

2015 PerCom Workshop on Smart Environments: Closing the Loop (SmartE'15)
Renaissance St. Louis Grand Hotel, St. Louis, Missouri, USA
3:30pm – 4:30pm, Monday, March 23, 2015
Room: Majestic H

Smart Health Vital Signs from the Smart Home

Keynote

Marjorie Skubic
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Abstract: Dr. Skubic will describe interdisciplinary research in the Center for Eldercare and Rehabilitation Technology at the University of Missouri. Longitudinal research studies with in-home sensing systems have shown that the sensors offer new vital signs for detecting early signs of illness and functional decline. This talk will focus on in-home gait and balance as vital signs for monitoring health status. Dr. Skubic will discuss the significance of gait in tracking cognitive and physical health problems and will illustrate the capture of gait through different Smart Home sensor modalities (vision, radar, and depth images). Gait and fall alerts will be included, with case studies shown from senior homes. The talk will also include a discussion of the strategies used in this work to address research challenges such as collecting data, validating algorithms, and correlating gait parameters to health status. Finally, Dr. Skubic will discuss one approach to Closing the Loop in the form of an interactive interface to facilitate remote physical therapy.



Biography: Marjorie Skubic received her Ph.D. in Computer Science from Texas A&M University, where she specialized in distributed telerobotics and robot programming by demonstration. She is currently a Professor in the Electrical and Computer Engineering Department at the University of Missouri with a joint appointment in Computer Science. In addition to her academic experience, she has spent 14 years working in industry on real-time applications such as data acquisition and automation. Her current research interests include sensory perception, spatial referencing interfaces, human-robot interaction, sensor networks for eldercare, and preventative screening tools. In 2006, Dr. Skubic established the Center for Eldercare and Rehabilitation Technology at the University of Missouri and serves as the Center Director for this interdisciplinary team. The center's work supports proactive models of healthcare such as monitoring systems that noninvasively track the physical and cognitive health of elderly residents in their homes and generate alerts that flag health changes. Recent work has also investigated automated screening of athletes and pianists to flag injury risks, with support for preventative exercises to reduce the risk.