaluation, we found touching and pointing useful and complementary selection methods; that is, they are used in different situations and optimally both selection methods are available to the user. Pointing is preferred with both visual feedback and insensitivity to aiming errors, which may require a combination of different pointing technologies. Touching without button presses or other extra actions is an effortless way to select objects, but a confirmation or using an extra action makes touching feel more secure and reliable. The development of mobile phone centred AmI continues in project MINAmI² (2006–2009).

Building simple interactions for yourself

In the long run, AmI aims to create more intuitive interfaces and interaction methods than perhaps can be provided by any single interaction device. One promising viewpoint is Tangible User Interfaces that couple digital information to everyday physical objects and environments, and so turn the world into an interface (Ishii & Ullmer, 1997). For instance, Tangible Bits makes digital bits graspable and accessible through the physical environment by associating the bits with physical objects.

Our approach to natural interaction in the NASE³ project (Novel Affordances for Smart Environments; 2006–2008) is to develop a tool with which a non-expert person, an 'application

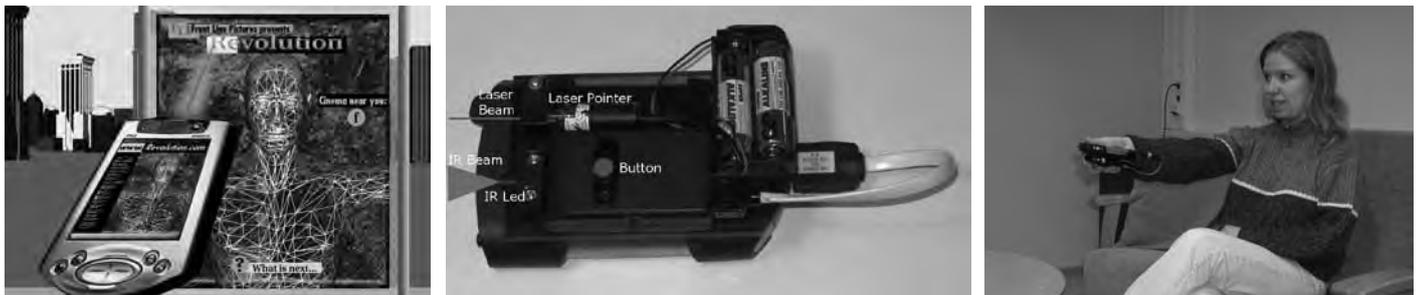


Figure 1 (a) Pointing at a tag in a movie poster (left). (b) The prototype for testing touching and pointing with users. The system included an iPAQ 5450 with an integrated tag reader and tags (middle). (c) A test user pointing at a tag (right).

¹ A project of IST FP6 of the European Community. Web site: <http://www.mimosa-fp6.com/>

² A project of IST FP6 of the European Community. Web site not available yet.

³ A project of VTT Technical Research Centre of Finland. Web site not available yet.

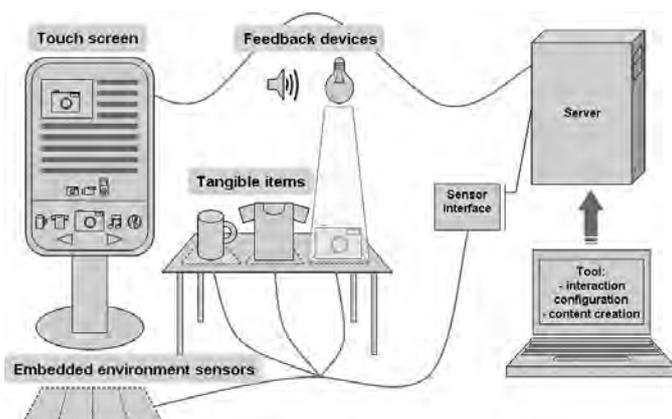


Figure 2 An example application connecting everyday objects to digital contents and different feedback.

developer', can easily create simple tangible interfaces for his or her needs and context. The tool allows the application developer to easily connect different tangible and other interaction technologies to each other and to different contents.

In the vision of NASE, the application developer can augment everyday objects with sensors, with which the object can 'recognise', for instance, proximity, approaching, and touch of a hand. This sensor data is associated by the tool to a feedback in the object itself, in another object, or in the environment (Figure 2). The feedback can be visual (change of lighting or image on a display), auditory, or tactile (e.g. shaking of the object). The feedback can also be a change in a state of a computer or a mobile phone. Any digital contents – whether produced by the application developer, existing information, music, or other forms of contents – can be related to the interaction created.

Conclusions

MIMOSA and the current MINAmI project let the user be in

control over the interaction with ambient intelligence with a personal interaction device. NASE takes a view that end-users and domain experts know their needs and they are thus provided with the potential to create their own ambient intelligence interfaces, applications and services. This approach will be evaluated with different stakeholders during 2007. Based on our experiences in both projects, we believe that ambient intelligence that emphasises the user's control over the system will be accepted well by end users.

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The full papers have been reviewed, and with 78 submitted, conference attendees can expect a full programme of high-quality cutting-edge presentations from leading researchers and practitioners. The social programme includes a superb conference dinner at a beautiful Lake District hotel overlooking Morecambe Bay, a Ceilidh and sponsored drinks receptions.

