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DIFFERENT PERSPECTIVES

Diverse approaches to human centred design can benefit society

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Interfaces 88, Autumn 2011: deadline: **30 July 2011**. Theme: Post-conference reflections.

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When I think about different perspectives I think of the familiar optical illusion – is it a candlestick or is it two faces looking at each other – things are not often as they first seem, and sometimes what they are keeps changing. When police ask for witnesses to come forward, they like to gather as many different perspectives as possible from which to build a realistic version of events. We don't see things as *they* are, we see things as *we* are. We look at situations and interpret them according to our own set of experiences, beliefs and values. We are constantly trying to make sense of our world.

The HCI community has many different perspectives, as members come from such different backgrounds and sets of experiences. It's as if we are all looking at the same world through distorted lenses and everyone has their own personal prescription. As HCI matures we must continue to try to understand how to fit the different perspectives together as we contemplate the next 25 years.

Lynne Coventry

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VIEW FROM THE CHAIR



YOUR TIME IS NOW

Tom McEwan is putting himself out to pasture and invites the next generation to rise up and take ownership of your group and its activities. Start tweeting on #HCI-spring.

You can tell we're getting on a bit, if our current interests are *Health, Wealth & Happiness*. When you're young, you don't care about these things – you suffer the rules and then you want to break them, to find fun, excitement, novelty.

Like it or not, HCI is settling down into middle age, becoming common sense, where it's better known as UX. Interaction Design provides more than eye candy, it improves lives. And, as all those HCI pioneers get the wrong side of fifty, accessibility compliance is no longer on the agenda out of some noble empathy with others, but to define a fundamental fitness for purpose.

Mainstream UX

This Group is getting the reward of seeing its ideas become mainstream, with an explosion of UX adverts, all asking for the knowledge and expertise that has been the steady diet of our conferences, workshops and publications for a generation. UXCF2011 at the conference continues the work to define and structure this, for we are also seeing, all too often, the absence of this knowledge in products, services and processes. There are fields, such as the websites of our elected representatives and public sector generally that are ready for us to (re-)colonise, and John Knight is organising UCD2012 to address this.

This will be my last conference as chair of BCS Interaction SG. After 12 years, in a variety of committee roles, it's time to stand down. This is an opportunity for others amongst you to re-energise the group for the next generation of challenges. At the conference, we will have an open meeting to explain what your committee members do, and to encourage more of you to volunteer to help out. Elections will be held in September/October, with the new committee starting in January.

Interaction SG is one of over 100 member groups of BCS, The Chartered Institute for IT. As it says on the web page, 'BCS is a professional body, a learned society, a nominated body, an awarding body and a registered charity'. This combination is demanding of those who volunteer, but also rewarding in many different ways.

Be pushy

Long before the Big Society became a buzz-phrase, BCS volunteers have improved society through IT. There are no financial rewards for this (and fairly basic expenses!) but, better, we mediate between the creators of technology and the users. Anyone early in their career, whether in academia or in practice, should take the initiative and volunteer. Be pushy

– office-holders like me inevitably don't have the time to do the job as well as we'd like, or even to organise delegation.

If you feel too shy or even intimidated, that's natural, but a misperception. Certainly, at first I was awed to find myself suddenly in meetings with legends I knew only through their textbooks, yet within a few weeks they encouraged me to count them as friends, as contacts for support. The more I did for the group, the more respect I found, and the more confidence I gained for my day job: my BCS Interaction work was a big help in getting promotion.

Fun and friendship

Whether publicising the conference, editing *Interfaces*, helping set up Usability News, chairing HCI2005, being Treasurer and then Chair, I've had a lot of fun, accomplished half of what I hoped to do, and made some great friends along the way. I've served with around 100 of you on committees so I won't name individuals, but rather thank all of you and wish you all the best for a great conference and future health, wealth and happiness.

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DESIGN BIG AND CLEVER



Gilbert Cockton asks why Human–Computer Interaction distinguishes itself as a field by avowing human-centredness, when its contributing disciplines have no need to do the same.

The human-centredness of Human–Computer Interaction (HCI) distinguishes itself as a field. Interestingly, its contributing disciplines such as psychology, anthropology and sociology can be categorised as human-sciences, yet have no need to avow human-centredness. So why does HCI?

Creation myths, perfect selves and dodgy others

HCI's creation myths make it sound like the first true human-centred design discipline ever, born to humanise engineering design and the unusable computer systems that it created. With the advent of wide area networked multimedia (a.k.a. the internet and the web), applied arts designers (e.g., graphic design) were also vilified as being obsessed with the cool 'eye candy' of distracting aesthetics. In HCI lore, designers do not think about people, only about technical or aesthetic inventiveness. They focus wholly on artefacts, and never on people. *We* (in HCI) are human-centred, while *they* (geeks and stylists) are not.

Self–Other constructions are a social fundamental: in creating our HCI Selves,

we create Others (Steen, 2008). So who is the other to our human-centred selves: *human-negligent* perhaps? It is simply impossible for any human designer to ignore *all* human considerations when designing. They may ignore *specific* human factors, such as the capabilities of our visual perception, or the knowledge that users can reliably be expected to bring to an interaction, but some human factors are always considered. Designers may often do so by designing for themselves, but they are still humans nevertheless. So, HCI is not just about being human-centred, but being so *in the right way*.

Off centre and a lost past

Since moving to a Design School in 2009, it has become increasingly obvious that the designers demonised in HCI folk-lore are no less human-centred than self-proclaimed HCI believers, but human-centred in different ways. One cannot be absolutely human-centred and ever design, because design requires serious expert attention to artefacts, both creatively and technically. All design situations must consider design features,

so any focus must move between artefacts and their expected human context.

Centredness is thus unhelpful. The only thing that we *must* centre on in design is the artefact, and if we remain centred on people, we cannot attend to artefacts. In contrast, *humansoaking* lets us focus on artefacts while suffusing them with humanity. As with a sponge, there is only so much humanity that any artefact can soak up: it's not clear how, for example, we could ever suffuse corn plasters with spirituality.

For many in HCI, Gould and Lewis (1985) established usability's three key principles: early focus on users and tasks, empirical measurement, and iterative design. A close reading of their paper reveals little if any evidence for the three principles, which are still unquestioningly accepted by many in HCI. Instead, much of their paper justifies an organisational land grab within IBM by HCI experts (Cockton, 2008). Despite their paper's scientific rhetoric, there is little science behind its occasional arguments and frequent assertions.

The fact is that most early HCI rhetoric is founded on ignorance. HCI did not invent



human-focused design. It has existed for at least two millennia:

In architecture, as in other arts, two considerations must be constantly kept in view; namely, the intention, and the matter used to express that intention: but the intention is founded on a conviction that the matter wrought will fully suit the purpose; he, therefore, who is not familiar with both branches of the art, has no pretension to the title of the architect

Gwilt's 1826 translation of Vitruvius De Architectura 1.1.3 at penelope.uchicago.edu/Thayer/E/Roman/Texts/Vitruvius/1*.html

Vitruvius goes on to describe in detail how context (as one aspect of intended purpose) must guide design. There are no universal criteria for good buildings. It is not enough to be an expert in 'the matter used to express ... intention'; the intention itself must be fully understood, and demonstrated through an understanding of human contexts. Vitruvius *focused on users and usage* millennia before Gould and Lewis promoted their first usability principle. Most IBM software engineers in the 1980s probably did not, but there was nothing new in Gould and Lewis' first principle. Secondly, any lack of *empirical measurement* in engineering practice raises questions about engineering professionalisms, since empirical measurement has underpinned professional engineering practice for at least two centuries. Thirdly, *iterative design* was well established in product and graphic design by at least the 1950s (Dreyfus, 1955). None of this mattered

to Gould and Lewis, however, since their goal was not valid intellectual history, but the establishment of an empowered, well-resourced usability profession within software organisations.

Catching up with humans, catching up with design

All forms of design are human-centred. What differs is the way that humans (at the centre or otherwise) are constructed. Initially, HCI constructed users as disembodied rational expert information processors (Card, Moran and Newell 1983), assuming this to be more human-centred than designers drawing on their full experience of living, with proven empathic capabilities with demanding clients (e.g., bespoke design of interiors, jewellery, furniture, etc.). Much of HCI's short history has involved putting more human into human-centred design. This has been gradual and piecemeal, adding inexpert learning, embodied disability, culture, expert social practices at work, irrational emotions, age, sensuality, meanings and values. More recently, HCI has considered sexuality, religion, identity and other 'third wave' concerns. However, there are still many gaps to fill.

Such gaps may never be filled by formal scientific research, and yet designers must still design, as they always have done, drawing on intuition and proven empathy. Some HCI founders have shifted their attention to design and now question the value and effectiveness of much self-proclaimed human-centred practice. Norman (2005) and Greenberg and Buxton (2008) write of human-centred design and usability respectively being 'considered harmful', causing much upset in HCI communities.

Staying off-centre: balance, integration and generosity in design

Currently, even those who profit from human-centred design qualify their allegiance to it. The design agency IDEO has pioneered human-centred design across product, interaction and service design, and has led practice in areas such as experience prototyping (Buchenau and Suri, 2000). Yet IDEO CEO Tim Brown (2009) notes that there is no conclusive evidence for the effectiveness of human-centred approaches. In his concluding chapter, he relaxes his advocacy of human-centredness, returning to his established knowledge as a designer that design is by nature *integrative and balancing*. For Brown, human-centredness largely concerns initial foci. Of course, there are human-focused activities throughout design, but it provides only one set of perspectives that must be integrated and balanced with others from business, public policy, creative and technical opportunities, social trends and the realities of design management. Also, Brown adds sustainability concerns that giving users what they want is not always the best course of action (e.g., gas-guzzling pedestrian-maiming SUVs).

