



UCL



UCLiC NEWSLETTER 2010

Introduction

Welcome to the 2010 UCLiC newsletter. A lot has happened since the last (2008) newsletter: PhD students have graduated and new students arrived; two more cohorts of MSc students have completed the MSc programme; post-docs have gone and come (often the same people, leaving to broaden their experience and then returning). All the events, in fact, that one would expect of a thriving research centre.



To celebrate the past, I recently worked with Alistair Sutcliffe to edit a Special Issue of *Interacting with Computers* as a Festschrift celebrating the work of John Long, the founding Director of the Ergonomics Unit, which was the predecessor to UCLiC.

Looking to the future, we have been fortunate to have had several recent grant successes, as described later in this newsletter. In particular, UCLiC were awarded an EPSRC Platform Grant jointly with the Future Interaction Technologies Laboratory at Swansea University. This grant is supporting work on 'healthy interactive systems in healthcare', and has been foundational for two of the more recent grant successes (CHI+MED and Pain Rehabilitation). This reflects a strategic focus of UCLiC work on interaction design for systems to support healthcare.

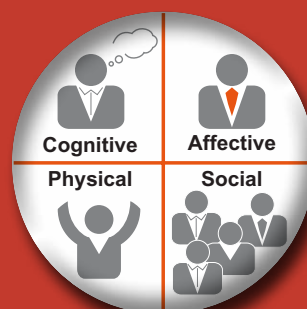
We hope that the short articles that follow will give you a flavour of our activities and of the opportunities there are to work with us. If you would like to know more, please contact any member of the group. We look forward to furthering our interactions and collaborations.

Ann Blandford

Professor of Human-Computer Interaction
Director of UCLiC

At UCLiC, we investigate how people interact with computers, and then recommend how it could be done better. So, we try to understand how users interact with technology, and develop theory that can be applied in the design of new systems to support work, play and well-being. Our investigation into people's use of technology includes four facets: the cognitive, affective, social and physical aspects. We're going to depict these four aspects as the four quadrants of a circle and use it to illustrate how our research projects emphasis these different aspects.

For more information, visit:
www.ucllic.ucl.ac.uk/research



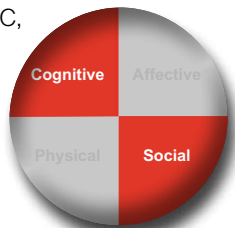


UCLIC-FIT Platform Grant

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CHI+MED

A team of researchers from UCLIC, Swansea University, City University and Queen Mary, University of London has been awarded a 6-year EPSRC Programme Grant, 'CHI+MED', to make interactive medical devices easier to use and so safer.



Medical errors in the UK are estimated to kill or seriously injure 74,000 a year. Many of these involve mistakes using interactive medical devices; the ease of use and reliability of such devices is critical. Incorrectly setting a device up or incorrectly making readings can result in incorrect treatment, even patient death. Good design can often prevent such mistakes.

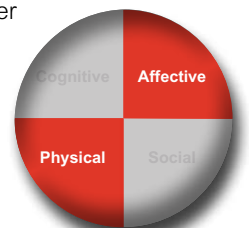
Reliance on interactive medical devices is growing, both in clinical settings and, increasingly, for patients without direct clinical supervision. For example, pumps give drugs for treatment and pain relief of cancer patients, while glucometers measure blood sugar levels for diabetics. Making them easy for the general public to use so errors will not be made is vital.

CHI+MED will improve safety by a scientific approach to understanding and designing out errors. The focus is on better interaction design. That involves studying not just device interfaces but also the way people use them in a given context. CHI+MED will study the design and use of devices, in both controlled settings and hospitals and homes. The project will work with those who design, purchase, deploy and use devices, to deliver improvements in the design and selection of devices and training users. It will both save lives and improve the standard of living, particularly of those with long-term illnesses.

For more information, see www.chi-med.ac.uk

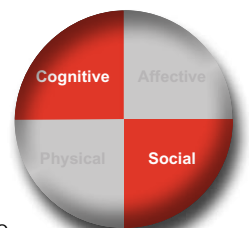
Pain rehabilitation: E/Motion-based automated coaching

