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welcome from the conference chair

DESIGN: OPEN 24/7

Yes, we are open! Despite adverse economic and financial conditions, the OZCHI 2009 organising committee succeeded in putting together five days jam-packed with opportunities to present, share and discuss research and development work, engage in cutting edge HCI topics, catch up with old friends and colleagues, and meet new ones. I welcome you to the 21st OZCHI conference.

The 2009 conference theme is **Design | Open 24_7**. Accessibility, inclusivity and dissolving boundaries are core to this year's theme for the design of human interaction with and through digital technologies. The integration of digital technologies into our everyday life allows for a seamless transitioning between open and closed, work and leisure, public and private. Open implies participation and collaboration across traditional borders between individuals, organisations and disciplines. I hope that OZCHI 2009 provides a forum to discuss all aspects of openness, open borders, open participation, open source, and open architecture.

Where better to open our minds, and explore new ideas, concepts and approaches from inside and outside of the HCI community than in Australia's capital of design: **Melbourne**. A diverse cultural history, a plethora of arts and entertainment options, and the pleasure of discovering tucked-away coffee shops in the famous laneways will hopefully entice you to lose yourself in Melbourne. Take your friends with you!

Jeni and Jesper have outdone their brilliant 2006 efforts and together with the technical program committee created a great **program**. Please browse through the abstracts and highlight your favourite sessions in advance. You will also have a chance to vote for the best submission as part of the **Student Design Challenge** that will run for 24 hours from the 23rd to the 24th November: www.ozchi.org/24

I would like to draw your attention to the **HFESA 2009** conference that runs back-to-back with OZCHI from the 23rd to the 25th November. My partner in crime, Andrea Shaw, and her team have assembled a rich and diverse program trying to schedule many sessions of interest to the OZCHI community on the joint day: Wednesday – including our shared keynote and plenary panel.

My sincere gratitude goes to Ash and Shane who firmly re-established the OZCHI **Industry Day** in the program and recruited **sponsors** exceeding our most optimistic expectations. Thank you: The Hiser Group | ARC HCSNet | Design Victoria | Symplicit | Stamford Interactive | National ICT Australia | Smart Services CRC | CSIRO | Apogee | The University of Melbourne | Australian Information Industry Association | Australian Interactive Media Industry Association.

And finally, I am very grateful for the immense number of volunteer hours that each member of the **organising committee** devoted to bring OZCHI 2009 to you, each paper reviewer dedicated to provide expert comment and feedback, and each student volunteer committed to help us run a smooth and open event.

Enjoy!

Marcus Foth

conference chair

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acknowledgements

organising committee

OZCHI 2009 has been convened by:

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program chairs	**Jesper Kjeldskov** **Jeni Paay**	Aalborg University CSIRO
short paper chair	**Stephen Viller** **Rebecca Schultz**	University of Queensland WorkSafe Victoria
industry case studies & marketing	**Ash Donaldson** **Shane Morris**	Produxi Consulting Microsoft Australia
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technical program

program for OZCHI 2009

The theme of the OZCHI 2009 conference in Melbourne, Australia is DESIGN | OPEN 24/7. Our keynote speakers, Bill Moggridge, Patrick Hofmann and Yvonne Rogers were selected to provide both academic and industry perspectives on this theme.

This year's OZCHI conference received 60 long paper and 88 short paper submissions. From these submissions, 32 long and 42 short papers were selected for presentation at the conference. All submitted papers were subjected to double-blind peer review by an international reviewing committee. Industry case studies, panels, workshops and tutorials were reviewed by their respective chairs.

The OZCHI proceedings (ISBN: 978-1-60558-854-4) are a publication of CHISIG, and will also appear as part of the ACM (the Association for Computing Machinery) International Conference Proceedings Series. This means that the OZCHI 2009 Proceedings will be available internationally from the ACM digital library shortly after the conference (http://portal.acm.org/dl.cfm). As in previous years, OZCHI 2009 presents an award for the best long paper, the Gitte Lindgaard award, recognising the best written paper, in combination with the quality of the presentation and discussion at the conference. We are also pleased to offer a dedicated Industry day, following the theme of the conference and running in a parallel on Thursday.

We appreciate the time and effort of our reviewing panel in providing constructive and valuable feedback not only to the authors, but also to the program chairs, and in helping make the proceedings a high standard publication. We would also like to thank all members of the technical program committee and all authors for their contributions toward making this conference program so fabulous.

We hope all participants enjoy the conference, lively Melbourne and sunny Australia!

Jesper Kjeldskov & Jeni Paay

program chairs

wednesday at a glance - OZCHI

	Spot Basement Theatre	Spot Theatre Level 1
09.00	conference opening	
09.30	**opening keynote** BILL MOGGRIDGE **Designing Innovation**	
10.40	coffee break	
11.00	**DESIGN** ▪ Designing Situations ▪ Beyond The User: Use And Non-Use in HCI ▪ Performative Artifacts: Users "Speaking through" Artifacts in Collaborative design ▪ Patterns or Claims: Do they help in communicating design advice?	**EXPERIENCE** ▪ Supporting the Supermarket Shopping Experience through a Context-Aware Shopping Trolley ▪ Evolving Interactions: Agile design for networked media performance ▪ You can be too rich: Mediated communication in a virtual world ▪ Brute Force Interface: Leveraging Intense Physical Force in Gaming
12.40	lunch	
13.40	**COLLABORATE** ▪ Understanding Distributed Collaboration in Emergency Animal Disease Response ▪ Being Here: Designing for Distributed Hands-On Collaboration in Blended Interaction Spaces ▪ Exploring Technology Use and Mobile Practices of Freelancers: analytic concepts from empirical studies of everyday practices ▪ Bridging the Information Gap: Collaborative Technology Design with Low-Income At-Risk Families to Engender Healthy Behaviors	**STUDY** ▪ Multimedia for Primary School Children Learning Sign Language ▪ Teaching Privacy with Ubicomp Scenarios in HCI Classes ▪ Radio Dispatchers' Interruption Recovery Strategies ▪ Young Australian's Privacy, Security and Trust in Internet Banking
15.20	coffee break	
15.50	**plenary panel** STREET COMPUTING Panel Chair: Stephen Viller Panellists: Margot Brereton, Paul Dourish, Dan Hill, Bill Moggridge, Christine Satchell	
17.30		

wednesday at a glance - HFESA

	Spot Basement Theatre
09.30	**opening keynote** BILL MOGGRIDGE **Designing Innovation**
10.40	coffee break

	ICT Theatre 2	ICT Theatre 1
11.00	**RAIL SIG PAPERS** ▪ Counteracting the negative effects of high levels of train automation on driver vigilance. ▪ Driving Monotonous Routes in a Train Simulator: The Effects of Task Complexity. ▪ Level Crossing Bow-Tie Analysis	**joint panel with OZCHI** DESIGNING EFFECTIVE SYSTEMS **Contributions from Human Factors and Human-Computer Interaction** Panel Chair: Andrea Shaw Panellists: Penny Hagen, Roger Hall, Wendy MacDonald, Bill Moggridge, Mike Regan and Wally Smith.
12.30	lunch	

	ICT Theatre 2	MFR	ICT Theatre 1
13.30	**RAIL SIG FORUM** RAILsig is the HFESA's Special Interest Group established for people with an interest in human factors and ergonomics in the Rail industry	**SEMINAR** Queensland under a framework to prioritise and target reducing work related musculoskeletal injury	**PAPERS** ▪ "Design for Manufacturing" – a review and case study ▪ Designing Safer Workplace Buildings and Structures - Victoria's Initiatives
15.00	closing ceremony		

wednesday 25 9.30–10.40

opening keynote: BILL MOGGRIDGE

Spot basement theatre | chair: Marcus Foth

Designing Innovation

The global economy affects design everywhere in the world, pushing companies in developed countries to transform themselves from implementation to innovation. Bill Moggridge describes the changes in design process at IDEO, as the firm has evolved over the past ten years from a product design consultancy to an innovation and design company, using design thinking to help clients navigate the speed, complexity, and opportunity areas of today's world. The nature of design practice is analysed, divided into four levels of contribution; general awareness, specialist skills, interdisciplinary design thinking and design research. Each of these levels is discussed and exemplified by case studies, such as the development of a new category of bicycles based on the Shimano Coasting Platform.

Bill Moggridge is cofounder of IDEO, independently ranked by business leaders as one of the most innovative companies in the world. A Royal Designer for Industry, Bill designed the world's first laptop computer. He pioneered interaction design and is one of the first people to integrate human factors into the design of software and hardware. He has been a trustee of the Design Museum; Visiting Professor in Interaction Design at the Royal College of Art in London, Lecturer in Design at the London Business School and a member of the Steering Committee for the Interaction Design Institute in Ivrea, Italy. He is currently Consulting Associate Professor in the Joint Program in Design at Stanford University. His book Designing Interactions http://www.designinginteractions.com tells the story of how interaction design is transforming our daily lives; it is available from The MIT Press.

wednesday 25 11.00–12.40

DESIGN: Spot basement theatre

chair: Jeni Paay

11.00 | Designing Situations
Toni Robertson, Lian Loke, University of Technology, Sydney

This paper extends the analytic framework Suchman used in Plans and Situated Actions by using it as a tool in the design of interactive, immersive environments that rely on human movement as input. We describe the historical and methodological background to Suchman's framework and the impact of her analysis on the development of HCI and related fields. We provide two examples of its use to support prototype evaluation, design reflection and generative and iterative design. Suchman's recognition that computers act on the basis of resources within their situations, just as people act in accord with the resources of theirs, broadens our focus from the design of interfaces to the design of situations within which interaction between people and computers can occur. The tool, and the methodological and theoretical commitments embedded within it, contribute to the design of emerging technologies and to current discussions about approaches to design within shifting paradigms of HCI.

11. 25 | Beyond The User: Use And Non-Use in HCI
Christine Satchell, Creative Industries, Queensland University of Technology and The Interaction Design Group, The University of Melbourne; Paul Dourish, Department of Informatics, University of California, Irvine

For many, an interest in Human-Computer Interaction is equivalent to an interest in usability. However, using computers is only one way of relating to them, and only one topic from which we can learn about interactions between people and technology. Here, we focus on not using computers – ways not to use them, aspects of not using them, what not using them might mean, and what we might learn by examining non-use as seriously as we examine use.

11.50 | Performative Artefacts: Users "Speaking through" Artefacts in Collaborative design

Mads Bødker, Center for Applied ICT, Copenhagen Business School

This paper argues for a relational view of collaboration in User-Centered Design activities. It argues that artefacts of different kinds are performative in making both users and designers perform in particular ways. In this way, it treats a case of a "catastrophic" user workshop as a heterogeneous enactment of relations rather than a case of having e.g. conservative or ignorant users.

12.15 | Patterns or Claims: Do they help in communicating design advice?

George Abraham, Michael Atwood, Drexel University

It has been asserted that patterns or claims will help capture and communicate interaction-design advice. Both structures attempt to provide advice in context along with the justifications for fit. These properties aim to make patterns or claims more concrete and comprehensible to novice designers than design guidelines. However, empirical work evaluating these promises is lacking. This research presents a controlled study that examines the value of structuring design advice as patterns or as claims. Patterns and claims seem different given their respective roots in architecture and design rationale. Patterns emphasize capturing a problem-solution pair in a certain context, whereas claims focus on capturing the positive and negative implications to a design decision. The findings from the study suggest it may be promising to combine the claim and pattern structures and that such a structure may facilitate discussions of design trade-offs.

wednesday 25 11.00–12.40

EXPERIENCE: Spot theatre level 1

chair: Jon Pearce

11.00 | Supporting the Supermarket Shopping Experience through a Context-Aware Shopping Trolley

Darren Black, Systematic; Nils Jacob Clemmensen, Nordjyske Medier; Mikael Skov, Aalborg University

Shopping in supermarkets is becoming an increasingly interactive experience as stores integrate technologies to support shoppers. While shopping is an essential and routine type of consumer behaviour, emerging technologies posses the qualities to change our behaviour and patterns while shopping. This paper describes a context-aware shopping trolley designed to support shopping activity in a supermarket setting through context-awareness and acquiring user attention. The system's design is based on an understanding of supermarket shopping needs and behaviour derived from previous studies. The system supports customers when trying to find and purchase products from a shopping list. An evaluation showed that affected the shopping behaviour and experience in more ways, e.g. more uniform behaviour in terms of product sequence collection and ease of finding products.

11.25 | Evolving Interactions: Agile design for networked media performance

Andrew Brow, Steve Dillon, Thorin Kerr, Andrew Sorensen, Queensland University of Technology

Network Jamming systems provide real-time collaborative performance experiences for novice or inexperienced users. In this paper we will outline the interaction design considerations that have emerged during evolutionary development cycles of the jam2jam Network Jamming software. In particular we have used agile software design as a research method exploring the co-evolution of features and usability. Several significant iterations of the jam2jam software are presented as case studies and we outline the how core experiences and meaningful engagement has been maintained whilst enhancing user experience and skill develop opportunities. We outline design considerations that support engagement of young people around digital media performance especially in the areas of community arts and education.

