McGill

Mechanical Engineering Colloquium

Dr. Lynette Jones

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23 September 2015; 11:00am-12:00pm
Macdonald Engineering Building 267

Good Vibrations: Optimizing the Design of Tactile Displays

Abstract:
Tactile displays have been developed for a number of purposes, including spatial orientation and guidance, notifications and alerts, feedback on the success of control actions in human-computer and human-robotic interactions and as sensory substitution devices for those with visual, vestibular or hearing impairments. They are employed in a number of application domains in which other communication channels, such as vision or audition, are already heavily taxed or in which visual displays are inconvenient or less appropriate to use. In this seminar, I will give an overview of our research on tactile and thermal displays, with a focus on the design and implementation of vibrotactile display technologies. The advantages and limitations of using the sense of touch to support communication and coordination in human-machine systems will be highlighted and the potential benefits of including tactile cues in multimodal interfaces will be discussed. One of the challenges in using tactile and thermal displays is in determining what type of information can be presented via the skin, what parameters of stimulation can be used to convey these messages effectively, and what tasks benefit from tactile and thermal cues.

Biography:
Lynette Jones is a Senior Research Scientist in the Department of Mechanical Engineering at the Massachusetts Institute of Technology (MIT). She has contributed extensively to the area of haptics, tactile and thermal displays, and sensorimotor control of the hand. Her research group at MIT has built a number of tactile and thermal displays that have been used in research conducted by both academic and industrial organizations. Dr. Jones has served on numerous national committees including the Committee on Space Biology and Medicine of the National Research Council. She is the Editor-in-Chief of the IEEE Transactions on Haptics and Associate Editor of Presence: Teleoperators and Virtual Environments. She has served as Program Chair for the IEEE Haptics Symposium and as Editor-in-Chief of the conference editorial board for the World Haptics Conference.