Laura Driscoll, PhD

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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 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 (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 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

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 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 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

Mentorship

Scientific Mentorship

2021 - present Sophie Libkind (Applied Math Student with Prof. Gunnar Carlsson at Stanford)
2015 Lauren Ziegelman (now registered nurse)
2015 Mary Gulino (now Research Scientist at Novartis)
2014 - 2015 Taryn Hye (now 3rd year medical student at Des Moines University)

Personal Career Mentorship

2021 - present Kayla Vodehnal (1st year Neuroscience Ph.D. student Stanford University)
2015 - present Jessica Lin (2nd year Neuroscience Ph.D. student with Reza Kalhor at John Hopkins)

Teaching

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]

Undergraduate Research

2009 - 11 **Kramer Group Department of Molecular Cell Biology UC Berkeley** Developed novel protein based tethering strategy for delivery of neuropeptides to targeted cell types.
2008 - 09 **Majda Group Department of Chemistry UC Berkeley** Designed a new strategy for detecting antigenic proteins.

Last updated: February 27, 2023