Human-centredness is being squeezed from both ends, by HCI pioneers who have moved on, and by sympathetic beneficiaries who cannot endorse uncritical human-centredness. Both ends could be wrong, but seminal HCI papers such as Gould and Lewis (1985) do not provide the evidence or arguments (Cockton, 2008) to counter the growing discontent with and doubts about human-centredness. Confidence in human-centredness is hardly increased by leading HCI researchers asking on Facebook for convincing examples of user-centred design, nor by the success of leading design companies such as Apple and Alessi who promote their avoidance of human-centred practices.

No one size fits all

Human-focused approaches are separable from the human-centred creed. Design is not like a shape, and cannot have a clearly identified centre. Instead, design integrates a wide range of inputs and activities, balancing them against each other in unique ways for each project. There is no one size fits all solution.

Design is a human activity that can be highly complex. Beyond this, it is foolish to say in any more detail what design is. For every definition of design, there is a torrent of counter examples. Not only can we not adequately define *what design is* with any level of precision, we should also not say *what design should be*, since insisting that all design be human-centred

is no more valid than insisting that all design be sustainable, commercially effective, innovative, socially responsible, appropriate for developing countries, universally accessible, or any other exclusive value criterion.

Design needs to have several centres, not one, moving through multiple foci, balancing and integrating inputs and activities. Design is not archery, aiming at one bull's eye. It is more like plate spinning, where design teams endeavour to stop plates from falling and breaking.

The best design should always surprise and delight, giving users, purchasers, sponsors or clients much more than they were expecting, or even thought possible. The best design is BIG – Balanced, Integrative and Generous, and it is clever, cleverer than any narrow position of simple answers to hard challenges based on unquestioning dogma.

Catching up with design and joining the team

Before HCI, human factors engineers were typically engineers first and human factors specialists second. Ergonomics MScs recruited engineers who cross-trained in human factors. HCI changed this. Increasingly, human scientists with no experience of engineering design were parachuted into design teams to act as user advocates. The arrival of networked multimedia added to these cuckoos' working ignorance, with contempt of applied arts designers added to contempt of engineers. At the same time, the pervasiveness of digital technologies is bringing more and more HCI specialists into contact with distinguished designers and artists across all design disciplines. Contempt for the human-negligent has long ceased to be a viable option. HCI specialists are increasingly working with leading designers and artists, who expect to deliver, and expect others to too. Effective contributions to interaction design are now impossible without a broad understanding of design work.

Combining choices

Design work is complex. It involves different types of choice, which different design settings combine in different ways. Some focus on choices of *artefact* features and designer responses (e.g., craft designer makers). Others focus on artefact features, design *purpose* and design validation and verification (e.g., engineering design). As any audit of HCI text books will show, HCI tends to focus on human *beneficiaries* and *evaluations*, with a relatively limited focus on artefact features, and less still on design purpose, design intent or designer response. HCI is currently not well placed to support all

Generous design has less to do with beneficiaries than with designers. It is designers who see beyond current needs, wants and problems to provide opportunities for new ways of living.

types of design choice (Cockton, 2009), but Interaction Design must be. Currently, designer intuition fills the large gaps left by HCI. HCI research can close some gaps, but not all. Design by its nature is holistic and integrative, and much design work has to be tacit and intuitive to avoid being swamped by complexity. Making everything explicit and rational would make design impossible. This may be an affront to many scientists, but not to anyone who has successfully designed a launched product or service.

For any instance of any type of design choice, there are three distinct forms of work: generating options, checking options, and communicating options. I have associated three simple meta-principles with these (Cockton, 2009): *receptiveness*, *credibility* and *expressivity*. There are thus twelve possible aims for design activities, e.g., receptiveness to beneficiaries, credibility of evaluations, expressivity of purpose, or receptiveness to artefact options. HCI does not currently provide even support for each aim. HCI's support for the full range of interaction design activities is even more limited when co-ordinations between design choices are considered. For example, evaluations can be focused on design purpose, design purpose can be grounded in knowledge of beneficiaries, designed artefacts can be analytically capable of delivering on design purpose, intended beneficiaries can participate in evaluations, and so on.

Multiple connections

Such two way connections are only the start. Three and four way connections are possible. It is not enough to evaluate: evaluation results must be understandable with actionable responses; full inclusion of intended beneficiaries requires constant co-ordination with other design choices; coordination with other design choices requires that design teams are aware of the different types of design choices and their co-ordination that they have committed to. I have associated three complex meta-principles with such co-ordinations (Cockton, 2009): *improvability*, *inclusiveness* and *committedness*. Such complex meta-principles for designing expose the limits of human-centredness, which is only one aspect of well balanced and integrated

design. Generous design, however, has less to do with beneficiaries than with designers. It is designers who see beyond current needs, wants and problems to provide opportunities for new ways of living. They may draw on natural sciences, but they also draw on natural sciences, the arts and humanities. No discipline dominates design. Design is an integrator, a translator, a bridge builder, a linker, a connector, a whole that is always greater than any of its parts, but always enriched by its parts. Human-focused approaches are such parts of design, and like all parts of design, are good servants but poor masters.

HCI must abandon being a grumpy old man on the margins of design, an uninvited advocate who gets angry on the users' behalf, and a compassionate carer who feels the suffering of stressed and frustrated users. HCI must join the rest of the design team in the centre of design, because that is, and always has been, where the action is. Everything else is talk.

REFERENCES

- Brown, T. (2009) *Change by Design*. Harper Business.
- Buchanan, M. & Suri, J.F. (2000). Experience prototyping. *Proc. DIS '00*. ACM, 424–433.
- Card, S., Moran, T. & Newell, A. (1983). *The Psychology of Human-Computer Interaction*. LEA.
- Cockton, G. (2008). Revisiting Usability's Three Key Principles, in *CHI 2008 Extended Abstracts*. ACM, 2473–2484.
- Cockton, G. (2009). Getting There: Six MetaPrinciples and Interaction Design, *Proc. CHI 2009*. ACM, 2223–2232.
- Dreyfuss, H. (1955). *Designing for People*. Simon & Schuster.
- Gould, J., & Lewis, C. (1985). Designing for usability: Key principles and what designers think. *CACM*, 28(3), 300–311.
- Greenberg, S. & Buxton, B. (2008). Usability evaluation considered harmful (some of the time). *Proc. CHI 2008*. ACM, 111–120.
- Norman, D.A. (2005). Human-centered design considered harmful. *interactions* 12(4), 14–19.
- Steen, M. (2008). *The Fragility of Human-Centred Design*. IOS Press.



SUPPORTING MIGRANT WORKERS

Professor Zhengjie Liu, and graduate students Guannan Zhang, Min Li, Xiwei Bai, Dan Zhang, Zhaojie Xia, Jing Zhu and Sheng Xiao, of the Sino-European Usability Center, Dalian Maritime University, China, explore social networking sites for Chinese migrant workers.

Migrant workers in China do not currently use social networking sites

In China, there are more than 240 million migrant workers (MWs) [1], who account for around 16% of the country's population, and are the main labour force in industry. The number of such workers continues to grow as a consequence of government policies.

Social networking sites (SNS) have been rapidly gaining popularity in China in recent years. By 2010 there were 124 million SNS users accounting for about 33% of total Chinese internet users [2]. However, SNS applications have mainly involved the so-called mainstream users, i.e. urban young populations such as students and white-collar workers. The MW population has rarely been involved. A survey conducted by CNNIC on 2007 samples revealed that MW SNS users only account for 0.1% of SNS users [2].

The questions are, why do so few MWs use SNS, is there a benefit to MWs in using such sites and can they be persuaded to use SNS? In order to explore how to develop SNS applications for this under-served population, we have conducted research to answer the following questions:

- 1 Why do MWs seldom access SNS applications?
- 2 Does their social networking behaviour differ from mainstream populations and therefore need different SNS features?
- 3 Where might they need SNS applications?

- 4 How should we develop SNS applications for them?

As the first step to probe these questions, we conducted an ethnographic study to understand the nature of MWs' social relationships and their role in job-hunting practice. We also designed and evaluated a prototype SNS application, GongYou, on smart phones. The aim of this pilot design was to explore how to support MWs' job hunting and further our understanding of this population.

Story telling to explore the social networks of migrant workers

Forty-four migrant workers working in Dalian (a typical tier-2 city in China) were interviewed, and 10 of them were further interviewed in the second round, in a popular open job market in urban Dalian. They were from around the country with varying ages from 20 to 50 and educational levels mainly from elementary to junior middle schools. Their job types were varied, including cooks, workers in factories and on building sites, waiters, housekeepers and so on. In order to overcome their inability to express themselves, we used a 'story telling' method to help to encourage them to tell stories about their daily life so as to better describe their experiences and views.

We found that by differentiating social networking features, MWs' social networks can be roughly divided into two segments – the working place social network (WPSN) and the home-town social network (HTSN). Furthermore, the WPSN can be

subdivided into kinship network, fellow-villager network, fellow-MW network and employer network. The HTSN can be similarly subdivided into kinship network and fellow-villager network.

Features of MWs' social networks

The emotional closeness, familiarity and reciprocal services between MWs and their relatives and fellow-villagers in WPSN are stable and strong, although the time intensity tends to decrease as they spend more time in the urban environment (away from home). Kinship and the 'face' (*mian zi*) are the main reasons for keeping strong ties between MWs and their relatives and fellow-villagers. As they integrate into urban life, MWs build their WPSN step by step, but they are not stable. Members of the social network are kept updated about the social network in the city. Their relationship with fellow-MWs is frequently changed as their jobs change, and their relationship with employers is only temporary. A change of the MW's status from a 'junior' to a 'senior' MW influences his or her relationship with others.