The conference co-chairs (Tom Ormerod and Corina Sas) are delighted to announce that they have secured generous sponsorship from Sony Ericsson for the Doctoral Consortium. Students currently undertaking doctoral research in HCI are invited to apply for funding to attend the doctoral consortium at the conference and give a short, critiqued presentation of their ongoing research, benefiting from feedback from a panel of experienced HCI researchers and practitioners. Sponsorship was also secured from Knowledge Business Centre, Lancaster University, for the welcome reception.

"Not as we know it" will include several pre-conference events that have an existing track-record or are very relevant. They include topics like "Psychologists in HCI", "Formal Methods for Interactive Systems" and "Physicality".

Further details, including a provisional programme and registration costs, are available on the conference web site

<http://www.hci2007.org>

We look forward to welcoming you to Lancaster for HCI 2007 – Don't miss the Early Bird registration deadline of 5th August!



Cultural issues and the graphic user interface

Introduction

Many improvements have taken place in HCI design since punched cards and binary codes (Preece et al., 1994). Although usability problems persist, a growing number of interface guidelines and rules are available that non-HCI practitioners can apply. The International Organization for Standardization (ISO), for example, provides information on ergonomic requirements for the use of visual display terminals for office tasks (ISO 9241) as well as information on how to improve ergonomics at work, to enhance effectiveness and efficiency (ISO 13407). One area, however, which does require more work, is that associated with cultural differences (Leung and Cox, 1997; Sengupta and Liu, 1999; Chen and Hsu, 2000).

Previous research shows that computer users from different cultural backgrounds have different cognitive styles and desire localised interfaces (Chung et al., 2000; Onibere et al., 2001; Fang and Rau, 2003; Wang, 2005). However, many non-English speaking computer users have to work with foreign language 'help' files (Keniston, 1997) and iconography, often based on American cultural associations (Evers, 2001). The reason for this is that American companies develop the majority of the world's software packages (Choong, 1996, p.4), and the majority of the packages they develop are primarily directed at the American market (Nielsen, 1993). In addition, the process of localisation is expensive (Keniston, 1999).

Leung and Cox (1997) state that "Asian cultures have been largely ignored in the development and definition of computer interfaces" and that this can be clearly seen by the systems that are used to input ideographs. Chinese keyboards, for example, are adapted alphabetic-based systems on which even the Enter key symbol (↵) assumes a left-to-right writing direction. Garg and Plocher (1999) support this argument and state that Western companies do not pay enough attention to Asian cultural and language considerations.

In this article, we use Taiwanese computer icons as example of software packages that are considered localised by their manufacturers. Taiwan is one of the biggest populations of Internet use (Nielsen, 2000). Generally, Taiwan's culture is similar to China, but uses a different writing system. In the survey, a number of icons found in these software packages,

which we believe might cause recognition problems for Taiwanese computer users, are looked at and reasons given as to why they could be problematic.

Software packages

Many software manufacturers have developed localised versions of their software. The software packages examined in the survey were chosen as they are in widespread use in the design area in Taiwan and their Chinese language versions are deemed appropriate by their manufacturers for Taiwanese computer users.

Each software package was installed onto its corresponding language version of the operating system Microsoft Windows XP. In other words, all the Chinese software packages were installed onto a Chinese version of Microsoft Windows XP and all the English software packages were installed onto an English version of Microsoft Windows XP. It is, however, possible, in certain circumstances, to install a version of a software package on an operating system of a different language.

Icons that might cause confusion for Taiwanese computer users

Some of the icons that are culturally specific are shown below. All of the icons discussed are deemed to be suitable by their manufacturers for Taiwanese computer users.

Several software packages employ icon metaphors that use English word associations that do not translate into Chinese. For example, Corel PHOTO-PAINT 9.0's *remove noise effect* (see Table 1a) plays on the fact that the word *noise* in English can mean 'sound' or 'random pixels on the surface of a bitmap, resembling static on a television screen' (Corel PHOTO-PAINT 9.0 help file). This is not the case in Chinese, which uses two different words. Other examples of icons that do not translate into Chinese as they use English word play can be seen in Table 1.

Some icons found use imagery that has associations for Americans but not for Taiwanese. One example can be found in Corel Draw X3 and Corel PHOTO-PAINT X3 which both have an icon called *Corel tutor* (see Figure 1a). The icon gives a computer user access to self-help tutorials and depicts an

Icon	Referent	English wordplay used	Software package
(a) 	Remove noise effect	The word noise can refer to both sound and random pixels of differing colour values in a bitmap.	Corel PHOTO-PAINT 9.0
(b) 	Corel graphics community (direct link to the Internet)	The word web can refer to both a spider's cobweb and the hypertext system that operates over the Internet	Corel PHOTO-PAINT X3 Corel Draw X3
(c) 	Keyword	The word key can refer to a tool for a lock and the most important thing.	Macromedia Dreamweaver MX
(d) 	Java Applet	The word Java can refer to a programming language and a type of coffee	Macromedia Dreamweaver MX
(e) 	XL (icon used to launch software)	XL is pronounced the same as Excel.	Microsoft Excel XP

