

# 2024 Cognitive & Computational Neuroscience Program Review

Dr. Hal S. Greenwald | October 29-31, 2024 | Arlington, VA -hybrid

Basic Research Innovation Collaboration Center (BRICC)  
4100 N Fairfax Drive, Suite 450 | Arlington, VA 22203

## Agenda Day 1 | October 29, 2024

Time	Topic	Speaker
8:15	In-person check-in/Virtual login	
8:30	Restoring Access to Memories "Lost" as a Result of Sleep Deprivation	Steve Ramirez, BU & Robbert Havekes, Univ. of Groningen (PI: Steve Ramirez, Boston University)
9:00	Innate Memory - the Plasticity of Instinct	Tomas Ryan, Trinity College Dublin
9:30	Cold Engrams - at the Interface of Memory and Metabolism	Tomas Ryan, Trinity College Dublin
10:00	BREAK	
10:30	Uncovering population dynamics in spinal circuitry	Chethan Pandarinath & Nick Au Yong, Emory University
11:00	Deciphering neural representations of sensory information by cracking the neural phase code	Neda Nategh & Behrad Noudoost, Univ. of Utah (PI: Neda Nategh, Univ. of Utah)
11:30	Downloading the Matrix: Composing, Transcribing and Conducting A Neural Symphony	Lyle Muller, University of Western Ontario (PI: John Reynolds, Salk Inst.)
12:00	LUNCH	
13:15	The Neural Architecture of Reinforcement Learning in Partially Observable Environments	Sam Gershman, Harvard Univ.
13:45	Cellular foundations of memory	Sam Gershman, Harvard Univ.
14:15	Quantifying tissue-level intelligence via synthetic living constructs	Wesley Clawson, Tufts (PI: Mike Levin, Tufts University)
14:45	BREAK	
15:15	Topological Identification and Analysis of Cyclic Features in Neural Population Coding	Niko Schonscheck, Rockefeller Univ. (PI: Chad Giusti, Univ. of Delaware/Oregon State)
15:45	Physical Bases of Cognitive Flexibility	Becket Ebitz, University of Montreal
16:15	Neuromodulatory correlates of continual learning in the neocortical circuits	Srikanth Ramaswamy, University of Newcastle
16:45	MEETING ADJOURNED	

Agenda Day 2   October 30, 2024		
Time	Topic	Speaker
8:15	In-person check-in/Virtual login	
8:30	A Traveling Wave Basis for Coding Touch: Unraveling recurrent and translaminar circuit contributions to sensory-evoked traveling waves	Krishna Jayant, Purdue University
9:00	Neural correlates of vestibular illusions	Maurice Chacron & Jerome Carriot, McGill Univ. (PI: Maurice Chacron, McGill University)
9:30	(CCMI) Embodied Visual Intelligence	John Tsotsos, York University
10:00	BREAK	
10:30	Biological algorithms for learning in the mammalian brain	Alison Barth, Carnegie Mellon University
11:00	High resolution imaging of cortical activity during memory formation and recall	Mark Reimers, Michigan State University
11:30	Rapid measurement of prefrontal cortical activity using parallelized diffuse correlation spectroscopy	Roarke Horstmeyer, Duke University
12:00	LUNCH	
13:15	Computationally constrained control in complex causal tasks	Xaq Pitkow, Baylor College of Medicine/Rice University/CMU
13:45	Sensory, cognitive, and transcranial neuromodulation of goal representations	Anastasia Kiyonaga, UC San Diego
14:15	(YIP) Neural computations and information flow underlying uncertainty evaluation	Megan Peters, UC Irvine/UC Riverside
14:45	BREAK	
15:15	Active Predictive Coding Models of Cortical and Subcortical Function	Rajesh Rao, University of Washington
15:45	(AOARD) Visually guided strategies for spatial navigation in insects and inspired strategies for robots	Sridhar Ravi, University of New South Wales
16:15	Rapid Adaptive Task Learning Inspired by Hierarchical (Cortical) Networks	Benjamin Grewe, ETH Zürich
16:45	End of Presentations	
17:00	Networking/Social at Bronson Bier Hall	

Agenda Day 3   October 31, 2024		
Time	Topic	Speaker
8:15	In-person check-in/Virtual login	
8:30	Probability theory from neurons to cognition	Chris Eliasmith, University of Waterloo
9:00	(MURI) Single Retinal Ganglion Cells and Sensation	David Williams, University of Rochester
10:00	BREAK	
10:30	Probing Plasticity of Color Perception with the Oz Vision Platform; (MURI) Probing, Modeling & Reprogramming Visual Perception at the Level of Individual Photoreceptors	Ren Ng, UC Berkeley & Lawrence Sincich, Univ. of Alabama, Birmingham
11:30	(DEPSCoR) Using Meta-Plasticity to Discover the Biophysics of Learning	Robert Rosenbaum, University of Notre Dame
12:00	LUNCH	
13:15	(YIP) Computational architecture of high-level attention: Reverse-engineering representations and goals that drive seeing in complex, dynamic environments	Mario Belledonne, Yale Univ. (PI: Ilker Yildirim, Yale Univ.)
13:45	Optical Stimulation of Visual Areas to Elucidate Cognitive Decision-making Behavior in a Vertebrate Brain	Xin Tang, University of Florida
14:15	Behavioral time scale plasticity and learning in the mammalian brain and emulation studies in oxide devices	Shriram Ramanathan, Rutgers & Christine Grienberger, Brandeis (PI: Shriram Ramanathan, Rutgers University)
14:45	BREAK	
15:15	(YIP) Neurogenesis in Neuromorphic Computing: Hippocampus-inspired Dynamic Networks	Gina Adam, George Washington University
15:45	ExPlor - Expedition on Brain-Derived Neuromorphic Computing with Intelligent Photonic and Electronic Materials	S.J. Ben Yoo, UC Davis
16:45	MEETING ADJOURNED	