Role of MWs' social networks in job-hunting

Social networking is the main way for MWs to find out about job vacancies. The WPSN plays a more important role than the HTSN in MWs' job hunting. The relationship between MWs and information providers in the social network influences their judgment of the reliability of the job information.

A pilot application

Based on the findings from the ethnographic study, we implemented a pilot design of an SNS application, GongYou, to support MWs in finding jobs. This was partly to explore how to design for this population and partly to further our understanding of their social networking. We chose young MWs, aged 19 to 29, as our target user group, and identified some special needs in their context of use to be met in designing the application.

Parallel design sessions were carried out within a design workshop to come up with a rough picture of the product. They were conducted by three pairs of participants – one ethnographic team member and one interaction designer in each pair. At the beginning of the workshop, the moderator introduced the aim of the workshop, the special features of MWs' social networking, and the role of their social relationships in job-hunting. Each pair then brainstormed and sketched the product concept with functions and presented it at the design workshop. Finally, a product concept in paper prototype was created, drawing good designs from each pair.

Following that, two rounds of user testing with four MW participants, each with a low fidelity prototype and a high fidelity prototype on an Android smart phone, were conducted to develop the GongYou concept into interaction design and UI design.

Lessons learned

From the ethnographic study and the pilot design, we gained some insights about designing SNS for this population, especially about methodology and potential obstacles to SNS acceptance.





Methods matter

The disadvantaged social-economic situations and relatively lower educational level mean that MWs are not good at understanding others or expressing themselves. They are self-contemptuous and impressionable when communicating with somebody from what they believe to be superior communities. So, in our interviews with them, we found it was difficult for them to understand some of our questions correctly and describe what they meant appropriately. In such situations they usually hesitated to ask us for further clarification, answering equivocally instead. They were also inclined to say 'nice words' based on what they conjectured to be the right answers in other people's view.

Once we realised that, we tried to use a 'story telling' method in interviewing them, as a way of giving them a relaxed atmosphere in which to express themselves naturally. At first we let them generally describe their daily life and captured cues here and there that could potentially be developed to enrich the story. These cues were then used to encourage them to tell further stories, step by step, so as to gradually get information from them that was as comprehensive and

as real as possible. We found this method worked quite well in our studies. This might mean that methods in user studies and design for this population should be re-thought carefully. Story telling might be a suitable tool to help them to express themselves and get the real thoughts behind the 'nice words'.

Potential obstacles to accepting SNS

One of the basic research questions that motivated us in this research is why MWs have not been active users of SNS. Based on what we have learned, it seems that the following may be some of the reasons:

Limited capability in using ICT

We found that MWs have more difficulties than mainstream users in typing in text (especially for Chinese characters) and in understanding system functions, information architectures and wording. In the test, we found that some got lost when the interaction depth exceeded three levels. Moreover, too many detailed categories would confuse them, and they often could not distinguish between different categories. For example, in the first prototype we categorised job information in four groups (from friends, from employers, recent news, and

recommended news). They complained it was too complicated for them. So in the second version we just categorised the job information into 'recruitment info' and 'self-recommendation info' to cater for them.

Unfamiliar with SNS culture

In our studies, we found MW participants prefer to find friends by searching for those they know, rather than people with similar interests being recommended by the system. They prefer to talk to people directly or via the phone rather than openly publishing via systems like Twitter. They are more likely to be passive information receivers than the generators of information. This may be due to their limited experiences in using ICT, especially limited opportunities to deal with their social relationships in digital media; it seems that their social networking behaviours are still mainly following the more traditional social rules or habits.

Lack of trust

MWs come from less developed rural regions and now live in a strange and maybe even unfriendly urban environment as a politically, economically and culturally disadvantaged community. They have often heard news from their friends and the media about how MWs' rights and interests have been abused. So they do not feel very secure and safe in their life. They always shy away from doing something that does not directly benefit them. This makes them less like to trust others and they are very defensive, in both the

Story telling might be a suitable tool to help them to express themselves and get the real thoughts behind the 'nice words'.

off-line and on-line worlds. In our studies, this was exhibited in their preference not to use their real-life identities online, not to believe the authenticity of online information, not to trust contracts signed online, etc.

For example, the MW participants in the user test gave us some suggestions, based on their wisdom, for how to earn money with GongYou. After we told them that GongYou charges neither employers nor MWs a service fee, they thought it incredible, as they believe in 'no charge, no trust'.

Another example is that GongYou has a function to let the user forward job information to their friends. But the participants in the test never used this function, as they saw no benefit to themselves but only potential risks for them in doing so. They said that if the information were inaccurate, they would feel ashamed and even have to take the liability.

The next step: Use of mobile based SNS

The ethnographic study and the pilot design enabled us to make some preliminary progress in tackling our basic research questions. This also put us in us in a better position to come up with a more meaningful hypothesis and plans for further studies.

For the next step, we are going to study MWs' use of QQ – a very popular internet application in China [3]. In earlier years it was noted for its instant messaging service QQ-IM. In recent years some typical SNS services like QQ Zone have been developed. From our observations, we know that a lot of MWs do use QQ on their mobile phone for chatting and gaming. We would like to know if they also use the newly available SNS services in QQ. The use of this mobile application will further our understanding of MWs use SNS and how to design for this population.

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REFERENCES

- 1 China Statistical Bureau (2010). *Report on 6th National Census in 2010*. www.stats.gov.cn/tjfx/jdfx/t20110428_402722521.htm. Accessed 12 May 2011.
- 2 CNNIC (2009). CNNIC 2009 Survey on SNS Applications in China. www.cnnic.cn/dtygg/dtgg/200911/t20091111_13744.html. Accessed 12 May 2011.
- 3 QQ. www.qq.com. Accessed 12 May 2011.



THE HUMAN CENTRED DESIGN PARADIGM



Joseph Giacomini and Steve Love outline the Brunel perspective on human-computer interaction by sharing their research activities in the area of Human Centred Design

In recent years many businesses have changed their emphasis away from matters of pure technology and manufacture, moving instead towards a growing preoccupation with how their products and services are perceived and experienced by the consumer. A growing abundance of sophisticated and relatively low cost technologies has shifted the focus away from the purely material aspects, suggesting instead the need to view the world through the eyes of the consumer.

Towards Human Centred Design

The growing focus on the consumer has led to a significant expansion of design considerations. Form and function are no longer enough, an approach is instead required which addresses matters of perception, emotion, meaning and metaphysics. The shift is evident in the progression of the paradigms which have evolved and prospered in recent decades, starting with ergonomics and moving through human factors, usability,

inclusivity, interaction design, service design and finally, most recently, Human Centred Design.

The evolving paradigm of Human Centred Design is an approach that integrates multidisciplinary expertise towards enhancing human well-being and empowering people. It leads to products, systems and services which are physically, perceptually, cognitively and emotionally intuitive to use. More than a trend or a point of view, Human Centred Design is a systematic gathering and deployment of knowledge about humans from the Arts, Humanities and Sciences.

An increased emphasis and understanding of humanity

From banks to broadcast media, and from iPhones to eyecare, a quick look around confirms the vast improvements in design which have been achieved in recent years thanks to the increased emphasis on the consumer. Brand and brand identity now permeate our environment, both

functionally and emotionally, manifesting themselves in a bewildering range of sophisticated products and services which meet people's needs.

We are today surrounded by the semiotics of humanity. Well known brands such as Apple, Alessi, BMW, Google, Ferrari, Nokia and Virgin have led the way. The key to their success has been their human centred focus, whether it be their internal organisation as companies or the look and feel of their products and services. Choosing and rescaling technologies to fit people's needs has been the trick in many cases such as Apple, while focusing on emotional engagement has made companies like Alessi a household name. The feel of a button, the simplicity of a menu, the narrative of a service or the game-like excitement of a purchasing process are all tangible manifestations of well performed Human Centred Design.

