

THE TIME BANDITS

present



Making T.I.M.E.

2024 Spring Meeting

Center for the Neurobiology of Learning and Memory

April 25-26, 2024 | Herklotz Conference Center | University of California, Irvine



CNLM Award Ceremony

May 9, 2024 | 11am

RSVP at cnlm.uci.edu/awards



IRVINE

UNIVERSITY OF CALIFORNIA

Making T.I.M.E.

Temporally Integrated Memory for Events

Organizing Committee

Laura Ewell, Norbert Fortin, Christine Gall, Gary Lynch, Michael Yassa

Dear colleagues,

Welcome to the 2024 Spring Meeting of the CNLM! We are delighted to be joined by returning colleagues and first-time guests at this time-honored tradition at the Center. Since 1982, the CNLM has hosted annual scientific meetings in the spring to discuss recent advances in the field, foster synergies, and launch new collaborations. Unlike larger meetings, these smaller intimate meetings, marked by a keen focus on group discussion, substantially advance the field's thinking beyond individual discoveries and contributions.

This year's meeting asks a fundamental question about the very nature of episodic memory – how it organizes information in time. The encoding, segmentation, storage, and recall of sequences of events in time is a key facet of our lives. We use such sequences to organize the flow of daily experience into units that incorporate a remarkable amount of material, the recall of which allows us to re-experience the past, imagine future outcomes, and conduct orderly thinking. Over the next two days you will hear from speakers who are examining temporally integrated memories for events across a range of levels, approaches, and model systems. We invite you to engage with them, be critical, ask questions, and collectively we will work together to advance our state of knowledge.

Our conferences would not be possible without the support of the Friends of the CNLM, whose philanthropic contributions perpetually support our mission. We are deeply grateful for this community and their generosity. We are also grateful to our highly capable team of staff including Diana Lofflin, Eleanor Chan, Cecilia Szarnyasi, Morgan Coburn, Raymond Villareal, Jennifer Smith, Jessica Ha, and Nuo Yang.

On behalf of the Organizing Committee, we thank you for joining us and hope you have a great time.



Michael A. Yassa, Ph.D.
Center Director



Manuella Oliveira Yassa, Ph.D.
Director of Outreach and Education

Wi-Fi Access

Guest Wi-Fi access is available through UC Irvine. Click on the network 'UCI-Guest' and agree to the terms of service. You may also access online services through the Eduroam network.

Travel Information

Air Travel

The closest airport to UC Irvine is John Wayne Airport (SNA) located just 10 minutes from campus. Alternatively, participants may fly into Long Beach Airport (LGB) and Los Angeles International Airport (LAX). Long Beach Airport is a 30-minute drive from campus, Los Angeles International Airport is 60 minutes from campus, without traffic. Traffic from both of these airports can be very heavy during commute times (7-10am and 4-8pm). Please plan accordingly.

Travel by Train

A fun alternative to driving or flying in Southern California is taking the Pacific Surfliner. Connecting San Luis Obispo and San Diego through Los Angeles and Santa Barbara, the Pacific Surfliner route offers a unique vantage on the Southern California seascape. The closest Amtrak stop is in Irvine (IRV) located at the Irvine Transportation Center, 15215 Barranca Parkway, Irvine, CA 92618. From the station, the UCI campus is a short cab or Uber/Lyft ride away. For GPS navigation please use the address: 506 C Student Center, Irvine, CA 92617, which will get you closest to the Herklotz Conference Center. For more information visit: <https://www.amtrak.com/pacific-surfliner-train>

