

Ian Oakley

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Research Statement

Computation has escaped the desktop and spread into the fabric of everyday life. Underlying technological advances are embedding digital processing in new formats, contexts, scenarios and social situations at an accelerating pace. As things start to think, questions of how users can relate, understand, control and interact with them come to the fore. Ian Oakley's research interests lie in the design, development and evaluation of multi-modal human-computer interfaces to meet this emerging need. By tapping into contextual input modalities, such as location, unexplored sensory modalities, such as haptics, and novel theories of the mind, such as embodied cognition, his work seeks to design for the next generation of mobile, wearable, social and tangible computing devices. Ultimately, the value this approach lies in its incorporation of new forms of input and output in order to harness the full capacity of the human body and mind to create experiences that are seamless, expressive and well matched to our environments, needs and tasks. Overall, Oakley's work rests at the intersection of psychology and interaction design: a broad perspective fuels concept development, while rigorous scientific observation explains and grounds results.

Experience

Ulsan National Institute of Science and Technology (UNIST), Korea 2013-onwards
Associate Professor

I am an associate professor (Sept 2014-onwards) in the School of Design and Human Engineering at UNIST where I direct the Interactions Lab. My current funded research projects cover cognitive perspectives on wearable computing, tangible interaction, perceptual issues in robotic teleoperation and the design, construction and evaluation of novel sensing systems for capturing and categorizing driver behavior in smart-car systems. I teach classes on Physical Computing, Human-Computer Interaction, Applied Research Methods and Human Factors. I am deputy editor of Elsevier *Interacting with Computers* and served as paper co-chair for the 8th International Workshop on Haptics and Audio Interaction Design that was held in Daejeon, Korea in April 2013.

University of Madeira, Portugal / Carnegie Mellon University, USA 2007-2012
Assistant Professor / Adjunct Assistant Professor

I was a founding member (2010) and vice-president (2011-2012) of the Madeira Interactive Technologies Institute. My funded research projects and graduate student supervisions spanned sustainable ICT, usable security and privacy, tangible user interfaces and tele-robotic control. I co-directed the Carnegie Mellon | Portugal dual degree Masters of Human-Computer Interaction (2009-2012) and taught classes on Human Factors, Embodied Interaction and user interface design, development and evaluation. I also supervised Masters of HCI projects conducted in collaboration with industry partners including Portugal Telecom, Novabase and Logica. I co-organized and co-edited the 13th European Conference on Cognitive Ergonomics (2008) and served as papers co-chair for ACM Tangible, Embedded and Embodied Interaction (2011), events both held in Funchal, Portugal. I was a visiting professor at the Department of Mechanical Engineering in KAIST, Korea between June and August 2011 and a visiting professor at Carnegie Mellon HCII between August and December 2012.

Electronics and Telecommunications Research Institute, Korea 2006-2007
Gwangju Institute of Science and Technology, Korea 2005
Researcher / Post-Doctoral Researcher

I held two research staff positions in Korea, firstly at a leading research university and secondly at the premier state-run ICT R&D agency. In both positions, I added HCI expertise (spanning design, evaluation and usability) to human-centred research projects conducted by an engineering-centric community. Topics included tactile sensing, motion input for mobile and wearable devices and virtual reality systems. I also presented short lecture courses on advanced HCI issues, notably perception and psychophysics. I co-chaired the HAID'07 workshop in Seoul, Korea.

MIT Media Lab Europe, Ireland 2001-2004
Post-Doctoral Research Associate

During my post-doc, I worked on a range of multi-modal interfaces including systems for the visually impaired, novel communication technologies, media systems, gesture recognition, and new interaction techniques based on sensor-equipped mobile devices. I was awarded research grants from the Irish Higher Education Authority (BodySpace PhD scholarship), Science Foundation Ireland (Eurohaptics'03 conference support) and the European Union (MICOLE, a sixth framework STREP). Research at MLE was highly exposed to industry, which provided extensive experience in liaising and working with corporate partners on research projects. Finally, I co-chaired EuroHaptics 2003 conference.

