

EDUCATION HARVARD UNIVERSITY, CAMBRIDGE, MA

2018 -

Ph.D. in Neuroscience

RICE UNIVERSITY, HOUSTON, TX

2014 - 2018

B.A. in Cognitive Sciences with Honors

Minors in Neuroscience, Computational and Applied Mathematics

Distinction in Research and Creative Work, Thesis: Multisensory context warps time perception

AWARDS &HONORS

Center for Brains, Minds, and Machines (CBMM) Summer School	2019
National Science Foundation Graduate Research Fellowship	2018 - 2021
Phi Beta Kappa National Honor Society	2018
Rice University Student-Taught Course (STC) Teaching Award	2017
Cognitive Computational Neuroscience student travel award	2017
Janelia Undergraduate Scholars Program Fellowship	2017
Barry M. Goldwater Scholarship honorable mention	2017
Center for Sensorimotor Neural Engineering (CSNE) NSF-REU Fellowship	2016
Computational and Systems Neuroscience (Cosyne) undergraduate travel award	2016
Rice Undergraduate Scholars Program thesis grant	2016 – 2018

RESEARCH HARVARD UNIVERSITY, CAMBRIDGE, MA

JUN 2019 -

Department of Psychology

Advisor: Samuel Gershman

o Developing and empirically testing resource-rational models of behavior with applications to decision-making, habitual and goal-directed learning, and computational psychiatry.

MARINE BIOLOGICAL LABORATORY, WOODS HOLE, MA

AUG 2019

Center for Brains, Minds, and Machines (CBMM) Summer School

o Investigated the emergence of representational specificity during continual learning in CNNs.

BAYLOR COLLEGE OF MEDICINE, HOUSTON, TX

JAN 2015 - JUN 2018

Department of Neuroscience

Advisor: Jeffrey Yau

o Developed Bayesian inference models and designed behavioral experiments to understand how context influences time perception across the senses.

JANELIA RESEARCH CAMPUS, ASHBURN, VA

SUMMER 2017

Janelia Undergraduate Scholars Program

Advisor: Joshua Dudman

o Used in-vivo neural recordings to understand how the motor cortex and striatum represent the kinematics of motor behaviors during reward-seeking actions.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MA

SUMMER 2016

Center for Sensorimotor Neural Engineering NSF-REU, McGovern Institute for Brain Research Advisor: Mehrdad Jazayeri

o Developed Bayesian inference models and designed behavioral experiments to understand the role of memory in sensorimotor control.

PUBLICATIONS | Gershman, SJ., Lai, L. (in press). The reward-complexity trade-off in schizophrenia. Computational Psychiatry.

> Lai, L., Gershman, SJ. (2021). Policy compression: an information bottleneck in action selection. Psychology of Learning and Motivation, Volume 74.

Bhui, R., Lai, L., Gershman, SJ. (2021). Resource-rational decision making. Current Opinion in Behavioral Sciences.

Mikhael, JG, Lai, L., Gershman, SJ. (2021). Rational inattention and tonic dopamine. PLOS Computational Biology.

Lai, L., Magnotti, JF., Yau, JM. (in prep). Conditioned inference explains multisensory time distortions.

Lai, L., Magnotti, JF., Yau, JM. (2017). Multisensory context warps time perception. Conference on Cognitive Computational Neuroscience.

INVITED TALKS | From Neuroscience to Artificially Intelligent Systems (NAISys), CSHL, NY

NOV 2020

A computational division of labor for motor skill learning. (Virtual)

Computational Principles of Intelligence Lab, MPI Tübingen, Germany

SEP 2020

The reward-complexity tradeoff explains habit formation in free-operant conditioning. (Virtual)

CONFERENCE ABSTRACTS

Lai, L., Dudman, JT. Neural correlates of action kinematics in the dorsal striatum. Janelia Undergraduate Scholars Symposium 2017, Ashburn, VA.

Lai, L., Magnotti, JF., Yau, JM. Contextual determinants of cue binding or separation in multisensory time perception. International Multisensory Research Forum (IMRF) 2017, Nashville, TN.

