

# UConn BIRC Virtual “Speaker-Tag” Series

Tuesday, June 16<sup>th</sup> from 12:00–1:15pm EST via Zoom

## *How Memory Guides Value-Based Decisions*

Daphna Shohamy, PhD, Columbia University



**Abstract:** Learning is central to adaptive behavior. From robots to humans, the ability to learn from experience turns a rigid response system into a flexible, adaptive one. How are decisions shaped by past experience? What are the neural and cognitive mechanisms that allow experiences to change the way we perceive and act in the world? To address these questions, my research takes as a starting point a longstanding idea in cognitive and systems neuroscience: that the brain learns in different ways by using multiple specialized learning systems. Implicit learning of habits is thought to depend on the striatum and its dopaminergic inputs, while explicit memory for specific episodes depends on the hippocampus. Surprisingly, however, despite progress in mapping these different forms of learning to different areas in the brain, the separation of learning into distinct systems leaves open crucial questions about the nature of the interactions between them, the kinds of representations they build, and their role in guiding value-based decisions. I will present evidence for a critical role for memory mechanisms in the hippocampus in biasing value-based decisions, in several different ways, including the retrieval and use of memories for rare, “one shot” events when making decisions about reward, learning about the value of cue configurations, and providing evidence to resolve difficult decisions. Finally, I will discuss how results emerging from this work challenge the traditional view of learning systems and advance understanding of how memory biases decisions in both adaptive and maladaptive ways.

**Bio: Bio:** Daphna Shohamy is a neuroscientist and professor of psychology at Columbia University’s Zuckerman Institute and a member of the Kavli Center for Brain Science. Dr. Shohamy’s research uses behavioral research, brain imaging, and studies with patients to explore the neural processes by which memory, learning, and decision making interact. She is the recipient of a McKnight Foundation Award, the Association for Psychological Science Janet Spence Award, and the Young Investigator Award from Cognitive Neuroscience Society and the Society for Neuroeconomics.

Remote Access Registration: <https://bit.ly/3f7xtDN>

**UConn** | UNIVERSITY OF CONNECTICUT

BRAIN IMAGING RESEARCH CENTER  
Brain Imaging Research Center

\*Please note: In order to join virtually, we suggest you register at least one week in advance via zoom\*

For more information on the BIRC Speaker Series, visit: <https://birc.uconn.edu/events/speaker-series/>