Table 1 Examples of icons that use English word play found in the survey of software packages

Icon	Referent	Function	How English letter(s) are used	Software package
(a)	shadow	Adds shadows to text	The English letter is used as a prompt; the letter is the first letter of the English word 'shadow'.	Macromedia Dreamweaver MX
(b)	angle text upward	Angles Chinese characters/ letters upward	The English letter is used to demonstrate what occurs if the icon is used.	Microsoft Excel XP
(c)	combine characters	Forms Chinese characters from radicals	The English letters are used to indicate an order. (The order in which radicals should be input to create a Chinese character of the arrangement shown corresponds to the order in which the letters are found in the English alphabet)	Microsoft Word XP

Table 2 Icons that use English letters in different ways

apple. However although an apple is traditionally the gift a child gives to his/her teacher in America, this tradition does not exist in Taiwan. Another example can be found in Microsoft Word XP where a hash symbol is used to represent the word 'number' in the icon for *insert page number* (see Figure 1b). However, unlike in America, in Taiwan the hash symbol is only used as a symbol in music.



(a) Corel tutor (b) Insert page number

Figure 1 Examples of icons found with imagery that do not have the same associations in Taiwan as in America

The icon for *border* in Chinese Excel processing for Windows was found to be so similar to the Chinese character meaning 'field' that it might cause problems for Taiwanese computer users (see Figure 2).



(a) Icon for border (b) The Chinese character for field

Figure 2 Example of an icon with imagery that could cause problems for Taiwanese computer users.

Many icons deemed suitable for Taiwanese computer users were found to use letters from the English alphabet (see Figure 3). Taiwan, however, is unique amongst the Chinese speaking populations in that English is neither widely understood nor its letters used by its people for phonetic purposes, thus it could be expected that the use of English letters in these icons could cause problems for Taiwanese computer users.



(a) Italic (b) Underline

Figure 3 The italic and underline icons, both showing English letters

One factor that could be expected to increase the likelihood of a Taiwanese computer user who does have an understanding of English not recognising an English letter is if the letter is partially obscured. Many icons in the survey, however, showed letters obscured by other image elements (see Figure 4).

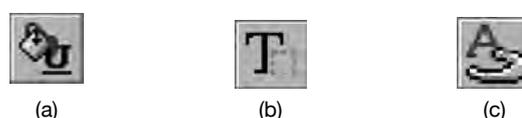


Figure 4 Icons showing incomplete letters

Another factor that could cause confusion is that of inconsistency of usage. We found that some alphabetic icons relate to text formatting functions whilst others do not; some icons show complete English words, others abbreviations and others letters that are neither complete words nor abbreviations but demonstrate a function or input order. Table 2 shows a number of icons that use English letters and explains the role of the English letter(s) shown in each icon.

Summary

Many research studies look at culture and interface design. In many of these studies Taiwanese computer users are often grouped with other nationalities under the title 'Asian' (Evers and Day, 1997). However, this approach can have the potential to mislead as the findings are general and can have little bearing on what would be found if nations were looked at separately. This article reviewed icons deemed by their software manufacturers as being suitable for Taiwanese computer users. It was found that most localisation, where carried out, only addressed the surface layers of Chinese culture (Hoft, 1996). The article highlighted certain aspects that might cause problems for Taiwanese computer users such as the use of English letters in an icon design.

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A passage to India

Andy Dearden

Yesterday, I took a call from a journalist from the magazine *India Today*. This is India's biggest selling current affairs magazine. They are doing a story about the way information and communication technology (ICT) is being applied in efforts to develop rural India. I am very keen that the Bridging the Global Digital Divide projects (www.bgdd.org) and HCI should be part of this story. The conversation goes something like this:

"We are currently exploring the ICT capacity of District Banks across the whole of India, to see what their current capability is, because our project needs to integrate with those banks"

"Do you have a pilot project we can look at?"

"We have found that many banks have invested in hardware and software, but they have not invested enough in the organisational capacity, skills and support to use these systems effectively."

"Do you have some technology in the field we can go and look at?"

"We've also been looking at literature on ICT in microfinance initiatives worldwide and we've discovered a similar story. A lot is spent on hardware and software, but very few projects are evaluating the return on investment, finding out whether the ideas are making a real difference."

"Do you have a pilot study, or a field site we can see?"

"We are starting work with community organisations in Madhya Pradesh to ensure that we understand *their* needs and *their* priorities before we go in trying to design and deliver solutions to

problems that they see as secondary, or that don't fit with their ways of living and working."

"Do you have any technology that we can go and look at?"

etc., etc.

Well we might not get a mention in the article (Sob!). But what strikes me about our findings is that these lessons seem totally obvious to HCI people: that we need to explore users' priorities and practices, we must consider context, we cannot design technology in isolation and we are concerned with open networks of technology, artefacts, people and practice. In fact, these lessons are so obvious, I think we sometimes take them for granted. But what I now realise is that this is not obvious to everyone. It is something that we know but that most people are not aware of. And each time a 'technology led' story appears in the media, ignoring the fact that technology is meaningless without integration into open human systems, another audience is misled and prepared for making the same mistakes again.

