

Ian Oakley

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Research Statement

My research interests lie in the design, development and evaluation of multi-modal human computer interfaces. Computing technologies are rapidly becoming smaller, more sophisticated and increasingly integrated into everyday objects and life. As this happens, traditional graphical interfaces, designed for single users sitting at desks, are becoming less and less relevant and concepts like embodiment, context awareness and mobility more and more so. Multi-modal interfaces incorporate new forms of input and output and have the potential to address these needs by harnessing the full capacity of our bodies to create systems that feel and behave intuitively and naturally. Consequently, I argue that the interfaces to the next generation of wearable and embedded technologies will encompass multi-modality. My work rests at the intersection of psychology and interaction design: a broad perspective fuels concept development, while rigorous scientific observation provides a concrete understanding of where, why and how these interfaces work.

Career History

University of Madeira, Portugal / CMU, USA **2007 - ongoing**
Assistant Professor / Adjunct Assistant Professor

Hired as part of the CMU|Portugal development program, my role is to support a joint MSc in Human-Computer Interaction. Duties include supervision, teaching and research activities. There is an emphasis on collaborative research with colleagues at Carnegie Mellon. Current student supervisions and funded research proposals are in the domains of sustainable technologies, user focused web security and privacy, interactive content for mobile devices, 3D visualisation of social networks and tele-robotic control. Courses taught include Embodied Interaction (a course unique to UMA), Human Factors and Software Architectures for User Interfaces (both replicated from CMU). I co-organised and co-edited the 13th edition of the European Conference for Cognitive Ergonomics, held in Madeira in September 2008.

Electronics and Telecommunications Research Institute, Korea & **2005-2007**
Gwangju Institute of Science and Technology, Korea
Researcher

I held two positions in Korea, firstly at a leading research university and secondly at the premier state-run IT R&D agency. In both positions, my fundamental role was to add HCI expertise to human-centred research projects conducted by a predominantly engineering focused community. Duties included design, evaluation and usability work in tactile sensing, motion input for mobile and wearable devices and virtual reality tasks. I have also presented several short lecture courses on advanced HCI issues, notably perception and psychophysics, and advised research students in their MSc and PhD work. I co-chaired and organised the 2nd International Workshop on Haptics and Audio Interaction Design in 2007.

MITMedia Lab Europe, Ireland **2001 - 2004**
Post-Doctoral Research Associate

At Media Lab Europe, the European Research Partner of the MIT MediaLab, I worked on a range of multi-modal computer interfaces. Project topics included interfaces for the visually impaired, communication technologies, media systems, gesture recognition, and new interaction techniques afforded by incorporating novel sensing functionality into mobile devices. I was awarded research grants from the Irish Higher Education Authority (Bodyspace), Science Foundation Ireland (Eurohaptics'03) and the European Union (MICOLE, a sixth framework STREP). Research at MLE was highly exposed to industry, me with providing extensive experience liaising with industrial partners. Finally, I co-chaired and organised EuroHaptics 2003, the primary European conference on haptics.

Education

University of Glasgow, UK 1998 - 2003
Ph.D., Department of Computing Science, Professor Stephen Brewster
Haptic Augmentation of the Cursor: Transforming Virtual Actions into Physical Actions

Doctoral research stemmed from the observation that cursor interactions form a rich interaction modality, but unlike other complex interfaces, are associated with no explicit tangible feedback. To investigate the potentially beneficial properties of incorporating such physical feedback into virtual interfaces, haptic cues were integrated and empirically evaluated into two application scenarios: targeting tasks in graphical user interfaces, and communication through touch in synchronous collaborative systems.

University of Glasgow, UK 1993 - 1998
B.Sc. (Joint Hons) First Class, Departments of Computing Science and Psychology
Awarded Class Prize in Computing Science

Final year research projects included the development and systematic evaluation of a face processing neural network and the design and human-centric study of a WWW based relevance feedback system built on the SMART information retrieval engine.

Selected Publications

- 2009 Cha, J., Oakley, I., Ho, Y.S., Kim, Y., and Ryu, J. "A Framework for Haptic Broadcasting" To appear in **IEEE Multimedia**.
- 2009 Oakley, I. and Park, J. "Motion Marking Menus: an eyes-free approach to motion input for handheld devices" To appear in **International Journal of Human-Computer Studies**. (doi:10.1016/j.ijhcs.2009.02.002)
- 2008 Oakley, I. & Park J., "Did you feel something? Distracter Tasks and the Recognition of Vibrotactile Cues", **Interacting with Computers**, 20 (3) (May. 2008), pp. 354-363.
- 2007 Oakley, I. Sunwoo, J & Cho, I. "Pointing with Fingers, Hands and Arms for Wearable Computing", in Extended Abstracts of **ACM CHI'08**, Florence, Italy.
- 2006 Oakley, I., Kim, Y., Lee, J. & Ryu, J. "Determining the Feasibility of Forearm Mounted Vibrotactile Arrays", in Procs. of **Haptics Symposium'06**, Arlington, VA.
- 2005 Oakley, I & O'Modhrain, S. "Tilt to Scroll: Evaluating a Motion Based Vibrotactile Mobile Interface" in Procs. of **World Haptics'05**, Italy
- 2002 Oakley, I, Adams, A., Brewster, S., Gray, P.D. "Guidelines for the Design of Haptic Widgets" in Procs. **BCS HCI 2002**, London (awarded best paper in conference).
- 2000 Oakley, I., McGee, M.R., Brewster, S.A. and Gray, P.D. (2000). "Putting the feel into look and feel" in Procs. of **CHI'2000**, The Hague, NL.

Full publication list available online: <http://www.whereveriam.org/work/publications.html>

Personal

Date of Birth: 02/06/1976
Nationality: British
Marital Status: Married
Languages: Native English, basic Spanish, basic Korean
Interests: Travel, ethnic cooking, whisky, juggling, diving, independent cinema

Referees are available on request