

An event organized by
**the UConn Interdisciplinary Neuroscience
Program Steering Committee**

**24th Annual
Neuroscience
at Storrs**

with the support of the
UConn OVPR Scholarship Facilitation Fund

and the contribution of the departments of

**Biomedical Engineering
Pharmaceutical Sciences
Physiology and Neurobiology
Psychological Sciences**



For info visit

<https://neuroscience.uconn.edu/neuroscience-at-storrs-rsvp/>

**Dodd Konover Auditorium /
Bousfield Psychology Atrium**
3:30 – 8:30 pm

Program

3:30–4:15 pm: Data Blitz page 3

The Data Blitz is a fun way for trainees to present their research in a concise manner to a diverse audience by encapsulating their work in a 3-minute-long presentation and limited to only 3 PowerPoint slides. The bell will be rung at the end of the 3 minutes. There will be 2 minutes for Q & A.

4:30–6:00 pm: Keynote Lecturepage 2

Ed Boyden, PhD

MIT / Howard Hughes Medical Institute

“Tools for Analyzing and Repairing the Brain”

6:30–8:30 pm: Poster Sessionpage 5

During the poster session, Ph.D. students, postdoctoral fellows, and researchers from across campus will present their work in poster format. Everybody is welcome to interact informally over food and drinks!

WELCOME TO THE 24th ANNUAL NEUROSCIENCE AT STORRS, 2022!

After two years of dramatic adjustments in our lives due to COVID, the annual Neuroscience at Storrs symposium returns as one of the first post-pandemic *in person* scholarly event at UConn!

This is a unique opportunity to bring together the diverse neuroscience research community from across several schools and departments at University of Connecticut and UConn HEALTH. It is also an opportunity to welcome colleagues and trainees from fellow programs and research communities across the entire New England region and to facilitate new exchanges and collaborations.

Neuroscience at Storrs provides a venue for faculty, postdoctoral fellows, and students (*both graduate and undergraduate!*) to meet and share their research, discuss new ideas, and attend a guest lecture describing innovative, groundbreaking research in the field. This year, we are fortunate to have Prof. Ed Boyden from the Massachusetts Institute of Technology as our keynote speaker.

This year's Steering Committee is comprised of Profs. Heather Read and John Salamone (Psychological Sciences), Dr. Alex Jackson (Physiology & Neurobiology), Dr. Greg Sartor (Pharmaceutical Sciences), and Dr. Sabato Santaniello (Biomedical Engineering). Organizers are Drs. Bin Feng, Martin Han, and Sabato Santaniello (Biomedical Engineering), Dr. Yongku Cho (Chemical & Biomolecular Engineering), and Prof. Monty Escabi (Biomedical Engineering and Electrical & Computer Engineering).

This event is made possible with the support of the University of Connecticut Office of the Vice President for Research Scholarship Facilitation Fund and the support of the departments of Biomedical Engineering, Psychological Sciences, Pharmaceutical Sciences, and Physiology & Neurobiology at the Storrs campus.

KEYNOTE LECTURE

Dodd Konover Auditorium, 4:30 pm



Ed Boyden, PhD

*Professor, Massachusetts Institute of Technology
Investigator, Howard Hughes Medical Institute*

“Tools for Analyzing and Repairing the Brain”

Abstract. Understanding and repairing complex biological systems, such as the brain, requires technologies for systematically observing and controlling these systems. We are discovering new molecular principles that enable such technologies. For example, we discovered that one can physically magnify biological specimens by synthesizing dense networks of swellable polymer throughout them, and then chemically processing the specimens to isotropically swell them. This method, which we call expansion microscopy, enables ordinary microscopes to do nanoimaging – important for mapping the brain across scales. Expansion of biomolecules away from each other also de-crowds them, enabling previously invisible nanostructures to be labeled and seen. As a second example, we discovered that microbial opsins, genetically expressed in neurons, could enable their electrical activities to be precisely controlled in response to light. These molecules, now called optogenetic tools, enable causal assessment of how neurons contribute to behaviors and pathological states, and are yielding insights into new treatment strategies for brain diseases. Finally, we are developing, using new strategies such as robotic directed evolution, fluorescent reporters that enable the precision measurement of signals such as voltage and calcium. By fusing such reporters to self-assembling peptides, they can be stably clustered within cells at random points, distant enough to be resolved by a microscope, but close enough to spatially sample the relevant biology. Such clusters, which we call signaling reporter islands (SiRIs), permit many fluorescent reporters to be used within a single cell, to simultaneously reveal relationships between different signals. We share all these tools freely and aim to integrate the use of these tools to enable comprehensive understandings of neural circuits.

Biography. Ed Boyden received B.S. degrees in physics and electrical and computer engineering and M. Eng. degree in electrical and computer engineering from the Massachusetts Institute of Technology in 1999. He received a PhD in neurosciences from Stanford University in 2005 and returned to MIT in 2006. He is now the Y. Eva Tan Professor in Neurotechnology at MIT and Professor in Brain and Cognitive Sciences, with joint appointments in the Program in Media Arts and Sciences and the Department of Biological Engineering. Ed was selected to become a Howard Hughes Medical Institute investigator in 2018 and 2020, has been awarded the NIH Director’s Transformative Research Award three times (2012, 2013, and 2017), and received an NIH Director’s Pioneer Award in 2013. Ed is a member of the National Academy of Sciences, the American Academy of Arts and Sciences, the American Institute for Medical and Biological Engineering (AIMBE) College of Fellows, and the National Academy of Inventors.