So we (in HCI) have a story that we need to get out. We need to be out there using every opportunity we have to communicate our knowledge with the wider world. *Interfaces* and *UsabilityNews* are part of that effort, but we need to consider all the means at our disposal. Sometimes this is difficult. In a media culture increasingly dominated by visual imagery it can be hard to communicate complex ideas like 'designs must be sensitive to context', or 'District Banks need to give more attention to organisational capacity to make better use of ICT'. One other thing crossed my desk yesterday. A group of researchers at Cincinnati have produced a four-minute rap about their human factors work, and placed it on YouTube. It's really entertaining. Can you post a list of references on a YouTube video?

Andy Dearden, a.m.dearden@shu.ac.uk



Introducing...

The Interaction Lab at City University, London

Panayiotis Zaphiris and Russell J Sese

The Interaction Lab

The Centre for HCI Design at City University, London, recently established an Interaction Lab with the generous support of the Vodafone UK Foundation. The Interaction Lab provides a space for user-testing and focus group sessions for academic research, and for project work by commercial and not-for-profit users. The Interaction Lab is equipped with the latest technology to assist us with our research in the design of interactive systems, especially for the elderly and the disabled, and supports our existing usability, accessibility and requirements engineering research and services.

The City Interaction Laboratory provides a facility to allow developers to test their emerging systems with a range of users in a central London location, conveniently situated for many of the new media and e-business enterprises in Clerkenwell and the City. Our facility is in many ways unique (both in academia and industry), providing state of the art technologies (e.g. eye-tracking equipment, state of the art digital whiteboard focus room facilities, excellent in-house usability and accessibility expertise).

The Lab consists of a suite of three rooms (75 m²): (a) The Test Room – equipped with a primary workstation and several group/testing stations where one-to-one discussions can take place. The Test Room has software technologies that provide a voice and video link to the Control Room; (b) The Control and Observation Room – separated from the Test Room by a one-way mirror – is equipped with a workstation and VCR/PC/monitor unit; (c) The Focus Group Room – equipped with a state of the art digital whiteboard and multimedia systems.

Additional features include: state of the art eye-tracking equipment (Tobii X50); latest usability testing software (TechSmith Morae); accessibility workstations, equipment and software for accessibility evaluations.

Research areas

The lab supports our research into the design of socio-technical systems, which can be divided into the following areas:

User-centred requirements engineering

Our research on user-centred requirements engineering aims to develop new theories of requirements for complex socio-technical systems, i.e. systems composed of people and technology, and to apply these theories to design new requirements processes, techniques and tools that we evaluate through their industrial application. We are currently researching how to use scenarios in user-centred requirements processes, model-based discovery and analysis of emergent properties of complex socio-technical systems, creativity as integral to requirements processes, and how new paradigms such as web services impact on requirements. The picture shows a creativity workshop we recently hosted.

Inclusive design and social aspects of computing

We continue our research on inclusive design by accentuating issues related to the elderly and the disabled. Current areas of



focus include mathematical modelling of web browsing behaviour of senior citizens and the study of web navigation for people with dyslexia and people with dementia. Our research in inclusive design also looks at cultural dimensions of on-line collaborations, which also links to our continuing interest in the social aspects of computing where we stress the use of analytic (e.g. Social Network Analysis) and theoretical (e.g. Activity Theory) methods to analyse empathic and computer game communities.

Interaction design and research

We conduct studies of individual and collaborative work in challenging fields ranging from healthcare to computer games, develop and apply theoretical approaches to modelling work, design and prototype innovative interfaces and investigate and develop usability evaluation techniques.

Requirements engineering:

We offer a wide range of services to people and organisations who are acquiring, describing, modelling, validating and communicating requirements for socio-technical systems, based on results from our research projects. We place particular emphasis on innovative aspects of requirements process, such as creativity and requirements, and scenario-driven requirements walkthroughs.

Consultancy services

As a research centre we have up-to-date expertise on developing systems involving people and technology. Therefore we seek to help organisations through their development projects to ensure that their systems meet the organisation's and users' needs. We strive to develop deep, honest and trusting relationship with our clients and partners – indeed we see our 'consultancy' work as more of a two-way collaboration where we both learn throughout the project.

MSc in Human-Centred Systems

Finally, our lab is extensively used by our students on our MSc in Human-Centred Systems course. The course provides students with skills in designing and evaluating interactive systems and other types of computer-based systems in which people are a major element. Graduates of the course are equipped for careers as usability and accessibility specialists, interaction designers and information architects. The course is also excellent preparation for doctoral (PhD) study.



TAUCHI: Tampere Unit for Computer–Human Interaction

Introduction

Research in human–computer interaction in the University of Tampere goes back a long time. The first results were published in the very first Interact conference. The research activities grew within the Department of Computer Sciences, so the themes were first related to programming environments. Tools for program verification, computer-aided instruction, and algorithm animation were developed and studied in the 1980s.