With the shift in emphasis from the artefact to the community of people there



Figure 1 Brunel University Driving Simulator

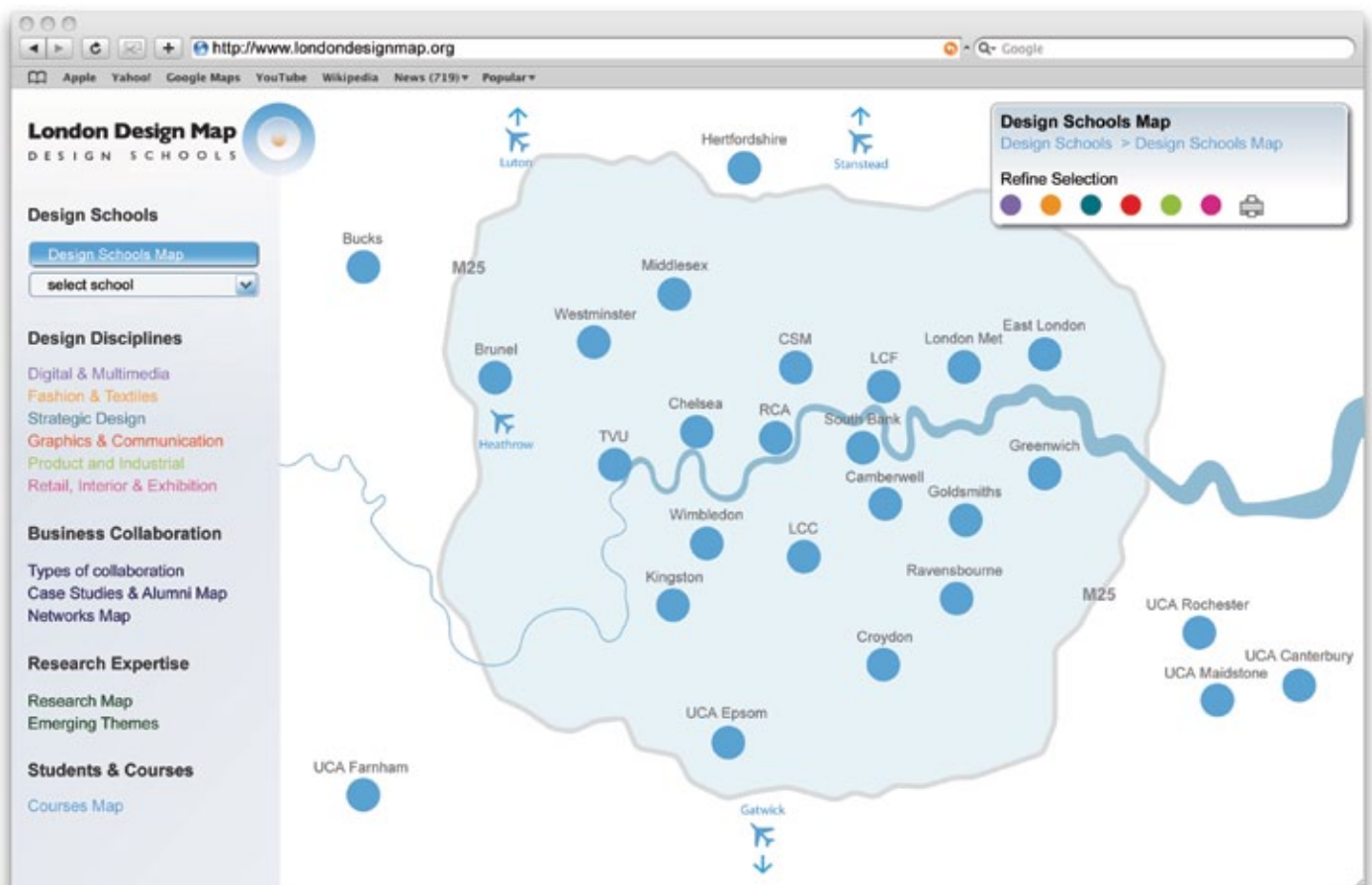


Figure 2 London Design Map



Figure 3 An augmented cognition system for bathing support

has been an accompanying growth in tension in professional circles regarding the nature of the Human Centred Design process and the skill sets required. We are all familiar with the professional figure of the Artist Designer, an individual who applies knowledge of aesthetics, materials, mechanics and perception to achieve pleasant and enjoyable objects. We also have decades of experience of working with the Engineering Designer, an individual who applies scientific and technical knowledge to achieve functional, efficient and affordable products. We are much less familiar, however, with the more recent figure of the Human Centred Designer.

What is a Human Centred Designer?

The Human Centred Designer is a relatively transparent figure who does not impose preferences on a project but, instead, conveys and translates the will of the people in order to empower them through the final design solution. The Human Centred Designer deploys techniques which communicate, interact, empathise and stimulate the people involved, obtaining an understanding of their needs, desires and experiences which often transcends that which the people themselves actually knew and realised.

Typical tools of the trade include ethnographic interviews, questionnaires,

day-in-the-life analysis, customer shadowing, fly-on-the-wall observation, activity analysis, error analysis, cognitive task analysis, conceptual landscapes, the five whys, narration, visual journals, role playing, be-your-customer, personas, scenarios, extreme users, focus groups and co-design. The Human Centred Design collection grows continuously, sometimes by borrowing from fields such as psychology or sociology, and sometimes instead by defining new analogies and approaches.

The study of the Human Centred Design paradigm

The academic study of paradigm and the development of new tools for the professional are the core mission of the Brunel University Human Centred Design Institute (HCDI). The HCDI was established in 2006 to bring together a group of internationally recognised researchers who carry out both fundamental and applied research. The mission statement of the institute is to identify the key challenges of the paradigm in the 21st century, to develop new methodologies and tools in support of the professional, to deliver postgraduate programmes in Human Centred Design and to promote Human Centred Design to business and to the general public. The HCDI works in close collaboration with a number of

designers, manufacturers and service providers, with several professional organisations and with numerous educational, academic, governmental and charitable organisations.

Several distinct strands of HCDI research exist in which particular emphasis is placed on a specific aspect of the overall paradigm. Substantial subdisciplines which are worthy of mention include Augmented Cognition; Branding, Design Strategy and Innovation; Ergonomics and Human Factors; Human Centred Design Process; Inclusive Design; Information Architecture and Perception Enhancement.

Designing to augment cognition

Augmented Cognition refers to the design and evaluation of cognitive technologies which act in partnership with humans, aiding or improving human performance (Figure 3). Typical examples of HCDI research projects in this subdiscipline include affective and emotional computing frameworks, the embedding of business intelligence into the environment, interactive and face-to-face communications in web-based systems and human behaviour toward adaptive systems.

Designing to enhance the experience

Branding, Design Strategy and Innovation

refer to tools for developing brands through the design of the total sensory experience, and management strategies for adding value through design. Typical examples of HCDI research projects in this subdiscipline include brand communication frameworks for fashion, frameworks for applying art experience in stores, frameworks for enhancing brand values in the product design process, future forecasting tools for the mobile communication industry, service design strategies to meet emotional needs and real-time feedback systems to mobilise tacit knowledge in the community.

Designing for human capabilities

Ergonomics and Human Factors refers to the designing of products, systems and services based on the science of human capabilities and limitations. Typical examples of HCDI research projects in this subdiscipline include cognitive systems for reducing driver distraction, green driving assistance (Figure 1), interaction design of mobile communication platforms, cognitive, emotional and personality effects of mobile telephone usage in public spaces and network models of aviation accident causation.

Designing the process

Human Centred Design Process refers to the development of Human Centred Design practices and processes through collaboration with a range of businesses and consultancies. Typical examples of HCDI research projects in this subdiscipline include the mapping of the specialist design research expertise in the London Region (Figure 2) and the modelling of design based knowledge transfer.

Designing for all

Inclusive Design refers to approaches for designing products, systems and services which empower people through simplicity, appropriateness and adaptability. Typical examples of HCDI research projects in this subdiscipline include anthropometric data visualisation for inclusive design, business innovation through inclusivity, design adaptation for professional-to-lay-use, development of learning systems that are attuned to individual differences and new inclusive design standards.

Designing information

Information Architecture refers to methods for designing products, systems and services which help people to understand and interact with complex data. Typical examples of HCDI research projects in this subdiscipline include information architectures for customer experience, ontological approaches for achieving



Figure 4 Brunel University Virtual World portal

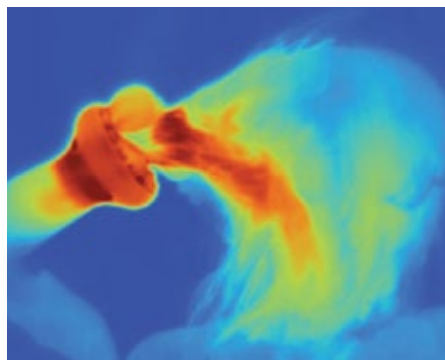


Figure 5 Thermal image of the heat from hair drying

flexible and interoperable business interactions, Massive Multiplayer Online Learning Environments and virtual collaborative environments (Figure 4).

Designing for behavioural change

Perception Enhancement refers to methods for designing products, systems and services which aid the perception of key environmental stimuli for purposes of interaction, emotion and sensory branding. Typical examples of HCDI research projects in this subdiscipline include human psychophysical response to motor vehicle stimuli, perception enhancement for automotive steering systems, perception enhancement for future aircraft and Energy Sixth Sense Design for behavioural change with respect to home energy systems (Figure 5).

THE HUMAN CENTRED DESIGN INSTITUTE AT BRUNEL

The HCDI and similar international centres of excellence provide rally points for a new and fast growing profession. Human Centred Design, in its manifold manifestations, is an important paradigm and its practitioners represent an important movement which puts knowledge from Arts, Humanities and Sciences at the service of people.

In 2007 the Harvard Business Review identified Human Centred Design as one of the year's "Breakthrough Ideas", and since then an ever growing number of businesses have deployed the paradigm in order to enhance the perception, emotion, meaning and metaphysics of their product, system or service. The many strands of research performed at centres such as the HCDI highlight the wide range of characteristics, abilities and interests exhibited by people. In fact, and in many ways, Human Centred Design can be considered a primary empirical route to understanding the very nature of people.

hcdi.brunel.ac.uk

TIREE TECH WAVE



Jakub Dostal, University of St Andrews, and Alan Dix, Talis and Lancaster University, report how designers, academics and professionals met on a remote island to make devices and hack technology.

Imagine spending five days with no pressure of deadlines, no committee meetings, no rush and stress of city life, just time and freedom to work on anything you want and hack away on interesting problems with a group of like-minded people in the beautiful, peaceful and calm environment of one of the sunniest places in the UK. This is what Tiree Tech Wave was like.

Bringing researchers together

The first aim was to bring together, on the island of Tiree, researchers involved in developing and using high-end technology, and to give them freedom to work on projects that might otherwise be put (or have already been put) on the back burner because of the pressure of life and research commitments.

This meant that when everyone arrived on the island, there were several participants from Scotland, some from other places in the UK and even one from as far away as Malaysia. Moreover, their backgrounds varied even more, from the building trade to biochemistry and linguistics, while their interests included music, mathematics and photography. An interest in computing, technology in general and the relationship between

the human and the machine were a given. However, the diversity of ages, personalities, interests and backgrounds did not work against them, quite the opposite. If anything, it resulted in a richer experience for everyone due to the different perspectives and expertise that each participant brought to the mix and shared.

