Gabriel Stine, PhD

Curriculum Vitae

Department of Brain and Cognitive Sciences
McGovern Institute for Brain Research
Massachusetts Institute of Technology
43 Vassar St, 46-6041, Cambridge, MA 02139

Email: gstine@mit.edu
Phone: 516-547-5631
Website: gabrielstine.com

CURRENT POSITION

Massachusetts Institute of Technology | Cambridge, MA — 2022–Present
Department of Brain and Cognitive Sciences
McGovern Institute for Brain Research
Postdoctoral Associate

EDUCATION & TRAINING

Columbia University | New York, NY — 08/2016–07/2022
Ph.D., Neurobiology & Behavior
Advisor: Michael Shadlen
Thesis title: *Neural mechanisms for forming and terminating a perceptual decision*

New York University | New York, NY — 07/2014–07/2016
Junior Research Scientist
Advisors: J. Anthony Movshon & Lynne Kiorpes

University of Rochester | Rochester, NY — 05/2013–08/2013
Summer Scholar
Advisor: Tatiana Pasternak

University of Vermont | Burlington, VT — 09/2010–05/2014
B.S., Neuroscience
Minor: Chemistry

RESEARCH FUNDING

Raynor Cerebellum Project Postdoctoral Research Grant — 11/2025–11/2026
Title: Viral tracing of cerebellar circuits underlying cognitive function
Funding Agency: Raynor Cerebellum Project
PI: Gabriel Stine; Co-PI: Mehrdad Jazayeri; Collaborator: Martin Bohlen
Amount: $50k

Simons Center for the Social Brain Postdoctoral Fellowship — 07/2023–06/2025
Title: Prediction and learning in the cerebello-thalamocortical pathway
Funding Agency: Simons Foundation
PI: Gabriel Stine; Co-PIs: Mehrdad Jazayeri and Pawan Sinha
Amount: $150k

Predoctoral Individual National Research Service Award (NIH F31) — 01/2022–08/2022
Title: Parieto-collicular interactions during perceptual decisions
Funding Agency: National Eye Institute
PI: Gabriel Stine; Co-PI: Michael Shadlen
Amount: $36k

PRIZES, HONORS, & AWARDS

McKnight Foundation Doupe Fellowship	2025
MIT Building 46 DEIJ Excellence Award	2024
UC Berkeley Miller Institute Postdoctoral Fellowship (declined)	2022
Society for Neuroscience Trainee Professional Development Program	2021
Kavli Institute for Brain Science Travel Scholarship	2018
Schmitt Program on Integrative Brain Research Summer Fellowship	2013

PUBLICATIONS

Trautmann EM, Hesse JK, **Stine GM**, et al., (2025). Large-scale brain-wide neural recording in nonhuman primates. *Nature Neuroscience*, 28, 1562–1575.

Stine GM and Jazayeri M. (2025). Control principles of neural dynamics revealed by the neurobiology of timing. *Annual Review of Neuroscience*, 48.

Ziemba CM*, Goris RLT*, **Stine GM**, Perez RK, Simoncelli EP, Movshon JA. (2024). Neuronal and behavioral responses to naturalistic texture images in macaque monkeys. *Journal of Neuroscience,* 44(42). * = co-first author

Steinemann NA*, **Stine GM***, Trautmann EM, Zylberberg A^, Wolpert DM^, Shadlen MN^. (2024). Direct observation of the neural computations underlying a single decision. *eLife,* 12:RP90859**.** *Editor's assessment:* Fundamental/convincing. *Summary article:* https://elifesciences.org/articles/103059. *** = co-first author,** ^ = co-last author

Stine GM, Trautmann EM, Jeurissen D, Shadlen MN. (2023). A neural mechanism for terminating decisions. *Neuron,* 111(16). *Summary article:* https://zuckermaninstitute.columbia.edu/have-researchers-glimpsed-moment-brain-commits-decision-0.

Stine GM, Zylberberg A, Ditterich J, Shadlen MN. (2020). Differentiating between integration and non-integration strategies in perceptual decision making. *eLife*. 9:e55365. *Summary article:* https://medium.com/the-spike/we-dont-know-how-you-make-a-decision-37d445431388.