Driving to Irvine

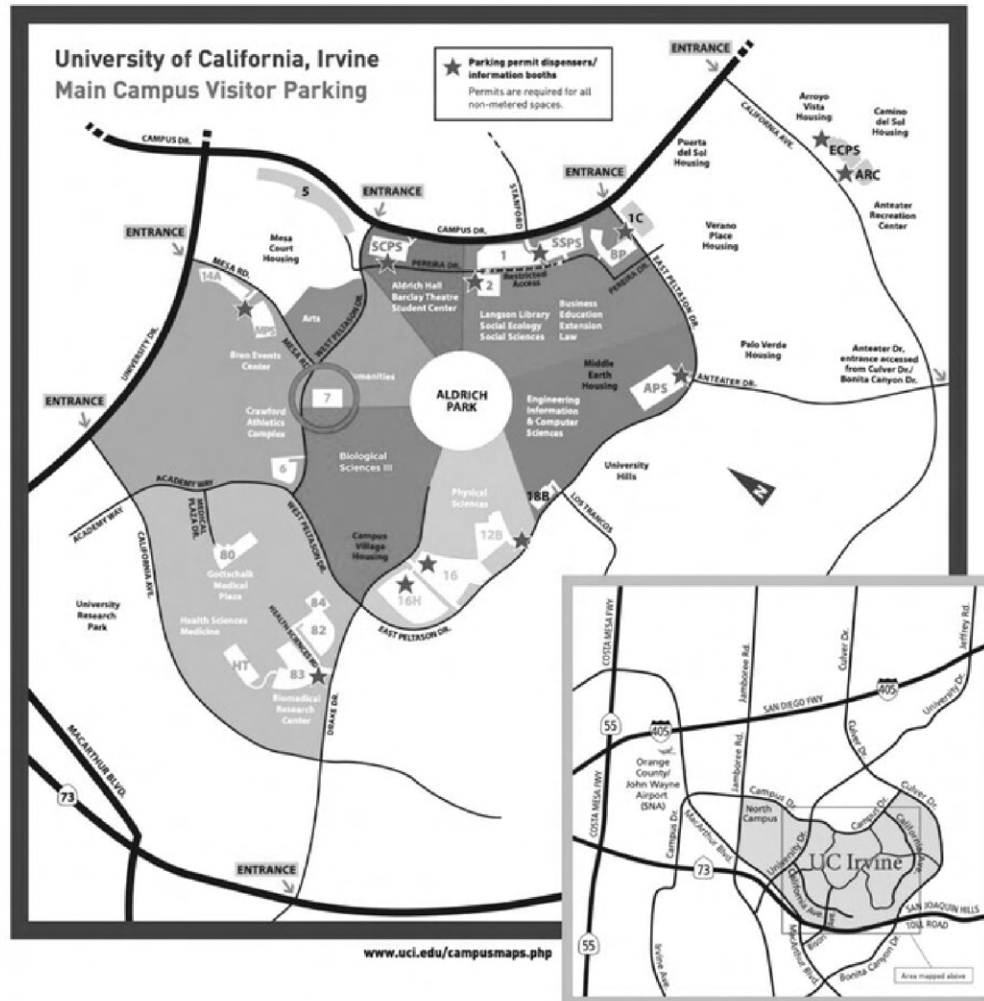
Irvine is centrally located between Los Angeles and San Diego, and can be reached easily by car. From Los Angeles, it is easiest to take the 405 Freeway to the 73 Freeway and exist on Bison Ave/Michael Drake Drive at the edge of campus. Follow the map on the page 4 to arrive at the CNLM. From San Diego you can take the 5 Freeway either to the 73 Toll Road and exit on Bison/Michael Drake Drive as above, or alternatively you can take the 5 to the 405 and exit on University Ave. From University make a left on Campus Drive and follow the map on page 4 to arrive at the CNLM. For GPS navigation please use the address: 506 C Student Center, Irvine, CA 92617, which will get you closest to the Herklotz Conference Center.

Rideshare

If you are using a rideshare app such as Lyft or Uber, please provide the following address:
506C Student Center Drive
Irvine, CA 92697

Parking

Parking for participants traveling by car is available in Lot 7, marked with a red circle in the map below. Parking passes can be purchased at any of the kiosks on the UCI campus (marked with a star on the map below). Additionally, passes can be purchased online through Park-by-Plate at parking.uci.edu/pay. Enter code **7L222** and follow the instructions.