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

My doctoral research stemmed from the observation that cursor interactions form a rich interaction modality, but unlike other complex interfaces, are associated with no explicit physical, tangible feedback. To investigate the potentially beneficial properties of incorporating such feedback into virtual interfaces, haptic cues were integrated into (and empirically evaluated in) two highly distinct application scenarios: targeting tasks in graphical user interfaces, and communication through touch in synchronous collaborative systems. Haptic cues were found to support a range of quantitative and qualitative performance improvements.

University of Glasgow, UK 1993-1998

B.Sc. (Joint Hons) First Class, Departments of Computing Science and Psychology

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. I was awarded the class prize in Computing Science.

Selected Publications

- 2014 Oakley, I. and Doyoung Lee (2014) "Interaction on the Edge: Offset Sensing for Small Devices". In Proceedings of ACM CHI 2014, Toronto, Canada. [Conference]
- 2013 Spiliotopoulos, T. and Oakley, I. (2013) "Understanding motivations for Facebook use: Usage metrics, network structure, and privacy". In Proceedings of ACM CHI 2013, Paris, France. [Conference]
- 2013 Karnik, M., Oakley, I., Venkatanathan, J., Spiliotopoulos, T. and Nisi, V. (2013) "Uses & Gratifications of a Facebook Media Sharing Group". In Proceedings of ACM CSCW 2013, San Antonio, Texas. [Conference]
- 2013 Esteves, A., Hoven, E. van den and Oakley I. (2013) "Physical Games or Digital Games? Comparing Support for Mental Projection in Tangible and Virtual Representations of a Problem Solving Task". In Proceedings of ACM TEI 2013, Barcelona, Spain. [Conference]
- 2012 Bianchi, A., Oakley, I. and Kwon, D. "Open Sesame: Design Guidelines for Invisible Passwords". In IEEE Computer 45 (4) 58-65, April 2012. [Journal].
- 2011 Vazquez-Alvarez, Y., Oakley, I and Brewster, S.A. "Auditory display design for exploration in mobile audio-augmented reality". In Personal and Ubiquitous Computing (PUC). Springer. [Journal]
- 2010 Bianchi, A., Oakley, I. and Kwon, D. "The Secure Haptic Keypad: A Tactile Password System" in Proceedings of CHI'2010, Atlanta, GA, USA. [Conference]
- 2009 Cha, J., Oakley, I., Ho, Y.S., Kim, Y., and Ryu, J. "A Framework for Haptic Broadcasting" IEEE MultiMedia, July-September, 2009, pp. 16-27. [Journal]
- 2009 Oakley, I. and Park, J. "Motion Marking Menus: an eyes-free approach to motion input for handheld devices" International Journal of Human-Computer Studies, 67, 6, pp. 515-532. [Journal]
- 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. [Journal]
- 2006 Oakley, I., Kim, Y., Lee, J. & Ryu, J. "Determining the Feasibility of Forearm Mounted Vibrotactile Arrays", in Proceedings of Haptics Symposium'06, Arlington, VA. [Conference]
- 2005 Oakley, I & O'Modhrain, S. "Tilt to Scroll: Evaluating a Motion Based Vibrotactile Mobile Interface" in Proceedings of World Haptics'05, Italy [Conference]
- 2002 Oakley, I, Adams, A., Brewster, S., Gray, P.D. "Guidelines for the Design of Haptic Widgets" in Proceedings of BCS HCI 2002, London (awarded best paper). [Conference]
- 2000 Oakley, I., McGee, M.R., Brewster, S.A. and Gray, P.D. (2000). "Putting the feel into look and feel" in Proceedings of CHI'2000, The Hague, NL. [Conference]

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

Personal Information

Date of Birth: 02/06/1976 / Nationality: British / Martial Status: Married

Languages: Native English, basic Spanish, basic Portuguese, basic Korean