MISSOURI S&T
University of Science & Technology

Computer Science Seminar

e-Health, Assistive Technologies and Robotic Rehabilitation: Improving Quality of Life and Impacting Activities of Daily Living

Dr. Guilherme DeSouza
University of Missouri-Columbia
Tuesday, February 24, 2015 at 12:30 pm
Room: CS 209

Abstract - In the last few years a large variety of new healthcare and assistive technology concepts have emerged. Most of the advances were driven by the fact that while researchers in the 80s and 90s were looking for technologies that would replace humans, research since has focused on enhancing our own senses and abilities. This change in paradigms finds especial appeal when the target of the technology is a person with a severe disability or a debilitating illness. In those cases, not only the new technology helps addressing the deficit in nurses and caregivers, but mainly it empowers patients to monitor the progress of their own disease; it allows them to perform their own rehabilitation; and it enables them to perform independently many activities of daily living.

In this talk I will present four researches conducted in the ViGIR Lab, at the University of Missouri -- namely: 1) LYMPHOEDEMA: a Mobile Platform for at Home Observation, Early Detection and Management of Lymphedema through 3D imaging of human limbs; 2) Mobile Apps for rehabilitation of stroke patients; 3) the OREAD-ECHO device, i.e., the EMG multi-Channel Hardware for Otolaryngology, which is a personal device for Otolaryngology Recording, Analysis, and Diagnostic of vocal and swallowing dysfunctions; and 4) the MIIR, a Multi-modal Interface with Intention Recognition for Robotic Assistive Technology for people with severe mobility and dexterity impairments.

Brief Bio - Gui DeSouza is an associate professor in the Electrical and Computer Engineering Department at the University of Missouri. He is the recipient of many awards, such as the Purdue Honeywell Teaching Award, the Maria Canto Neuberger Research Award, and the MU Excellence in Teaching Award.

DeSouza came to MU after working as a research professor at Purdue and as a senior lecturer at the University of Western Australia. He also worked for 10 years at the Brazilian Power Systems Research Center on diagnostic of power systems using machine learning, pattern recognition and computational intelligence. His research has been funded by the National Science Foundations, the Department of Defense, the Naval Research Lab, and the National Geospatial-Intelligence Agency.