



# MEMORY

IT'S ABOUT TIME

MAY 27 - 28, 2021

VIRTUAL SPRING CNLM CONFERENCE

*Memories are the record of our experiences, but they also shape them. We now know that memory recall is a fundamentally constructive process, reassembling multiple views of past experience to interpret the present and imagine the future. The three symposia for this year's Learning and Memory meeting will examine recent and ongoing research building this new, dynamic, multi-scale understanding of memory.*

**Program Chairs:**

Aaron Bornstein and Lulu Y. Chen

**Organizing Committee:**

Sunil Gandhi, Heechel Jun, Sarah Kark,  
Diana Lofflin, Manuella Yassa, and Michael Yassa

# Agenda

## Day One: Thursday, May 27, 2021

9:00am\* **Welcome and Introduction**  
Conference Co-Chairs: Lulu Y. Chen & Aaron Bornstein

**Session 1: Connections and Components**  
Moderator: Lulu Y. Chen

11:30am **Break**

12:00pm **Open Papers**

1:30pm **Memory Mingle**  
*An opportunity to connect with fellow conference attendees.*

**Game rooms:**

- Simultaneous-turn Risk (*Sign up for a free account: <https://dominating12.com/?referrer=68963>*)
- Trivia
- Pictionary
- Charades

**Visiting rooms:** *A place for conversation and discussion.*

- Coffee Bar
- Back to the Future Room

2:30pm **Day 1 Concludes**

# Agenda

## Day Two: Friday, May 28, 2021

- 9:00am\* **Session 2: Construction and Formation**  
Moderator: Liz Chrastil
- 11:30am **Break**
- 12:00pm **Session 3: Sequences and Structures**  
Moderator: Aaron Bornstein
- 1:30pm **Break**
- 1:45pm **Data Blitz**
- 2:45pm **Award Ceremony & Closing Remarks**
- 3:00pm **End of Conference**

# Symposia

## **Session 1: Connections and Components**

Moderator: Lulu Y. Chen

Denise Cai (Mount Sinai Icahn School of Medicine) - *The brain in motion- how ensemble fluidity supports memory-updating*

Ben Gunn (UC Irvine) - *A network analysis of the hippocampus*

Kei Igarashi (UC Irvine) - *Circuit dynamics of the entorhinal cortex in associative learning*

Sheena Josselyn (Hospital for Sick Children) - *Neuronal allocation to an engram supporting a fear memory*

## **Session 2: Construction and Formation**

Moderator: Liz Chrastil

Kari Hoffman (Vanderbilt University) - *The difference a year makes: a retrosplenial retrospective in macaques*

Jim Knierim (Johns Hopkins University) - *Parallel processing streams through the hippocampal transverse axis*

Sam McKenzie (University of New Mexico) - *Preexisting hippocampal network dynamics constrain optogenetically induced place fields*

Arielle Tambini (UC Irvine) - *Tracking the emergence of hippocampal and cortical memory representations across months of learning*

## **Session 3: Sequences and Structures**

Moderator: Aaron Bornstein

Sarah Dubrow (University of Oregon) - *Medial temporal lobe contributions to temporal memory precision across months*

Norbert Fortin (UC Irvine) - *Hippocampal ensembles represent sequential relationships among an extended sequence of nonspatial events*

Christopher Honey (Johns Hopkins University) - *Timescales of natural and artificial intelligence*

# Open Papers

Francesco Battaglia (Radboud University, Nijmegen) - *Medium gamma controls phase precession in hippocampal subfield CA1*

Kasia Bieszczad (Rutgers University) - *The sensory details of long-term memory are encoded in sensory neural representations*

Liz Chrastil (UC Irvine) - *Theta oscillations support active exploration in human spatial navigation*

Gyorgy Lur (UC Irvine) - *Sex-dependent long-term effects of adolescent stress on working memory circuits in the parietal cortex*

Andrew Maurer (University of Florida) - *What can spectral analysis tell us about neurobiological communication?*

Daniela Palombo (University of British Columbia) - *Emotion enhances temporal order memory*

Christine Smith (UC San Diego) - *Memory for news events and its relationship to performance on standard neuropsychological tests of cognition*

Katherine Thompson-Peer (UC Irvine) - *Developmental switches in dendrite regeneration*

# Data Blitz

## Breakout Room 1 - Memory Mix-up: Exploring Age and Addiction

**Caroline Chwiesko (UC Irvine)** - *Understanding the age-related decline in mnemonic lure discrimination performance using a hierarchical Bayesian diffusion model*

