

When: Friday 15:30 – 16:00, September 20, 2019

Where: ETB 1035

Speaker: Stefan Manoharan

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Title: Using Multisensory Feedback from Teleoperated Hand to Tell Size and Softness of Object without using Visual Feedback

Abstract: Intuitiveness for modern tools with increasingly complex degrees of control is typically developed in the initial stage of learning by repetitive usage and high cognitive load. We hypothesize that the intuitiveness in initial learning process can be accelerated by a bidirectional communication between the user's peripheral nervous system and the tool. To test this hypothesis, we employed a robotic hand to mimic the subject's finger movement, and a glove to provide sensory feedback to the subject's peripheral nerves on the finger, as well as force feedback from an exoskeleton. In the absence of visual feedback, subjects were tested on their accuracy in distinguishing size and softness of objects using the robotic hand with and without sensory and force feedback.

Bio: Stefan Manoharan received his Bachelor of Science in Electrical Engineering from Texas A&M University, College Station in 2018. He is currently pursuing his Ph.D. in Electrical Engineering at Texas A&M University. His research interests are body schema extension, supernumerary robotics, transcutaneous electrical stimulation, and multisensory feedback. He is currently a Research Assistant in the Integrated Neuro Prosthesis Laboratory under the guidance of Dr. Hangu Park.