



UCL

A room with a view: UCLIC has moved and received an upgrade! We are now located at UCL's central campus on the 8th floor of the Malet Place Engineering Building. We now boast great views over London.



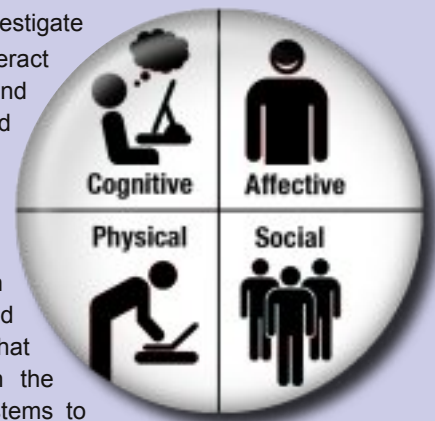
Six years after its foundation, UCLIC has arrived in the Malet Place Engineering Building. We are now co-located with the Department of Computer Science, and only a few minutes' walk from our other 'parent' department, Experimental Psychology. UCLIC's research and teaching are on Human-Computer Interaction (HCI) and Ergonomics. HCI is inherently interdisciplinary; we are aware that different HCI groups worldwide have different characters. We hope that these short articles give a flavour of our activities and of the opportunities there are to collaborate with us.

If you would like to know more about who we are and what we do, please contact any member of the group, or find out more from our web pages (www.ucl.ac.uk/uclac). We are looking forward to furthering our interactions and collaborations. The metaphorical door is open, so come and visit!



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 emphasise these different aspects.

For more information visit www.ucl.ac.uk/uclac/research



UCLIC Projects

Games Research

Video games are hugely popular; however the experiences that gamers have during playing are not fully understood. At UCLIC we study the experience of gaming by conducting qualitative and quantitative studies. We are currently developing the concept of puppetry to investigate how the gamer exercises control and ownership to achieve an enjoyable experience. We investigate the concept of immersion, “immersion” being an enjoyable experience in which a person gets so carried away in their gaming that they are less aware of their surroundings and sometimes they even describe themselves as being “in the game”¹. A new generation of video game consoles requires gamers to be physically active in their games. We study how the way in which a person experiences a game can influence the quantity and quality of movements, as well as the movement having an effect on the experience of the player. This work is partially supported by AffectME - Marie Curie International Re-Integration Grant: (MIRG-CT-2006-046434).



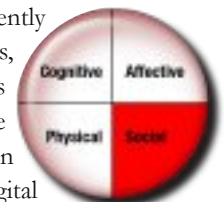
Human Error Modelling

Have you ever walked away from a copy machine with the copies in hand while forgetting the original? We have too ;-). This is called a post-completion error: a special case of omission error, where after completing your main goal you forget to perform a cleanup step. These errors are common in every day life but can also contribute towards catastrophes such as aircraft crashes. We have managed to provoke the former in the laboratory so that the underlying causes can be studied, such as interruptions at a critical point or attending to multiple tasks at the same time². Changing the design of systems can sometimes help to eliminate omission errors, but this is not always possible. We also have to look at strategies people use to avoid them, such as using cues in the environment like positioning the mouse cursor as a reminder for the next step. This type of strategy might be used by your pilot some day³. Some of the foundational work for this research area was supported by the EPSRC (GR/S37494/01).



Collaborative Explanation

Collaboration in professional settings frequently involves constructing shared explanations, for example, in clinical diagnosis, business management, or engineering design. In the future much of this collaborative explanation will be done over distances in specialised digital environments. Recent work led by John Dowell has investigated this process of collaborative explanation and the requirements for future environments. It has involved collecting and analysing dialogues from small groups as they construct explanations for legal and clinical situations. The work has examined the argumentation structures in these dialogues and the reasoning processes which they reveal⁴. The work has led to the development of shared graphical tools for a more systematic construction of explanations.



The Student Laptop Ergonomics Study

Over 50% of students complain of aches and pains when using their laptop computers; the vast majority do not realise this is due to their ergonomic risk-taking. A recent UCLIC survey of 650 university students, by Rachel Benedyk, uncovered some worrisome statistics. Students are increasingly bringing their own laptop computers to university, but carrying them around all day, and using them in stressful postures, on unsuitable furniture, for many hours a day. Most students would not seek medical advice for their symptoms, and ergonomic guidelines from the university did not cover laptop use or how to moderate such risks. This research took steps to plug the gap, developing a new leaflet aimed at students giving clear ergonomic guidance on using laptops at university; the Ergonomics Society subsequently picked this up and it was distributed to all UK universities. This work has contributed to a new analytical framework for ergonomics⁵. The leaflet can be downloaded from www.ucl.ac.uk/uclic/people/r.benedyk/laptops.pdf - This work was funded by the Stephen Pheasant Memorial Trust.





UCLIC Collaborations

Affective-Aware Technology

In collaboration with the Department of Clinical Health Psychology at UCL and the Hospital of Neurology and Neurosurgery, we are investigating how to support self-directed rehabilitation in patients with back pain. Rehabilitation for these patients necessitates an integrated physical and psychological treatment, as currently undertaken in specialist pain management programmes. We aim to design new healthcare technology that can sense patients' affective states as well as their body movements during their self-directed therapy sessions and use this information to provide them with psychological support as well as feedback as to how to correct their movement.