DATA BLITZ SESSION

Dodd Konover Auditorium, 3:30 pm – 4:15 pm

1. **Dea Gorka** (gorka@uchc.edu), *Graveley's Lab, UConn HEALTH Biomedical Eng.*
Silencing of Paternal UBE3A by UBE3A-ATS Occurs through Transcriptional Interference
2. **Ramalakshmi Ramasamy** (ramalakshmiramaswamy@gmail.com), *Smith and Crocker's Labs, UConn HEALTH Neuroscience*
Cuprizone-Mediated Demyelination Reversibly Degrades Voiding Behavior in Mice while Sparing Brainstem Reflex
3. **Yang Song** (yang.song@uconn.edu), *Zhang's Lab, UConn Biomedical Engineering*
Multiplex Neurochemical Sensing via Electrografting-Enabled Site-Selective Functionalization of Graphene Field-Effect Transistors
4. **Guangfu Wu** (guangfu.wu@uconn.edu), *Zhang's Lab, UConn Biomedical Eng.*
Wireless, Battery-Free Push-Pull Microsystem for Membrane-Free Neurochemical Sampling in Freely Moving Animals
5. **Chuyi Su** (chuyi.su@uconn.edu), *Swadlow's Lab, UConn Psychological Sciences*
Corticotectal Neurons and Putative Fast Spike Interneurons: Distinct Properties of Two Types of Complex Cells in Layer 5 of Primary Visual Cortex
6. **Ryan Troha** (ryan.troha@uconn.edu), *Markus's Lab, UConn Psychological Sciences*
A Novel Behavioral Paradigm for Examining Observational Learning in Rats

7. **John Zhou** (jzhou@uchc.edu), *Yan's Lab, UConn HEALTH Neuroscience*
Bace-1 Regulates Expression of Clusterin in Astrocytes for Enhancing Clearance of β -amyloid Peptides

8. **Pengyu Zong** (zong@uchc.edu), *Yue's Lab, UConn HEALTH Neuroscience*
Functional Coupling of TRPM2 with Extrasynaptic NMDARs Exacerbates Excitotoxicity in Ischemic Brain Injury

POSTER PRESENTATIONS

Bousfield Psychology Building, Atrium, 6:30 pm – 8:30 pm

* Posters are listed according to the Board ID on which they are displayed

1. Yi Huang (PNB, yi.2.huang@uconn.edu)
Neuroanatomical and functional analysis of lateral hypothalamic GABAergic neurons -dorsal pons circuits in stress and arousal behavior
2. Christopher Babigian (Psych Sci, christopher.babigian@uconn.edu)
A role for BD2-selective BET inhibitors in cocaine-seeking behaviors
3. Huijie Li (BME, huijie.li@uconn.edu)
Microneedle-based potentiometric sensing system for continuous monitoring of multiple electrolytes in skin interstitial fluids
4. Pengyu Zhong (UConn HEALTH Neuroscience, zong@uchc.edu)
Functional coupling of TRPM2 and extrasynaptic NMDARs exacerbates excitotoxicity in ischemic brain injury
5. Ramalakshmi Ramasamy (UConn HEALTH Neuroscience, ramalakshmiramaswamy@gmail.com)
Cuprizone-mediated demyelination reversibly degrades voiding behavior in mice while sparing brainstem reflex
6. Gayle Edelstein (Psych Sci, gayle.edelstein@uconn.edu)
Detailed characterization of the effects of the vesicular monoamine transporter-2 inhibitor tetra-benazine on effort-based decision making and binge-like eating: exertion of effort vs. “anhedonia”
7. Alev Ecevitoglu (Psych Sci, alev.ecevitoglu@uconn.edu)
Modeling treatments for effort-related motivational dysfunction: Assessment of novel atypical dopamine transport inhibitors

8. Alexandria Battison (PNB, alexandria.battison@uconn.edu)
Presynaptic local proteomes from three GABAergic interneuron cell-types are identified through antibody-based proximity labeling
9. Emily Fabrizio-Stover (UConn HEALTH Neuroscience, fabrizi-ostover@uchc.edu)
Evidence of tinnitus-specific differences in stimulus evoked brainstem potentials
10. Suzannah De Almeida (Pharm Sci, suzannah.de_almeida@uconn.edu)
BET proteins as novel epigenetic targets for the treatment of opioid use disorder
11. Dea Gorka (UConn HEALTH BME, gorka@uchc.edu)
Silencing of paternal UBE3A by UBE3A-ATS occurs through transcriptional interference
12. Garrett Frady (Statistics, garrettfrady2@gmail.com)
Predicting early onset of mental-related illnesses using Bayesian feature extraction methods on locations of the brain
13. Alpaslan Ersoz (BME, alpaslan.ersoz@uconn.edu)
A 16-channel bidirectional neurostimulator system for simultaneous recording and stimulation
14. Xu Zhang (BME, xu.3.zhang@uconn.edu)
Transcranial direct current stimulation of cerebellum alters spiking precision in cerebellar cortex: A modeling study of cellular responses
15. Rosangela Platt (Psych Sci, rosangela.platt@uconn.edu)
Pronounced differences in retinotopic scatter between putative inhibitory and excitatory neurons in rabbit visual cortex
16. Qingli Hu (Psych Sci, qingli@uconn.edu)
Effects of ultrasonic vocalizations on rat behavior and place cell remapping in the hippocampus
17. Alexandria Pacrin (PNB, alexandria.pacrin@uconn.edu), “”