Lodging

We have negotiated special UCI rates with several area hotels. Please call the hotel directly to reserve your room. There is no deadline for room reservations. We include here our two preferred hotels that are convenient to campus.

Sonesta Irvine

17941 Von Karman Ave, Irvine, CA 92614
949-863-1999
Corporate/Group code: UC8

Hyatt Regency Newport Beach

1107 Jamboree Road, Newport Beach, CA 92660
949-729-1234
Corporate/Group Code: CR20258

Visit this link for more information and other options:

<https://www.accounting.uci.edu/ap/travel/resources/hotels.php>

Symposia and the 50/50 Rule

Symposia must adhere to the 50/50 rule, where 50% of the time is reserved for discussion and questions. All speakers are required to stay on time to allow for a robust general discussion to connect themes and ideas across talks.

Data Blitz Sessions

Presentations

Data blitz participants will NOT be able to use their own laptops. Presenters must upload their slide in PDF format prior to the meeting (follow instructions you receive by email). This will ensure that there are no animations and that slides will look as intended. Only one slide is permitted. Talks are limited to a maximum of 4 minutes plus 1 minute for Q&A and transition to the next speaker. These sessions are very fast paced!

Awards

Data blitz presentations will be judged by an anonymous panel and the top two data blitz presenters will be awarded. Blitzes will be judged based on (1) the ability to communicate a single idea effectively with a focused presentation and a clear concise visual image, (2) giving just enough context so that the listener understands the significance of the question and findings, and (3) strictly adhering to the rules, i.e. time limit and number of slides.

Open Paper Sessions

In addition to presentations from trainees, we will have one “open paper” session that will feature faculty who are not speaking in the symposium sessions delivering slightly shorter 8-minute brief talks with 2 minutes for questions. No more than 10 slides are permitted in open paper sessions.

Meals

The conference registration includes breakfast, lunch, and coffee breaks. Special events are planned for dinners on both evenings (see below).

Trainee Dinner Discussion

Join Denise Cai and Mike Yassa for pizza and a lively discussion centered around the future of graduate neuroscience education. Event will be held on Thursday, April 25, 2024 at 5:30 PM in the CNLM Courtyard. **All attendees are invited!** RSVP at cnlm.uci.edu/2024-dinner-discussion/

Brainfest Party

After the conclusion of the final session on Friday, we will celebrate with dinner, music, and games! Faculty and students will face off against each other with our themed games. Put your game face on and come ready to blow off some steam. Colleagues who are driving back to other UC campuses should consider sticking around to miss rush hour traffic!

Code of Conduct

The Center for the Neurobiology of Learning and Memory (CNLM) at the University of California, Irvine is committed to providing an atmosphere that encourages the free expression of ideas in a safe, positive, and harassment-free environment that is welcoming to all participants, regardless of race, color, national origin, religion, sex, gender, gender expression, gender identity, gender transition status, pregnancy, physical or mental disability, medical condition, genetic information (including family medical history), ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services.

In alignment with University of California policies, CNLM scientific conferences and activities prohibit discrimination, harassment, abuse of power, bullying, sexual misconduct and inappropriate behavior in any form. The CNLM is committed to ensuring compliance with the University policies referenced herein and enforcing this Code of Conduct during any CNLM activity. By registering for and/or attending an event, all participants agree to abide by the Code of Conduct. The full text of the Code of Conduct can be found at <http://cnlm.uci.edu/code-of-conduct>.

