

Cell Biology and Neuroscience Seminar

Friday, September 21st

3:10 pm, 108 Plant BioSciences Building

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“Neural Computations at the Interface of Vision and Cognition”



Abstract:

We have a remarkable ability to recognize the behavioral significance of visual stimuli, and to plan task-appropriate behavioral responses. This talk will present parallel experimental and computational approaches aimed at understanding how visual feature encoding in upstream sensory cortical areas is transformed across the cortical hierarchy into more flexible cognitive encoding in the parietal and prefrontal cortices. The experimental studies utilize multielectrode recording approaches to monitor activity of neuronal population activity, as well as reversible cortical inactivation approaches, during performance of visually-based decision making tasks. Parallel computational modeling work employs machine learning approaches to train artificial neural networks to perform the same tasks as in the experimental work, allowing a deeper investigation of putative neural circuit mechanisms used by networks to perform task-dependent cognitive computations.