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 Medical School
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 $495,000
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*

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 reorganization 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*

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*

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

2022   Janelia Research Campus Computation Theory Seminar Series

       Princeton Neuroscience Institute, Princeton University

       Center for Theoretical Neuroscience, Columbia University

       Gatsby Computational Neuroscience Unit (GCNU) and Sainsbury Wellcome Centre for Neural Circuits and Behaviour (SWC), University College London

       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

	Allen Institute for Neural Dynamics Neurotheory Workshop, Allen Institute
2021	Computational Neuroethology Seminar Series, University of Indiana
	Computational Neuroscience Center Seminar Series, University of Washington
2020	Modules in the Brain: Compartmentalized and Distributed Computation, 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
2016	Ryan Fellows Meeting, Harvard University
	Lefler Symposium, Harvard University

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 Activites

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

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 gradute students in the Program in Neuroscience at Harvard Medical School. [curriculum developer/led group oriented, interactive tutorials]

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 1-1 for the first two years and more heavily involved in evaluating applications, curriculum development and lecturing in my 3rd and 4th years. Program recruits underserved and underrepresented 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 who have 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]

Undergraduate Research

2009 - 11   **Kramer Group Department of Molecular Cell Biology UC Berkeley** We developed a novel protein based tethering strategy to allow delivery of neuropeptides to targeted cell types.

2008 - 09   **Majda Group Department of Chemistry UC Berkeley** We designed a new strategy for detecting antigenic proteins.

Last updated: September 30, 2022