- Jennett et al. (2008). Measuring and Defining the Experience of Immersion in Games. To appear in Int. J. HCS.
- Li et al. (2006). Further investigations into post-completion error: the effects of interruption position and duration. Proc. Cog. Sci. Conf.
- Back et al. (2008). Resilience markers for safer systems and organisations. To appear in Proc. 27th Int. Conf. Computer Safety, Reliability and Security.
- Dowell et al. (2007). Learning by arguing about evidence and explanations. *Argumentation*, 22 (2), 165-303.
- Benedyk et al. (2008). The Hexagon Spindle Model for Educational Ergonomics. To appear in Work J.
- Attfield et al. (2003). Information seeking and use by newspaper journalists. *J. Doc.*, 59 (2), 187-204.
- Blandford et al. (2008). Scoping Analytical Usability Evaluation Methods: A Case Study. To appear in HCI J.
- Blandford et al. (2008). Evaluating system utility and conceptual fit using CASSM. *Int. J. HCS.*, 66, 393-409.
- Furniss et al. (2006). Understanding Emergency Medical Dispatch in terms of Distributed Cognition: a case study. *Erg. J.*, 49, 12/13, 1174-1203.

LexisNexis Butterworths (LNB)

If you trace the history of research collaborations back in time, at the start you'll probably find a conversation over a beer (or two!). And so it was that in a bar in Trensbtütel Castle in 2004 (at the DSVIS conference) that Ann Blandford struck up a conversation with Mark Edwards, Senior User Experience Consultant at LNB. LNB are one of the leading international providers of online legal, business and news information. And it just so happened that UCLIC had some ethnographic research of journalists using the kind of service they provide ready for dissemination⁶. That was the beginning of a collaboration now in its 4th year. A recent letter from LNB, commenting on the impact of UCLIC run workshops and tutorials, suggested that UCLIC has facilitated a "raised awareness of human factors work as a strategic element of product development across the entire organisation. Additionally, the training on Information Behaviour methods from a UCLIC researcher [Stephann Makri] has also introduced a new perspective on developing features for our products."

Knowledge Transfer Partnership (KTP)

Anna Cox and Ann Blandford have recently 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. The funding will enable us to recruit a person (referred to as an associate) who will be employed by UCL for 18 months from September 2008 but will spend much of their time at Paperstone. The project will enable us to assess whether metrics such as the proportion of visits to a website that result in sales, or the income generated, can be used to assess the effectiveness of usability evaluation methods. This project extends prior work on methods for evaluating systems⁷, including an approach to assessing the quality of fit between users and systems⁸, evaluating multimodal interactions, and assessing systems for team working from a Distributed Cognition perspective⁹.

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UCLIC Teaching Programme

The design challenge: in two weeks in March, students addressed the challenge to design a usable and useful system to support good environmental practices. Multidisciplinary teams rose to this challenge by drawing upon the skills and understanding gained through earlier taught courses in the MSc in HCI with Ergonomics: courses that covered 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 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.
- an anthropometric study on retrofitting new technologies in vehicles.
- relating movement patterns to affective states.

UCLIC's teaching programme accepts about 30 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.



Human-Computer Interaction draws on the fields of computer science, psychology, cognitive science, and organisational and social sciences in order to understand how people use and experience interactive technology.

Until now, researchers have been forced to return to the individual subjects to learn about research methods and how to adapt them to the particular challenges of HCI. This is the first book to provide a single resource through which a range of commonly used research methods in HCI are introduced. Topics covered include experimental design, use of eyetracking, qualitative research methods, cognitive modelling and how to develop new methodologies.

Cairns, P.A., Cox, A.L. (eds.) (2008). *Research Methods for Human-Computer Interaction*, Cambridge University Press.

UCLIC Profiles

Duncan Brumby



Duncan recently joined UCLIC as a Lecturer. The opportunity to work as part of a group focused on theory-based approaches to understanding HCI was a critical factor in motivating Duncan's decision to join the faculty at UCLIC. A primary focus of Duncan's research is on understanding the strategies that people adopt for everyday computing tasks, such as how they interact with mobile computing devices on the move.

Sarah Faisal



Sarah is a self-funded PhD student from Saudi Arabia. She just submitted her thesis on user experience and Information Visualisation (InfoVis). Through qualitative analyses of users' interaction she developed a theory of "Harmonious Flow" to describe users' interactive experience. This theory can be used for better designing and evaluating InfoVis tools. Being part of UCLIC enabled her to think creatively about the problem, which included applying novel, uncommon approaches.

Romy Beattie



Romy, the Teaching Administrator, is one of the key people you meet when you are a student at UCLIC. She knows everything about the procedures that are related to the course and keeps the centre ticking by acting as a liaison with the Psychology and Computer Science departments. Her Brazilian charm makes her genuinely approachable and a people's person. She is a great contact for finding out about the course.

Simon Li



Simon finished his PhD on human error in 2006. Looking back on his time at UCLIC Simon said: "UCLIC's interdisciplinary nature provides a very stimulating environment because it forces you to articulate ideas to researchers coming from different disciplines who might not share the same language or concepts. Socialising with fellow PhD students has always been enjoyable! I am now working as a post-doc fellow at the Centre for Health Informatics, University of New South Wales, Australia. Here, I am studying errors doctors make when using decision support technology."