Reporting Incidents

Any event participant affected by, or who may have witnessed, any inappropriate behaviors that breaches the Code of Conduct may make a complaint by using one of the following options:

You may contact the event organizers or CNLM Leadership:

Michael A. Yassa (he/him) | myassa@uci.edu

Manuella Oliveira Yassa (she/her) | yassamo@uci.edu

You may also contact the UCI Office of Equal Opportunity and Diversity (OEOD)/Title IX Office. Any person may report incidents of sexual harassment, discrimination, or sexual violence to the campus Title IX by visiting www.oeod.uci.edu, calling 949- 824-5594 or emailing oeod@uci.edu. You may also directly contact the Title IX Officer:

Tierney Anderson (she/they)

Title IX Officer | tierneya@uci.edu

More information, definition, and reporting options can be reviewed online at <https://cnlm.uci.edu/code-of-conduct/>



Agenda

Day One: Thursday, April 25

- 8:00 am Check in, Breakfast, and Poster Set-up
- 9:00 am Welcome and Introduction
- 9:15 am Session 1: Temporal Signals and Periodicity
- 11:45 am Lunch
- 1:00 pm Open Paper Session
- 2:00 pm Poster Session and Refreshments
- 3:30 pm Data Blitz Session
- 5:30 pm Dinner Discussion with Mike Yassa and Denise Cai
The Future of Graduate Neuroscience Education

Day Two: Friday, April 26

- 8:30 am Breakfast
- 9:00 am Session 2: Linking and Integrating Memories Over Time I
- 11:30 am Lunch
- 1:00 pm Session 3: Linking and Integrating Memories Over Time II
- 3:30 pm Break
- 4:00 pm Keynote Lecture: Dean Buonomano
Timing, Neural Dynamics and Working Memory
- 5:00 pm BrainFest Party

Symposium Sessions

Session 1: Temporal Signals and Periodicity

Moderator: Elizabeth Chrastil, University of California, Irvine

Soledad Gonzalo Cogno, Norwegian University of Science and Technology

Minute-scale periodic sequences in the medial entorhinal cortex

Zahra Aghajan, University of California, Los Angeles

Temporal representation in the human brain at different scales: from individual seconds to a minute-scale periodic code

Bradley Lega, University of Texas, Southwestern Medical Center

Convergent mechanisms of temporal representations during order memory

Session 2: Linking and Integrating Memories Over Time I

Moderator: Christine Gall, University of California, Irvine

Tomás Ryan, Trinity College Dublin

Forgetting as adaptive engram plasticity

Kaori Takehara-Nishiuchi, University of Toronto

Acetylcholine controls the integration of threat history in the medial prefrontal cortex

Laura Ewell, University of California, Irvine

Hippocampal codes for fast updating of changing reward magnitudes

Session 3: Linking and Integrating Memories Over Time II

Moderator: Eitan Schechtman, University of California, Irvine

Denise Cai, Icahn School of Medicine at Mount Sinai

Memory stability and flexibility across the lifetime

Joshua Jacobs, Columbia University

Ripples and traveling waves underlie human episodic memory encoding

Norbert Fortin, University of California, Irvine

The hippocampus as a... wormhole? Hippocampal representations of sequential relationships among extended event sequences

Open Paper Session

Moderator: Christine Smith

Elizabeth Chrastil, University of California, Irvine

Neuroanatomical changes observed over the course of a human pregnancy

Kei Igarashi, University of California, Irvine

Representation of outcome rules in lateral entorhinal cortex layers 5/6 neurons

Eitan Schechtman, University of California, Irvine

Reactivation of competing memory traces in the sleeping brain

Tristan Shuman, Icahn School of Medicine at Mount Sinai

Closed-loop control of inhibitory spike timing in healthy and epileptic mice

Christine Smith, University of California, San Diego

Structural neuroanatomy of semantic retrograde memory in individuals with variable risk for Alzheimer's disease

Data Blitz Session

Moderator: Jenna Adams

Jenna Adams, University of California, Irvine

Pathological brain state dynamics are associated with memory impairment in Alzheimer's disease

Destiny Berisha, University of California, Irvine

Cerebrovascular pathology mediates associations between hypoxemia during rapid eye movement sleep and medial temporal lobe structure and function

Keiland Cooper, University of California, Irvine

The third state: decoding trial-specific CA1 local field potential activity

Ari Khoudary, University of California, Irvine

Explaining dynamic effects of memory on perceptual decisions

Luca Kolibius, University of California, Irvine

Hippocampal neurons code individual episodic memories in humans

Kate Lawson, University of California, Irvine

Does acute psychedelic "therapy" in rats persistently reverse stress-induced behavioral abnormalities?