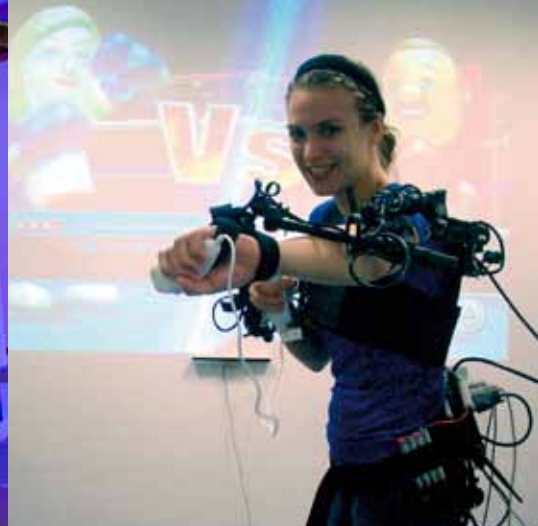
Almost one in seven UK citizens suffer from chronic pain, much of which is mechanical lower back pain with no treatable pathology. Pain management rehabilitative programs suffer from two shortcomings: (a) there are too few resources in the health care system to treat all patients face-to-face; (b) current approaches fail to integrate treatment of interrelated physiological and psychological factors. Combining expertise from engineering, clinical health sciences and psychology this project seeks to address both shortcomings by (a) developing a set of methods for automatically recognising audiovisual cues associated with pain, behavioural patterns typical of pain, and affective states influencing pain and activity, and (b) integrating these methods into an interactive computer system that will provide appropriate feedback and prompts to the patient based on his/her behaviour measured during self-directed exercise and fitness-building sessions.



Knowledge Transfer Partnership (KTP)

Anna Cox secured funding from the ESRC and Technology Strategy Board to work with Paperstone, a local stationery company. The KTP scheme enables a company to work with an academic partner in order to transfer knowledge from the academic (referred to as the knowledge base) to the commercial organisation. Enzian Baur is the KTP associate who has been employed on the project since February 2009. In addition to taking a user-centred approach to redesigning Paperstone's website, she has been training personnel at Paperstone on requirements analysis, personas, scenarios, iterative design, prototyping and evaluation methods. Following implementation of Enzian's redesigns, we have already seen an increase in the overall conversion rate of the site (the ratio of sales to visits). The project has also provided an opportunity for our MSc students to be engaged in a real project as part of their course.

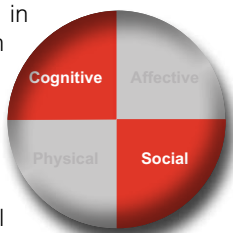




Making Sense of Information

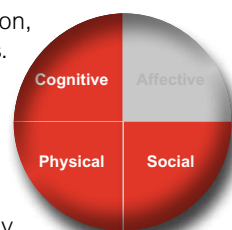
The Making Sense of Information in Professional Work project (MaSI) ran from June 2006 to May 2009. We had the great pleasure of working with three commercial partners: LexisNexis UK, Freshfields Bruckhaus Deringer, and The Times. We studied how people work with information in a set of professional contexts in order to better understand sense-making and to formulate requirements for its support. We studied large corporate investigations, legal workers dealing with current-awareness alerts, legal librarians dealing with email enquiries, and journalists researching and writing news reports and features. We also worked with Jason Baron (US National Archives and Records Administration) and Doug Oard (University of Maryland) to host DESI II, the Second International Workshop on Supporting Search and Sensemaking for Electronically Stored Information in Discovery Proceedings.

Our outcomes include models, findings and requirements too numerous to detail here. But at the highest level we found sense-making to involve the creation and use of sequences of information representations, each designed to feed into and support the next step in an evolving process. As this happens, there is a reciprocity between data focusing (identifying and structuring significant information) and issue focusing (reformulating sense-making goals in the light of discoveries and other unplanned events). Both are essential in sense-making. This work has stimulated a number of further questions about sense-making that we are hoping to pursue in future projects.



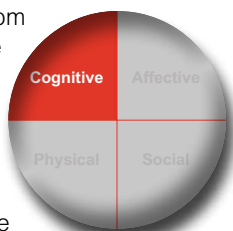
SerenA: understanding and facilitating serendipity

We live in an age of burgeoning information, and increasingly fast information access. The World Wide Web has allowed us to make many positive changes in our society and environment, for example through social networking and e-publishing, but it also presents problems. Searching tools are clearly useful, but their down side is that we are less likely than before to notice peripheral things, situations or people who are relevant to us, in the kind of serendipity or 'happy accident' that led, for example, to the discovery of penicillin. The SerenA project aims to design a Serendipity Arena which will proactively search information available in users' documents and on the Web to identify relevant knowledge and connections related to their work and their environment. The project is led by the University of Dundee, together with UCL; Goldsmiths, University of London; Lancaster University; Heriot Watt; and the University of Nottingham. UCL will be most involved in developing a rich theoretical understanding of serendipity, and in the design and evaluation of prototype tools to support serendipitous interactions.



Interactions on the move: understanding strategy adaptation in dynamic multitask environments

With computers having been untethered from the relative safety of the desktop there comes a growing need to understand how people multitask. The Interactions on the Move project investigates the strategies people adopt when performing multiple tasks at the same time. The question of how people multitask is an important one for Human-Computer Interaction research given the field's promotion of mobile technologies. A better understanding will greatly facilitate the design, prototyping, and evaluation of such technologies in the context of how people actually use them in dynamic multitask contexts.

