

Laura Driscoll, PhD

Neural Prosthetic Systems Lab
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Education

Stanford University

2018 - present Postdoctoral Research Associate
 Co-Advisors: Krishna Shenoy and David Sussillo

Harvard University

2011- 2017 PH.D. student in Neuroscience
 Thesis Advisor: Christopher D. Harvey
 Thesis: *"Dynamic reorganization of neuronal activity patterns in parietal cortex"*

University of California, Berkeley

2007- 2011 B.Sc. in Chemistry

Grants and Honors

2022 Simons Collaboration on the Global Brain Transition to Independence Award \$760,000
 2022 Certificate in Critical Consciousness and Anti-oppressive Praxis
 2016 Albert J. Ryan Fellowship
 2015 - 16 Stuart H.Q. and Victoria Quan Fellow
 2013 - 15 Edward R. and Anne G. Lefler Center Predoctoral Fellow
 2010 Association of Women in Science Educational Award
 2010 Amgen Scholarship
 2007 - 10 National Merit Scholarship, State Farm Insurance
 2009 Koo Liu Siok-Han Research Stipend
 2009 College of Chemistry Summer Research Award
 2007 - 08 Leadership Award Alumni Scholarship, UC Berkeley
 2007 California Scholarship Federation
 2007 National Honors Society

Publications

SELECTED HIGHLIGHTS

2022 **L. N. Driscoll**, K. V. Shenoy, D. Sussillo, "Flexible multitask computation in recurrent networks utilizes shared dynamical motifs" *bioRxiv (in review at Nature Neuroscience)*

2020 L. Duncker*, **L. N. Driscoll***, K. V. Shenoy, M. Sahani, D. Sussillo, "Organizing recurrent network dynamics by task-computation to enable continual learning" *Advances in Neural Information Processing Systems*, 33.

2017 **L. N. Driscoll**, N. L. Pettit, M. Minderer, S. N. Chettih, C. D. Harvey, "Dynamic reorganization of neuronal activity patterns in parietal cortex" *Cell* 170, 986–999.e16.

JOURNAL ARTICLES

- 2020 M. E. Rule, A. R. Loback, D. V. Raman, **L. N. Driscoll**, C. D. Harvey, T. O’Leary, “Stable task information from an unstable neural population” *Elife* 9:e51121 DOI: 10.7554/eLife.51121.
- 2017 **L. N. Driscoll**, N. L. Pettit, M. Minderer, S. N. Chettih, C. D. Harvey, “Dynamic re-organization of neuronal activity patterns in parietal cortex” *Cell* 170, 986–999.e16.
- 2009 C. F. Monson, **L. N. Driscoll**, E. Bennion, C. J. Miller and M. Majda, “Antibody-Antigen Exchange Equilibria in a Field of External Force: Design of Reagentless Biosensors”, *Analytical Chemistry* 2009, 81, 7510-7514

PREPRINTS

- 2022 **L. N. Driscoll**, K. V. Shenoy, D. Sussillo, “Flexible multitask computation in recurrent networks utilizes shared dynamical motifs” *bioRxiv (in review at Nature Neuroscience)*
- 2022 A. T. Kuan, G. Bondanelli, **L. N. Driscoll**, J. Han, M. Kim, D.G. Hildebrand, B.J. Graham, L. A. Thomas, S. Panzeri, C. D. Harvey, W. C. A. Lee, ”Synaptic wiring motifs in posterior parietal cortex support decision-making” *bioRxiv (in review at Nature)*

CONFERENCE PROCEEDINGS

- 2020 L. Duncker*, **L. N. Driscoll***, K. V. Shenoy, M. Sahani, D. Sussillo, “Organizing recurrent network dynamics by task-computation to enable continual learning” *Advances in Neural Information Processing Systems*,33.

INVITED JOURNAL ARTICLES

- 2018 **L. N. Driscoll**, M. D. Golub, D. Sussillo, “Computation through dynamics” *Neuron* 98(5):873-875.
- 2022 **L. N. Driscoll**, L. Duncker, C. D. Harvey, ”Representational drift: Emerging theories for continual learning and experimental future directions” *Current Opinion in Neurobiology*.