Aliza Le, University of California, Irvine

Activation of LTP consolidation mechanisms in the absence of expression

Erica Ramirez, University of California, Irvine

The social distance: ventral pallidum circuits underlying communication after social isolation

Yueqi Ren, University of California, Irvine

Predicting postmortem neuropathology of Alzheimer's disease and related dementias using widely accessible clinical data

Matthew Sandoval, University of California, Irvine

Directly visualizing the endogenous localization of MDGAs in the hippocampus for the first time

Donni Staley, University of California, Los Angeles

The effect of value in prospective memory performance

Mike Starrett Ambrose, University of California, Irvine

Egocentric and allocentric relational processing in the human brain

Stephanie Wert, University of California, Los Angeles

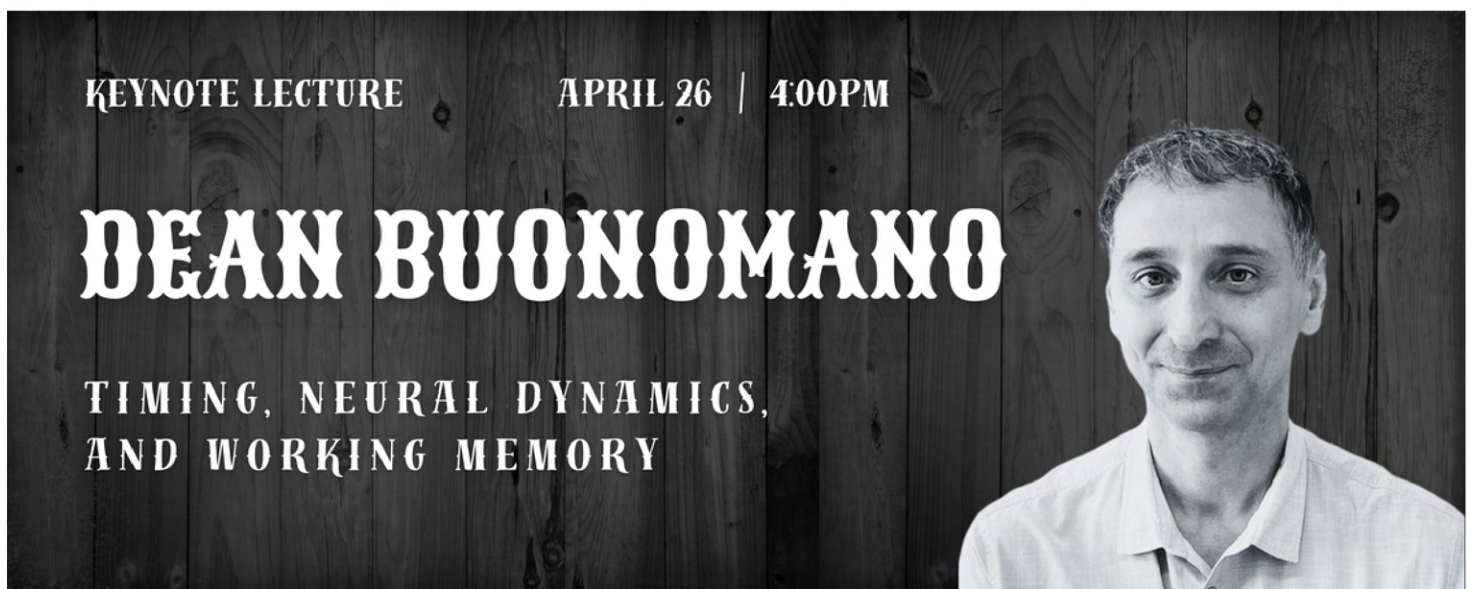
Neural correlates of learning of priors in perceptual decision-making