The 1990s were a period of steady growth in all respects: areas of HCI tackled in research projects, number of researchers, graduates, and courses offered. In 1999 the department had outgrown its premises, and TAUCHI moved for five years into its own location away from the other research groups. While this had its drawbacks for departmental coherence, the unity of TAUCHI was intensified. The group grew from about 20 funded researchers to 45 in a span of five years. The first full CHI paper was published in 1998 and our first PhD graduated in 1999 [6]. Now we publish in CHI [2], other general [1] and specialised [5, 9, 10] conferences, and journals [8]. Publishing is oriented to international high-quality scientific journals (35 articles in 2000–2006) and international peer-reviewed conferences (169 articles in 2000–2006). The balance between these categories has lately been shifting from conferences to journals, as evidenced by 18 journal articles published in 2005–2006. The full list of our publications can be found on the web at www.cs.uta.fi/hci. The average number of PhD dissertations in TAUCHI is three per year.

Organisation

TAUCHI does not have an official place in the university organisation: it is a group of people that share common research interests. Nevertheless, since TAUCHI is so large (it comprises about half of the department) it has an unofficial management of its own. The steering board of five people meets once a month, and the whole unit gathers in monthly meetings. Research progress is monitored in a regular TAUCHI seminar. Social activities range from weekly recreational events to participation in CHI 2000 with a group of 20 people.

In 2002 the unit had reached a size where it was impractical to try to co-ordinate all the research activities as one unit. Therefore a group structure was introduced, with each group responsible for its own area of research. The groups and their leaders are:

- Emotions, Sociality, and Computing (Veikko Surakka)
- Visual Interaction (Kari-Jouko Riih )
- Multimodal Interaction (Roope Raisamo)
- Speech-Based and Pervasive Interaction (Markku Turunen)

The groups vary in size between five and 15 researchers. Each group maintains its own web pages with up-to-date information on its activities and publications. All the groups can be reached through the TAUCHI web site at www.cs.uta.fi/hci.

TAUCHI is heavily dependent on outside, competitive funding in its operation. About 30 per cent of funding comes from the university budget. Currently TAUCHI has five tenured faculty members and two faculty members with fixed-term appointments. It has a small support staff, and all the rest are employed as researchers or assistants (four PhDs, 21

graduate students, eight undergraduate students).

Industry relations are active. The initiative can come from us, in the case of jointly executed or jointly funded research projects, or from the industry directly. Some graduate students work in the industry (often for Nokia), as was the case with a graduate in 2002 [3]. In addition to research projects, we provide usability services through our usability laboratory.

Research

The research themes of TAUCHI have evolved over the years largely based on the interests of the senior researchers. Nevertheless, many characteristics are common to all research groups.

- Most of our research combines both constructive and empirical methods. We build concrete applications and study them in real or laboratory settings, often using controlled experiments.
- Research can start from the application (in which case it is often funded by Tekes, the Finnish Funding Agency for Technology and Innovation) or from a basic research problem (funded by the Academy of Finland).
- A characteristic of many projects is their focus on interaction methods and interaction design, particularly the use of less conventional modalities.
- Several groups target their research at specific user populations, including users with disabilities and children.

The applications developed in the projects are released for use through our web site, often as open source [10] or as freeware. A bus timetable service with a speech interface is in everyday use in Tampere. Patents are rare but exist [4].

The research in TAUCHI has several different kinds of research activities. First, psycho-physiological basic research is required to get a profound understanding of the phenomena that affect and regulate the interaction with technology. Second, this knowledge is applied in constructive research to create better interaction mechanisms, particularly based on integrating less used modalities with current mechanisms. Third, applied research connected to the first two research activities is carried out to improve the quality of life for select user groups, including visually and motor impaired, deaf, and elderly people, by developing applications that enable their communication and use of information technology.

Although each group has some diversity in its research, the main focus areas of research are as follows. The Visual Interaction Research Group (VI) specialises in visual interaction covering areas from information visualisation to the utilisation of eye-tracking as a means to communicate with computers. A practical application area that has brought together these themes is the development and analysis of new interface designs for web search engines. The eyegaze research covers all aspects of this niche area and has put us in a leading position, as evidenced by the coordination of two EU projects and having twice in a row the co-chair position of the main conference in the area (ETRA).

The Multimodal Interaction Research Group (MMI) specialises in the use of haptics in multimodal HCI including the use of auditory and visual modalities. Mobile haptics is a field



where the team has a leading position in Europe and works together with the leading research groups from the USA and Canada. We are also coordinating EU projects. Multimodality has been especially important in the research on assistive technology for visually impaired people. Many projects have studied support for visually impaired children in their learning and ability to use information technology. The most important research results in the team have been both methodological and constructive. A specialised usability testing method has been adapted to be suitable for even very young (three to five year old) visually impaired children [7]. Software architectures have been constructed to support building multimodal applications that support learning and collaboration of visually impaired and sighted children.

The Speech-based and Pervasive Interaction Group (SPI) studies speech-based and auditory applications in mobile and ubiquitous environments. Its main research focus is on interaction models, techniques, and system architectures to support both human-to-human and human-to-computer communication. Particular user groups, such as visually impaired people, are a special focus of research that combines scientific results with strong industry relations. SPI has produced several practical applications, such as an open source software architecture for development of speech applications. The architecture has been used in several EU projects, and a publicly available telephone-based speech interface has been constructed on top of it.