**Elena Dominguez (UC Irvine)** - *The role of the cortical thickness in top cognitive performance in the aging population*

**Vinicius Duarte (UC Irvine) -**  
*Age-specific differences in temporal calcium dynamics following in vivo neuronal dendrite and axon injuries*

**Mitchell Farrell (UC Irvine) -**  
*Ventral pallidum GABAergic neurons bidirectionally modulate opioid seeking in a rat relapse model*

**Jenna Merenstein (UC Riverside) -**  
*Neural substrates of task, but not learning, stage vary in aging*

**Angeline Dukes (UC Irvine) -**  
*Adolescent nicotine and THC exposure alters cue-induced relapse in adult mice*

**Sophia Levis (UC Irvine) -**  
*Sex-dependent consequences of early life adversity on reward circuit development promote opioid addiction*

**Catherine Tallman (UC San Diego) -**  
*Human brain activity and functional connectivity as memories age from one hour to one month*

## **Breakout Room 2 - Memory Moments: Investigating Time and Memory**

**Nicholas Diamond (University of Pennsylvania) -**  
*Medial temporal lobe theta oscillations during ongoing experience shape memory organization*

**Adrian Gilmore (National Institute of Mental Health) -**  
*Evidence supporting a time-limited hippocampal role in autobiographical memory retrieval*

**Hongmi Lee (Johns Hopkins University) -**  
*Cortical signal at major boundaries between internally-generated mental contexts during narrative recall*

**Eloy Parra-Barrero (Ruhr University Bochum, Germany) -**  
*Representing the "past" and the "future" during theta cycles?*  
*Sort of*

**Can Fenerci (McGill University) -**  
*Changes in the experience of time: The impact of spatial information on the perception and memory of duration*

**Bryan Hong (University of Toronto) -**  
*Temporal context in a nested event hierarchy: Investigating the detailed episodic recall for the movie Forrest Gump*

**Nicole Montijn (Utrecht University) -**  
*Using task congruent future thinking to positively bias perception and enhance cognitive control over a real-life aversive event*

**Daniel Schonhaut (University of Pennsylvania) -**  
*Time cells in the human brain*

## **Breakout Room 3 - Memory Matters: Studies Examining Human Memory**

**Miranda Chappel-Farley (UC Irvine)**

*- Obstructive sleep apnea severity is associated with DMN resting-state functional connectivity and sleep-dependent memory consolidation in older adults*

**You (Lilian) Cheng (UC Irvine)** - *Head direction signals during navigation*

**Steven Granger (UC Irvine)** - *Latent anxiety in clinical depression is associated with worse recognition of emotional stimuli*

**Sharon Noh (UC Irvine)** - *Pattern separation mediates the types of memories sampled during decisions for reward*

**Pin-Chun Chen (UC Irvine)** - *The sleeping brain switches between working memory and long-term memory processing*

**Alexandra Cohen (New York University)** - *Reward-motivated memory processes and their underlying neural mechanisms change with age*

**Sarah Kark (UC Irvine)** - *The paraventricular thalamic nucleus: Insights from high field fMRI and applications to neural mechanisms of child loss grief*

## **Breakout Room 4 - Memory Models: How Animal Models Help Us Decode Memory**

**Gregory de Carvalho (UC Irvine)** -

*GABA co-release by dopamine projections in the striatum is regulated by neurexins*

**Moises dos Santos Correa (Universidade Federal do ABC, Brazil)** - *Corticosterone differentially modulates time-dependent fear generalization following mild or stronger fear conditioning*

**Rachael Hokenson (UC Irvine)** -  
*Blocking estrogen production  
protects female and male mice from  
acute stress-induced memory  
deficits*

**Aliza Le (UC Irvine)** - *Late maturation  
of synaptic plasticity is sexually  
dimorphic*

**Daniel Rindner (UC Irvine)** - *Cell  
type-specific synaptic interactions of  
top-down and bottom-up pathways  
in the posterior parietal cortex*

**Ashley Keiser (UC Irvine)** - *Exercise  
opens a 'molecular memory window'  
to facilitate changes in gene  
expression, synaptic plasticity and  
memory*

**Daniel Radzicki (NIEHS/NIH)** -  
*Hippocampal area CA2 activity is  
required for resilience following an  
acute social stress*

**Disclaimer:** *The order of speakers in this program does not reflect the order in which speakers will present at the conference. Speakers are expected to attend the entire session.*