Abstract

Dr. Skubic will describe an overview of the interdisciplinary eldercare technology research at the University of Missouri. The talk will cover the use of in-home sensing and machine learning to detect early signs of illness and functional decline, as a strategy for keeping seniors functionally active and independent in the home of their choice. The sensor network includes motion sensors, a passive bed sensor that captures quantitative pulse, respiration, and restlessness, in-home gait analysis and fall detection using depth images, and automated health alerts. Case studies will be shown from several senior apartments at TigerPlace, a senior housing site in Columbia, MO. In addition, Dr. Skubic will introduce a new interactive system for connecting physical therapists with seniors at home.

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.