Celina Yang, University of California, Irvine

Lack of interest in social novelty in mice is associated with operational defects in the primary hippocampal circuit

Zachary Zeidler, University of California, Irvine

Time-dependent reorganization of cortical memory circuits



Poster Session

Sarvia Aquino Argueta, University of California, Irvine

Reactivation during sleep increased the specificity of the neural representations of episodic memories in the Posterior-Medial Network

Paula Assakura Miyazaki, University of California, Irvine

Establishing optogenetic approaches to test hippocampal-prefrontal causal relationships underlying the temporal organization of memories

Jasmine Chavez, University of California, Irvine

Postnatal oxytocin treatment restores encoding of episodic memory and synaptic plasticity in Fragile X model mice

Luke Chi, University of California, Irvine

Navigational route choice: nodes and turns in virtual graph environments

Matthew Cho, University of California, Irvine

The effects of targeted reactivation on memories cued once or multiple times during a nap

Alexis Conrad, University of California, Irvine

Global cognition and executive function predict verbal practical judgment in a mixed clinical sample of older adults

Keiland Cooper, University of California, Irvine

CA1 local field potential activity contains sufficient information to decode trial-specific non-spatial information

Jordan Donohue, University of California, Irvine

Cell type specific dysfunction of entorhinal neurons in mouse model of Alzheimer's disease

Vinicius Duarte, University of California, Irvine

Cell and neurite-type specific differences in dendrite injury-induced calcium influx and repair

Tamara Gedankien, Columbia University

Cholinergic modulation of hippocampal oscillations in humans

Gimarie Irizarry Martinez, University of California, Irvine

Associations between resting-state functional connectivity of the locus coeruleus and anhedonia symptoms in individuals with depression

Luca Kolibius, Columbia University

Hippocampal neurons code individual episodic memories in humans

Jacob Liu, University of California, Irvine

The influence of first-generation status on student metacognition and academic performance in undergraduate biology education

Julie Loritsch, University of California, Irvine

Characterizing the relationship of hippocampal subfield volumes, tau pathology, and memory performance in older adults with Down syndrome

Savannah Maw, University of California, Davis

Phasic locus coeruleus activity enhances trace fear conditioning by increasing dopamine release in the hippocampus

Allison Morehouse, University of California, Irvine

The Brain Bee - Igniting passion for neuroscience in high school students

Neda Morakabati, University of California, Irvine

EEG-based classification algorithms reveal differential neural processing of words and images

Gautam Narayan, University of California, Irvine

Initial encoding strength determines the effectiveness of targeted memory reactivation with odor cues

Joshua Nguyen, University of California, Irvine

Characterizing the relationship between neurofilament light, hippocampal subfield volume, and neuropsychological battery results

Ali Ozgur, University of California, Irvine

General principles of learning in the mouse neocortex

Benedict Pruess, University of California, Irvine

Theta initiated self-sustained activity in hippocampal field CA3

Nazek Queder, University of California, Irvine

The impact of late-onset epilepsy as a co-occurring condition of Alzheimer's disease on tau levels in older adults with Down syndrome

Erica Ramirez, University of California, Irvine

The Social Desire: How ventral pallidal GABAergic neurons regulate social behaviors

Yueqi Ren, University of California, Irvine

Predicting postmortem neuropathology of Alzheimer's disease and related dementias using widely accessible clinical data

Poster Session (continued)

Batool Rizvi, University of California, Irvine

Pathways linking pulse pressure to dementia in adults with Down syndrome

Rosana Sabur, University of California, Irvine

The effects of sex differences and wayfinding strategies on white matter in the brain

Gerardo Sandoval, University of California, Irvine

The auxiliary subunit $\alpha 2\delta 1$ of the voltage-gated calcium channel trans-synaptically regulates the localization and function of AMPA receptors, impacting synaptic plasticity and cognitive function

