**Title:** Shared computational foundations of visual memory and visual-motor coordination

**Abstract:** Nearly every human activity can be described as an intricately coordinated dance of low-level cognitive, perceptual, and motor activities, each taking small steps of progress towards a larger goal.  But how are these basic activities organized and coordinated towards the efficient achievement of goals? And how are complex interactive behaviors learned and refined on the basis of experience? More generally stated, how is it that the brain adapts and fine-tunes behavior to meet the demands of constantly-varying challenges? In my research I examine these questions by applying principled

computational modeling to empirical data from complex, naturalistic problems. This research approach is inherently interdisciplinary in nature, drawing on findings in human, animal, and machine learning. In this talk I will focus on two projects that exemplify this approach: Understanding visual working memory as a capacity-limited, but optimal information channel, and studying the coordination of visual gaze and motor control in complex naturalistic tasks.

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