The Research Group on Emotions, Sociality, and Computing (ESC) specialises in research on how social and emotional cues that are emitted by the user or the computer could improve HCI, and how such cues should be used. In respect to the other groups this group has utilised, for example, both gaze direction recordings and the use of other facial information for controlling and communicating with computers. The relation of emotionally toned synthetic speech to emotions and cognitive behaviour of the user has been another central theme.

Education and internationalisation

The rapid growth of TAUCHI in recent years is based on several parallel developments: the increase in the number of post-doctoral researchers, the success in obtaining competitive research funding, and a broad curriculum in HCI that produces new advanced students.

We offer two Master's programmes in English: one in User Interface Software Development, another in Interactive Technology. The latter was set up in 2001 with a new discipline, also called Interactive Technology, for the purpose of opening a Master's programme for students with a variety of undergraduate degrees. The programmes are very popular, with more than a hundred international applicants per year; from 10 to 20 students are accepted (in addition to our own undergraduates).

For doctoral studies we participate in a graduate school in Information Science and Engineering (TISE) and a graduate school in Software Systems and Engineering (SoSE), and we co-ordinate a multidisciplinary graduate school in User-Centered Information Technology (UCIT). Correspondingly, the background of TAUCHI researchers is becoming diversified. We now have four researchers who have graduated in psy-

chology, and some in social sciences and educational sciences, in addition to the traditional computer scientists.

TAUCHI actively seeks international contacts and co-operation in all areas. In addition to international education, participation in and co-ordination of EU-funded projects has created a large network of partner institutions. The current researchers represent three different nationalities, and the students more than double this diversity, creating a truly international academic environment. An active visitor programme is used to bring in three or four visiting lecturers each year for intensive courses and longer term sabbatical visits.

Future plans

TAUCHI will continue its strong participation in European research projects and other international research collaboration relationships which support our strategic research areas. It is expected that TAUCHI will be coordinating new European projects in FP7, and will be taking part in others. One of the most important research collaborations is the one with Stanford University. Our existing strengths, combining basic and applied research, studying new interaction modalities and their multimodal combinations, and applying the results for people with special needs, will also be driving the research in the future. As a result of our contracture research, we aim at publishing open source implementations of new software architectures and applications.

Acknowledgments

Neither TAUCHI nor this report would exist without all the dedicated TAUCHI people who form an exceptional community. Thank you all.

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Interfaces Reviews

We have two interesting books reviewed in this edition.

The first book review is on the exciting area of the Semantic Web which could have a significant impact on knowledge management and innovation. If, after reading the review, you want to know more about the Semantic Web and latest developments in this area, you might like to look up a special report and interview with Tim Berners-Lee in a recent issue of *BusinessWeek*. In a video on *MIT Technology Review* (March 2007), Berners-Lee says that the Semantic Web, which he describes as a “web of data” in contrast to today’s “web of documents”, has great potential in giving a user the ability to see, understand, and manipulate data.

The second book presents a fascinating idea that true conscious machines can be built – how the cognitive processes of the brain, the flow of inner speech, inner imagery and emotions, can be emulated. Rejecting artificial intelligence and classical neural networks in favour of the emulation of the cognitive processes of the brain, Haikonen (the author) argues that a machine can be conscious; aware of its own existence and its mental content.

On behalf of *Interfaces*, I would like to convey our thanks to both the reviewers, Claude Ghaoui (Liverpool John Moores University) and Deana McDonagh (University of Illinois), for sharing their views and insights on the two books with us.

I hope you enjoy the reviews. Please contact me if you want to review a book, or have come across a book and you think should be reviewed, or if you have published a book yourself recently. I very much look forward to your contributions, views and ideas. Many thanks.

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Spinning the Semantic Web: Bringing the World Wide Web to its Full Potential

Edited by Dieter Fensel, James Hendler, Henry Lieberman and Wolfgang Wahlster; foreword by Tim Berners-Lee.

The MIT Press, 2005

Introduction

At nearly five hundred pages in length, this book discusses in great depth the pressing need for a Semantic Web to remedy some of the serious shortcomings introduced with the advent of the WWW. This book presents the new services that the Semantic Web will enable with respect to knowledge management and electronic commerce, and also shows how they can be developed and achieved through new languages, tools and applications. This timely and most needed subject is covered from a broad variety of perspectives with contributions from various research communities, including those in the areas of databases, intelligent information integration, knowledge representation, engineering and management, information agents, information retrieval, natural language processing, metadata, and Web standards. Tim Berners-Lee provided an engaging foreword for this book, which was based on a talk presented at the W3C meeting, London, December 3, 1997.

Summary

Since it addresses the subject from a wide range of perspectives, the book is a very engaging and interesting read. It is organised into three main parts, with the following content: first, a number

of arising web standards for improving the representation of information are discussed. Second, ontologies for representation of semantics are introduced. Third, intelligent information access is discussed. Finally, a number of applications of these new techniques are presented. The book is suitable for a very wide audience, e.g. researchers, practitioners, designers, decision makers, teachers and students at different levels of learning.

