

2022 Cognitive & Computational Neuroscience Program Review

Dr. Hal S. Greenwald | October 12-14, 2022 | Arlington, VA -hybrid

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

Agenda Day 1 | Wednesday, October 12, 2022

Time (ET)	Topic	Principal Investigator
8:30	In-person Check-in / Zoom Log in	
9:00	Introduction	
9:15	(YIP) Neural computations and information flow underlying uncertainty evaluation	Megan Peters, UC Irvine/UC Riverside
9:45	The Neural Architecture of Reinforcement Learning in Partially Observable Environments	Sam Gershman, Harvard University
10:15	Biological Algorithms for Learning in the Mammalian Brain	Alison Barth, Carnegie Mellon University
10:45	BREAK	
11:15	(YIP) Computational Architecture of High-level Attention: Reverse-engineering Representations and Goals that Drive seeing in Complex, Dynamic Environments	Ilker Yildirim, Yale University
11:45	Minimal Models of Sensory Perception	Sarah Marzen, Claremont McKenna College
12:15	LUNCH	
13:30	Restoring Access to Memories "Lost" as a Result of Sleep Deprivation	Steve Ramirez, Boston University
14:00	Innate Memory - the Plasticity of Instinct	Tomas Ryan, Trinity College Dublin
14:30	BREAK	
15:00	Cellular Foundations of Memory	Sam Gershman, Harvard University
15:30	A White Matter Cable Theoretic Model of EEG Biorhythms	Pamela Douglas, University of Central Florida
16:00	Discussion	
MEETING ADJOURNED FOR THE DAY		

Agenda Day 2 | Thursday, October 13, 2022

Time (ET)	Topic	Principal Investigator
8:30	In-person Check-in / Zoom Log in	
9:00	Topological Identification and Analysis of Cyclic Features in Neural Population Coding	Chad Giusti, University of Delaware
9:30	Computationally Constrained Control in Complex Causal Tasks	Xaq Pitkow, Baylor College of Medicine/Rice University
10:00	(DEPSCoR) Using Meta-Plasticity to Discover the Biophysics of Learning	Robert Rosenbaum, University of Notre Dame
10:30	BREAK	
11:00	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
12:00	LUNCH	
13:00	(MURI) Single Retinal Ganglion Cells and Sensation	David Williams, University of Rochester
13:30	Quantifying Tissue-Level Intelligence via Synthetic Living Constructs	Mike Levin, Tufts University
14:00	Visually-guided Primate Predation: A Computational Neuroethology of Visual Search and Targeting in a Complex, Natural Environment	Alex Huk, University of Texas, Austin/UCLA
14:30	BREAK	
15:00	Sensory, Cognitive, and Transcranial Neuromodulation of Goal Representations	Anastasia Kiyonaga, UC San Diego
15:30	Discussion	
MEETING ADJOURNED FOR THE DAY		

Agenda Day 3 | Friday, October 14, 2022

Time (ET)	Topic	Principal Investigator
8:30	In-person Check-in / Zoom Log in	
9:00	Cognitive Maps in Rats, Robots & Men: A Brain Inspired, Neuroevolutionary Approach	Jeff Krichmar, UC Irvine
9:30	ExPlor - Expedition on Brain-Derived Neuromorphic Computing with Intelligent Photonic and Electronic Materials	Ben Yoo, UC Davis
10:00	Behavioral Time Scale Plasticity and Learning in the Mammalian Brain and Emulation Studies in Oxide Devices	Shriram Ramanathan, Rutgers University
10:30	BREAK	
11:00	AFOSR/SOARD Windows on Science - Neuromorphic Computing	Tomás Pérez-Acle, Fundación Ciencia y Vida
11:30	NSF BRAID EFRI (Neuromorphic Computing Solicitation) <i>**Preliminary Proposals Due Oct 13**</i>	Grace Hwang, National Science Foundation
12:00	LUNCH	
13:00	(YIP) Investigating Single-Neuron Mechanisms of Face Coding in the Human Brain	Shuo Wang, Washington Univ. in St. Louis/WVU
13:30	Rapid Measurement of Prefrontal Cortical Activity using Parallelized Diffuse Correlation Spectroscopy	Roarke Horstmeyer, Duke University
14:00	(DURIP) Bio-X Interdisciplinary Research Platform	Brian Kim, University of Central Florida
14:30	(DURIP) Nano-Needle Bioelectronics: Soft Intracellular Electrodes for Mapping the Sub-cellular Neural Code	Krishna Jayant, Purdue University
15:00	MEETING ADJOURNED	