Lai, L., Yau, JM. Attractive and repulsive multisensory interactions in time perception. Society for Neuroscience (SfN) 2016, San Diego, CA.

Lai, L., Jazayeri, M. Characterizing variability in memory recall of time intervals. Center for Sensorimotor Neural Engineering (CSNE) REU Symposium 2016, Seattle, WA.

TEACHING | Course Development & Lead Instructor

Courses that I have designed (curriculum, problem sets, etc.) and taught.

NB314QC / NB212: MATH TOOLS FOR NEUROSCIENCE

JAN 2020, F 2020

Department of Neurobiology, Harvard Medical School

- o Designed and taught a new J-term course for the Neuroscience Ph.D. program curriculum. Topics include fundamentals of linear algebra, probability theory, statistical estimation and inference in neural circuits, and analysis of neural population data.
- o Converted to a full-semester curriculum and added as the foundational course for the Certificate in Computational Neuroscience (F2020).

COLL158: HOW MUSIC PLAYS THE BRAIN

S 2017, F 2017, S 2018

Rice University

o Designed and taught a seminar course on the intersection of music and neuroscience. Topics include the neurobiology of music perception and cognition, music therapy, Al and music, etc. Recipient of the 2017 Rice Student-Taught Course Award!

Teaching Assistantships

Designed / graded problem sets, led recitations / discussions, and proctored exams.

TEACHING FELLOW, Harvard University

o GenEd1125: Artificial and Natural Intelligence

S 2021

o NB212: Math Tools for Neuroscience

F 2020

o NB306QC: Quantitative Methods for Biologists

AUG 2020 S 2020

NB316QC: Probabilistic Modeling of Neural Data

TEACHING ASSISTANT, Computational and Systems Neuroscience Conference

MAR 2019

TEACHING
(CONT'D)

TEACHING ASSISTANT, Rice University

0	NEUR/PSYC 362: Cognitive Neuroscience	S 2016, S 2017, S 2018
0	NEUR/CAAM 416: Neural Computation	S 2018
0	NEUR/BIOC 385: Cellular and Molecular Neuroscience	F 2016
0	STAT 310: Probability and Statistics	F 2016
0	PSYC 203: Cognitive Psychology	F 2015

OUTREACH | STEM Outreach

&SERVICE Teaching / mentoring high school students from traditionally underserved and underrepresented backgrounds.

HPREP Teaching and Mentoring Team, Harvard Medical School	2018 –
BrainSTEM, KIPP Sunnyside High School, Houston, TX	2015 – 2017
Splash, Rice University	2017

Academic Mentoring

Advising for research internship, graduate school, and fellowship applications.

Summer Harvard Undergraduate Research Program (SHURP) Mentor, Harvard University	2021 –
Mind, Brain, Behavior (MBB) Graduate Student Mentor, Harvard University	2019 -
Alumni Externship Advisor, Rice University	2018 -
Head Academic Fellow, Lovett College, Rice University 201	6 – 2018

Research Mentoring

Ann Huang, Summer Intern, McGill University	2021
Lily Zheng, Neuroscience Rotation Student	2021
Varshini Subramanian, Thomas Jefferson High School Student	2020 - 2021
Danielah Samson, HPREP, Boston Latin Academy High School Student	2020 - 2021
Emma Rogge, Harvard Undergraduate	2020

Peer Reviewing

NeurIPS Biological and Artificial Reinforcement Learning Workshop **Cognitive Science Society**

LEADERSHIP &PROFESSIONAL

Founder, "Listening Lab" Forum, Harvard Dept. of Neurobiology	2020 -
Committee on Diversity and Inclusion, Harvard Dept. of Neurobiology	2020 -
Harvard Graduate Women in Science and Engineering (HGWISE), Harvard University	2018 –
Conference Organizer, Exploring the Mind through Music Conference, Rice University	2016

SKILLS | Programming: Python, MATLAB, Javascript, HTML/CSS, PyTorch, Tensorflow

&OTHER Interests: classical music, philosophy of science and religion, poetry, long-distance running, coffee