Goris RLT*, Ziemba CM*, **Stine GM**, Simoncelli EP, Movshon JA. (2017). Dissociation of choice formation and choice-correlated activity in macaque visual cortex. *Journal of Neuroscience*, 37(20). * = co-first author

PREPRINTS

Monsalve-Mercado MM, **Stine GM**, Shadlen MN, Miller KD. (2025). The geometry of the neural state space of decisions. *BioRxiv*. Submitted to journal, in revision.

TEXTBOOK CHAPTERS

Stine GM, Zylberberg A, Ditterich J, Shadlen MN. (2020). Neural mechanisms of perceptual decision making. *The Cognitive Neurosciences VI*, 607-616.

INVITED TALKS

Cerebellar-thalamocortical interactions during non-motor learning. Gordon Research Seminar on the Cerebellum. Les Diablerets, Switzerland. 2025

Neural population analyses: Are we confused? MIT Brain and Cognitive Sciences "Hot Takes" Seminar Series. Cambridge, MA. 2025

How does the cerebello-thalamocortical pathway support cognition? Western University Sensorimotor "Superlab" meeting. Virtual. 2025

A new era for primate neuroscience with neuropixels-NHP. Workshop on Tools and Methods for Next Generation Electrophysiology. Edinburgh, UK. 2024

A neural mechanism for terminating decisions in the primate superior colliculus. Johns Hopkins Cerebellum Seminar Series. Virtual. 2023

A neural mechanism for terminating decisions. World Wide Neuro Neurise Seminar Series. Virtual. 2022

Differentiating between integration and non-integration strategies in perceptual decision making. Cosyne workshop on comparative decision making. Breckenridge, CO. 2020

SELECTED CONFERENCE PRESENTATIONS

Stine GM, Zheng B, Jazayeri M. Cerebellar adjustment of neocortical dynamics during non-motor learning. Gordon Research Conference on the Cerebellum, 2025.

Stine GM, Trautmann EM, Shadlen MN. Parieto-collicular interactions during perceptual decisions. Cosyne Abstracts 2021.

Steinemann NA*, **Stine GM***, Trautmann EM, Zylberberg A, Sanayei M, Shadlen MN. Formerly known as latent: Single-trial decision variables recorded from area LIP using neuropixel probes. Cosyne Abstracts 2021. *** = co-first author**

Stine GM, Zylberberg A, Shadlen MN. Disentangling evidence integration and memoryless strategies in perceptual decision making. Cosyne Abstracts 2018.

MENTOREES

Trang Pham (rotating graduate student)	2024
Sol Markman (graduate student)	2024
Bowen Zheng (research assistant)	2023–2024
Max Pensack (graduate student)	2022
Michael Cohanpour (rotating graduate student)	2018
Angela Ji (high school summer student)	2018

COMMUNITY SERVICE

Founder & Chair, MIT Brain and Cognitive Sciences Postdoc Association (PDA) 2023–Present
The PDA organizes a variety of initiatives, workshops, and social events designed to improve the sense of community and quality of life for postdocs in our department.

Member, Cosyne Networking & Mentorship Committee 2024–Present

Organizer, Building 46 Summer Retreat 2025

Member, MIT Brain and Cognitive Sciences Community of Practice 2023

Member, Columbia University Zuckerman Institute Trainee Advisory Committee 2020–2021

Organizer, Columbia University Zuckerman Institute Saturday Science Outreach Program 2018

TEACHING

University College London Neuropixels Course (lecturer). Lecture title: *Single trial analyses in decision making.* Video: https://www.youtube.com/watch?v=yYaZWhwIK7o. 2025

Computational Motor Control Course (guest lecturer). Lecture title: *The cerebellum and the control of movement.* 2025

PEER REVIEW

eNeuro
Journal of Neuroscience
Nature (with supervisor)
Neuron (with supervisor)
PNAS (with supervisor)

REFERENCES

Prof. Mehrdad Jazayeri
Howard Hughes Medical Institute
Department of Brain and Cognitive Sciences
McGovern Institute for Brain Research
Massachusetts Institute of Technology
Email: mjaz@mit.edu

Prof. Michael Shadlen
Howard Hughes Medical Institute
Department of Neuroscience
Zuckerman Mind, Brain, and Behavior Institute
Columbia University
Email: shadlen@mit.edu

Prof. Mark Bear
Department of Brain and Cognitive Sciences
Picower Institute for Learning and Memory
Massachusetts Institute of Technology
Email: mbear@mit.edu