

Interfaces that Guide and Train through Haptics and Affect; and Not Much Attention

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ABSTRACT:

I will contribute a perspective on haptic/multimodal and affective interaction in the context of supporting and sometimes guiding behavior without placing undue load on attentional resources. My group's work is motivated by the sometimes extreme and fragmenting demands on attention that are placed by modern devices which are rarely context-aware or coordinated, have crude mechanisms for getting attention and nothing that resembles social intelligence.

We have learned that people are able to perceive and sometimes act upon certain kinds of simple information without measurable attentional demand, through the sense of touch; and are now studying different means of exploiting this kind of communication in guidance and notification in ways that don't require the user to attend to the signal. Similarly, we are examining the viability of using realtime physiological measures in implicit control of some applications - for example, to "bookmark" an audio stream when interrupted, to allow a robot to interact more socially with a human, or to coach a user in cognitive behavioral therapy.

BIOGRAPHY:

Karon MacLean is a Professor in Computer Science at the University of British

Columbia, Canada (Courtesy appointment in Mechanical Engineering). She has a B.Sc. in Biology and Mechanical Engineering from Stanford (1986) and a M.Sc. and Ph.D. in Mechanical Engineering from MIT (1996), with professional robotics engineering (Center for Engineering Design, Univ. of Utah) in between. She worked as a research scientist at Interval Research, Palo Alto, coming to UBC in 2000. Her research in ubiquitous haptic and multimodal interfaces brings together robotics, perception, attention, interaction and affect design with the larger goal of restoring physicality to embedded computation, and has been recently supported by Nokia, Immersion, Nissan, Spark Robotics, General Motors, Thought Technologies and others. She uses touch feedback as part of a multisensory HCI toolbox in the context of real design problems like mobile devices and steering controls to leverage new design techniques and define her studies of multimodal perception and attention. Peter Wall Early Career Scholar (2001); Izzak Walton Killam Memorial Faculty Research Fellowship (2007); Charles A. McDowell Award, 2008. Associate Editor of the IEEE Transactions on Haptics, founding member of several other editorial and advisory boards; co-chair of the 2010 and 2012 IEEE Haptics Symposia.

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