

252nd WPI-IIIS Seminar

Circuits for learning (multiple) motor skills

From serving a volleyball to playing the piano - one of our brain's most remarkable feats is the ability to learn a sheer endless number of motor skills. Despite their importance, how our brain learns and generates such skills is poorly understood. While many nodes of the brain's distributed motor network have been identified, their functions and interactions remain often unclear. We probe this network through the lens of complex, highly stereotyped and spatiotemporally precise movement patterns trained in rats. We have found that the basal ganglia play critical, unexpected roles in both skill learning and execution. This includes unexplored interactions between the subthalamic nucleus and the striatum, which contribute to the regulation of the transition from variable to stereotyped movement patterns throughout learning. Furthermore, we are exploring how the brain solves the challenge to form, store and recall the memories for our countless skills, using the same neural substrates, and how multiple motor skills interact with each other. Together, our results shine new light on the mechanisms and circuits underlying our motor skills.



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Department of Pharmacology & Physiology,
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Date: **Thursday, April 16, 2026**

Time: **15:00 – 16:00**

Venue: **1F Auditorium, IIIS Building**

*** On-site participation only**



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