11.50 | You can be too rich: Mediated communication in a virtual world

Greg Wadley, Martin R. Gibbs, The University of Melbourne; Nicolas Ducheneaut, Palo Alto Research Center

Internet-based virtual worlds (VWs) have emerged as a popular form of collaborative virtual environment. Most have offered only text chat for user communication; however several VWs have recently introduced voice. While research has demonstrated benefits of voice, its introduction into the popular VW Second Life (SL) was controversial, and some users have rejected it. In order to understand the benefits and problems that voice brings to virtual worlds, we used qualitative methods to gather data from SL users and analyse it. We discuss our results in the light of media-richness theory and its critiques, arguing that preferences for voice or text reflect a broader problem of managing social presence in virtual contexts.

12.15 | Brute Force Interactions: Leveraging Intense Physical Actions in Gaming

Florian 'Floyd' Mueller, Distance Lab, The University of Melbourne; Stefan Agamanolis, Distance Lab; Frank Vetere, Martin R. Gibbs, The University of Melbourne

People use a wide range of intensity when interacting with computers, spanning from subtle to brute force. However, computer interfaces so far have mainly focused on interactions restrained to limited force and do not consider extreme physical and brutal interactions, such as those encountered in contact sports. We present an exploration on the topic of "Brute Force" that aims to support researchers and designers who want to leverage the benefits of such forceful interactions. We present the results of a survey on this topic and describe how the salient themes could be used to inspire design work, in particular in a mediated environment, augmented with computing technology. We describe how the themes inspired certain features, and how technological limitations were overcome during this process. We hope with our work we can encourage designers to expand their range of supported interactions to include these physically intense behaviors we call Brute Force that are exhibited in many activities in people's lives.

wednesday 25 11.00–12.40

JOINT PANEL OZCHI-HFESA: ICT theatre 1

chair: Andrea Shaw

Designing Effective Systems: Contributions from Human Factors and Human-Computer Interaction

Panellists: Penny Hagen, UTS; Roger Hall, University of New South Wales; Wendy MacDonald, LaTrobe University; Bill Moggridge, IDEO Pty Ltd; Mike Regan, French National Institute for Transport and Safety Research (INRETS); Wally Smith, The University of Melbourne

People live, work and play within systems of all kinds. When they operate effectively, systems are beautiful. But people sometimes get by only as a result of sheer persistence in the face of systems that don't put people first. Well over 40 years after the founding of the Ergonomics Society of Australia, the society for human factors and HCI professionals in Australia, why is it still possible for IT systems to be unusable or to damage people? Why are people still expected to adapt to suit organisational systems instead of having organisational systems that have been designed to meet peoples' needs and desires?

Within its membership, the HFESA has the knowledge and skills to solve this dilemma. From the human factors tradition, we gain insights into how people function physically, psychologically and socially. And from the HCI tradition, we gain knowledge about how people interact with information technology, and with each other mediated by technology. Perhaps better partnerships might improve our impact!

In this panel session, we will examine how the twin strands of human factors and human-computer interaction can work together to ensure that systems of all kinds have people at the centre of system design and functioning. Our panel of Australian and international thinkers will be challenged and will challenge the audience to think innovatively and strategically about how we can help create a future that puts people first in design.

wednesday 25 13.40–15.20

COLLABORATE: Spot basement theatre

chair: Mikael Skov

13.40 | Understanding Distributed Collaboration in Emergency Animal Disease Response

Jane Li, Kenton O'Hara, CSIRO ICT Centre

There is an increasing interest in CSCW systems for supporting emergency and crisis management. In this paper we explore work practices in emergency animal disease management focusing on the high-level analysis and decision making of the Australian Consultative Committee for Emergency Animal Disease (CCEAD) - a geographically distributed committee established to recommend action plans during animal disease outbreak. Our findings explore the ways in which they currently share and analyse information together, focusing in particular on their teleconferencing mediated meetings Our findings highlight factors relating to the time pressure of the task, diverse configuration of the group and asymmetrical settings and how these influence the groups information sharing and communication. We use the findings to discuss implications for collaboration technologies that could support the group and broader implications for similarly structured work groups.

14.05 | Being Here: Designing for Distributed Hands-On Collaboration in Blended Interaction Spaces

Michael Broughton, DSTO; Jeni Paay, CSIRO; Jesper Kjeldskov, Aalborg University; Kenton O'Hara, Microsoft Research; Jane Li, CSIRO; Matthew Phillips, DSTO; Markus Rittenbruch, NICTA

This paper describes a concept for supporting distributed hands-on collaboration through interaction design for the physical and the digital workspace. The Blended Interaction Spaces concept creates distributed work environments in which collaborating parties all feel that they are present “here” rather than “there”. We describe thinking and inspirations behind the Blended Interaction Spaces concept, and summarize findings from fieldwork activities informing our design. We then exemplify the Blended Interaction Spaces concept through a prototype implementation of one of four concepts.

14.30 | Exploring the project transitions and everyday mobile practices of freelancers: analytic concepts from empirical studies of practice

Kirsten Sadler, Toni Robertson, Melanie Kan, University of Technology, Sydney

This paper reports a user study on retrieving, consuming and managing digital music content related to mobile music consumption. We study the personal relationship people have with music entertainment technology and content, and explore how music is enjoyed on the move. We also look at the typical actions related to personal music management, how they are accomplished, and where they take place. The study was carried out in New York City and Hong Kong, and the paper also reports the differences found in mobile music consumption between these cultural settings.

14.55 | Bridging the Information Gap: Collaborative Technology Design with Low-Income At-Risk Families to Engender Healthy Behaviors

Katie Siek, Jeffrey LaMarche, University of Colorado at Boulder; Julie Maitland, National Research Council Canada

The leading cause of death in the United States is cardiovascular disease. Formative studies have shown that technological interventions may help effect lifestyle changes, however there has been minimal research to ascertain appropriate interventions for at risk, low-income populations. We conducted two participatory-based design workshops with nine caregivers and thirteen children to help determine suitable interventions for an at-risk low socioeconomic population. The major themes that emerged from the workshop for caregivers were their need for assistive systems that would help with everything from parenting to budgeting time and resources. Researchers in human computer interaction would benefit from our findings by developing a holistic sense of barriers encountered by low-income families to improve their health. We conclude the paper with a discussion of design implications.

wednesday 25 13.40–15.20

STUDY: Spot theatre level 1

chair: Christine Satchell

13.40 | Multimedia for Primary School Children Learning Sign Language
Kirsten Ellis, Monash University

This research explores the design, development and user testing of a purpose built multimedia resource to assist hearing children in Primary school to learn Australian Sign Language (Auslan). The multimedia application consists of vocabulary instruction, a story, song, game and a series of questions. Children's preferences for characters and activities are investigated as are their opinion on the most appropriate number of signs per session and their enjoyment of learning Auslan in a multimedia environment.

14.05 | Teaching Privacy with Ubicomp Scenarios in HCI Classes
Saila Ovaska, Kari-Jouko Räihä, University of Tampere

Privacy is a many-faceted concept and, consequently, designing for privacy is a challenging topic to teach. Privacy in ubicomp environments adds to the challenge, since such environments are still rare and people have not gained experience from interacting in them. Scenarios can be used to make the issues concrete for students. We describe three cases, with different scenarios, different pedagogical goals, different levels of students, and different data collection methods, for teaching about privacy using scenarios. We report on the experiences, both the successes and the pitfalls that need to be taken into account.

14.30 | Radio Dispatchers' Interruption Recovery Strategies

Gabriela Mancero, WIlliam Wong, Martin Loomes, Middlesex University

A field study was conducted at the British Transport Police Control Room in London. We used The Critical Decision Method (CDM) to explore radio dispatchers' cue identification, situation awareness and integration of information, particularly when following an interruption. The data from the CDM interviews was also analysed using the Emergent Themes Analysis (ETA) approach. The ETA resulted in categorizing difficulties that are shared by all radio dispatchers during high workload. Based on the ETA results, we conducted another set of CDM interviews which focus particularly in interruption recovery. The CDM gave us a clear idea of what information radio dispatchers need to recover from interruptions. We found that radio dispatchers are almost unaffected by interruptions and have developed two main interruption recovery strategies.

14.55 | Young Australians' Privacy, Security and Trust in Internet Banking

Supriya Singh, Clive Morley, RMIT University/Smart Services CRC

Generations X and Y (18-40 years old) in Australia see Internet banking as more private, more secure and more trustworthy than older Australians. They use Internet banking more than older Australians as they see Internet banking as a convenient way to bank. Generations X and Y also have greater confidence in their own digital expertise. Like other users of Internet banking they trust the bank will look after them. We draw on a qualitative study of 108 Australian consumers' banking and management of money between April 2005 and March 2006 followed by a random representative survey of 669 Australians aged 18 years or more conducted in September 2007. We contribute to the literature on younger people's use of Internet banking in Australia and their perceptions of privacy, security and trust. We argue there is a need for greater transparency by service providers. We also see regulators being increasingly important in ensuring that social media, cloud computing and financial aggregation services do not lead to unrealistic expectations of security and privacy and a dilution of consumer protections.

wednesday 25 15.50–17.30

PLENARY PANEL: Spot basement theatre

chair: Stephen Viller

Street Computing

Panellists: Margot Brereton, Queensland University of Technology; Paul Dourish, University of California, Irvine; Dan Hill, Arup; Bill Moggridge, IDEO; Christine Satchell, Queensland University of Technology

The urban street is bathed in a sea of data, and augmented by numerous computational components: mobile phones, weather sensors, digital bus timetables, surveillance cameras and so on. The urban street is also densely populated, buzzing with life twenty-four hours a day, seven days a week. These traits afford many opportunities, but they also present many challenges: traffic jams, smog and pollution, stress placed on public services, and more. Computing technology, particularly the kind that can be placed in the hands of citizens, holds much promise in combating some of these challenges. Yet, computation is not merely a tool for overcoming challenges; rather, when embedded appropriately in our everyday lives, it becomes a tool of opportunity, for shaping how our cities evolve, for enabling us to interact with our city and its people in new ways, and for uncovering hidden, but useful relationships and correlations between elements of the city. This panel brings together an international array of speakers to help critically analyse the challenges and possibilities that emerge as urban data is made available to ordinary citizens on an unprecedented scale.

HFESA wednesday 11.00–12.40

RAIL SIG PAPERS: ICT theatre 2

chair: Nic Doncaster

11.00 Counteracting the negative effects of high levels of train automation on driver vigilance

Peter Spring, University of New South Wales

In a previous train simulator experiment, university student drivers, who were confronted with rare safety critical events, had a longer delay initiating emergency braking (inferring reduced vigilance) when the train had a high Level Of Automation (LOA) - an autopilot, compared to when the train had a low LOA - a manually driven train. In this paper, the preliminary results of a follow-up experiment are reported, where an attempt was made to counteract the negative effects of high levels of automation on driver vigilance. We predicted an improvement in the vigilance of drivers who, in addition to an autopilot supervision task, also had to respond to 60 vigilance device prompts over the 70 minute journey. Both sensory and cognitive vigilance devices were tested for their comparative effectiveness. The sensory vigilance device required drivers to press a single button in acknowledgement of an audible tone. The cognitive vigilance device required drivers to choose and press one of nine numbered buttons, in response to a knowledge quiz that related to upcoming speed signs and signal aspects. The results are discussed with reference to theories of mental work and vigilance task performance.

11.30 Driving Monotonous Routes in a Train Simulator: The Effects of Task Complexity

Naomi Dunn and Ann Williamson

Task-related characteristics, such as monotony and task-related fatigue, have been shown to contribute to performance decrements over time which potentially has serious consequences for many industries, including the rail industry. The task of driving a train requires drivers to remain constantly alert for long periods under monotonous conditions and to respond to sometimes irregular, unpredictable signals. Previous research has indicated that increasing the cognitive demands of a task can improve performance over time of an otherwise monotonous task. Therefore, the aim of this study is to determine if cognitive complexity affects train drivers' driving performance on monotonous routes. Using a train

simulator, 30 train drivers were required to drive for a continuous 3 hour period on a very simple route. Drivers were split into two groups with one group assigned to the simple condition and the other to the complex condition. Both "drove" the same route however drivers in the simple condition only had to observe and respond to speed zone changes whilst those in the complex condition were required to complete a basic mathematical problem to calculate each speed zone and respond accordingly. Driving performance was based on response times to speed zone changes and speed zone violations. While both conditions involve a monotonous route, the complex condition requires greater investment of task directed effort which should mitigate the negative performance effects of monotony as drivers are kept cognitively engaged in the task. The simple condition, on the other hand, should be more monotonous in terms of cognitive load due to low task demands. Monotony is a problem in the rail industry and this work will make a significant contribution to our knowledge of monotony-related effects on the performance of train drivers and possible ways to mitigate negative performance effects.

12.00 Level Crossing Bow-Tie Analysis

Todd Bentley, Scott Ryan

Railway travel is one of the safest forms of transport available, but level crossings present a significant risk and are a 'hot topic'. Indeed, any level crossing collision between a motorist and train will normally make the front page. In Victoria, there were 25 reported level crossing occurrences in 2007 and 2008, resulting in 23 deaths. Recognizing the safety risk, Victoria (and other states and other countries) have undertaken significant steps to improve level crossing safety. As a result there are now level crossing databases which emphasize sighting factors at crossings, and how these sightings can improve; there are various committees dedicated to addressing hot-spot level crossings; and level crossings are the focus of significant amounts of empirical research. This paper offers a holistic perspective of level crossings through a bow-tie analysis focusing on what protection measures could be in place at level crossings and at mitigations which could mitigate the consequence of a level crossing incident. This bow-tie analysis will not, in itself, aid in mitigating risk at level crossings but does provide an opportunity for individuals to identify gaps in focus and other strategic areas that could be exploited to improve road / rail safety.