Conclusion

I liked this book and found it illuminating. The chapters touch on many innovations in the field. I value its content and the knowledge shared by the many talented experts and professionals whose contributions are invaluable. The book was cleverly put together and the efforts to achieve such high quality show and shine from start to end. I definitely recommend it.

Reviewed by
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The Cognitive Approach to Conscious Machines

by Pentti O Haikonen
Imprint Academic, 2003.

Pentti Haikonen’s book *The Cognitive Approach to Conscious Machines* offers nineteen chapters within a three-part structure.

Part 1 – Thinking and Computation. This section offers the history of Artificial Intelligence (AI) and reviews

various computing principles that have shaped it. Opposition to AI includes the Gödel objection in 1931. Gödel argued that the thinking machine would never happen due to determinism (p.25), which states that computers do not have freedom of thought, they do not understand and they lack cognition. Who would disagree with this?

Part 2 – Cognition and Consciousness. This section discusses the fundamentals of cognition and consciousness, ranging from cognition, perception, senses, learning, reasoning, and intelligence through to emotions. With the recent interest in and acknowledgement of the emotions, Chapter 6 is particularly interesting. The author views emotions as “an integral and necessary part of cognition” (p.99). Within this chapter the author explores emotions, pain and pleasure, perception, the senses, theories of emotion, and so on. This chapter focuses on bringing the human element into the discussion. Culture plays a significant role within cognition, perception and emotional responses. Referring to the significance and impact factor of culture may have strengthened this chapter.

Part 3 – Technology of the Mind. The section presents the author’s own design philosophy and presents a model for realising machine cognition and consciousness. This is one of the most enjoyable parts of the book. The foundation has been laid for this final discussion. As Haikonen states, “Thinking... is not based on pre-programmed



Shailey Minocha

The BCS HCI Group response to *International Perceptions of the UK Research Base in ICT*

number crunching routines ... human cognition is characterised by the flow of 'inner speech', inner imagery, the basic cognitive processes, like perception, attention, learning, deduction, planning, emotions, motivations and the awareness of these" (p.166). Having identified the characteristics that set us apart from machines, the author goes on to calmly explain how machines in the future may well become conscious.

This book covers significant ground, from the history of AI and the various models that have shaped it, to designing conscious machines. It is a relatively easy read which is well peppered with examples, diagrams and figures. Whilst being informative, it manages to maintain the reader's attention by drawing on everyday examples to ensure that the reader relates to the examples and theories being discussed.

AI has become a relatively familiar term, but after reading this book, I realise how little I actually knew or really understood. This book would provide excellent general background reading for students within engineering, technology and industrial design.

Reviewed by

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Call for Papers
FMIS 2007

2nd International Workshop on
Formal Methods for Interactive
Systems

A Satellite Workshop of HCI 2007

Lancaster, UK
4th September, 2007

This workshop aims to bring together researchers in computer science, cognitive psychology, and other areas of HCI, from both academia and industry, who are interested in both formal methods and interactive system design.

FMIS 2007 is held in conjunction with HCI 2007 and just before SEFM 2007 in London, so participants interested in HCI and formal methods may wish to attend both conferences.

Submission deadline: 17 June 2007

<http://www.dcs.qmul.ac.uk/research/imc/hum/fmis2007/>

<http://www.epsrc.ac.uk/ResearchFunding/Programmes/ICT/ReviewsAndConsultations/InternationalReview/default.htm>

Human-Computer Interaction combines a rigorous academic discipline with a huge economic impact through the practical realisation of usability, for instance in e-commerce. British HCI academically leads the world, despite its smaller volume than that in the US which has a greater emphasis on systems and industrial design. EPSRC funding is a major factor in the success of HCI for the advancement of science and UK industry. HCI is a new discipline, and evolving very rapidly as ICT technology advances.

This short document summarises the BCS HCI Group's response to the findings of the recent review. We focus only on those elements critical to the domain of HCI. The BCS HCI Group comprises approximately 250 academics and practitioners of HCI across the UK, runs the usabilitynews.com news and information service, and organises the largest national annual conference on HCI.

One issue that occurs in many places (§5.1.7, p12; §5.1.5) is that whilst inter-disciplinary activity can be strong, it is also harder to achieve funding through the current grant scheme. HCI is very interdisciplinary, and also comprises both fundamental work (leading to theories, models, and new paradigms) as well as applied work. A common problem for researchers is in attracting and sustaining funding for projects, especially the more adventurous, higher risk ones. We would like to see some effort made to address the problem, especially the issue highlighted in §5.2.2, where the external community is far less convinced than the ICT panels that the choice and responses of referees are appropriate, and it is interdisciplinary work, and hence HCI, that suffers. In particular, the group believe that the review form should be revised – notably, the scoring boxes should relate to the textual comments more directly. We also favour a system in which a reviewer could comment on only the parts of the grant they were expert on, without it prejudicing the outcome, as this would lead to a fairer assessment of cross-disciplinary proposals.

In addition, we also find that, whilst many individuals actively review proposals, there is little in the process to allow them to learn from it, and no feedback to improve their reviewing, and hence no improvement in the standard or consistency of reviews. We would like to see referees seeing copies of other referees' comments, and the panel's views on those comments.