[Google Scholar Profile](#)

Invited Talks

- 2023 University of California, Davis Computational Neuroscience Supergroup
Northwestern University, Neurobiology, Special Seminar
University of Chicago, Grossman Center for Quantitative Biology and Human Behavior Special Seminar
University of California, Berkeley Department of Statistics and Helens Wills Neuroscience Institute Special Seminar
- 2022 Janelia Research Campus Computation and Theory Seminar Series
Princeton Neuroscience Institute, Princeton University
Center for Theoretical Neuroscience, Columbia University, Special Seminar
Gatsby Computational Neuroscience Unit (GCNU) and Sainsbury Wellcome Centre for Neural Circuits and Behaviour (SWC), University College London, Special Seminar
Sydney Systems Neuroscience and Complexity SNAC, University of Sydney

NeuroAILab, Stanford University

Allen Institute for Neural Dynamics (AIND) External Seminar Series, Allen Institute

CoSyNe Workshop, Illuminating neural computation through perturbations and adaptive experimental designs

2021 Computational Neuroethology Seminar Series, University of Indiana

Computational Neuroscience Center Seminar Series, University of Washington

2020 Modules in the Brain: Compartmentalized and Distributed Comp., CoSyNe Workshop

Representation Drift, CoSyNe Workshop

2019 Simons West Coast Postdoc Meeting Series, Stanford University

Applications of deep learning in motor neuroscience, Neural Control of Movement Panel

Selected Conference Presentations

2022 Wu Tsai Neuroscience Institute Retreat, Stanford University [poster, abstract]

L. N. Driscoll, K. V. Shenoy, D. Sussillo “Flexible multitask computation in recurrent networks utilizes shared dynamical motifs”, Stanford University

2020 CoSyNe [poster, abstract]

L. N. Driscoll, G. R. Yang, K. V. Shenoy, D. Sussillo “Flexible multitask computation in recurrent networks utilizes shared dynamical motifs”, Stanford University

2019 Society for Neuroscience [poster, abstract]

L. N. Driscoll, G. R. Yang, K. V. Shenoy, D. Sussillo “Recurrent neural networks as a model organism to study multi-task decision making”, Stanford University

2019 CoSyNe [poster, abstract]

L. N. Driscoll, G. R. Yang, K. V. Shenoy, D. Sussillo “Recurrent neural networks as a model organism to study multi-task decision making”, Stanford University

2016 CoSyNe [poster, abstract]

L. N. Driscoll, C. D. Harvey “Dynamic reorganization of neuronal activity patterns in parietal cortex”, Harvard University

2011 Amgen Scholars U.S. Symposium [poster, abstract, talk]

L. N. Driscoll, R. Kramer “A Novel Strategy for Tethering Neuropeptides to the Surface of Genetically Selected Cells” Department of MCB, University of California, Berkeley

Professional Activities

2020 - present Diversity Equity, Inclusion and Belonging Committee Member

2020 CoSyNe Workshop Co-organizer with Lea Duncker

”Modules in the brain: compartmentalized and distributed computation across cortical areas”

2019 Cognitive Computational Neuroscience Workshop Co-organizer with Lea Duncker and Scott Linderman

”Can state-space models form a bridge between theory and data?”

Ad hoc reviewer for Elife, PLOS Computational Biology, Cosyne, Neurips

Teaching and Outreach

TEACHING

- 2023 [TReND school in Computational Neuroscience and Machine Learning Basics](#) An intensive two-week entry level course to teach African students and young researchers the basics of computational neuroscience and machine learning. [Dynamical Systems and RNNs interactive tutorials]
- 2020 [NBIO 227 at Stanford](#) Co-taught a neuroscience techniques survey course designed for graduate students in other fields and undergraduates interested in applying to graduate programs in neuroscience. All curriculum and lectures were designed and performed by myself and two senior graduate students. Bill Newsome oversaw the course and attended periodically. [collaboratively developed all course materials/led interactive lectures]
- 2016-2017 [Neurobiology 204 at Harvard Medical School](#). Designed and led matlab tutorials, literature review and problem sets for the systems neuroscience course for graduate students at Harvard Medical School. [curriculum developer/led group oriented, interactive tutorials]

OUTREACH

- 2015-16 [Native American High School Summer Program at Harvard Medical School](#) Mentor for three-week summer program for high school students from participating Native communities. Students, teachers, and community representatives come to Harvard Medical School to learn about the science of substance abuse and addiction.[curriculum developer/lecturer/mentor]
- 2012 - 15 [Health Professions Recruitment Exposure Program \(HPREP\) at Harvard Medical School](#) Mentored students one on one, evaluating applications, curriculum development and lecturing. Recruits underserved high school students into science and medicine, and in so doing, works towards eliminating disparities in physician and scientist training, health care treatment, and health care access. [curriculum coordinator/lecturer/mentor]
- 2015 [Beacon Hill Seminars](#) An organization of elderly people with an interest in continuing their intellectual growth. [lecturer]
- 2014 [Science in the News](#) PhD students present current information and ongoing research within a given field for a public audience. [lecturer]
- 2014 **Science Works because YOU do** Celebrates the efforts of staff in supporting the research mission of Harvard Medical School with talks from PhD students. [lecturer]