A further aim of the event was to put participants in touch with members of the local community, to raise awareness of local issues and provide inspiration for possible projects on one hand, and for the members of the community to hear ideas about how technology might be able to help them. For example, the participants met with local fisherman and fire chief Sandy MacIntosh, who talked about the way fishing, as well as the life of everyone on Tiree, may change because of the Argyll Array (currently the largest wind turbine array to be planned in Scotland). Another meeting was with Clare Jones, who discussed healthcare issues, particularly focusing on caring for the elderly and the challenges the island is facing there.

Group project

So the possible projects ranged from weather forecast syndication to

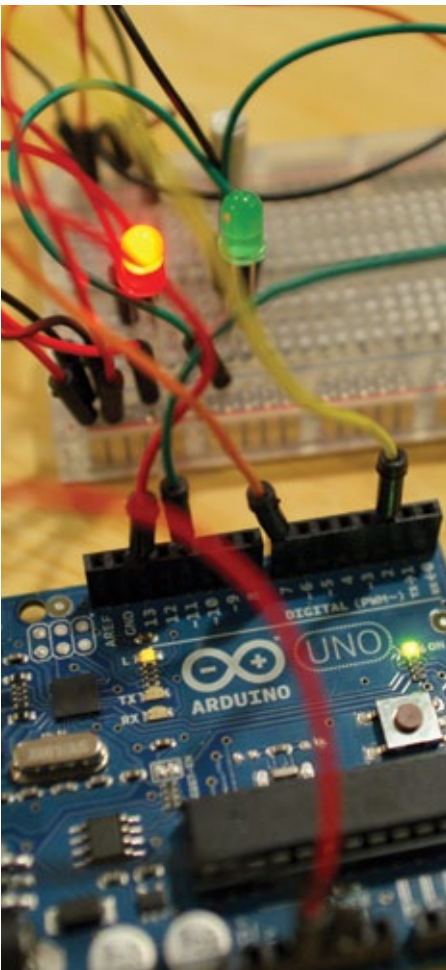
instrumented home mats for fall detection. Because of the time and resource constraints the participants were facing, it was decided that the main group project would be the 'Fish-Van-Open detector and visualisation'.

This consisted of an Arduino board with a tilt sensor fitted to a mock-up of the fish and chip van hatch, which sent a tweet via SMS (emulated by a helpful stooge) when the hatch opened or closed. The tweets contained known phrases ('#tireefishvan open' and '#tireefishvan closed'), which were detected using the Twitter API by a small processing app on another internet-connected computer. Finally the presence of the key tweets was used as a trigger to control a second Arduino board in a small model fish and chip van. The board controlled a small motor, which opened the hatch on the model van when the real van was open. This might be on the shelf of an islander who then knows when to go to get supper, or maybe bought by a visitor to give them an ongoing sense of connection to their holiday paradise when back home.

While the choice of the group project was unusual, it demonstrated several important aspects of the interactions at the event. Even a seemingly simple project



At the first Tiree Tech Wave: Azizah Jaafar, Stephen Forshaw, Edward Hartley, Graham Dean, Michael Crabb, Jakub Dostal, and Alan Dix.



like this generated discussions on a wide range of aspects, covering anything from the low-level hardware requirements that would guarantee low cost for a working solution, to the broad social impact on human interaction on the island that the introduction of a system like this might cause.

Show and tell

Finally, let us not forget the other projects that were finished by the time the event ended with an open 'show and tell' session for islanders. They included a virtual dog, a robot arm and a pressure-sensitive mat,

and of course a working prototype of the fish-and-chip system complete with a model van that opened and closed based on the Twitter messages.

All the participants left with plenty of ideas of things to consider and explore. To illustrate the enthusiasm Tiree Tech Wave generated, even before they left, they were already discussing ideas for the next Tech Wave and how to make it an even greater success.

If you are interested in learning more about Tiree Tech Wave or participating in the future, visit tireetechwave.org for information, images and contact details.

Although the group project sounds (and was!) light-hearted, there are some important issues at play, both technological (such as the use of Twitter as communications middleware) and philosophical (such as the remote physical re-representation of virtual abstractions of reality).

However, perhaps most interesting was the way this small exemplar touched on many key issues of rural and island life. One is the combined problem of scarcity of services and distance. Although an island seems small, in fact with a distance of 14 miles end to end, it is possible to have driven 15 minutes only to find that you mistook

the opening hours and the fish van is closed. In a city you can just go on to the next takeaway, but on the island you may find yourself with no supper at all! Such issues make communication and planning even more critical in rural settings than in the city where one has a wider range of choices.

The roles of individuals are also crucial. In the city there are many take-aways and many employees in each; in a more dispersed rural community many services are one-person businesses: if the owner/proprietor is sick or on holiday, the service may cease. This can also affect critical services such as health or policing.



THE FUTURE OF HUMAN-COMPUTER INTERACTION

Dr Rich Picking, Reader in Human-Computer Interaction, Glyndwr University, Wrexham, Wales, aims to open up a debate on how we think we will interact with computers in the future.

Of course, no-one can truly predict the future, but we can analyse trends, propose new paradigms, and present models and frameworks to help us justify and rationalise our arguments. In this deliberately controversial article, I will touch briefly on all three with a few opening gambits that will hopefully provoke an ongoing series of contributions from the wider *Interfaces* community.

The trends

It's clear that interactive devices have followed a number of observable trends over the years.

- They are becoming faster and smaller, and in line with Moore's Law, they are doubling in these factors about every two years. Some futurologists, such as Ray Kurzweil, believe that this phenomenon will

result in the *singularity event*, where computers will become so powerful that they will effectively exceed human intelligence. Whether this will happen however, depends not only on Moore's Law holding true, but also on whether we (or the computers themselves) can actually program the artificial intelligence. Both these pre-requisites are areas of heated debate. Many singularity proponents predict it will happen around the middle of this century, whereas the detractors think it will never happen at all.

- They are becoming ubiquitous. Mark Weiser's famous 1991 statement:

The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it.

is certainly evident in our current everyday society. Whether they are truly invisible (such as the computer devices in appliances and automobiles) or are now so common that they are not perceived as computers (such as a smart-phone), we have grown to accept and expect interactive computer systems to support many of our activities of daily life. The next logical development is to enable this plethora of devices to communicate with one another as well as with their human clients. This *Internet of Things* may well prove to be the big technological advance in the coming decade.

- As time goes on, the number of people using interactive computers is forever increasing. This is leading to new groups of users, with specialist usability requirements. We need to

be mindful of the need for adaptation and personalisation of our future devices to accommodate such diversity. For example, the increasing older population will be more reliant on interactive devices that monitor and communicate their wellness, as well as providing lifelines to reduce loneliness and to support independent living. Designing for older people will become much more important in the relatively near future.

New paradigms

One of the most attractive things about the field of human–computer interaction is that as soon as we think we have solved the majority of user interface design problems, something else comes along to give us new challenges. This has happened many times over the past 30 years or so, such as the advent of the World Wide Web and hypertext, multimedia, mobile and context-aware computing, the aforementioned ubiquitous computing, augmented reality – to name just a few. In the future, it will be interesting to see which new approaches will experience success. Accurate speech interaction and autonomous robots have long been cited as the future of human–computer interaction, but in these areas of artificial intelligence, the results have so far been relatively disappointing. Will this change? For there to be a significant leap (a paradigm shift, perhaps), I would argue that there needs to be a major breakthrough in technology before we can move towards truly intelligent interaction, perhaps at the molecular level, such as in the domain of DNA nanotechnology. New paradigms present us with other less palatable problems, however, for example issues of ethics, privacy, and security. Ultimately, human–computer interaction will become an important topic for sociologists, philosophers and politicians. Maybe it already is?

Models and frameworks

No matter how advanced our technologies become, the fundamental issue of usability will always prevail. Looking back a little into history, we might ask ourselves why some interactive computer systems have been successful, when others failed so miserably. In 2006, John Canny of The University of California, Berkeley, wrote (in an article with the same title as this) in ACM Queue magazine:

... if you've tried interacting with a nontrivial smart-phone application, you'll know what an ordeal it can be. There has been a brave effort to evolve it from its WIMP interface

No matter how advanced our technologies become, the fundamental issue of usability will always prevail.



roots, but it just feels wrong – like a shark in a shopping mall.

Less than six months later, Steve Jobs was unveiling the iPhone, and the rest we know. Such quotes not only demonstrate how difficult it is to predict the future, but also enable us to wonder why the iPhone was such an immediate success compared to other products available at the time. Of course, the iPhone is a marvellous innovation, and it is an example of beautiful design. However is its real genius in its usability? One thing Apple have proved many times over the years is that they make sure the execution–evaluation interaction cycle is optimised. Gregory Abowd and Russell Beale's *interaction framework* may not be as well known as Don Norman's model of interaction, but its four stages of user articulation, system performance, system presentation, and user observation highlight for me that Apple have made sure that their

successful products perform extremely well at all four stages. Less successful products have weaknesses in one or more of these areas. Future interaction devices will only be successful if they follow a similar philosophy, and conform to our established models and frameworks.

The debate

I would like to finish this article by posing some questions that readers of this publication might ponder and consider answering by contributing future articles to this publication.

- What is the next big thing for human–computer interaction?
- What about the next 20, 30, 50, 100 years?
- What part will ethics play in the future?
- And finally, what are the other questions?

HCI2011 AND BEYOND



Russell Beale, Birmingham University and next year's conference chair, invites us all to think about the real value of attending a conference: be 'present', contribute to its design to ensure it is valuable and above all make sure your contribution as an academic will get you remembered.