HFESA wednesday 13.30–15.00

RAIL SIG FORUM: ICT theatre 2

chair: Nic Doncaster

RAILsig is the HFESA's Special Interest Group established for people with an interest in human factors and ergonomics in the Rail industry.

RAILsig was formed over a year ago, and, behind scenes is working towards hosting a conference in 2010.

The session is an opportunity for members and others who work or are interested in HF in the rail industry to explore options and activities that the SINicG can pursue in support of its members, as well as to meet others with similar interests.

The forum is open to anyone who has an interest in Rail Human Factors.

HFESA wednesday 13.30–15.00

SEMINAR: MFR

chair: Robyn Coman

Queensland under a framework to prioritise and target reducing work related musculoskeletal injury
Deidre Rutherford, Nita Maynard and Bernard Ziebarth, Workplace Health and Safety Queensland, Department of Justice and Attorney-General

Topic: Key learnings, activities and tools developed by Workplace Health and Safety Queensland under a framework to prioritise and target reducing work related musculoskeletal disorders (WRMSD).

Background: Workplace Health and Safety Queensland has a priority focus on reducing work related musculoskeletal injury. There is strong ergonomics representation within the organisation that supports a range of WRMSD initiatives including industry focus groups, information and guidance material and the design and development of prompt tools. Over the past few years a number of useful prompt tools have been developed to assist inspectors and workplaces in identifying non compliance and in

developing manual tasks risk management strategies during a range of compliance interventions.

Aim of seminar: The aim of this seminar is to provide the group with: 2 industry/mechanism specific tools (Manual tasks in civil construction traffic light prompt tool; and Distribution Centre and Warehousing checklist); information about WHSQ activities and learnings targeting MSDs; and an opportunity to discuss and question the panel group regarding activities and tools; specific industry issues; and how we can all work together with industry.

The panel will consist of WHSQ representatives with ergonomics expertise from a range of industry sectors and backgrounds.

HFESA wednesday 13.30–15.00

PAPERS: ICT theatre 1

chair: Tony Payne

13.30 "Design for Manufacturing" – A Review and Case Study

Gunther Paul and Rami Al-Dirini, Mawson Institute, University of South Australia, Adelaide, SA, Australia

Design for Manufacturing (DFM) is a highly integral methodology in product development, starting from the concept development phase, with the aim of improving manufacturing productivity. It is used to reduce manufacturing costs in complex production environments, while maintaining product quality. While Design for Assembly (DFA) is focusing on elimination or combination of parts with another component, which in most cases relates to performing a function and manufacture operation in a simpler way, DFM is following a more holistic approach. Common consideration for DFM are standard components, manufacturing tool inventory and capability, materials compatibility with production process, part handling, logistics, tool wear and process optimization, quality control complexity or Poka-Yoke design. During DFM, the considerable background work required for the conceptual phase is compensated for by a shortening of later development phases. Current DFM projects normally apply an iterative step-by-step approach and eventually transfer to the developer team. The study is introducing a new, knowledge based approach to DFM, eliminating steps of DFM, and showing implications on the work process. Furthermore, a concurrent engineering process via transparent interface between the manufacturing engineering and product development systems is brought forward.

14.00 Designing Safer Workplace Buildings and Structures – Victoria's Initiatives

Ngoc-Bich Huynh and Ros Kushinsky, WorkSafe Victoria, Melbourne, Victoria, Australia

The Victorian Occupational Health and Safety Act 2004 introduced a duty for any person who designs a building or structure for use as a workplace. This duty requires designers of workplace building or structure to ensure that the building or structure is designed, so far as is reasonably practicable, to be safe and without risk to people using it as a workplace for the purpose for which it was designed. WorkSafe Victoria, as a regulator administering the occupational health and safety law in Victoria, took initiatives to deliver a three phased project to assist designers with the effective implementation of this duty. This project aims over time to enhance health and safety standards of Victorian workplaces. The project was developed and delivered in consultation with the key designers' associations and other relevant stakeholders. Main outcomes of the project were the development and publication of a guide titled "Designing Safer Buildings and Structures. A Guide to Section 28 of The Occupational Health and Safety Act 2004" for designers to use as practical guidance to fulfil their legal obligations and of case studies including examples of design solutions to relevant health and safety hazards during the design phase.

thursday at a glance

	ICT theatre 1	ICT theatre 2	ICT theatre 3
09.00	**PARTICIPATE** ▪ Dissolving boundaries: social technologies and participation in design ▪ Designing for Social Context of Mobility: Mobile Applications for Always-on Users ▪ Dilemmas in Situating Participation in Rural Ways of Saying ▪ Designing spatial story-telling software	**INTERACT** ▪ Scroll, Tilt or Move It: Using Mobile Phones to Continuously Control Pointers on Large Public Displays ▪ TableMouse: A Novel Multiuser Tabletop Pointing Device ▪ Exploring New Window Manipulation Techniques ▪ Zoofing! Faster List Selections with Pressure-Zoom-Flick-Scrolling	**industry cases:** **BREAKING NEW GROUND** ▪ Skitch: Breaking with Tradition ▪ Designing for the Unknown ▪ The Implications of Service Design to Mobile User Experience (30min sessions + 10mins questions and discussion at end)
10.40	coffee break		
11.00	**VISUALISE** ▪ The Social Life of Visualization ▪ Using Emotion Eliciting Photographs to Inspire Awareness and Attitudinal Change – A User-Centered Case Study ▪ CO2nfession: Engaging with values through urban conversations ▪ SmartGardenWatering: Experiences of using a garden watering simulation	**EVALUATE** ▪ Evaluating Reading and Analysis Tasks on Mobile Devices: A Case Study of Tilt and Flick Scrolling ▪ The Usability of Usability Guidelines - a Proposal for Meta-Guidelines ▪ Window Watcher: A Visualisation Tool for Understanding Windowing Activities ▪ Metaphor or Diagram? Comparing Different Representations for Group Mirrors	**industry cases:** **BEING ADAPTABLE** ▪ Search is now normal behaviour: what do we do about that? ▪ Taking a UCD Approach to Direct the Consolidation of many websites into one ▪ User-centred online service design for large-scale government projects (30min sessions + 10mins questions and discussion at end)
12.40	lunch		

	ICT theatre 1	ICT foyer
13.40	**industry/academic panel** DESIGN AND DESIGN PROCESS Panel Chair: Owen Hodda	**DEMOS** Demonstrations and posters provide an attractive way to showcase real outcomes of human-computer interaction research and development. This session is held in the Foyer area of the ICT Building from the start of lunch until the end of afternoon tea.
15.20	coffee break	
15.50	**industry keynote** **PATRICK HOFFMAN** **Stimulating Our Iconomy: New Directions in Minimising and Visualising Information**	
17.00	**CHISIG AGM**	
19.00	Conference Dinner – CQ FUNCTIONS, 113 Queen Street, Melbourne	

thursday 26 9.00–10.40

PARTICIPATE: ICT theatre 1

chair: Frank Vetere

09.00 | Dissolving boundaries: social technologies and participation in design

Penny Hagen, Toni Robertson, University of Technology, Sydney

The emphasis on participation in social technologies challenges some of our traditional assumptions about the role of users and designers in design. It also exposes some of the limitations and assumptions about design embedded in our traditional models and methods. Based on a review of emerging practice we present four perspectives on design in the context of social technologies. By presenting this 'lay of the land', we seek to contribute to ongoing work on the nature of participation and design in the context of social technologies. We draw particular attention to the ways in which roles and responsibilities in design are being reassigned and redistributed. As traditional boundaries between design and use and designer and user dissolve, design is becoming more public. In the context of social technologies design is moving out into the wild.

09.25 | Designing for Social Context of Mobility: Mobile Applications for Always-on Users

Nithya Sambasivan, University of California, Irvine; Leena Ventä, Nokia Research Center, Oulu; Jani Mäntyjärvi, Minna Isomursu, VTT, Oulu Jonna Häkkilä, Nokia Research Center, Oulu

The informational and instrumental portability of mobile devices have made them usable in various contexts, and for different uses. This, then, leads us to ask—how does the always-on usage impact our day-to-day lives? Extensive investigations were carried out to understand socio-technical configurations and negotiations developed to combat perpetual technological availability. Based on the findings, we developed three prototypes utilizing context-awareness to promote increased sociability, stress relief, and reduced intrusiveness. In this paper, we report the user research, design conception, prototypes, evaluations, and broader learnings.

09.50 | Dilemmas in Situating Participation in Rural Ways of Saying

Nicola Bidwell, Dianna Hardy, James Cook University

We reflect upon participation in design processes by people who emphasise 'primary orality', or direct, face-to-face, unmediated communication, due to their rural locations in places with low technology ambiance and cultural antecedents. We focus on issues and relationships between rural contexts and primary orality of relevance to our projects with Indigenous people in regional Australia and villagers in remote rural South Africa. We observe dilemmas as we apply methods, which are informed by ethnomethodology, ethnography and Participatory Design, in enabling local participation, such as intrusive recording practices, concerns about power structures and appropriate investment of time.

10.15 | Designing spatial story-telling software

truna aka j.turner, Queensland University of Technology; David Browning, James Cook University

What does it mean when we design for accessibility, inclusivity and "dissolving boundaries" – particularly those boundaries between the design philosophy, the software/interface actuality and the stated goals? This paper is about the principles underlying a research project called 'The Little Grey Cat engine' or greyCat. GreyCat has grown out of our experience in using commercial game engines as production environments for the transmission of culture and experience through the telling of individual stories. The key to this endeavour is the potential of the greyCat software to visualize worlds and the manner in which non-formal stories are intertwined with place. The apparently simple dictum of "show, don't tell" and the use of 3D game engines as a medium disguise an interesting nexus of problematic issues and questions, particularly in the ramifications for cultural dimensions and participatory interaction design. The engine is currently in alpha and the following paper is its background story. In this paper we discuss the problematic, thrown into sharp relief by a particular project, and we continue to unpack concepts and early designs behind the greyCat itself.

thursday 26 9.00–10.40

INTERACT: ICT theatre 2

chair: John Murphy

09.00 | Scroll, Tilt or Move It: Using Mobile Phones to Continuously Control Pointers on Large Public Displays
Sebastian Boring, University of Munich; Marko Jurmu, University of Oulu; Andreas Butz, University of Munich

Large and public displays mostly provide little interactivity due to technical constraints, making it difficult for people to capture interesting information or to influence the screen's content. Through the combination of large-scale visual output and the mobile phone as an input device, bidirectional interaction with large public displays can be enabled. In this paper, we propose and compare three different interaction techniques (Scroll, Tilt and Move) for continuous control of a pointer located on a remote display using a mobile phone. Since each of these techniques seemed to have arguments for and against them, we conducted a comparative evaluation and discovered their specific strengths and weaknesses. We report the implementation of the techniques, their design and results of our user study. The experiment revealed that while Move and Tilt can be faster, they also introduce higher error rates for selection tasks.

09.25 | TableMouse: A Novel Multiuser Tabletop Pointing Device
Andrew Cunningham, Ben Close, Bruce H. Thomas, Peter Hutterer, University of South Australia

This paper introduces the TableMouse, a new cursor manipulation interaction technology for tabletop computing, specifically designed to support multiple users operating on large horizontal displays. The TableMouse is a low-cost absolute positioning device utilising visually-tracked infrared light emitting diodes for button state, 3D position, 1D orientation, and unique identification information. The supporting software infrastructure is designed to support up to 16 TableMouse devices simultaneously, each with an individual system cursor. This paper introduces the device and software infrastructure and presents two applications exposing its functionality. A formal benchmarking was performed against the traditional mouse for its performance and accuracy.

09.50 | Exploring New Window Manipulation Techniques

David Ahlström, Jürgen Großmann, Klagenfurt University; Susanne Tak, University of Canterbury; Martin Hitz, Klagenfurt University

Moving and resizing desktop windows are frequently performed but largely unexplored interaction tasks. The standard title bar and border dragging techniques used for window manipulation have not changed much over the years. We studied three new methods to move and resize windows. The new methods are based on proxy and goal-crossing techniques to eliminate the need of long cursor movements and acquiring narrow window borders. Instead, moving and resizing actions are performed by manipulating proxy objects close to the cursor and by sweeping cursor motions across window borders. We compared these techniques with the standard techniques. The results indicate that further investigations and redesigns of window manipulation techniques are worthwhile: all new techniques were faster than the standard techniques, with task completion times improving more than 50% in some cases. Also, the new resizing techniques were found to be less error-prone than the traditional click-and-drag method.

