



The Math/Stats Colloquium
Department of Mathematics and Statistics
San José State University



Alex Cayco Gajic

École Normale Supérieure (Paris)

*Linking structure and function of
neural circuitry in the cerebellum*

MAR 24, 2021, VIA ZOOM

Abstract: The cerebellum is a highly-structured brain region that is thought to coordinate movement. Based on its “crystalline” circuitry, classic theories have posited that the cerebellar cortex acts as a multi-layer perceptron. I will present our modelling work investigating the key determinants of rapid associative learning in perceptron-based theories of the cerebellar cortex. A key prediction of this theory is that the cerebellar circuitry projects sensorimotor input patterns into a high-dimensional representation. In the second part of the talk, I will present recent work to quantify the dimensionality of cerebellar representations in large-scale neural recordings in mice.

Background: One course each in linear algebra and statistics.

About the speaker: Alex Cayco Gajic is a Junior Professor in the Department of Cognitive Science at the École Normale Supérieure (Paris). She obtained her PhD in Applied Mathematics from U. Washington, and completed her postdoctoral work in the Department of Neuroscience, Physiology and Pharmacology at University College London. Her research uses mathematical modeling and data analysis to understand cerebellar involvement in motor control.

COLLOQUIUM BROADCAST VIA ZOOM, 3PM PACIFIC/6PM EASTERN
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For our full schedule, see: <http://www.timhsu.net/colloq/>