Joint Department of

BIOMEDICAL ENGINEERING

UNC CHAPEL HILL | NC STATE UNIVERSITY

Coulter Seminar Series Presents

Rehabilitation Engineering

Home-based Technologies for Assessment and Treatment of Motor Impairment in Individuals with Neurologic Injury

Peter Lum, Ph.D.

Chair and Professor of Biomedical Engineering

The Catholic University of America

Peter S. Lum received his B.S. from George Washington University in Mechanical Engineering in 1987. He received the M.S. degree in Applied Mechanics from the California Institute of Technology in 1988, and the PhD degree in Bioengineering from a joint program between the University of California at San Francisco and Berkley in 1993. He currently is a Professor of Biomedical Engineering at The Catholic University of America, where he also serves as department Chair. He is Director of the Center for Applied Biomechanics and Rehabilitation Research (CABRR) at MedStar National Rehabilitation Hospital, and is also Director of RERC-DC, a NIDILRR-funded Rehabilitation Engineering Research Center based at Catholic University and focused on mobile technologies for assessment and treatment of motor impairment in individuals with neurologic injury. His major areas of interest are human motor control and robotic-based approaches for neurorehabilitation after stroke.

ABSTRACT

The National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) of the Department of Health and Human Services has awarded a 5-year grant to The Catholic University of America (CUA) to establish a Rehabilitation Engineering Research Center (RERC). RERC-DC is a collaboration between CUA, MedStar National Rehabilitation Hospital, Children's National Health System, and Johns Hopkins University. The target populations are infants at risk for developmental motor delay, children with cerebral palsy and adults with stroke. RERC-DC supports six research and development projects, organized around the goal of developing home-based technologies for assessments that are more valid and treatments that are less expensive, more convenient, and potentially more effective than traditional clinic-based treatment models. Several of the projects will be described in detail, and encompass emerging technologies such as wearable exoskeletons, sensors and machine learning for monitoring intervention outcomes, and VR and modeling approaches for affecting real world behaviors.

CLEAR Core
Closed Loop Engineering
for Advanced Rehabilitation
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