We recognise the issue of career development for younger scientists (§5.1.3). We agree that this is primarily a community issue, though The EPSRC can assist by encouraging PhD studentships within grant proposals. The revisions to the First Grant scheme are good, though it is unclear how well these have disseminated to the relevant communities.

We feel that international collaboration should be further supported (§5.1.6), and though it must be driven by research need and appropriate collaboration, The EPSRC can assist by developing partnerships with research agencies in other countries.

Finally, as a group with expertise in engaging with users, the group would like to point out that the design of the EPSRC review did not engage as effectively as it could have with all the community. The international panel had an over-busy week, and only reviewed a fraction of The EPSRC's portfolio. Reviews could be handled in much more effective ways, for instance by better collection of responses before the visit, more open meetings, etc.

As a Group, we volunteer to engage with The EPSRC on the redesign of the refereeing form, and to work with them on discussing improvements to the overall refereeing process.



Profile

Janet Read talks to Alan Dix



Currently the membership chair of the British HCI Group, my road to HCI was somewhat accidental. One Friday afternoon, while pregnant with my second child, I walked out of a permanent teaching post (secondary maths) over a disagreement with the headmaster about my working week. Fortunately I rapidly found work in the university sector teaching assembly language, programming and maths. Came into HCI via my PhD and now, several years on, all I teach are HCI related courses. My research interests focus around children's interactions with technology and I lead the Child Computer Interaction Group at UCLAN. Out of work my passion is Manchester United; I also love reading and entertaining friends.

What is your idea of happiness?

A sunny day, sharing a gin and tonic in the garden with friends, the barbecue smoking and the children playing cricket with the ball heading away from the gin.

What is your greatest fear?

That I stop being interesting! (... this assumes that I currently am of course!)

With which historical figure do you most identify?

I had a soft spot for Napoleon ... you know, small, misunderstood, funny accent ...

Which living person do you most admire?

That is a really hard question and whoever I write, someone will think I am sad! So go for it – SAF – the greatest football manager of all time! Failing that, Bree from Desperate Housewives (clearly not alive really!!! but carries on well in the face of all sorts of diversity).

What is the trait you most deplore in yourself?

I am terribly lazy ... and a bit slovenly ...

What is the trait you most deplore in others?

Lack of enthusiasm.

What vehicles do you own?

I wish you had asked me this six months ago – it was more fun! Now, a boring but environmentally friendly Zafira and an ancient Clio with no heating (and a bike).

What is your greatest extravagance?

Books – I spend about £50 on them a month.

What makes you feel most depressed?

Not much! Spending too much time with dull people.

What objects do you always carry with you?

I often carry nothing. I once went to Ireland without any money or cards, I try REALLY hard to always have my phone and some spending facility but often the phone has no battery ...

What do you most dislike about your appearance?

What sort of question is this!?!? I think I appear less interesting than I am – how is that!

What is your most unappealing habit?

Singing in public places (not as a performance – I just find myself singing, humming, whistling) – the kids moan at me for it.

What is your favourite smell?

The first newly mown grass of the summer.

What is your favourite word?

Considering ... it reminds me of my father – who used it often.

What is your favourite building?

Those huge US railway stations, Grand Central, Washington.

What is your favourite journey?

The bit when you drive to the south of France and you come over the hilly bit and the light changes and it all goes all Mediterranean.

What or who is the greatest love of your life?

I can't single out a who ... So the what would be words.

Which living person do you most despise?

What a terrible question – I refuse to answer this one – even GDubya I wouldn't use despise on ...

On what occasions do you lie?

When I am in trouble (or sometimes for the kids when they are in trouble!!).

Which words or phrases do you over-use?

Am I bovvered, whatever, and your point is ... I am totally media driven – if it's the current stuff then I is sayin' it man.

What is your greatest regret?

That my mother died before I had my own children and before I had a chance to do things like be her friend and go shopping and stuff.

When and where were you happiest?

I am always happy! But even happier at Christmas (I LOVE Christmas!)

How do you relax?

Chillin' by watchin' rubbish tele.

What single thing would improve the quality of your life?

Another cat. We had two matching kittens (brother and sister) and the little girl got murdered and now we have only one and it is much less fun.

Which talent would you most like to have?

My kids would answer – be able to sing (but I think I can anyway!) Failing that I would like to be able to talk to my cat about what he gets up to all night.

What would your motto be?

Carpe Diem.

What keeps you awake at night?

Too much alcohol! Working late on the computer in the evening! I don't worry about things as a rule and generally I sleep a good ten hours without disturbance!

How would you like to die?

Whilst still alive but also old ... I would hate to die in the middle of a good book!

How would you like to be remembered?

I would like to be remembered for having been nice to the people I met over my life – but I suspect I have been incredibly cruel to several folk so I have some hard work to do on this one!

The British HCI Group is served by Sub-groups comprising representatives from a broad range of academic and industrial centres of HCI interest. The Sub-groups are committed to promoting the education and practice of HCI and to supporting HCI people in industry and academia. For contact details of the persons in each Sub-group, please select from the following:

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