The Johns Hopkins University
Whiting School of Engineering
Department of Electrical and Computer Engineering

Special Seminar

BIOLOGICAL and BIONIC HANDS:
NATURAL NEURAL CODING and ARTIFICIAL PERCEPTION.

Sliman Bensmaia, Ph.D.
Associate Professor
Department of Organismal Biology and Anatomy
University of Chicago

**Brief abstract:** Our ability to manipulate objects relies fundamentally on sensory signals originating from the hand. To restore motor function with upper-limb neuroprostheses requires that somatosensory feedback be provided to the tetraplegic patient or amputee. Accordingly, we have developed approaches to convey sensory information critical for object manipulation—information about contact location, pressure, and timing—through intracortical microstimulation of somatosensory cortex. In experiments with nonhuman primates, we show that we can elicit percepts that are projected to a localized patch of skin, that track the pressure exerted on the skin, and that signal the timing of contact events. We anticipate that the proposed biomimetic feedback will constitute an important step in restoring touch to individuals who have lost it.

**Thursday, March 26, 2015**
3:15 pm
Latrobe 120

Host: Professor Ralph Etienne-Cummings

FOR DISABILITY INFORMATION PLEASE CONTACT: Janel Johnson, 410-516-7031, janel.johnson@jhu.edu