

# Brain Mapping Center SEMINAR SERIES

Sponsored by the UCLA Brain Mapping Center Faculty

The focus of these talks is on advancing the use of brain mapping methods in neuroscience with an emphasis on contemporary issues of neuroplasticity, neurodevelopment, and biomarker development in neuropsychiatric disease.

Hosted By: Shantanu Joshi, PhD, Neurology, UCLA

## **“Multimodal Analysis of Secondary Cerebellar Alterations after Pediatric Traumatic Brain Injury”**



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Traumatic brain injury (TBI) research generally focuses on the cerebrum, in part because of the frequency of acute pathology. While traditionally ignored as a region purely responsible for motor function, the cerebellum is increasingly being appreciated for its contributions to higher-order functions through cerebro-cerebellar networks. In this talk, we will present a multimodal approach for measuring cerebellar alterations using a state-of-the-art, deep learning-based method that automatically parcellates the cerebellum in a large dataset of 598 children and adolescents with or without TBI. This population cohort comprises 12 datasets (both cross-sectional and longitudinal) from the Enhancing NeuroImaging Genetics through Meta-Analysis (ENIGMA) Pediatric mTBI (moderate-severe TBI) working group. Our findings show that pediatric mTBI was characterized by smaller cerebellar volumes, primarily in the posterior lobe and vermis. The course of these alterations, along with group differences in longitudinal volume changes and injury-specific associations between DTI measures and volume changes, suggests secondary cerebellar atrophy, possibly related to supratentorial lesions, and/or disruption in cerebellar structural and functional circuits. We will discuss these findings in the context of both cognitive and behavioral consequences of cerebellar disruption during a critical period of brain development.

**February 2, 2023 11:00am - 12:00pm PST**

**zoom: <https://tinyurl.com/BMCSeminar118>**

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