Exploring Perception and Working Memory: Circuit Models with Modular Sensory-Memory Interaction

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Abstract

While higher association areas have long been considered as a locus of working memory, recent human studies found memory signals in early sensory areas, prompting a re-evaluation of their role in working memory. In this talk, I will first outline two distinct frameworks used to understand perception and working memory: Bayesian perception models and recurrent network models for working memory. Subsequently, I will demonstrate how integrating these two frameworks to account for sensory-memory interactions can clarify changes in the internal representation of stimuli and their behavioral readout during memory tasks, addressing a challenge in conventional models.

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INTERNATIONAL CONFERENCE ON
MATHEMATICAL NEUROSCIENCE

June 17 - 20, 2025

PRBB, Barcelona