

University of Houston - Biomedical Engineering Seminar
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Perturbation-based locomotor training for individuals post-stroke



Seoung Hoon Park, Ph.D.

Abstract

Many individuals with stroke-induced hemiparesis suffer from impairments in walking. Impaired walking in stroke survivors is characterized by heavy reliance on the unaffected leg, which may lead to its overuse and asymmetrical gait patterns. Locomotor training using a treadmill or overground walking has been commonly used in clinical settings for improving locomotor function in individuals after stroke. Although changes observed after locomotor training are statistically significant, the functional gains are relatively small. One possible reason for the relatively limited effectiveness of these locomotor training approaches is that participants often rely on the unaffected leg to compensate for the weakness of the affected leg during locomotor training. Repeated walking practice in this pattern may reinforce the compensatory gait patterns for some patients. In this seminar, Dr. Park will discuss his efforts to develop perturbation-based rehabilitation strategies that can enhance the use of the affected leg during locomotor training to improve its motor function.

Biosketch

Seoung Hoon Park, Ph.D. is an Assistant Professor in the Department of Health and Human Performance and the Department of Communication Sciences and Disorders at the University of Houston. Dr. Park directs the Motor Neuroscience and Neurorehabilitation Laboratory (MoNeL) at UH. Prior to joining the University of Houston, he was a postdoctoral research fellow at the Shirley Ryan AbilityLab and Northwestern University (2019-2022). Dr. Park's research focuses on identifying underlying neurophysiological mechanisms for deficient motor control and learning in individuals with neurological diseases such as stroke, spinal cord injury, and cerebral palsy and developing novel rehabilitation interventions for improving their functional motor control with emphasis on walking and balance.