HEALTH & ENVIRONMENT Seminar Series 2012

Disruptive technologies for elder care and wellness

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Abstract

There has been significant research completed on the development of technologies and smart homes systems to support aging-in-place and the wellness of older adults. However, the majority of these devices have not made it to market and suffer from various limitations that make them inappropriate for an older adult to operate efficiently and effectively. These limitations include the need for the user to have to learn how to use the device, effort required by the user in the technology operation, and an increased burden on family caregivers to install and operate the devices. In order to ensure that future technologies for aging are useful, new ways of thinking in their designs is required. Disruption in the current technology landscape is needed that will force the way that we think about the design of these technology to change. This presentation will discuss the notion of disruptive technologies and how we are currently applying this concept is the design of our next generation of smart home systems. New technologies will be presented that are built into the user environment and that use artificial intelligence to ensure that they are zero-effort for the user and their caregivers. Specific technologies that will be presented include an intelligent system for monitoring and prompting older adults with dementia during common self-care activities, an autonomous system for fall detection and emergency response, and new research on ambient technologies that can automatically collect various physiological parameters.

Biosketch

Alex Mihailidis, Ph.D., P.Eng., is the Barbara G. Stymiest Research Chair in Rehabilitation Technology at the University of Toronto and Toronto Rehab Institute. At the University of Toronto he is also the Graduate Coordinator for the Clinical Engineering Program. Additionally he is Associate Professor in the Department of Occupational Science and Occupational Therapy and in the Institute of Biomaterials and Biomedical Engineering, with a cross appointment in the Department of Computer Science. For the

past 13 years he has been conducting research in the field of pervasive computing and intelligent systems in health, having published over 150 publications in this field. He has specifically focused on the development of intelligent home systems for elder care and wellness, technology for children with autism, and adaptive tools for nurses and clinical applications. He currently holds several major research grants from internationally recognized funding agencies to support this work (including both the Canadian and American Alzheimer Associations, NSERC, and CIHR). His research has been completed through collaborations with other researchers in this field from Canada, the United Kingdom, and the United States, and with various industrial partners. Dr. Mihailidis has also co-edited two books: one from CRC Press entitled "Pervasive computing in healthcare", and the other from IOS Press entitled "Technology and Aging". He is also very active in the rehabilitation engineering profession, currently as the President-Elect for RESNA (Rehabilitation Engineering and Assistive Technology Society of North America).

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