The unexamined (academic) life is not worth living

With apologies to Socrates, in Plato, *Dialogues*, Apology (469 BC – 399 BC)

Conference season is upon us

Conference season is here again: academics meeting in darkened rooms to hear the latest research, discussing in learned tones the issues of the day; professional development at its best; pioneering developments in the field disseminated to all. Or maybe it's just an excuse for a piss-up. Certainly I see many people sitting in darkened lecture theatres, but so many of them are writing their next paper for the next conference, living a life in limbo on a Sisyphistic merry-go-round as each conference is merely a stepping stone to the next – or they are doing admin tasks via email, effectively being back at their home university.

It makes me wonder what a conference is for, especially in these financially straitened and politically scrutinised times: are you using taxpayers' money to best effect? Are you really benefiting from being

here? This is important to consider, since we need to ensure that the conference, a slowly evolving beast, is still fit for purpose, and hence we need to examine what that purpose really is.

For sure, it is a dissemination route – though a PDF visible on Google Scholar is arguably more effective. It is a networking opportunity: a chance to renew friendships, meet the great and the good (and the loud and the meek, the awful and the unusual) – but so often, those who you really want to see are not at the conference at all.

So, what are conferences good for?

There will be many views, but mine, for HCI conferences, are that they are great for:

- 1 Introducing new researchers to the breadth and depth of HCI work,
- 2 Renewing friendships, making new acquaintances – an essential feature in an interdisciplinary field, and one that often leads to papers and grant applications,
- 3 Socialisation of ideas and research

agendas – exposing new work and ideas to the wider scrutiny of peers, to get friendly but critical feedback on the concepts, direction or strategies employed,

- 4 Obtaining a quick overview of the current direction, health and quality of the field,
- 5 Replenishing enthusiasm for one's field – if you see good work you are excited and motivated by it, and if you see bad you realise your work is so much better and that pleases you. But then I'm a 'glass half full' person, and I can see it could work the other way round – but then maybe those sorts of people don't come to conferences: equally, if we meet in the bar, feel free to top up my glass half full...
- 6 Simply spending time just immersed in HCI and being around people who 'get' HCI is refreshing.

I don't really think conferences are about the papers – at least, not the details – the talks and presentations merely signpost the work that you'll go and read in more

detail later. Nor are they about serious research conversations – those happen after the human and idea socialising that the conference facilitates.

Help design the conference to fulfil your goals

Having decided what a conference is for, we need to consider our conference itself and see if it's structured correctly to support those characteristics, and also to consider if there are other desirable features that we would like to see, but which aren't currently there.

And on this, you can comment directly to me – we're running next year's HCI conference, and so have the opportunity to change it in subtle ways, as each institution does – so if you want to add things to my list of conference advantages, or want to suggest novel ways of achieving desirable goals, please come and talk to me about it during the conference, or email me with ideas.

The conference should be fun, life-affirming, educational, motivational, social; it should improve your research, develop your career, help you to help others, create and nurture the community. Each conference chair and committee tries to do this, and all succeed and fail in different areas, and we will be no different – but do let me know what you'd like to see...

Make your research matter

But academia is not just all about conferences: it's about education, about scholarship, about discovery, knowledge, administration, management, and so on. It is all too easy to get wrapped up in the minutiae of everyday operations and lose sight of the larger picture. Prof. Harold Thimbleby keeps asking me: 'What will you be remembered for when you're dead?' – disconcertingly direct, but with a razor-sharp focus on the important issue. He means, are you working on something interesting, worthwhile, challenging – or have you just drifted into doing stuff because that's what we have to do. Yes, we have to perform for REF, and we have to manage colleagues and students and time and so on – but we should do that by focusing on key priorities, goals and principles, and working hard, assiduously and scientifically towards those – not just writing another mediocre paper in the back of a darkened lecture hall.

So, maybe that's one final thing the conference can do: it can allow you to refocus your work, and discuss your direction with colleagues. It can give you your gravestone inscription...

www.cs.bham.ac.uk/~rxb

HCI2011 KEYNOTE SPEAKERS



The future of looking back

Abigail Sellen
Principal Researcher at Microsoft Research, Cambridge, UK, and co-manager of Socio-Digital Systems

The 'e-memory' revolution, as it is sometimes called, is the idea that through technology, we will soon be able to capture, store and access a complete record of everything that has ever happened to us, whether we are on-line or not. It is not a single technology *per se*, but refers to a whole ecosystem of systems and devices, such as new kinds of recording devices, tools for visualising and managing data, the seemingly vast storage capacity of the cloud, and our increasingly networked world.

For some, this vision allows us to imagine a bold new world full of exciting possibilities where we are all provided with a back-up memory for our own, fallible, organic memories, helping us transcend our inherent limitations and achieve new heights. For others, it triggers concern about an increased dependency on technology in our everyday lives, the growing complexity of life in the digital age, and concerns about our privacy.

So is our ever-growing digital footprint something we can delight in, and something which can make us all happier and healthier? Or are these expanding personal archives something which we will increasingly need to worry about, manage, and control?



Computing where it matters

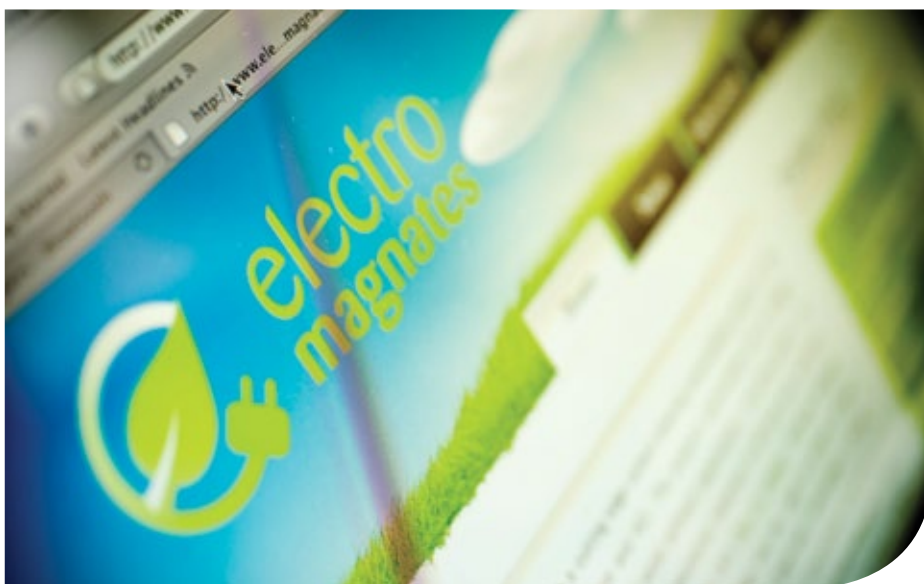
Gregory D. Abowd
Distinguished Professor, School of Interactive Computing, Georgia Institute of Technology

If you had asked me 20 years ago, upon receiving my doctoral degree, what I would be doing in 2011, I am not sure what I would have said. The British HCI Conference was my first academic community, and it gave me the confidence to launch my own career back in the United States. But that career has taken many turns that I could not have predicted.

In September 1991, I defended my thesis research. During that same month, Mark Weiser published his seminal article on ubiquitous computing in *Scientific American*. It would be four years later, as a new faculty member at Georgia Tech, that I would first read that article and it changed my career. Raising two sons with autism has also changed my life, giving me the opportunity to apply computing to a real world challenge and work with the people who have to address those challenges. A human-centred approach to computing lends itself to understanding the role of technology with respect to problems of the real world. We should feel good about that, but I think it does create an identity crisis for HCI. Using my own career as an example, I want to reflect on the tension between human-centred computing and HCI research.

Conference dates: 4–8 July 2011, Northumbria University, Newcastle, UK

For more information: www.hci2011.co.uk, hci2011@northumbria.ac.uk



DEREK FOSTER CARBON CUTTING: SOCIALLY MEDIATED ENERGY REDUCTIONS IN THE WORKPLACE

The responsible consumption of energy in both domestic and workplace environments is a contemporary issue of considerable importance. It is generally acknowledged amongst scientists and, increasingly, politicians and corporations that current levels of energy consumption are not sustainable [1]. A recent report [2] has indicated that if the 17 million UK workers who regularly use a desktop PC powered it off at night this would reduce CO₂ emissions by 1.3 million tons – the equivalent of removing 245,000 cars from the road. The UK's commercial and services sector, which covers education, is responsible for 12% of the UK's total energy consumption [3].

Therefore, despite public sector governmental carbon policies coming to the fore, there is still much to gain by exploring new ways of persuading people to adopt positive energy usage behaviour whilst at work. The big-picture value of successful research endeavours such as these is very real, with cascading benefits – by reducing CO₂ emissions we can reduce the environmental impact, constrain energy shortages and limit the incumbent economic repercussions.

The contribution to the HCI domain is an understanding of how we can effectively incorporate sustainable ideals and timely feedback into social media technologies, and thereby motivate positive behaviour change in institutional energy consumption.

Persuasive technologies for sustainability

The HCI community has recently shown a great deal of interest in the development of interactive systems that facilitate behaviour change for sustainability, collectively known as 'persuasive technologies', a term coined by Fogg [4]. Much of this research has exploited ideas recently re-popularised by Thaler and Sunstein [5], that individuals can be 'nudged' to make better lifestyle decisions, given the right information and the environment in which to do so.

A great deal of this work has focused on how individuals might improve their own private and domestic lifestyle, behaviour, and sustainable resource consumption; however such work has rarely taken account of the fact that people spend a significant amount of their waking hours at work where they also contribute towards resource consumption.