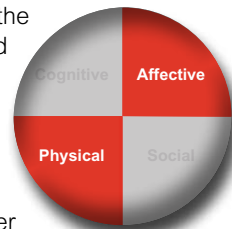


Project website:

www.ucl.ac.uk/people/d.brumby/research/interactions.html

Digital SENSORIA

The sensory experience of products in the digital environment is a much neglected area. Consumers' perceptions and attitudes towards products are formed and changed daily through interaction and experience with goods and services. With consumers demanding products that provide scope for greater personalisation, and that fulfil emotional needs, comes a need to gain a better understanding of consumer sensory preferences on levels hitherto unseen. Through this project we are proposing to give consumers a means to express their sensory perceptions of the different textiles used in clothing products. We will investigate the use of physiological sensing to infer individuals' sensory perceptions, and the use of rich interactive digital representations to present users with a wide choice of responses. Finally, we will co-design with users new ways to digitally present those perceptions in a web environment.



UCLIC Teaching Programme

The design challenge: in two weeks in March, students address the challenge to design a usable and useful system to support a consumer function, such as countryside navigation, or good environmental practices. Multidisciplinary teams rise to this challenge by drawing upon the skills and understanding gained through earlier taught modules on the MSc in HCI with Ergonomics: courses that cover theory and practice of design and evaluation. 'Design Experience' is the last of eight modules students complete on the taught part of the MSc/PGDip. For PGDip students, this is the 'capstone' course. MSc students proceed to individual research projects that allow them to further develop skills and pursue personally interesting topics in depth.

Examples of recent projects include:

- An investigation of the integration of paper and online news presentation at The Times.
- A study of device initialization errors and mental models.
- Sense-making in London Underground railway control
- Relating movement patterns to affective states.

UCLIC's teaching programme accepts about 50 students per annum, with backgrounds in psychology, computing and design disciplines. With flexible study options, students may take any number of courses, from a single module to the complete MSc programme, full- or part-time.

Interacting with information

We live in an 'information age', but information is only useful when it is interpreted by people to support their goals and activities. One theme of work in UCLIC has been on how people interact with information, and how technologies can better support such interactions: not just finding information, but also interpreting and repurposing it. **Ann Blandford** and **Simon Attfield** have written a Synthesis Lecture on this topic, focusing on the situated elements of information interactions (physical, social and temporal), published by Morgan & Claypool. The book is available both physically (ISBN 9781608450268) and digitally (ISBN 9781608450275).



"This is a good chapter from two talented authors which will be useful resource for new researchers but also a good read for more experienced researchers. The structure is good and the writing excellent: interesting, well-expressed and enjoyable."

Ian Ruthven, University of Strathclyde

UCLIC Seminars

UCLIC holds weekly research seminars covering a wide range of aspects of HCI. The schedule exhibits international well known researchers as well as presentations from UCLIC's members. The seminars are open to the public and they are generally held on Wednesday. The schedule is available at: www.ucl.ac.uk/ucllic/seminars

If you are interested, please contact **Rachel Benedyk** (r.benedyk@ucl.ac.uk).

UCLIC Profiles

Anna Cox

Anna is a Senior Lecturer at UCLIC. Since joining the Centre in 2004, her research has focused on understanding HCI through the theories and methods of Cognitive Science. Topics of particular interest include: exploratory learning; interactive search; human error; and immersion in games. She co-edited 'Research Methods for Human-Computer Interaction' (2008) with Paul Cairns, University of York.



Chris Janssen

Chris is keen on working within multi-disciplinary teams; hence he joined UCLIC as a PhD student in April 2009. Chris is interested in why different people sometimes perform the same task in different ways. How can this be explained based on their cognitive characteristics, and the design of an interface? Specifically, within the 'Interactions on the Move' research program, Chris is investigating some of the fundamental factors that determine when people switch between tasks when they are multi-tasking.



Louise Gaynor

Louise has a varied background in clinical and academic environments and joined UCLIC as the Manager in December 2009. She works with the academic and research staff in UCLIC and liaises with the parent bodies in the Psychology and Language Sciences Division and the Computer Science Department on all aspects of the effective organisation of UCLIC, including finance, HR and external relations. As a trouble-shooter for the group, she is a first point of contact for a wide range of academic and administrative matters.



Dominic Furniss

Dominic finished his PhD at UCLIC in 2008. This focused on factors that influence practitioners' choice of usability evaluation method. He spent half of 2009 in Norway enjoying the scenery and working with IFE on 'resilience' for nuclear power plants. He is now a Post-doc Researcher on CHI+MED investigating the design and use of medical devices in hospitals and other healthcare contexts. He says, "It is an exciting multidisciplinary project with real potential to impact HCI and patient safety."



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