

**University of Houston - Biomedical Engineering Seminar  
Friday, September 1, 2023, 12 noon, Rm 204 SEC**

**Toward Neuromuscular coordination-guided (NeuroCoord-guided) neurorehabilitation after stroke**



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**Abstract**

Impaired, stereotypical motor coordination emerges during stroke recovery due to abnormal co-activation of muscles, a key contributor to motor impairments in over 7 million stroke survivors in the US. Spontaneous recovery does not fully resolve abnormal muscle coordination. Thus, there is a critical need to develop effective ways to reduce impaired intermuscular coordination for stroke recovery. Our previous studies show that stroke alters intermuscular coordination patterns. The alteration depends on the severity of motor impairment in stroke survivors. Recent studies of myoelectric signal-guided studies have shown that neuromuscular coordination-guided intervention can decrease motor impairment, improve motor function, intermuscular coordination, and corticomuscular connectivity. In this seminar, I will discuss the quantification of motor impairment and the development of novel neurorehabilitation strategies in the upper extremity after stroke, inspired by neuromuscular coordination principles.

**Biosketch**

Dr. Jinsook Roh is an Assistant Professor in the Department of Biomedical Engineering at the University of Houston (UH), TX. Her research program is focused on understanding the neural mechanisms of motor coordination in healthy and pathological populations (esp. stroke) and translating resultant scientific findings to Neural Engineering and Neurorehabilitation (ex. developing novel therapeutic targets for stroke rehabilitation). She holds her graduate degree in Systems and Computational Neuroscience at Massachusetts Institute of Technology (MIT), with undergraduate Physics background (Summa Cum Laude). Before joining the University of Houston, she completed a post-doctoral fellowship at Rehabilitation Institute of Chicago (the #1 rehabilitation research hospital for > 25 years in the US; currently name changed to Shirley Ryan AbilityLab) and at Northwestern University. Dr. Roh was an awardee of the American Heart Association Postdoctoral Fellowship and Scientist Development Grant. She served Temple University as an assistant professor before moving to UH. Dr. Roh has performed research projects supported by extramural funds of the American Heart Association and NIH. Dr. Roh is a 2022 National Science Foundation CAREER Award recipient.