The domain of environmental psychology has extensively researched pro-environmental/sustainable behaviour. A systematic review of the contribution environmental psychology has made to understanding pro-environmental behaviour was carried out by Steg and Vlek [6]. The review identifies target behaviours to promote, and the correct application of interventions in changing behaviour to reduce negative environmental impact. However, there is no link back to HCI design methodologies

in any of the environmental psychology literature reviewed. Despite the absence of contemporary HCI literature in environmental psychology, recent HCI work has identified the need to refer to domains such as environmental and social psychology [7] when designing sustainable interventions.

Organisational energy usage

Most of the research carried out by the HCI community in sustainability, in reference to reducing energy usage, has been carried out in the domestic environment [8]. My PhD research direction, however, focuses on non-domestic environments, specifically organisational or corporate settings, which pose different challenges to those of the domestic domain.

Encouragingly, a study into organisational energy usage was carried out by Siero et al. [9], and demonstrated that when a group of employees received information not only about their own energy usage, but also about that of a 'competing' group of similar people, they significantly altered their energy usage behaviour. Despite the success of the work by Siero et al. some 14 years ago, little research since has explored energy behaviour interventions based on competition between employees.

My PhD research aims to fill this gap as well as augment the approach of Siero et al. with contemporary social media technologies – including the adoption of relevant environmental and social psychology methodologies. The work is part-funded by the Electro-Magnates project from HEFCE's Leadership, Governance and Management fund, about which more information is available at www.electro-magnates.com.

Energy feedback through social media

In previous relevant research, I carried out several energy studies in the domestic environment to explore the efficacy of energy feedback delivered using Online Social Networks (OSNs).

Wattsup

The first study, 'Wattsup' [10], investigated reducing energy consumption in the home using off-the-shelf home energy monitors coupled with a bespoke Facebook application. Live energy data from the monitors was displayed socially, effectively introducing *social norms* in the 'Wattsup' Facebook application. This further facilitated friendly banter and social competition between participants while another condition of the study was delivered non-socially.

Qualitative findings suggested participants enjoyed the social banter

(through 'comments' feeds) resulting in a total of 130KwH units of energy saved when in the social condition. Conversely, we have used the same experimental design of testing social vs. non-social conditions to target an increase in physical activity and found incorporating a social context to be a successful approach [11].

Power Ballads

Our second domestic energy study utilising social media, 'Power Ballads' [12], introduced *aversive feedback* as a delivery mechanism for domestic energy usage. Work by other researchers in persuasive technologies has previously suggested the use of aversive feedback should be avoided as it leads to a lack of engagement by users [14]. Power Ballads evaluated whether punishment of non-desirable behaviour discourages users from engaging with a persuasive application in the context of energy consumption; our findings indicated this didn't hold true.

By building on our completed work so far, in particular the innovative and evocative use of social media, we are currently focusing on the challenging area of organisational/institutional environments to bring about behaviour change in employee energy usage habits.

The next steps

PhD research completed to date includes a comprehensive review of work in the area of domestic and workplace energy interventions. Additionally, I have built a significant software framework for 'back-end' energy data collection from dozens of metered buildings within the University of Lincoln's campus infrastructure; this has captured 18 months of baseline energy data.

We believe in the positive ethics and transparency of *opendata* and have built a Restful API to support this and implemented a scalable solution by mirroring all energy data across campus on Pachube's cloud data infrastructure [13], effectively opening up the live and stored energy data for consumption publicly.

The next stage of my research is collaboratively carrying out several day-long energy-themed workshops involving stakeholders and employees from a number of universities and local authorities, to better understand employee perceptions and attitudes towards energy usage habits in the workplace. The workshops will be closely followed by several parallel longitudinal energy intervention studies with experimental designs based on the workshop findings.

www.derekfoster.net



Derek Foster is currently in the second year of his PhD studies at the University of Lincoln within the School of Computer Science. He completed a BSc in Internet Computing at Lincoln and then went on to complete an MSc in Human-Centred Interactive Technologies at the University of York before returning to Lincoln for his PhD. His research is supervised by Professor Shaun Lawson and carried out within the Lincoln Social Computing (LiSC) Research Centre.

MY PHD

If you are a PhD student just itching to tell the world about your research or if you've enjoyed reading about some of the emerging areas of research that the My PhD column has recently discussed then we would like to hear from you.

We are currently accepting one to two page summaries from PhD students in the UK and across Europe with a focus on being open and accessible to everyone in the HCI community.

If you would like to submit or would just like more information please contact Professor Shaun Lawson using the contact information below.

Dr Shaun Lawson, Professor of Social Computing, Director, Lincoln Social Computing (LiSC) Research Centre, University of Lincoln, UK

<http://lisc.lincoln.ac.uk/shaunslawson@lincoln.ac.uk>

REFERENCES

- 1 IPCC (2007). *IPCC Fourth Assessment Report: Working Group I Report "The Physical Science Basis"*. www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html. Accessed 10 May 2011.
- 2 1E (2009). *PC Energy Report 2009*. www.1e.com/energycampaign/downloads/PC_EnergyReport2009-UK.pdf. Accessed 10 May 2011.
- 3 DECC (2010). *Digest of United Kingdom energy statistics 2010*. www.decc.gov.uk/en/content/cms/statistics/publications/dukes/dukes.aspx. Accessed 10 May 2011.
- 4 Fogg, B.J. (2003). *Persuasive Technology – Using Computers to Change What We Think and Do*. Morgan Kaufmann, San Francisco.
- 5 Thaler, R., and Sunstein, C. (2008). *Nudge: Improving Decisions About Health, Wealth, and Happiness*. Yale University Press.
- 6 Steg, L., and Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. In *Journal of Environmental Psychology* 29(3), 309–317.
- 7 DiSalvo, C., Sengers, P., and Brynjarsdottir, H. (2010). Mapping the landscape of sustainable HCI. In *Proc. CHI 2010*, 673–680.
- 8 Chetty, M., Tran, D., and Grinter, R.E. (2008). Getting to green: understanding resource consumption in the home. In *Proc. Ubicomp 2008*, vol. 344.
- 9 Siero, F.W., Bakker, A.B., Dekker, G.B., and Van Den Burg, M.T.C. (1996). Changing organizational energy consumption behavior through comparative feedback. In *Journal of Environmental Psychology* 16, 235–246.
- 10 Foster, D., Lawson, S., Blythe, M., and Cairns, P. (2010). Wattsup?: Motivating reductions in domestic energy consumption using social networks. In *Proc. NordiCHI 2010*. ACM Press.
- 11 Foster, D., Linehan, C., Kirman, B., Lawson, S., and James, G. (2010). Motivating physical activity at work: using persuasive social media for competitive step counting. In: *14th MindTrek Conference*. ACM Press.
- 12 Foster, D., Linehan, C., Lawson, S., and Kirman, B. (2011). Power ballads: deploying aversive energy feedback in social media. In *Proc. CHI 2011*, Vancouver, Canada (in press).
- 13 Pachube (2011). www.pachube.com. Accessed 10 May 2011.
- 14 Consolvo, S., McDonald, D.W., and Landay, J.A. (2009). Theory-driven design strategies for technologies that support behavior change in everyday life. In *Proc. CHI '09*, 405–414.

INTERACTING WITH COMPUTERS



Current issues

Recent issues of *Interacting with Computers* can be accessed via the ScienceDirect or Journal websites www.sciencedirect.com/science/journal/09535438 and www.elsevier.com/locate/intcom. Volume 23, Issues 2 and 3 both consist of regular papers whilst the forthcoming Issues 4 and 5 are Special Issues on 'Feminist HCI', edited by Shaowen Bardzell and Elizabeth Churchill, and 'Cognitive Ergonomics for Situated Human-Automation Collaboration', edited by Willem-Paul Brinkman, Mark Neerincx and Herre van Oostendorp. The Feminist HCI issue is the first-ever set of refereed journal papers to be published on this emerging topic.

Recent papers

The ScienceDirect page also gives access to accepted *Articles in Press* awaiting printed publication. These papers can be cited with a doi, and can be downloaded in full. Recently accepted papers can be viewed here or through the journal's Facebook and LinkedIn groups.

Future Special Issues for 2011 and 2012

Four Special Issues are currently in preparation or have live calls for submissions. See the cfps or contact the guest editors for further information. We are happy to receive proposals for Special Issues on interesting, up-to-the-minute and new areas of HCI research – but we no longer accept proposals which are based solely on selections from workshops or meetings. All future Special Issues must have an Open Call.

IwC news

An active and, again, very well attended, Editorial Board meeting at the CHI 2011

conference learned that IwC's speed of throughput of papers is one of the highest in the field and that our excellent Impact Factor ratings (1.698 with the 5-year factor at 1.911) seem likely to be maintained.

An indication of our successful position in the ranks of all HCI journals can be found at the Microsoft Academic Search site where we are regularly placed in the top five. See academic.research.microsoft.com/RankList?entitytype=4&toPDomainID=2&subDomainID=12&last=5&start=1&end=100.

Welcome to two new Editorial Board members: Dr. Shaowen Bardzell (Indiana University, USA) and Dr. Javier A. Bargas-Avila (Google Switzerland).