Alison Santos, University of Puerto Rico Rio Piedras Campus

Examining interneuron density in mice with a deletion in the autism-linked GABRB3 gene

Cherie Stringer, University of California, Irvine

Aquaporin-4: unraveling reactive astrogliosis in Down syndrome with Alzheimer's disease

Catherine Tallman, University of California, San Diego

Sparse coding of episodic memory in the human hippocampus is related to recognition memory performance

Casey Vanderlip, University of California, Irvine

Cognitive modeling of the Mnemonic Similarity Task as a digital biomarker for Alzheimer's disease

Rushika Weerackoon, University of California, Irvine

Investigating the relationship between plasma biomarkers and brain amyloid pathology in preclinical Alzheimer's disease

Stephanie Wert, University of California, Los Angeles

Neural correlates of learning of priors in perceptual decision-making

Zhishun Yang, University of California, Irvine

Awake hippocampal replay reflects stimuli information during a nonspatial sequence memory task

Sophia Zago, University of California, Irvine

Examining the impact of early life adversity in CRH-mediated synaptic transmission in the nucleus accumbens

Michelle Zheng, University of California, Irvine

UCI CNLM Brain Camp: A two-week immersive neuroscience learning experience for middle and high school students

The McGaugh–Gerard Lecture on Learning and Memory

DR. LISA FELDMAN BARRETT

October 16, 2024 | 7:30 PM
Irvine Barclay Theatre

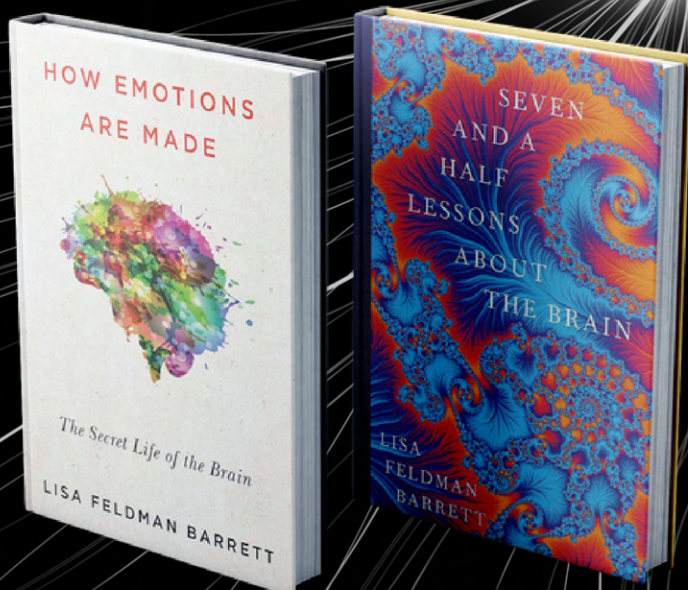
Three Lessons About the Brain

Dr. Lisa Feldman Barrett is among the top 1% most-cited scientists in the world, having published over 250 peer-reviewed scientific papers. Dr. Barrett is a University Distinguished Professor of psychology at Northeastern University with appointments at Harvard Medical School and Massachusetts General Hospital. She is the author of *How Emotions are Made: The Secret Life of the Brain* and *Seven and a Half Lessons About the Brain*.



RSVP Today!

cnlm.uci.edu/barrett





THE TIME BANDITS

Ewell • Fortin • Gall • Lynch • Yassa

present the 2024 Spring Conference

featuring

ZAHRA AGHAJAN, UCLA

DENISE CAI, MOUNT SINAI

SOLEDAD GONZALO COGNO, NTNU

JOSH JACOBS, COLUMBIA

BRAD LEGA, UT SOUTHWESTERN

TOMÁS RYAN, TRINITY DUBLIN

KAORI TAKEHARA, U TORONTO

special appearance by

DEAN BUONOMANO, UCLA