Location and Time

▶ Gardens Point Campus, Queensland University of Technology, Brisbane, Australia
▶ Tuesday, November 23, 2010, 9:30 - 17:00

9:30 - 9:45   Welcome

9:45 - 11:15   Presentation Session 1

▶ **Partner Technologies for Special Needs: Challenging Assistance**
Kevin McGee, Communications and New Media Programme, National University of Singapore

There is currently a great deal of research on the development, use, and evaluation of "smart" technology in the broader context of health-care. Such work involves many different aspects of human studies (e.g., human concerns, needs, adoption), target users (e.g., elderly, physical or cognitive disabilities), purpose (e.g., training, rehabilitation, prostheses), and technology platform (e.g., mobile, wearables, environmental/ambient, ubiquitous, implants, prosthetics, or devices). Unfortunately, intelligent assistive technologies can actually exacerbate the problem of yielding to the technology. Having technology that actively tends to and cares for human needs could even encourage people to let such technologies do more . . . while people do less. In many cases, this is fine; in the case of health-care, this can be problematic. This proposal highlights one way to design and develop smart technologies to help do for people what they themselves cannot, but encourage (or help) people to do for themselves as much as they can: adaptive partner technologies.

▶ **Smartpumps: A Negotiated Relative Advantage?**
Hilary Davis[1], Rens Scheepers[1], Virginia Hagger[2], Steve Howard[1], Renza Scibilia[2], Liz Sonenberg[1], Gil Tidhar[3]
[1]Department of Information Systems, The University of Melbourne, [2]Diabetes Australia - Victoria, Melbourne, [3]SeeCare, North Melbourne

Significant improvements in smart healthcare are only possible if a multidisciplinary approach is taken to the design, implementation, and application of technology in their respective social context. Pregnant women living with type 1 diabetes (PWT1D) face a series of challenges including ongoing management of diet and physical activity, continued delivery and adjustment of insulin doses. These women often feel socially and geographically isolated, due to the rarity of their condition, the paucity of accurate personal healthcare information, and the demands of a high-risk pregnancy. IT-enabled smartpumps, which allow information to be shared between women with type 1 diabetes and their healthcare team, are one possible solution to this problem. This paper highlights the adoption and application of IT-enabled smartpumps by PWT1D. Using a Cross Community Information Systems (CCIS) approach we examine some of the benefits and drawbacks of smartpumps from the perspective of a range of stakeholders associated with the health and wellbeing of PWT1D and their unborn children. Ultimately we argue that with a considered approach to their adoption and use smartpumps provide an effective tool for ongoing support and collaboration within the healthcare team.

▶ **Inclusive Design: Accessible User Interfaces for an Online Peer Support Network for Socially Isolated Children Affected by a Serious Illness, Chronic Condition or Disability.**
Kon Konovalov, Design By Science, Australia

The Australian Government estimates that there are over 50,000 young people experiencing social isolation, lack of support and a low quality of life as a result of living with a serious illness or disability. Our objective was to establish an online community program, to connect, support and encourage children and adolescents living with disabilities, in order to provide support and inspiration to their everyday lives. Livewire, a nationwide online program, was established in 2008 and simultaneously, a bedside internet kiosk unit was implemented across 20 major hospitals, to provide easy access for seriously ill and isolated patients. The user-interface was initially developed without including the user throughout the design process. Ethnographic research and impromptu usability testing was performed with child and adolescent patients, within the hospital environment over a period of 3 months, before we made recommendations on improving the accessibility of the user-interface and providing an inclusive user-experience. A wide range of illnesses and disabilities (which varied in severity) were observed throughout the study. These had not previously been considered, which led to the early version of the product being designed with major accessibility issues with the user-interface.

▸ **Developing Smart Healthcare Applications: Requirements, Prototypes and Target Users**
Duncan Stevenson, School of Computer Science, Australian National University, Canberra

The process of developing smart healthcare applications is multidisciplinary, involving experts from both ICT and clinical domains. This position paper proposes that an approach to bridge these domains should have a strong focus on requirements, early demonstration prototypes and on careful selection of early users.