Online access

As ever, you can access *Interacting with Computers* online and see, on the IwC homepage, the latest papers,

most downloaded articles, up-to-the minute citation statistics and calls for submissions. Join us also at:

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Annual Interacting with Computers Most Cited Paper Award

The winning paper is 'Fundamentals of physiological computing', by Stephen H. Fairclough from Liverpool John Moores University. It was published in 2009, Vol. 21(1–2), pp. 133–145, and is a review paper concerned with the development of physiological computing systems that employ real-time measures of psychophysiology to communicate the psychological state of the user to an adaptive system. Such research

can help foster the development of 'smart' technology. Access the relevant websites at:

- Research website:
web.me.com/shfairclough
- Physiological Computing Blog:
www.physiologicalcomputing.net/wordpress
- School website:
www.ljmu.ac.uk/nsp

Volume 23, Issue 2 (March 2011)

- Stella Mills:** Caring through technology: Using e-mail for Christian pastoral care
- Benjamin R. Cowan, Mervyn A. Jack:** Exploring the wiki user experience – the effects of training spaces on novice user usability and anxiety towards wiki editing
- Kine Dørum, Kate Garland:** Efficient electronic navigation – a metaphorical question?
- Markel Vigo, Giorgio Brajnik:** Automatic web accessibility metrics – where we are and where we can go
- Stefano Burigat, Luca Chittaro:** Visualizing references to off-screen content on mobile devices – a comparison of Arrows, Wedge, and Overview+Detail
- Rafael Tezza, Antonio Cezar Bornia, Dalton Francisco de Andrade:** Measuring web usability using item response theory – principles, features and opportunities
- Rasmus Rasmussen, Anders S. Christensen, Tobias Fjeldsted, Morten Hertzum:** Selecting users for participation in IT projects – trading a representative sample for advocates and champions?

Volume 23, Issue 3 (May 2011)

- François Courtemanche, Esma Aïmeur, Aude Dufresne, Mehdi Najjar, Franck Mpondo:** Activity Recognition using Eye-gaze Movements and Traditional Interactions
- Ravi Kuber, Huimin Qian, Andrew Sears, Emma Murphy:** Maintaining and Modifying Pace through Tactile and Multimodal Feedback
- Christian Hübscher, Stefan Pauwels, Sandra P Roth, Javier A Bargas-Avila, Klaus Opwis:** The organisation of interaction design pattern languages alongside of the design process
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- Barbara Patterson, Heike Winschiers-Theophilus, Les G Underhill, Tim T Dunne, Britta Schinzel:** A cross-cultural evaluation of usability testing - a case study based on a hypermedia system for rare species management in Namibia
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- Johannes Moskaliuk, Andreas Rath, Didier Devaurs, Nicolas Weber, Stefanie Lindstaedt, Joachim Kimmerle, Ulrike Cress:** Automatic detection of accommodation steps as an indicator of knowledge maturing
- Seungmoon Choi, Sunghoon Yim, Sungkil Lee:** Evaluation of Motion-Based Interaction for Mobile Devices: A Case Study on Image Browsing
- Sergio L. Toral, Maria Roco Martinez-Torres, Federico Barrero:** Identification of the Design Variables of eLearning Tools

Volume 23, Issue 4 (July 2011) Special Issue: Feminist HCI (Eds. Shaowen Bardzell, Elizabeth Churchill)

- Michael Muller:** Feminism asks the 'Who' Questions in HCI
- Ann Light:** HCI as Heterodoxy - technologies of identity and the queering of interaction with computers
- Nancy Van House:** Feminist HCI Meets Facebook: Performativity and Social Networking Sites
- Nalini Kotamraju:** Playing Stupid, Caring for Users, and Putting on a Good Show - Feminist Acts in Usability Work
- Phoebe Sengers, Steve Harrison, Deborah Tatar:** Making Epistemological Trouble - third-Paradigm HCI as Successor Science
- Sheryl Brahnam, Marianthe Karanikas, Margaret Weaver:** (Un)dressing the Interface - exposing the Foundational HCI Metaphor 'Computer Is Woman'
- Jennifer Rode:** A Theoretical Agenda for Feminist HCI
- Jill Dimond, Casey Fieslera, Amy Bruckman:** Domestic Violence and Information and Communication Technologies

Special Issues

- Inclusive Design in the Context of Social Media and Emerging Technologies.* Editors: Jim Ang, Ania Bobrowicz, Panayotis Zaphiris, Ben Shneiderman
- Presence and Interaction.* Editors: John Waterworth, Eva Lindh Waterworth, Fabrizia Mantovani, Giuseppe Riva
- Organic User Interfaces.* Editors: Audrey Girouard, Roel Vertegaal, Ivan Poupyrev
- Context-driven Human Environment Interaction.* Editors: José Bravo, Diego Lopez-de-Ipía, Ramn Hervás

CALLS AND COMMUNICATIONS

Call for Papers

OzCHI 2011

Design, Culture and Interaction

28 November – 2 December 2011

Australian National University, Canberra, Australia

OzCHI is Australia's leading forum for work in all areas of Computer-Human Interaction. It attracts an international community of practitioners, researchers, academics and students from a wide range of disciplines including user experience designers, information architects, software engineers, human factors experts, information systems analysts, social scientists and managers. The conference also welcomes perspectives from design, architecture, engineering, planning, social science and creative industries among other disciplines.

OzCHI is the annual conference of the Computer-Human Interaction Special Interest Group (CHISIG) of the Human Factors and Ergonomic Society of Australia (HFESA). OzCHI is held in cooperation with the ACM and accepted papers will be lodged with the ACM Digital Library.

The conference theme, 'Design, Culture and Interaction' reflects both the global nature of HCI and the diversity of cultures within which people incorporate interactive use of computers in their daily lives and within which HCI practitioners and researchers conduct their research and build their applications.

Conference Chair Duncan Stevenson, Australian National University

Submission deadline 2 September 2011: Submission of Short papers, Demos,
Doctoral Consortium applications, Student Volunteer applications

www.ozchi.org

Call for Participation

Tiree Tech Wave

A hands-on making and meeting event
exploring the edges of technology on the
wild edge of Scotland

4 – 8 November 2011

Isle of Tiree, Scotland, UK

Following the exciting first TTW in March (see article in this issue), we will be meeting again in the autumn. The Atlantic fringe was the haven of scholarship through the Dark Ages and is the haunt of wind-surfers today. The Tech Wave tries to capture a little of the spirit of each; from mashups to breadboards, Arduino to RDF, we will consider the social and philosophical challenges of technology by engaging directly with it. Come to take time to explore ideas that keep being put on the backburner, to be stimulated by others, or simply to be intellectually refreshed.

tireetechwave.org

Call For Papers

CHI 2012

Austin, Texas, USA

5 – 10 May 2012

The ACM SIGCHI Conference on Human Factors in Computing Systems is the premier international conference on human-computer interaction. CHI 2012 focuses on the centrality of experience – from the models, theories and practical insights we need to understand and design for user experience to the irreplaceable value of experiencing innovation in our field through hands-on interactivity.

The experience of CHI 2012 is centred in vibrant Austin, Texas, the Live Music Capital of the World®. Home to the University of Texas and the annual SXSW music, film, and interactive festival and conference, Austin offers CHI attendees state-of-the-art conference facilities together with outstanding food and vibrant nightlife. We look forward to joining you in Austin for the CHI 2012 Experience!

General Conference Chair Joseph A. Konstan, University of Minnesota

Technical Program Chairs Ed H. Chi, Google, Kristina Höök, Stockholm University and SICS

Submission deadlines 23 September 2011: Papers & Notes (opens 22 July 2011)

30 September 2011: Courses

7 October 2011: Case Studies, Doctoral Consortium, Panels,
Workshops (Organisers)

13 January 2012: alt.chi, Interactivity, SIG meetings, Videos,
Student Competitions, Works-In-Progress, Workshop Participants

chi2012.acm.org

INTERACT 2011

13th IFIP TC13 Conference on
Human-Computer Interaction

5 – 9 September 2011

Lisbon, Portugal

The theme of the INTERACT 2011 conference, Building Bridges, recognises the interdisciplinary and intercultural spirit of Human-Computer Interaction research

www.interact2011.org

i-USER 2011

The 2nd International Conference on
User Science and Engineering 2011

29 November – 2 December 2011

Shah Alam, Selangor, Malaysia

The i-USER 2011 conference aims to address the main issues of concern within HCI, especially the design, development and implementation of interfaces and the generational implications for design of human and technology interaction.

www.iuserconference.org

CALLS AND COMMUNICATIONS

Call for Papers

The Theory and Practice of Embodied Interaction in HCI and Interaction Design

A Special Issue of ACM Transactions on Computer-Human Interaction (ACM TOCHI)

Editors: Paul Marshall (University of Warwick), Alissa N. Antle (Simon Fraser University), Elise van den Hoven (Eindhoven University of Technology), Yvonne Rogers (The Open University)

Submission deadlines: 8 July 2011, proposals

28 October 2011, papers due

Suitable topics include, but are not limited to:

- Critiques of theories of embodied interaction
- New perspectives on embodiment
- Case studies where an embodied perspective has been applied
- Taxonomies of perspectives on embodied interaction
- New approaches to design
- In depth studies of systems employing embodied interaction
- Description of the design of systems from the perspective of embodied interaction
- Analysis or evaluations through the lens of embodiment
- Reflections on the unity of the research program on embodied interaction
- Frameworks on embodiment in HCI
- Analyses of the strengths and weaknesses of different perspectives
- Comparisons of embodied interaction with other theoretical perspectives, such as situated action.

tochi.acm.org

UX Australia 2011

23 – 26 August 2011

Sydney, Australia

UX Australia 2011 is a 4-day user experience design conference, with a day and a half of workshops and two days of presentations about designing great experiences for people.

[uxaustralia.com.au/
conference-2011](http://uxaustralia.com.au/conference-2011)

MobileHCI 2011

30 August – 2 September 2011

Stockholm, Sweden

Covering the design, evaluation and application of techniques for mobile and wearable computing devices and services.

www.mobilehci2011.org



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BCS Interaction Group is served by regionally based sub-groups with representatives from a broad range of academic and industrial centres of HCI interest. The sub-groups meet informally every few weeks to progress work, and all participants are committed to promoting the education and practice of HCI and to supporting HCI people in industry and academia. For contact details of the people in each sub-group, please select from the following:

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