10.15 | Zoofing! Faster List Selections with Pressure-Zoom-Flick-Scrolling

Philip Quinn, Andy Cockburn, University of Canterbury

The task of list selection is fundamental to many user interfaces, and the traditional scrollbar is a control that does not utilise the rich input features of many mobile devices. We describe the design and evaluation of zoofing - a list selection interface for touch/pen devices that combines pressure-based zooming and flick-based scrolling. While previous flick-based interfaces have performed similarly to traditional scrolling for short distances, and worse for long ones, zoofing outperforms (and is preferred to) traditional scrolling, flick-based scrolling, and OrthoZoom. We analyse experimental logs to understand how pressure was used and discuss directions for further work.

thursday 26 11.00–12.40

VISUALISE: ICT theatre 1

chair: Kenton O'Hara

11.00 | The Social Life of Visualization
Hugh Macdonald, Jeremy Yuille, Reuben Stanton, RMIT University ACID; Stephen Viller, University of Queensland ACID

In this paper we reframe the creation of information visualizations as a kind of interface design, where visualizations provide people with an interface onto a dataset in such a way that they can generate, understand, and ultimately communicate interpretations of the data in the form of narratives to other members of given social settings. The paper describes a three stage create--interpret--capture process for the design of information visualizations. The work references existing interaction design patterns, interfaces, and theories of organizational behaviour that serve to illustrate the approach we have used.

11.25 | Using Emotion Eliciting Photographs to Inspire Awareness and Attitudinal Change – A User-Centered Case Study
Christian Jones, Claudia Baldwin, University of the Sunshine Coast

Photographs can be used to elicit an emotional response in the viewer to promote attitudinal change. The paper considers the types of photographs which can elicit the strongest impact on viewers and uses a case study of the Mary River Dam. The Queensland government is proposing to dam the Mary River, whilst the Save the Mary River group has been running a campaign against the proposed dam using images of the community and landscape in its protest materials and website. This paper reports on a project to understand which types of images provided by the Save the Mary River group elicit the strongest impact on viewers to inspire support for their protest, and how and why these images can increase awareness around the issues of the proposed dam as a solution to water needs.

11.50 | CO2nfession: Engaging with values through urban conversations

Tuck W. Leong, Martin Brynskov, Aarhus University

It has been suggested that future directions of HCI would need to place human values at its core. One approach towards this complex endeavor is to build an understanding of these values through examining systems designed to address them. This paper focuses on an urban installation -- CO2nfession/CO2mmitment -- that deals with one such (societal) value: environmental sustainability. Designed to solicit personal opinions about climate change, we found the 'confessional' aspect of the installation encouraged strong reflexivity amongst 'users' with regards to this value and precipitated personal considerations about future actions. More importantly this reflexivity exposes people's lived and felt experiences about this societal value, unearthing their ambivalences, hindrances but also motivations. This installation highlights an alternate approach that can complement current efforts without taking a 'big stick' approach. Instead, urban media technologies can be harnessed to engage people with this value on their own terms, through encouraging conversations and supporting reflexivity.

12.15 | SmartGardenWatering: Experiences of using a garden watering simulation

Jon Pearce, Wally Smith, Bjorn Nansen, The University of Melbourne; John Murphy, Design4Us

SmartGardenWatering is an innovative software tool that advises gardeners on watering schedules and watering use. In this paper we investigate how expert and novice gardeners respond to advice from this piece of computer software. Do they readily accept it and adapt their activities accordingly, or do they override it with their own local knowledge? We describe the project to develop the simulation, including the design of the user interface, and a study of 20 gardeners using the tool. The focus of the study was to identify factors in the design of the software that influence how well it might intervene in ongoing gardening practice. The findings focus on what brings confidence or a lack of trust in the underlying horticultural model and its application to a particular garden. Finally, we consider how these findings might inform ongoing development of the software.

thursday 26 11.00–12.40

EVALUATE: ICT theatre 2

chair: Cecile Paris

11.00 | Evaluating Reading and Analysis Tasks on Mobile Devices: A Case Study of Tilt and Flick Scrolling

Stephen Fitchett, Andy Cockburn, University of Canterbury

Flick scrolling is a natural scrolling method for mobile touch devices such as the iPhone. It is useful not only for its performance but perhaps even more so for its ease of use and user experience. Tilt scrolling instead uses the device's tilt to determine the rate of scrolling, which offers several potential interaction advantages over touch sensitive alternatives: scrolling can be achieved without occluding a large proportion of the screen with a hand, finger, or thumb; it frees drag input events for other important actions such as text selection and drag-and-drop; and it works regardless of the hand's state (e.g. moist or gloved). Although previously described, the performance of tilt scrolling has not been compared to flick scrolling, which is now the state of the art. Furthermore, it is unclear how such an empirical comparison should be conducted. To better understand interaction with mobile scrolling, we propose a new method of evaluating scrolling interfaces in the context of reading or analysis tasks. These activities typically involve slow subtle scroll movements rather than large movements typical investigated in most scrolling evaluations. We use this method to thoroughly compare flick scrolling and tilt scrolling. We show that tilt scrolling results in better performance for tasks performed while stationary while there is no significant difference while moving. However, we find that participants prefer flick scrolling and walk faster when completing moving tasks with flick scrolling than tilt scrolling.

11.25 | The Usability of Usability Guidelines - a Proposal for Meta-Guidelines

Stefan Cronholm, Linköping University

This paper is challenging the usability of traditional usability guidelines. The claim is that guideline descriptions and explanations are not satisfactory. Analysis results demonstrate vagueness and are ambiguous in explanation. The aim of the paper is to propose a set of principles (meta-guidelines) to be used for improving the usability of guidelines.

11.50 | Window Watcher: A Visualisation Tool for Understanding Windowing Activities

Susanne Tak, Andy Cockburn, University of Canterbury

Almost all actions on a computer are mediated by windows, yet we know surprisingly little about how people coordinate their activities using these windows. Studies of window use are difficult for two reasons: gathering longitudinal data is problematic and it is unclear how to extract meaningful characterisations from the data. In this paper, we present a visualisation tool called Window Watcher that helps researchers understand and interpret low level event logs of window switching activities generated by our tool PyLogger. We describe its design objectives and demonstrate ways that it summarises and elucidates window use.

12.15 | Metaphor or Diagram? Comparing Different Representations for Group Mirrors

Sara Streng, Karsten Stegmann, Heinrich Hussmann, Frank Fischer, University of Munich

This paper aims at answering the question how ambient displays can be used as group mirrors to support collaborative (learning) activities. Our research question is to what extent the type of feedback representation affects collaborative processes. Two different representations have been created and compared in a user study: a diagram and a metaphor. In the diagram version the quality rating for each person is explicitly shown in charts and numbers. In the metaphorical representation feedback is implicitly visualized by changing certain characteristics of a pictorial scene. The results show that the metaphoric group mirror was not only more popular than the diagram, it also had a greater impact on the group behavior. When receiving negative feedback from the metaphoric group mirror, a correction of behavior was made significantly faster than with the diagram. Furthermore, both group mirrors had a positive effect on the self-regulation of the group compared to the baseline condition without feedback.

INDUSTRY thursday 9.00–10.40

BREAKING NEW GROUND: ICT theatre 3

09.00 | Skitch: Breaking with Tradition

Cris Pearson, Keith Lang, Skitch

'Skitch: Breaking with Tradition' is the story of making the Skitch desktop application and the impact of breaking with traditional UI paradigms. It's the successes, and setbacks, experienced when we questioned, and designed beyond the norm. Delving into the history and work practices of plasq and Skitch Inc, (true 'virtual companies' with members scattered around the globe), we'll describe the problems that Skitch was built to solve, and how we bootstrapped our way through 3 years of Skitch development. We'll reveal the lineage from Skitch's original, simplistic design to it's current Swiss Army knife feature-set.

09.30 | Designing for the unknown

Renato Feijo, The Hiser Group

This case study will review the challenges of developing a style guide (covering both interaction and visuals) to guide the design of future applications. Although the general usage context and audience could be inferred from existing web applications, no specific information regarding future workflows was available. The style guide therefore took the form of a framework that empowers non-UCD experts to design consistent and learnable applications – thereby increasing data integrity, as well as reducing stress and frustration for the end-users.

10.00 | The implications of Service Design to Mobile User Experience

Rod Farmer, Vodafone Hutchison Australia

In this presentation, we describe a case study in which we took a Service Design approach to understanding mobile content consumption, and specifically, key drivers across multiple touch points through the customer journey that influence consumer motivations for service uptake. The findings from this research led to a change in organisational strategy, highlighting that our customers' mobile user experience begins "in store, not on device."

INDUSTRY thursday 11.00–12.40

BEING ADAPTABLE: ICT theatre 3

11.00 | Search is now normal behaviour: what do we do about that?

Caroline Jarrett, Effortmark

At one time, we used to hear that there were 'search dominant' users or 'click dominant'. We also used to hear that 'search is a failure of navigation'. The idea was that to design properly for your click dominant users, you needed to create a navigation that meant they could avoid search. No longer. These days, everyone searches and Google, and to a lesser extent its rivals, have become an important part of the internet experience for every web user. What does that mean for design? What do users actually do when they search, what do they expect to happen, and how can we deliver a good user experience when search is part of that experience?

11.30 | Taking a UCD approach to direct the consolidation of many websites into one.

Ladan Wise, Human Services, Victoria; Suze Ingram, Stamford Interactive

This presentation tracks the 18 month journey, to date, as a large organisation consolidates its 50+ websites into one website and its 40+ intranet sites into one intranet. The organisation chose to recruit user experience and information architecture experts to work within the organisation's own project team to ensure that lessons learned were embedded in the ongoing maintenance of the site. This case study explores previous (unsuccessful) attempts at the project, the approach taken in light of these failed attempts, activities conducted, the organisation's climate, what foundation elements were put in place at each stage to ensure that the ongoing growth of the web presence adhered strongly to UCD principles. It highlights the challenges of a service delivery organisation learning to embrace user centred methodologies to inform decisions normally made by senior executives as well as the process of mentoring the client web team on UCD methodologies along the way. The project team worked through general resistance to change, a limited budget, a premature push for more innovative interaction, the effects of governance changes in the organisation, 13,000 staff and over 75 different "client" groups in the quest to adequately capture the needs of the users with multiple mental

models and varying internet proficiency. And if that wasn't enough, part way through the project, there was a machinery of government change…

12.00 | User-centred online service design for large-scale government projects

Faruk Avdi, NSW Department of Education and Training

In 2007 a major NSW government department opted to transform three of its major online communication channels into professionalised services. A program with user-centred design at its core was devised to support communication, information and transactional services. This program involved three projects: 1. to create an easy to use school website service that would allow up to 2300 schools to create and maintain their own websites with local and centrally syndicated content; 2. to overhaul the staff intranet and introduce social networking and collaboration tools and 3. to do the same with flagship public facing domains. This case study will look at this program from its first moments through to the successful delivery of the first major tranche of functionality. Included will be the consideration given to project approach, building the project team, recruitment of lifecycle resources, and the pivotal role played throughout by user-centred design and UCD advocacy throughout the organisation.

thursday 26 13.40–15.20

INDUSTRY/ACADEMIC PANEL: ICT theatre 1

Chair: Greg Ralph, Hiser

Design and Design Process

Panellists include: Ralf Muhlberger, Director, Multimedia & Interaction Design, University of Queensland; Shane Morris, User Experience Evangelist, Microsoft Australia - Thanks to Mia Northrop, Symplicit, for her input and assistance with this panel.

What is the balance between creating something in a stroke of genius, and following tried and proven methods and processes? In many industries there exists a tension between the designer who relies on their instinct and intuition to solve a problem and those who rely only on a predetermined sequence of steps to ensure that all necessary aspects have been explored.

This panel will look at whether there is a difference between these two styles of design in user experience. For students of experience design, is it necessary to have that creative 'flair' to develop a good design? Or can students be taught to follow a known sequence of research, design and validation and be ensured of ending with a design that people want to use? Where should priorities be placed during training to ensure students of design graduate with the required skills to be able to develop meaningful designs? Should students be assessed on the final product they submit, or on the process they followed to get there?

In many other industries, the same tension exists. Can you be good architect if you have a grand vision but no understanding of building materials or traffic flows? Can you be a good photographer by understanding and controlling light, film type and aperture but possessing little visual flair?

By bringing together practitioners from multiple industries, this panel will explore the tension between these two design approaches within these industries as well as how other industries manage these differences. User experience designers will be able to hear how others before them have handled these questions, and what areas of study served them best once they entered the workforce.

thursday 26 13.40–15.20

POSTERS AND DEMOS – ICT foyer

Posters

Investigation of the interactive effects of Information Systems Interfaces (ISI) and personal cognitive styles in museum learning experiences
Asmidah Alwi

Avoiding Creepy People: Social Networks Increasing the Pleasure of Carpooling
Jon Manning, Christopher Lueg, Paris Buttfield-Addison
School of Computing and Information Systems
University of Tasmania

Zipper Communicator: Enabling Implicit Communication through Poetic Interaction with an Everyday Object
Jia Yi Lin, Martin Tomitsch, Andrew Vande Moere

Demos

The hipdiskettes Swing Their Thing: Can you play the hipDisk?
Danielle Wilde

Doing things backwards: The OWL project interviews
Danielle Wilde, Kristina Andersen

Why Mobile Device Manufacturers Need Games? Games With A Purpose Perspective
Fawad Nazir

thursday 26 15.50–17.00

industry keynote: **PATRICK HOFMANN**

Stimulating Our Icon-omy: New Directions in Minimising and Visualising Information

ICT theatre 1 | chair: Shane Morris

Why are icons so often misinterpreted? Is there something in their minimalism that makes their interpretation vary so widely? Is there something in us – our upbringing, our language, our culture, our education, our gender, our age, our faith – that makes us interpret icons so differently from our fellow humans?

