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TEXAS A&M UNIVERSITY

S E M I N A R

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Integrated Neuroprosthesis: Help Our Body With Communicating Electronics

by

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Abstract: Communication between our brain and body is so important, to help our brain to fully associate our body with the built-in map. If this communication is disturbed, we encountered a problem in controlling our body, such as a spinal cord injury as an extreme case. A phantom limb pain is another example caused by the mismatch between the built-in brain map and the actual body. To solve this communication problem, the "neuroprosthesis" supplants/supplements both ascending sensory feedback and descending motor commands. The "integration" is another important keyword because the neuroprosthesis should be implemented with strict size and weight limit not to disturb the natural body movements. In this talk, I will discuss the development of the "integrated neuroprosthesis" and its potential to enhance rehabilitation outcomes.

Hangue Park is currently an assistant professor in Electrical and Computer Engineering at Texas A&M University. He received his Ph.D. in Electrical and Computer Engineering at Georgia Institute of Technology, in 2017. Before joining Georgia Tech, he received both B.S. and M.S. in Electrical and Computer Engineering from Seoul National University, Seoul, Korea, in 2006 and 2008, respectively. He also has 5+ years of industrial experience. His research interests lie in artificial sensory feedback and closed-loop optimization of sensorimotor loop, to solve problems of patterned body movements (e.g. walking) and to enhance rehabilitation outcomes. He is also interested in developing smart bio-mimicking/bio-inspired circuits and systems for his research purpose. He is a recipient of the Trainee Professional Development Award from Society for Neuroscience at 2017, the Outstanding Research Award from the Association of Korean Neuroscientists at 2016, and the Best Demonstration Award at the IEEE Biomedical Circuits and Systems Conference 2012.