Reza Shadmehr, PhD
Professor of Biomedical Engineering

Professor of Neuroscience
John Hopkins University

**Title:** Movement vigor and the cost of time in decision making

**Abstract:** There is consistency in how we move our eyes, arms, and legs. What is good about this way of moving, and why has our brain settled on this pattern? Why do diseases like depression, schizophrenia, etc., affect how we make decisions, as well as how we move our body? Here, I propose a mathematical framework to consider this basic problem in motor control. I focus on the control of eye movements and suggest that the purpose of any movement is to acquire a more rewarding state. I suggest that the way the brain discounts reward in time affects how our brain programs the vigor of our movements. I use this framework to show that individual differences in how we move may be a reflection of how our brain discounts reward.