In this presentation, we will get very graphic (ha ha) with these questions. We will spend a fun-filled session scouring online, digital, and print interfaces for common icon disasters - those that confuse, confront, and downright offend.

How can we avoid making the same mistakes? And why isn't more global insight-gathering happening to prepare us? Immerse yourself in the latest challenges to create single icons that work for the entire planet. Witness the surprising reactions of various cultures and age groups on these icons, and hear wacky new ideas moving forward.

Trained as a technical writer but spending his career in UX, illustration, and icon design, Patrick Hofmann has turned into 'a man of few words'. For over fifteen years, this vibrant Canadian has helped companies like Sky, HP, Nokia, Motorola, Philips, FedEx, Logitech, and Netgear improve the usability of their products--usually by visualising their online, interface, and printed information. His award-winning work and undying passion for visual language send him around the world, as he teaches how to use pictures to improve communication. Patrick now works at Google in Sydney, and soon hopes to complete his first book on visual instruction.

friday at a glance

	ICT theatre 1	ICT theatre 2	ICT theatre 3
09.00	**LIFESTYLE** ▪ Designing participation in located community initiatives ▪ Using a Multi-touch Tabletop for Upper-Extremity Motor Rehabilitation ▪ Development of a software-based social tutor for children with autism spectrum disorders ▪ SOFA: An Online Social Network for Engaging and Motivating Families to Adopt a Healthy Lifestyle ▪ Physical Activity Motivating Games: You Can PLAY, MATE! ▪ Technological Approaches to Promoting Physical Activity ▪ Utilising the Open Channel Created by Telecare: Acoustic Communication Analysis of Radio Sounds at Home	**DESIGN** ▪ Working towards an open source design approach for the development of collaborative design projects ▪ 'Coalesce' - A Web-based Tool for Sensemaking ▪ Lenders, borrowers and fellows: Personal narrative and social entrepreneurship in online microfinance ▪ Truce in online games ▪ User Interaction with Novel Web Search Interfaces ▪ MUSTe Method for Quantifying Virtual Environment Training System Efficacy ▪ Having fun at home: interleaving fieldwork and goal models	**PARTICIPATE** ▪ Towards an Ethical Interaction Design: the issue of including stakeholders in law-enforcement software development ▪ The Emergence of the Indigenous Field of Practice ▪ Navigating the Labyrinth: the technical trials and misadventures of bringing virtual worlds into a government secondary school ▪ Collaborating with Users: Cultural and (I)literacy Challenges ▪ A Study of Email and SMS use in Rural Indonesia ▪ Experimenting with the use of persona in a focus group discussion with older adults in Malaysia ▪ An examination of the knowledge barriers in participatory design
10.45	coffee break		
11.15	**ARTEFACT** ▪ When Three Worlds Collide: A Model of the Tangible Interaction Process ▪ The Pile of Least Effort: Supporting Lived Document Management Practices ▪ Passengers in the Airport: Artefacts and Activities ▪ Exploring virtual representations of physical artefacts on collaboration in the clothing industry ▪ Doing things backwards: the OWL project ▪ Visual Melodies Interactive Installation: Sea Theme and Night Sky Theme ▪ Open in art, nature and emergence	**LOCATIVE** ▪ FrostWall: A Dual-Sided Situated Display for Informal Collaboration in the Corridor ▪ Unleashing Creative Writers: Situated Engagement with Mobile Narratives ▪ Disposable Maps: Ad hoc Location Sharing ▪ Discussions In Space ▪ Edutainment in the Field using Mobile Location Based Services ▪ The Exploration of Non-Visual Interaction for Social Proximity Applications in a Taiwanese Night Market ▪ OurPlace: The Convergence of Locative Media and Online Participatory Culture	**INPUT** ▪ Be Careful How You Point That Thing: Wiimote Aiming for Large Displays ▪ My Phone is my Keypad: Privacy-Enhanced PIN-Entry on Public Terminals ▪ Using brain imaging to explore interactivity and cognition in multimedia learning environments ▪ Simple Classification of Walking Activities using commodity Smart Phones ▪ Investigating political and demographic factors in Crowd Based Interfaces ▪ Urban Kinesic: a gestural interface for the expression of emotions ▪ Enhancement of HCI with facial Electromyographic sensors

13.00 lunch

14.00 **closing keynote**
YVONNE ROGERS
Choice Moments: How Ubiquitous Technology Can Dramatically Change People's Everyday Behaviour

15.10 conference closing

15.50 coffee and farewells

friday 27 9.00–10.45

LIFESTYLE: ICT theatre 1

chair: Ben Kraal

9.00 | Designing participation in located community initiatives – scoping mobile social software for agile ridesharing

Margot Brereton, Paul Roe, Marcus Foth, Jonathan M. Bunker, Laurie Buys, Queensland University of Technology

Growing participation is a key challenge for the viability of sustainability initiatives many of which require enactment at a local community level in order to be effective. This paper undertakes a review of technology assisted carpooling in order to understand the challenges of designing participation and in order to consider how HCI approaches might be brought to bear.

It was found that while persuasive technology and social networking approaches have important roles to play, critical factors in the design of carpooling are convenience, ease of use and fit with contingent circumstances all of which require a use-centred approach to designing a technological system and building participation. Moreover, the reach of technology platform-based global approaches is limited unless other local measures to design participation are taken. A cross-channel approach that focuses on iteratively designing technology to support and grow mobile social ridesharing networks in particular locales is recommended. The contribution is an understanding of HCI approaches in the context of other designing participation approaches, illustrated by the case study.

9.15 | Using a Multi-touch Tabletop for Upper-Extremity Motor Rehabilitation

Michelle Annett, Fraser Anderson, University of Alberta; Darrell Goertzen, Jonathan Halton, Quentin Ranson, Glenrose Rehabilitation Hospital; Walter Bischof, Pierre Boulanger, University of Alberta

Millions of people in Canada have impairments that result in a loss of function and directly affect their ability to carry out activities of daily living. Many individuals with disabilities enter into rehabilitation programs to improve their motor functioning and quality of life. Currently, many of the activities and exercises that are performed are monotonous, uninteresting, and do not inspire patients to perform to the best of their abilities. The usage of traditional exercises can also make it difficult for

therapists to objectively measure and track patient progress. The integration of highly interactive and immersive technologies into rehabilitation programs has the potential to benefit both patients and therapists. We have developed a multi-touch tabletop system, the AIR Touch, which combines existing multi-touch technologies with a suite of new rehabilitation-centric applications. The AIR Touch was developed under the guidance of practicing occupational therapists.

9.30 | Development of a software-based social tutor for children with autism spectrum disorders

Marissa Milne, David Powers, Richard Leibbrandt, Flinders University

This work in progress aims to investigate the potential for using autonomous virtual agents as social tutors for children with autism through the development of a prototype software program. Existing studies have investigated the use of human controlled virtual agents for social skills development and autonomous virtual agents for language development, both achieving positive outcomes. The virtual agent component of this, known as the Thinking Head, has a lifelike appearance and ability to model realistic facial expressions that lends it to this application.

The evaluation component of this project will examine the children's ability to recognize particular facial expressions and choose appropriate social actions to take before and after a short interaction with the social tutor. Additionally, the evaluation investigates the children's thoughts about their experience with the virtual agent. The outcome of this project will provide insights for the potential of this approach and provide direction for future research and development.

9.45 | SOFA: An Online Social Network for Engaging and Motivating Families to Adopt a Healthy Lifestyle

Nilufar Baghaei, Jill Freyne, Stephen Kimani, Greg Smith, Shlomo Berkovsky, Dipak Bhandari, Nathalie Colineau, Cecile Paris, CSIRO

Overweight and obesity have become a global epidemic and are increasing rapidly. Previous research has shown that providing social support and family support has profound roles on the weight management of individuals. However, the support provided by online health communities is outside the family context and is targeted at individuals. We are proposing SOFA, an online social networking system aimed at engaging and motivating families to adopt a healthy lifestyle through exposure to educational information on diet exercise and a range of other healthy living information. In this paper, we describe SOFA's features, the

research questions that we are investigating and some preliminary results from a live deployment. The results showed that adding a social layer can considerably increase user engagement with static educational content and showed that the provision of family based profiles reduced the activity levels of individual family members when compared to those with individual profiles.

10.00 | Physical Activity Motivating Games: You Can PLAY, MATE!

Shlomo Berkovsky, Jill Freyne, Mac Coombe, Dipak Bhandari, Nilufar Baghaei, CSIRO

Contemporary lifestyle is becoming increasingly more sedentary: a little physical activity (e.g., exercising and sport) and much sedentary activity (e.g., computer and TV). The nature of sedentary activity is self-reinforcing, such that increasing physical and decreasing sedentary activity is difficult. Rather than trying to motivate individuals to reduce the time spent on sedentary activities, we focus on integrating physical activity into the predominantly sedentary activity of computer games playing through a novel game design. Our design leverages engagement with games in order to seamlessly motivate users to perform physical activity, as part of the sedentary playing, by offering game rewards in return for physical activity performed. In this work we report on an initial user study of our game design applied to the open source Neverball game. We motivated users, in this study children, to perform physical activity by reducing the time allocated to perform tasks and captured their activity through accelerometers configured to capture jumping movements. Findings showed that users performed more physical activity and decreased the amount of sedentary time when playing the active version of Neverball, while not reporting a decrease in perceived enjoyment of playing.

10.15 | Technological Approaches to Promoting Physical Activity

Julie Maitland, National Research Council Canada; Katie Siek, University of Colorado at Boulder

This paper reflects on the HCI community's current and potential contributions to the problem of promoting physical activity. It does so by first presenting a conceptual overview of existing research, and then draws from the findings of a study of attitudes towards health and health-related behaviour to frame a critical review of the current state of the art. In doing so, we identify an area of outstanding need and opportunity for future research: conveying the value of physical activity to those unconvinced of its importance.

10.30 | Utilising the Open Channel Created by Telecare: Acoustic Communication Analysis of Radio Sounds at Home

Hanif Baharin, Ralf Mühlberger, The University of Queensland

Since policy makers are advocating telecare as a popular solution for the aging society, it is expected that sooner or later many homes will have an always-on open channel as the result of telecare technology usage. Our previous studies have shown that this channel can be tapped to provide the feeling of presence of loved ones without the exchange of content. In this paper, the idea is discussed further by analysing the meaning of radio sounds at home from the perspectives of Acoustic Communication Theory. The analysis justifies the need to further explore the use of meaningful environmental sound objects in a domestic setting to negate 'social silence', by giving an example of a possible design.

friday 27 9.00–10.45

DESIGN: ICT theatre 2

chair: Steve Howard

9.00 | Working towards an open source design approach for the development of collaborative design projects

Natalie Ebenreuter, Alcatel-Lucent Bell Labs France

At its core the act of designing begins with an idea that develops over time to shape the creation of a product or service that meets a distinct purpose. Characteristically, a select group of designers, key stakeholders and possibly end-users of a product work together to facilitate the design process. However, if understood with respect to the development of an open source project, open design projects can potentially involve any number of global participants that contribute to the online development of a product's voluntary advancement.

In this paper I consider if the concept of open source development can be extended to collaborative interaction design practices. In doing so, I argue that effective open design processes for designing interactive experiences need to be developed and propose a way in which online communication tools and rationale instances can be used to share the iterative direction of open design decisions.

9.15 | 'Coalesce' - A Web-based Tool for Sensemaking

Brendan Ryder, Dundalk Institute of Technology; Terry Anderson, University of Ulster

Sensemaking is an ill-defined, iterative and complex activity concerned with the way people approach the process of collecting, organizing and creating representations of information. The user needs to be supported in two cognitive tasks: 'representation construction', which involves finding an appropriate structure to aid sensemaking and 'encoding', which is populating that structure with meaningful information. Much work has been completed in the area of encoding, but the forms of representation construction and how they can be better supported in software requires further investigation.

This paper reports on the design, implementation and evaluation of a web-based sensemaking tool called Coalesce. It tightly integrates search facilities with the representation construction task through the SenseMap – an innovative interactive hierarchical mechanism for displaying, structuring and storing selected information. Results from controlled experiments indicate that Coalesce enhances users' searching, gathering and organizing tasks when compared to a standard browser and word processor combination, but without imposing an additional cognitive load.

9.30 | Lenders, borrowers and fellows: Personal narrative and social entrepreneurship in online microfinance

Jolynna Sinanan, University of Melbourne

Online microfinance promotes and encourages entrepreneurship as well as creating informal relationships between lenders and clients using social networking technologies. While much of the existing literature describes the quantitative success of online microfinance, little attention has been given to the social processes through which this has been achieved. This short discussion will take an interdisciplinary approach, focusing on the role of narrative production in facilitating relationships between online lenders in more affluent countries and client entrepreneurs in developing countries, using experience drawn from initial fieldwork conducted in Cambodia. Better understanding the relationships between online lenders, clients and the intermediaries who document the activities of client entrepreneurs may be useful in the design, modification or implementation of effective technologies to better enable all actors in the delivery of online microfinance services.