11:15 - 11:30 Coffee Break

11:30 - 13:00 Presentation Session 2

▸ **Challenges in the Adoption of Software Applications by Hospital Staff**
Brenda Vander Linden

My recent business experience has been in the US, working with clinical hospital staff to introduce and support a software product that is responsible for tracking of implants used in surgical procedures. Careful tracking is required in order for hospital accreditation, but it is often viewed by clinical staff as not central to their focus, and getting "buy-in" can be a challenge. Also efforts to reduce the load on the clinical staff by integrating the software with existing hospital systems will naturally involve bringing in hospital IT staff. Getting everyone to a common understanding of exactly what will be integrated and how can be another challenge. I'm interested in this workshop because I'd like to step from the hospital staff focus of my previous work to the more patient oriented focus emphasized in this workshop.

▸ **Facilitating Intuitive Interaction with Complex Devices for Older Adults**
Gudur Raghavendra Reddy[1], Alethea Blackler[1], Vesna Popovic[1], Doug Mahar[2]
[1]School of Design, Queensland University of Technology, Brisbane, [2]School of Psychology and Counseling, Queensland University of Technology, Brisbane

Increasing life expectancy and a dropping birth rate have seen changes in world demographics in the past two decades. Coupled with this change in demographics, past decades have seen a substantial increase in the use of technology in all aspects of our lives. The gradual shift from hardware-based to microprocessor controlled software-based products has brought a higher level of abstraction into interaction with products. Older generations, who grew up with older technological paradigms, have been left behind, resulting in a digital divide between young and old. This situation has led to research on the use of technology in the aged population; looking for ways to engage them effectively and to help them lead a productive, dignified and independent life. Ironically, not much attention has been paid to interaction design that would actually enable older users to exploit these new technologies. This research tries to bridge this gap by gaining insights into the needs of older adults and designing tools to help designers facilitate intuitive interactions with complex technological products. An intuitive interface requires minimal new learning as it mostly relies on prior experience of the users for effective interaction. It is hypothesised that an intuitive product interface will address the reluctance of older adults to learn new systems. Overall aim of this research is to improve quality of life for growing older population by making technology more accessible to them; technology that will help them to work productively, engage them better with society and lead independent and meaningful lives.

▸ **Adaptive Interfaces for Smart Homecare Applications**
Carsten Röcker, Human Technology Center, RWTH Aachen University, Germany

This talk describes first steps in the design process of an open and integrative test bed for studying the acceptance of smart healthcare technologies. Within the last years a variety of new healthcare concepts for supporting and assisting users in technology-enhanced environments emerged. While such 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. The first part of the talk describes the research challenges encountered in the fields of medical engineering, computer science, psychology, communication science, and architecture as well as their consequences for the design, use and acceptance of smart healthcare systems. The second part of the talk illustrates how these disciplinary challenges were addressed within the project "eHealth - Enhancing Mobility with Aging", an interdisciplinary research project funded by the Excellence Initiative of the German Federal and State Governments.

▸ **Interactivated Rehabilitation - Multimodal Interfaces and Tele-Therapies**
Bert Bongers, University of Technology, Sydney, and Stuart Smith, NeuRA, Sydney

From our previous research we identified three key issues in rehabilitation, which we aim to address by enhancing the therapeutic practices with multimodal interaction. We are designing and developing interfaces that allow a rich interaction through multiple degrees-of-freedom continuous sensing, and feedback and presentation modalities of video, audio and haptic. In the workshop we will present our recent developments, including an interactivated reaching task (using lights and music guiding the task, with a wireless sensing unit with tag reader) and a back muscle exercise for wheelchair users based on a rowing metaphor (using video and sounds in response to the patients movements). Guidance and coaching by the specialist therapist at a distance is implicit in our approach, opening up new ways for tele-rehabilitation. The projects and research presented aim to illustrate the key issues we have identified in our earlier research, which have to do with motivation, customization, and independence.

13:00 - 14:00 Lunch Break

14:00 - 15:30 Working Session 1

▸ Identification and Definition of Pertinent Topics
▸ Group Work

15:30 - 15:45 Coffee Break

15:45 - 16:45 Working Session 2

▸ Presentation of Results
▸ Discussion of Dissemination Plan
▸ Planning of Future Events

16:45 - 17:00 Closing