

# 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

## “Linking electrophysiological brain dynamics to higher-order cognition: New adventures in brain decoding with MEG, EEG and intracranial recordings”



### Karim Jerbi, PhD

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The rise of AI has led to a surge in the application of data-driven methods in literally all areas of science, including cognitive neuroscience and brain imaging research. Amid strong claims about the infinite power of machine learning (ML) techniques, legitimate questions arise: Is the era of good old hypothesis-driven neuroscience coming to an end? And what is the added value of ML in our quest to understand the neural underpinnings of human cognition and its pathological alteration? In this talk, I will discuss opportunities, as well as misconceptions, generated by the increasing convergence between neuroscience and AI. I will also overview recent research from our lab which combines human electrophysiology (MEG, scalp-EEG and intracranial EEG), with advanced signal processing and machine learning to explore the distributed neural dynamics underlying a wide range of cognitive processes (e.g. decision-making, error-monitoring, states of consciousness, etc). Time permitting, I will discuss the utility of using brain criticality -and the related neural scaling properties- as a promising framework for studying emergent function and its efficiency in both biological and artificial neural networks.

**October 6, 2022 11:00am - 12:00pm PDT**  
**Zoom and Neuroscience Research Building (NRB 132)**  
**Charles E. Young Dr. South**

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