9.45 | Truce in online games

Mitchell Harrop, The University of Melbourne

This paper reports on the preliminary findings of a study examining the nature of rules in the online multiplayer game modification Defense of the Ancients (DotA). It was found that players use numerous truce calls (categorised broadly as fainties, parlay, pax and cheap) to negotiate rules or the maintenance of 'fair play' in a game. The possibility of providing feedback on the use of truce calls to developers as part of the design process is also considered.

10.00 | User Interaction with Novel Web Search Interfaces

Hilal Al Maqbali, Falk Scholer, James A. Thom, Mingfang Wu, RMIT

Search result organisation and presentation is an important component of a Web search system, it can have a substantial impact on the ability of users to find useful information. In this study we compare the effectiveness of three publicly available search interfaces for supporting navigational search tasks. The three interfaces vary primarily in the proportion of visual versus textual cues that are used to display a search result. Our analysis shows that users' search completion time varies greatly among interfaces, and an appropriate combination of textual and visual information leads to shortest search completion time and the least number of wrong answers.

10.15 | MUSTe Method for Quantifying Virtual Environment Training System Efficacy

Dawei Jia, Asim Bhatti, Saeid Nahavandi, Deakin University

In the current era increased attention and interest of utilizing advanced computer technologies for training and education at all managerial levels and functional areas is apparent. One of such technologies, virtual environment (VE), is perceived to be effective in enhancing human abilities to learn abstract concept and complex procedural tasks. Despite its adaptation for training and fast-paced technological advancements, ways in which to evaluate efficacy of such technology are unclear. We have approached this problem by developed a new evaluation method focus on cognitive, affective and skill-based learning dimensions, based on traditional usability evaluation methods but tailored to specifically suit for the quantification of 3D VE system. We first describe the construct of the new method and then report a study utilizing the method in the context of quantifying a VE efficacy in an object assembly task. At last, we discuss the implications of such a method.

10.30 | Having fun at home: interleaving fieldwork and goal models

Sonja Pedell, Tim Miller, Frank Vetere, Leon Sterling, Steve Howard, University of Melbourne; Jeni Paay, CSIRO

We aim to make sense of a perplexing human experience (fun) as it occurs in a recently discovered place for socio-technical study (the home). Our toolkit includes technology probes, associated fieldwork and models from software engineering. We describe how we interleave the probes and models. As the work will please neither modeling nor fieldwork purists, we enunciate the benefits of our ambidextrous approach.

friday 27 9.00–10.45

PARTICIPATE: ICT theatre 3

chair: Barney Dalgarno

9.00 | Towards an Ethical Interaction Design: the issue of including stakeholders in law-enforcement software development

Patrick Watson, EIS, Middlesex University; Margret Brennan, University College Cork; Matt Jones, Swansea University; James Walkerdine, Lancaster University; Penny Duquenoy, Middlesex University

In the public sector (particularly in the UK in light of recent reforms i.e. the Local Government Act 2000, etc.) a greater degree of accountability and public involvement or intervention has become the norm in public infrastructure projects, partially under the rubric of "stakeholder engagement". This paper seeks to discuss public involvement in a law-enforcement technology (Isis), which operates on a covert basis in the detection and prevention of child abuse activities across a number of social networking facilities. Our contribution to the development of Isis is to perform an ethics centered consultation process with stakeholders who will contribute to the design and deployment of the end software package. To that end, we have sought to develop a "Modified Participatory Design" approach, utilizing the knowledge gained from the HCI community with regards to more traditional design projects and adapting this body of work to questions of ethics, privacy, corporate and civic responsibility, monitoring and awareness issues, etc.

9.15 | The Emergence of the Indigenous Field of Practice: Factors affecting Australian Indigenous Household ICT Adoption

Peter Radoll, ANU

This paper examines the factors affecting adoption of Information and Communication Technologies (ICTs) in Australian Indigenous households in a rural context. Drawing on the sociological notion of structure and agency it is argued that being engaged in external fields influences Indigenous household ICT adoption. In this paper, a conceptual schema is developed by drawing on Bourdieu's theory of habitus to explain the low uptake of ICTs in Indigenous households in Australia. The research illustrates the value of habitus to understand ICT adoption from a rural Australian Indigenous perspective. Case analysis suggests that this research has practical and policy implications.

9.30 | Navigating the Labyrinth: the technical trials and misadventures of bringing virtual worlds into a government secondary school

Stefan Schutt, John Martino, Dale Linegar, Victoria University

In this paper we present the technical obstacles encountered by a project team seeking to embed virtual world-based activities into a government high school. In doing so we outline a number of broader issues connected with working with proprietary technologies, access and equity, working with IT bureaucracies and systems, and engaging disadvantaged young people.

9.45 | Collaborating with Users: Cultural and (I)literacy Challenges

Janni Nielsen, Mads Bødker, Copenhagen Business School

With the development of the global market, users become a competitive factor since successful diffusion of IT systems lie with them. However, users have different IT competences and they are embedded within cultures. These are two central challenges that must be addressed in the development of HCI techniques and tools suitable for handling the complexity of designing for users across cultures. User-Centered Design is a first step, and for this paper we frame it specifically within the Scandinavian IS tradition to ensure direct participation by - and cooperation with - users through all phases of the design process. This approach serves as the basis for conceptual and experimental work-in-progress in our VisionLab. We describe the different techniques we are exploring, the essentials of which are to work with users in open dialogue. We point out that when working across cultures, virtually mediated

cooperation with users is the next challenge, and conclude by sketching two digital techniques for virtual cooperative design using digital media and how they could be useful.

10.00 | A Study of Email and SMS use in Rural Indonesia

Dean Hargreaves, Toni Robertson, UTS

This paper describes a two year research study that piloted and evaluated the use of low-cost, low-bandwidth Information and Communications Technology (ICT) to support meetings between agricultural researchers and farmers in rural Indonesia and researchers in Australia. We found that the primary constraints to ICT use in rural Indonesia are rarely technical, but rather relate to the knowledge, social and economic systems within which they are used. This study revealed how different local appropriations of email and mobile phone SMS clash, which often resulted in misunderstanding, frustration and reduced team cohesion and performance. This research contributes to understanding the role of ICT to enhance social inclusion of those in remote parts of developing countries.

10.15 | Experimenting with the use of persona in a focus group discussion with older adults in Malaysia

Syariffanor Hisham, Universiti Teknikal Malaysia Melaka

Eliciting user-requirements from older adults – especially amongst non-users – can be challenging. This is due to the fact that older adults are varied in term of their functional abilities and experience with technology. The common User-centered design (UCD) techniques such as focus group and interviews were found to be less effective with older adults. Inspired by the benefits of persona in enhancing designer's attention through narrative and storytelling, the study reported in this paper tested persona as a communication tool in a focus group discussion with older adults in Malaysia. The study was carried out to gather Malaysian older adults' needs and requirements for the development of a prototype email application. Findings and feedbacks from the study shows that persona can be a potential technique to be applied in working with older adults. The use of persona in a focus group discussion does not only benefit the researchers and designers but also the participants – particularly in building interest among non-users to embrace computers.

10.30 | An examination of the knowledge barriers in participatory design and the prospects for embedded research

Miri Segalowitz, Margot Brereton, QUT

Participatory design has the moral and pragmatic tenet of including those who will be most affected by a design into the design process. However, good participation is hard to achieve and results linking project success and degree of participation are inconsistent. Through three case studies examining some of the challenges that different properties of knowledge – novelty, difference, dependence – can impose on the participatory endeavour we examine some of the consequences to the participatory process of failing to bridge across knowledge boundaries – syntactic, semantic, and pragmatic. One pragmatic consequence, disrupting the user's feeling of involvement to the project, has been suggested as a possible explanation for the inconsistent results linking participation and project success. To aid in addressing these issues a new form of participatory research, called embedded research, is proposed and examined within the framework of the case studies and knowledge framework with a call for future research into its possibilities.

friday 27 11.15–13.00

ARTEFACTS: ICT theatre 1

chair: Tuck Leong

11.15 | When Three Worlds Collide: A Model of the Tangible Interaction Process

Marc Hermann, Ulm University, Inneo Solutions GmbH; Michael Weber, Ulm University

The design of Tangible Interfaces has already evolved since the first projects were developed. Frameworks and taxonomies have helped to understand the field of Tangible Interaction. But nevertheless the mental models of the interaction process with Tangible Interfaces seems to be surprisingly diverse. In this paper we present a comprehensive and generic model for interaction with the digital world through physical objects. Our goal is to model the complete process of interaction, to analyse existing design approaches using the model, and to gain a generic design aid for Tangible Interaction.

11.30 | The Pile of Least Effort: Supporting Lived Document Management Practices

Paris Buttfield-Addison, Christopher Lueg, Jonathon Manning, University of Tasmania

This paper outlines early results from ethnographic research examining the ways people organise and manage their personal documents in an office, with a focus on people who engage in piling. The study encompassed in- depth interview data, questionnaire data and explorations of technology prototypes with participants. We build upon existing personal information management (PIM) research and develop a framework to encompass the real world of paper document management. In this paper, we highlight the challenges of being a piler, and suggest how they might be remedied or alleviated through design considerations for future support systems.

11.45 | Passengers in the Airport: Artefacts and Activities

Ben Kraal, Vesna Popovic, Philip Kirk, QUT

This study addresses the ordinary activities of passengers in airports. Using observational techniques we investigated how passenger activities are mediated by artefacts, in this the bags that people carry. The relationship between passengers and their bags is shown to be complex and contingent on many factors. We report on our early research in the airport and document an emerging taxonomy of passenger activity. The significance of this research is in the contribution made to an understanding of passenger activities which could contribute to the design of future technologies for passenger facilitation and to airport terminal design.

12.00 | Exploring virtual representations of physical artefacts in a multi-touch clothing design collaboration system

Jason Yang, Andrew Dekker, Ralf Mühlberger, Stephen Viller, The University of Queensland

This paper explores the issues and potential future directions of remote collaboration within the field of clothing design and manufacturing. We examine the potential of developing a computer system that supports multiple levels of virtual representation (textual, visual and tangible). We first identified the methods and processes of collaboration within the manufacturing and design industries, and evaluate current methods of remote collaboration designed for these environments. From this we conducted an ethnographic study with fashion design students, to examine what forms of collaboration are important when discussing design and manufacturing techniques. From these findings, we have

designed, developed and performed a pilot study with a multi-touch interface, utilizing a gestural interface (rather than a traditional GUI), to explore whether collocated natural interactions can be extended remotely via technology.

12.15 | Doing things backwards: the OWL project

Danielle Wilde, Monash University, CSIRO; Kristina Andersen, STEIM

The OWL project is inspired by Arthur C. Clarke's Third Law of Technology Prediction: Any sufficiently advanced technology is indistinguishable from magic. It consists of a series of open and speculative body-devices designed without a pre-defined function and tested as design 'probes' in order to ascertain their functionality. While the initial forms emerge from an investigation of the body, their functionality are determined through use. The project fuses fine art and contemporary design processes to arrive at ambiguous outcomes whose functionality is being ascertained 'after the fact' through interviews, or 'probing'. While not necessarily anti-design, the methodology contrasts dramatically with traditional design processes, where the purpose and broad functionality of 'that which is being designed' is usually known in advance. It calls into question the validity of a traditional approach when trying to design 'sufficiently advanced technology'. We present our process and the theoretical scaffold that supports our underlying thinking. Our field of concerns includes enchantment and ambiguity as resources for design, encouraging 'magical thinking' and 'making strange'.

12.30 | Visual Melodies Interactive Installation for Creating a Relaxing Environment in a Healthcare Setting

Amy Yi-Chun Chen, Bert Bongers, Rick Iedema, University of Technology, Sydney

This short paper presents an overview of our Visual Melodies installation through two of the themes we have created, the 'Sea Theme' and 'Night Sky Theme'. Visual Melodies utilises sound and moving images with the aim of inducing relaxation and stress relief. The key contribution of this project will be to create a relaxing and supportive therapeutic environment for visitors in healthcare settings. The installation will be located at the Sydney Children's Hospital. Participants will be able to sit on a sofa, listen to the music and control the moving images and sounds using wireless interface objects. A computer programme has also been developed to interface sensors with animations, allowing people to interact and play with the installation. People's responses will be evaluated.

12.45 | Open in art, nature and emergence

Jennifer Seevinck, Ernest Edmonds, University of Technology Sydney

The interactive art system +-now is modelled on the openness of the natural world. This tangible, augmented reality system is described. In a new research effort, emergent shapes are used to facilitate openness. The paper discusses the relationship between openness and emergence using the art system as an example. It reflects on the creation of this work to discuss aspects of open systems and their design.

friday 27 11.15-13.00

LOCATIVE: ICT theatre 2

chair: Toni Robertson

11.15 | FrostWall: a Dual-Sided Situated Display for Informal Collaboration in the Corridor

Jesper Kjeldskov, Aalborg University, Denmark; Jeni Paay, CSIRO; Kenton O'Hara, Microsoft Research, Cambridge; Ross Smith, Bruce Thomas, University of South Australia

FrostWall is designed to support collegial communication and collaboration within a co-located work environment by facilitating and encouraging informal information exchange in the corridors of a workplace using large situated displays. FrostWall displays provide a flexible display area between the inside of a private office workspace and the public corridor outside it. FrostWall uses “frosting” of glass windows and partitions between private and public workspaces in combination with projectors to create a display area that is effectively dual-sided: readable and operable from both sides. In addition to facilitating informal digital communication and information exchange between co-workers, this situated display area also provides a venue for playfulness and personal expression enhancing social cohesion between colleagues. FrostWall is also a unique vehicle for future research into interaction design for dual-sided interfaces.

11.30 | Unleashing Creative Writers: Situated Engagement with Mobile Narratives

Kevin Wiesner, Marcus Foth, Queensland University of Technology; Mark Bilandzic, Technische Universität München

The emergence of sophisticated multimedia phones in combination with improvements to the mobile Internet provides the possibility to read texts

and stories on mobile handsets. However, the question is, how to adapt stories in order to take advantage of the user's mobility and create an engaging and appealing experience. To address these new conditions, a Mobile Narrative was created and access to individual chapters of the story was restricted. Authors can specify constraints, such as a location or time, which need to be met by the reader if they want to read the story. This concept allows creative writers of the story to exploit the fact that the reader's context is known, by intensifying the user experience and integrating this knowledge into the writing process. Interviews with authors and creative writers and two user studies explored the effects of this way of writing on both parties. The paper presents our preliminary research findings discussing this new experience that was found to be exciting and interesting by both sides.

11.45 | Disposable Maps: Ad hoc Location Sharing

Jan Seeburger, Ronald Schroeter, Queensland University of Technology

The gathering of people in everyday life is intertwined with travelling to negotiated locations. As a result, mobile phones are often used to rearrange meetings when one or more participants are late or cannot make it on time. Our research is based on the hypothesis that the provision of location data can enhance the experience of people who are meeting each other in different locations. This paper presents work-in-progress on a novel approach to share one's location data in real-time which is visualised on a web-based map in a privacy conscious way. Disposable Maps allows users to select contacts from their phone's address book who then receive up-to-date location data. The utilisation of peer-to-peer notifications and the application of unique URLs for location storage and presentation enable location sharing whilst ensuring users' location privacy. In contrast to other location sharing services like Google Latitude, Disposable Maps enables ad hoc location sharing to actively selected location receivers for a fixed period of time in a specific given situation. We present first insights from an initial application user test and show future work on the approach of disposable information allocation.

12.00 | Discussions In Space

Ronald Schroeter, Marcus Foth, Queensland University of Technology

In-place digital augmentation refers to the ability to enhance the experiences of physical spaces through digital technologies that are directly accessible within that space. This can take place in many forms and ways, e.g., through location-aware applications running on the individuals' portable devices, such as smart phones, or through large

static devices, such as public displays, which are located within the augmented space and accessible by everyone. The hypothesis is that in-place digital augmentation, in the context of civic participation, where citizens collaboratively aim at making their community or city a better place, offers significant new benefits, because it allows access to services or information that are currently inaccessible to urban dwellers where and when they are needed: in place. This paper describes the work in progress to investigate this by deploying a public screen promoting civic issues in public, urban spaces, and encouraging public feedback and discourse via mobile phones.

12.15 | Edutainment in the Field using Mobile Location Based Services

Christian Jones, Matthew Willis, University of the Sunshine Coast

The explorer project provides educational tours and activities to schoolchildren using existing low cost technologies. The activities take place in environmentally sensitive and remote locations and are based around a proven curricula developed in collaboration with Queensland schools. To undertake the activities, smart phones are provided to students that are pre-loaded with GPS driven software that guides them through each task. Tasks are triggered by the student's proximity to field locations (using GPS coordinates). Students are directed to observe, collect, analyse and report data by utilising the features of the device, such as the in built camera, location services, text, handwriting and sketch entry, and the audio and video capabilities of the device.

Data collated by students is uploaded to a secure server on completion of the tasks. All data is made available to students via the server for inclusion in reports, assessment items and for sharing and blogging on social networking sites.

12.30 | The Exploration of Non-Visual Interaction for Social Proximity Applications in a Taiwanese Night Market

Chao-Lung Lee, Yun-Maw Cheng, Da Lee Ming-Wei Lin, Li-Chieh Chen, Tatung University; Frode Eika Sandnes, Oslo University College

Social Proximity Applications (SPAs) has been an emerging hot topic in recent mobile research communities. However, the traditional SPA interfaces rely on heavy interaction load in visual attention. This is always problematic when people are on the move. This paper describes our research-in-progress in designing and developing a suitable SPA interface for the use in a night market. Night markets embody a distinct cultural habitat for social life in Taiwan. Visitors are continuously bombarded with surrounding information. The results showed our non-visual interaction

approach could be a successful means in user interfaces in this type of situations.

12.45 | OurPlace: The Convergence of Locative Media and Online Participatory Culture

Jillian Hamilton, Queensland University of Technology

The trans-locative potential of the Internet has driven the design of many online applications. Communities tend to cluster around topics of interest, which take precedence over participants' geographic location. And the site-specificity of creative content is largely disregarded when it appears online. However, for some, a sense of place is a defining aspect of representation and the starting point of conversations. Yet the production of online environments that focus on the production, display and sharing of regionally situated content has, so far, largely been overlooked. Recent developments in geo-technologies have precipitated the emergence of a new field of interactive media. Entitled locative media, it emphasizes geographical contexts and the importance of place. This paper considers how we might combine emerging geo-technologies (geo-mapping, Global Positioning Systems (GPS) and 3G Mobile Network remote uploading) and practices of locative media (experiential mapping and geo-spatial annotation) with aspects of online participatory culture (uploading, file-sharing, archiving, tagging and search categorization and collaborative co-production) to produce applications that support geographically 'located' communities. It discusses an example of the possibilities of this convergence – a prototype entitled OurPlace 3G to 3D. It was designed to support the production, uploading and display of site-specific creative media content and the (co)production of spatial-temporal narratives of place.

friday 24 11.15–13.00

INPUT: ICT theatre 3

chair: Duncan Stevenson

11.15 | Be Careful How You Point That Thing: Wiimote Aiming for Large Displays

Christopher Pelling, Torben Sko, Henry Gardner, Australian National University

Previous work demonstrated that the Wii Remote (Wiimote) can be used as a control device for large displays by the use of multiple sensor bars.

While this work showed the system to perform quite successfully, the limited vertical aiming range of the Wiimote was noted to be a shortcoming and, to address this issue, an accelerated aiming technique was introduced. The present work extends the study of Wiimote aiming for large displays by implementing two further techniques that consider relative movements and clutching. User testing is conducted and the results from all three techniques show that clutching performed worst while the absolute and relative techniques could not be statistically differentiated.

11.30 | My Phone is my Keypad: Privacy-Enhanced PIN-Entry on Public Terminals

Alexander De Luca, Bernhard Frauendienst, Sebastian Boring, Heinrich Hussmann, University of Munich

More and more services are available on public terminals. Due to their public location and permanent availability, they can easily fall victim to manipulation. These manipulations mostly aim at stealing the customers' authentication information (e.g. bank card PIN) to gain access to the victims' possessions. By relocating the input from the terminal to the users' mobile device, the system presented in this paper makes the authentication process resistant against such manipulations. In principle, this relocation makes PIN entry more complex, with a tendency to worse usability. In this paper, we present the concept as well as a evaluation that has been conducted to study the trade off between usability and security. The results show that users apparently are willing to accept a certain increase of interaction time in exchange for improved security.

11.45 | Using brain imaging to explore interactivity and cognition in multimedia learning environments

Barney Dalgarno, Charles Sturt University; Gregor Kennedy, University of Melbourne; Sue Bennett, University of Wollongong

Recent educational models of computer-based interactivity stress the important role of a learner's cognition. It has been suggested that interactive learning tasks carried out in the context of an authentic, problem-based scenario will result in deeper elaborative cognitive processing leading to greater conceptual understanding of the material presented. Research methods that have been used to investigate cognition and learning have traditionally included self-report questionnaires, focus groups, interviews and think-aloud protocols and, more recently in computer-based settings, interaction log file or 'audit trail' analysis. While all of these techniques help researchers understand students' learning processes, all are limited in that they rely either on

self-report or behavioural information to speculate about the cognitive activity of users. The use of functional brain imaging techniques has the potential to address this limitation. Drawing on issues encountered during a recent study using Functional Magnetic Resonance Imaging (fMRI), this presentation will discuss the methodological issues involved in the use of these techniques for exploring interactivity and cognition. Initial results comparing brain activation when exploring an interactive simulation with brain activation when using an equivalent tutorial program will also be presented.

12.00 | Simple Classification of Walking Activities using commodity Smart Phones

Zachary Fitz-Walter, Dian Tjondronegoro, Queensland University of Technology

People interact with mobile computing devices everywhere, while sitting, walking, running or even driving. Adapting the interface to suit these contexts is important, thus this paper proposes a simple human activity classification system. Our approach uses a vector magnitude recognition technique to detect and classify when a person is stationary (or not walking), casually walking, or jogging, without any prior training. The user study has confirmed the accuracy.

12.15 | Investigating political and demographic factors in Crowd Based Interfaces

Tom Barker, Hank Haeusler, Frank Maguire, Jason McDermott, University of Technology Sydney

Techniques that enable groups of people to control or influence digital system applications collectively have been greatly facilitated through the emergence of faster and better image processing and sensing technologies. This paper considers design issues that relate to crowd or group based user interfaces. These issues were explored by the authors' research using an anamorphic, anthropomorphic experimental test rig in a public location. One key difference when comparing group interface design with typical one-on-one user interfaces, is that the group format raises issues of digital political determinism within the system algorithms. These include the impact of democratic group versus individual weighting on choice, as well as the problem of inclusivity and problems with application uptake due to anxiety or unfamiliarity with input technology among certain user demographics. To explore these issues, the researchers created a publicly prototyped installation as a test rig. This rig aimed the aimed to achieve an "invisible" interface through the choice of a familiar anthropomorphic output media: the human face. The

modulation content related to human facial expression and the resulting perceived emotions.

12.30 | Urban Kinesic: a gestural interface for the expression of emotions through bodily movements

Yeup Hur, Frank Feltham, Royal Melbourne Institute of Technology

This design research project presents Urban Kinesic (UrK), a hand held device that enables the expression of emotion through gestural dance movement. Expressive body movement is another interaction and communication channel in our analogue world. We know this from how a gesture can support speech in a face-to-face conversation. To this end the authors firstly observed how expressive movement is used in expressive dance. Findings from these observations informed the design of the UrK, which is a curious electronic device with a silicon skin. It communicates via Bluetooth with a network and uses multimodal channels such as haptics, vibration and heat transfer to indicate its functional states. In use UrK is tracked using an accelerometer to initiate sound modulations that accompany an expressive dance movement. This paper gives an account of the design, development and initial user findings of UrK with a dance troupe, which reveals some interesting initial insights into the expressive nature of the activity it enables, due to its design.

12.45 | Enhancement of Human Computer Interaction with facial Electromyographic sensors

Guillaume Gibert, University of Western Sydney, Martin Pruzinec, Tanja Schultz, University of Karlsruhe, Catherine Stevens, University of Western Sydney

In this paper we describe a way to enhance human computer interaction using facial Electromyographic (EMG) sensors. Indeed, to know the emotional state of the user enables adaptable interaction specific to the mood of the user. This way, Human Computer Interaction (HCI) will gain in ergonomics and ecological validity. While expressions recognition systems based on video need exaggerated facial expressions to reach high recognition rates, the technique we developed using electrophysiological data enables faster detection of facial expressions and even in the presence of subtle movements. Features from 8 EMG sensors located around the face were extracted. Gaussian models for six basic facial expressions - anger, surprise, disgust, happiness, sadness and neutral - were learnt from these features and provide a mean recognition rate of 92%. Finally, a prototype of one possible application of this system was developed wherein the output of the recognizer was sent to the expressions module of a 3D avatar that then mimicked the expression.

friday 27 14.00–15.10

closing keynote: **YVONNE ROGERS**

Choice Moments: How Ubiquitous Technology Can Dramatically Change People's Everyday Behaviour

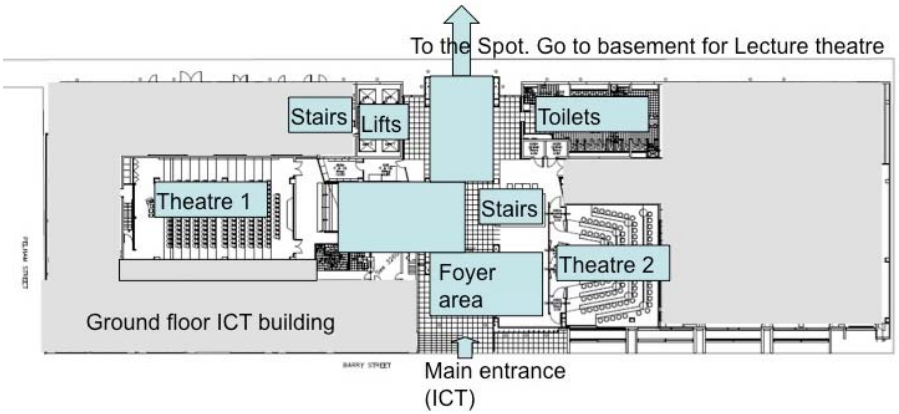
ICT theatre 1 | chair: Jesper Kjeldskov

It is well known that when making a decision – be it buying food, choosing what to wear or even selecting a partner – people often ignore most of the available information in the environment and rely instead on a few important cues. At the same time, recent surveys have shown that people are becoming increasingly aware of the consequences of their decisions, and want to know more about what they buy, consume or wear. How can we help people make more informed decisions given their tendency to make snap judgements? In my talk, I will describe a new genre of mobile, social and computational devices that are currently being developed to change people's behaviour, and reveal the effects they actually have on people – for better or for worse.

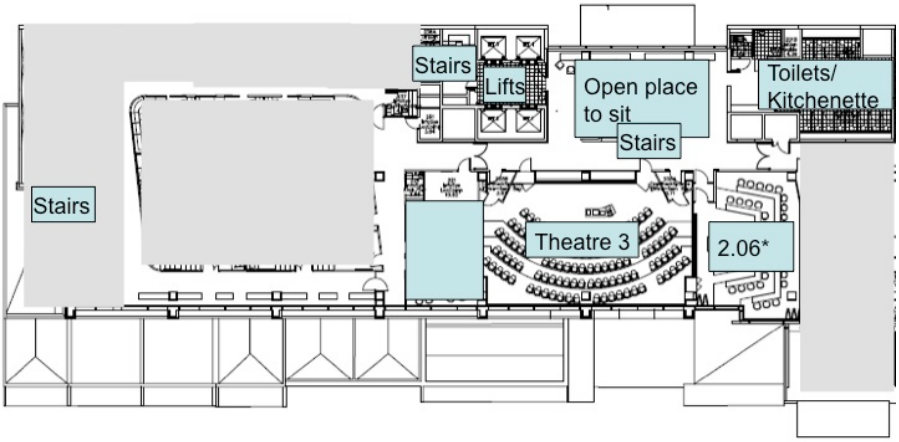
Yvonne Rogers is a professor of Human-Computer Interaction in the Computing Department at the Open University, where she directs the Pervasive Interaction Lab. She has had a joint position in the School of Informatics and Information Science at Indiana University, been a professor in the former School of Cognitive and Computing Sciences at Sussex University, a Visiting Professor at Stanford, Apple, Queensland University and UCSD. Her research focuses on augmenting and extending everyday, learning and work activities with a diversity of interactive and novel technologies. She was a principal investigator on the UK Equator project (2000-2007), where she pioneered and experimented with ubiquitous learning. She is currently exploring how various flavours of computing (ubiquitous, wearable and physical) can inform philosophical analysis and address artistic concerns.

conference venue

ICT Building, The University of Melbourne, 111 Barry St, Carlton



Ground Floor – ICT theatre 1 & 2
All catering in the Foyer Area
Through to Spot theatres (see top of plan)



Level 2 – ICT theatre 3

social program

welcome cocktails

The Welcome Reception will be held on Tuesday 24th November in conjunction with the HFESA Conference dinner at the Melbourne Museum. The cost of this function is included in the full registration fee. Please indicate your attendance on the registration form. Additional tickets are available for this function at a cost of $35 each.

conference dinner

The OZCHI Dinner will be held on Thursday 26th November at CQ Functions www.cqmelbourne.com.au conveniently located at 113 Queen Street between Bourke and Little Collins Street. CQ is a jewel in the crown of Melbourne's Queen Street. After the dinner is finished you are welcome to travel to the 15th floor of the building and have drinks at Blue Diamond. The floor boasts an almost 360 degree city view.

housekeeping

volunteers

OZCHI would not be what it is without the wonderful volunteers who run around helping out, before, during and after the conference, making sure that everyone is having a great conference experience. These volunteers welcome participants, give directions, help in the sessions and with WIFI access and generally make sure the conference is running smoothly.

A big thank you to each one of them:

Ashmida Alwi, RMIT
Bernd Ploderer, University of Melbourne
Bjorn Nansen, University of Melbourne
Danielle Wilde, CSIRO
Jenny Kennedy, Swinburne University
Michael Dunbar, RMIT
Mitchell Owen Harrop, University of Melbourne
Nilanthi Seneviratne, University of Auckland
Nilma Perera, University of Melbourne
Rene Vutborg, University of Aalborg
Richard Medland, QUT
Ronald Schroeter, QUT
Sarah Reeder, Indiana University
Shawn Ashkanasy, University of Melbourne
Susan Coleman Morse, Indiana University

volunteers chair: Hilary Davis

internet access

Wireless internet is available for delegates attending the HFESA conference who have their own laptops. For instructions on how to access this please see Annabel or Kendall at the OZCHI registration desk.

no smoking

There is no smoking in any of the conference or social venues for this conference. Your nearest smoking opportunity during the day is outside the ICT building on Barry Street, overlooking University Square.

catering

All catering will be in the foyer of the ICT building, on Barry Street.

best paper award

The best paper award is given in the closing session, on Friday November 27, at 15.10. This award recognises not just the best written papers, but the combination of the written work, along with the quality of the presentation and discussion around the work presented at the conference.

conference evaluation

An online evaluation form for OZCHI2009 is available throughout the conference and until the 21st December 2009 at:
http://tinyurl.com/ozchi2009survey

Please help us make each conference even better by giving us the feedback we need to improve.

CHISIG annual general meeting

This important meeting is scheduled for 17.00 on Thursday 26 November, in ICT Theatre 1. Please attend if you are a member of CHISIG – with your proxies.

OZCHI 2010

Brisbane, November 22nd-26th

Volunteer now to be part of the team that creates OzCHI 2010!

Contact Margot
M.brereton@qut.edu.au

doctoral consortium

monday 23

The Doctoral Consortium is scheduled prior to the main conference program on Mon 23 Nov 2009. The Doctoral Consortium offers PhD students a special forum where they can present, discuss and progress their research plans with peers and established senior researchers.

doctoral consortium chair: Margot Brereton, QUT

respondents: Margot Brereton, QUT & Wally Smith, University of Melbourne

24 hour design challenge

tuesday 24

This year OZCHI will be preceded by an exciting student design challenge. In line with the conference theme Design: Open 24/7 the challenge is organised as two 24 hour events. This is an exciting opportunity for students from around the world to participate in OZCHI and to meet peers, academics, and professionals from the field.

The first round (24_day1) took place online on 12 September 2009, 8am (AEST). Teams of 2-5 students from around the world were invited to develop a solution for a state-of-the-art research problem acquiring interaction design and HCI skills. Submission was judged by a panel of international experts and the top entries from this round will be published in the conference proceedings and received a scholarship for attending OZCHI.

The second round (24_day2) will be held at OZCHI on 24 November 2009. Students registered for the conference are invited to participate in this challenge. Teams will have 24 hours to develop an application based on mobile and ubiquitous computing technologies and designed for the local context of the City of Melbourne. Teams will also receive mentoring support from experts and professionals in the field. Submissions will be exhibited during the conference. The top two entries earn a Certificate of Recognition and prizes sponsored by our industry partners.

- Follow us on Twitter for updates: @ozchi24

Or visit **www.ozchi.org/24** for more information

Organisers: Martin Tomitsch, Andrew Vande Moere, The University of Sydney; Jeremy Yuille, ACID/RMIT

tutorials

monday 23

Tutorial One: User Requirements and Gathering (full day)

Sandrine Balbo, Deakin University

This tutorial is designed for people with no or little experience in task analysis. Experience in user interaction design in general, and requirement gathering in particular, is preferable, but not necessary. Participants with prior knowledge in user interaction design will be able to apply readily what they learn in comparison to their own experience, which is always beneficial.

This tutorial's objective is two-fold:

- To introduce novices/designers to requirement gathering methods for informing the design of user interaction.
- To provide instruction in the established practice of requirement gathering and hands on experience with task analysis.

tuesday 24

Tutorial Two: Web accessibility: principles & practices (half day)

Neil King, Vision Australia

This workshop explains what accessibility means and why it is important. Understand how people with disabilities use the web, including demonstrations of assistive technology. Uncover the business benefits of web accessibility - not just the benefits for people with a disability and learn how to incorporate accessibility into your next website project. No technical knowledge is required.

Tutorial Three: Experimental Design for HCI Research (half day)

Helen Purchase, University of Glasgow

The "Experimental Design for HCI research" tutorial will introduce the basic concepts and pitfalls of running experiments with human participants. It is particularly intended for researchers from a computer science background who are planning to conduct formal experiments,

especially PhD students. The tutorial will follow the process from 'wanting to evaluate HCI research' to an experimental design, and from there to publishable results. It will:

- introduce basic concepts of formal empirical design
- illustrate these concepts with a broad range of examples
- address the many different design decisions that need to be made in formulating a valid experiment;
- briefly introduce appropriate statistical analysis methods.

The examples presented will primarily be from the area of Information Visualisation (as this is the instructor's area of expertise), although other HCI examples will also be mentioned. Broader discussion of other experimental examples may also take place, depending on the experimental experience of the tutorial participants.

workshops

monday 23

Workshop One: OZeWAI (two days)

Liddy Neville, Hiawatha Island Software Inc

The 2009 OZeWAI Workshop is a continuation of the series for those who want the Web to be inclusive of all who have the equipment and connections - without discrimination against those with special needs due to medical or other disabilities. Accessibility is sometimes thought of as extended or included in usability but it takes a particular perspective on inclusion and is legally required in most countries. Currently less than 3% of the Web is accessible to everyone but 65% of users would benefit if it were accessible. Understanding accessibility; what to do about it; who is doing what, and what is available to help, will be considered in a special two-day workshop at OZCHI. Remember, we will all have special needs if we only live long enough! Participants are invited to submit proposals for presentations. For further details, see http://www.OZeWAI.org/2009w/.

tuesday 24

Workshop Two: Street Computing (full day)

Ricky Robinson, Markus Rittenbruch, NICTA; Margot Brereton, QUT; Stephen Viller, UQ; Marcus Foth, QUT

The urban street is bathed in a sea of data, and augmented by numerous computational components: mobile phones, weather sensors, digital bus timetables, surveillance cameras and so on. In this workshop, we want to explore the research opportunities that exist for enabling ordinary people to harness these heterogeneous computing elements to create meaningful tools for themselves, their friends and their colleagues. The authors of the paper and presentation that elicits most discussion will receive the "Telstra Most Interesting Paper" award, the prize for which is a Nokia E51 phone.

Workshop Three: Hungry 24/7: HCI Design for Sustainable Food Culture (full day)

Jaz Hee-jeong Choi, Marcus Foth, Greg Hearn, QUT; Eli Blevis Indiana University; Tad Hirsch, Intel Research

This workshop proposes to explore new approaches to cultivate and support sustainable food culture in urban environments via human computer interaction design and ubiquitous technologies. Food is a challenging issue in urban contexts: while food consumption decisions are made many times a day, most food interaction for urbanites occurs based on convenience and habitual practices. This situation is contrasting to the fact that food is at the centre of global environment, health, and social issues that are becoming increasingly immanent and imminent. As such, it is timely and crucial to ask: what are feasible, effective, and innovative ways to improve human-food-interaction through human-computer interaction in order to contribute to environmental, health, and social sustainability in urban environments? This workshop brings together insights across disciplines to discuss this question, and plan and promote individual, local, and global change for sustainable food culture.

Workshop Four: Smart Healthcare Applications (full day)

Carsten Röcker, Martina Ziefle, RWTH Aachen University; Andreas Holzinger, Medical University Graz; Russell Beale, University of Birmingham; Susan Hansen, CSIRO

Within the last years a variety of new healthcare concepts for supporting and assisting users in technology-enhanced environments emerged. While smart healthcare systems can help to minimize hospital stays and in so doing enable patients an independent life in a domestic environment, the complexity such systems raises fundamental questions of behavior, communication and technology acceptance. Therefore, this workshop aims to bring together researchers from different disciplines to discuss the interrelation of medical, environmental, technical, communicative, psychological and social factors and their consequences for the design, use and acceptance of smart healthcare systems.

Workshop Five: Designing for Healthy Living (half day)

Stephen Kimani, Nilufar Baghaei, CSIRO

The World Health Organization estimates that over 70 per cent of cardiovascular disease deaths and around 50 per cent of all chronic disease deaths are attributable to a small number of risk factors, which include: unhealthy diet, physical inactivity, tobacco use and high blood pressure. It is interesting to note that the aforementioned risk factors are few and are lifestyle modifiable. The lifestyle that people adopt can therefore negatively or positively influence their health and wellbeing. The above discussion clearly points to an opportunity for design solutions to support healthy living. There is therefore a growing need for design solutions that empower people to manage or change their lifestyles, and address their health conditions. Although the healthcare sector is growing, it may not keep up with the situation. In view of the opportunity and need, we are organizing a workshop at the 21st Australian Conference on Computer-Human Interaction (OZCHI 2009) to solicit design solutions and efforts for supporting healthy living.

CHISIG : http://www.chisig.org/

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