BING WEN BRUNTON

Professor of Biology
University of Washington, Seattle

bbrunton@uw.edu
www.bingbrunton.com

RESEARCH INTERESTS

▷ Sparse sensing and control in biological and engineered systems
▷ Quantifying natural behaviors
▷ Data-driven learning of dynamical systems
▷ Neural decoding and brain-computer interfaces

EDUCATION

Princeton University   Princeton, NJ
  Ph.D. in Molecular Biology & Neuroscience, 2012

California Institute of Technology (Caltech)   Pasadena, CA
  B.S. in Biology, with Honors, 2006

ACADEMIC POSITIONS

University of Washington (UW)   Seattle, WA
▷ Professor, Richard and Joan Komen University Chair, Department of Biology   2023–present
  Data Science Fellow, eScience Institute   2014–present
  Adjunct Faculty, Paul G. Allen School of Computer Science & Eng.   2016–present
  Adjunct Faculty, Department of Applied Mathematics   2017–present
  Faculty of Graduate Program in Neuroscience   2015–present

California Institute of Technology (Caltech)   Pasadena, CA
▷ Moore Distinguished Scholar in Biology and Biological Engineering   2021–2022

University of Washington (UW)   Seattle, WA
▷ Associate Professor, Department of Biology   2019–2023
  H. Stewart Parker Endowed Faculty Fellow   2020–2023
▷ Washington Research Foundation Innovation Assistant Professor, Dept. of Biology   2014–2019
▷ Postdoctoral Researcher, Applied Math. and Neural Engineering   2012–2014

AWARDS AND HONORS

Richard and Joan Komen University Chair (2023)
Co-Chair of Program Committee for Comp & Sys Neuroscience Conference (Cosyne, 2023–24)
H. Stewart Parker Endowed Faculty Fellowship (2020–23)
Caltech, Moore Distinguished Scholar (2021–22)
Weill Neurohub Investigator (2020)
Air Force Office of Scientific Research Young Investigator Program (YIP) Award (2018–21)
University of Washington Innovation Award (2017–19)
Alfred P. Sloan Research Fellowship (2016–18)
Washington Research Foundation Innovation Professor of Neuroengineering (2014–19)
NSF Graduate Research Fellowship Honorable Mention (2007, 2008)
Caltech, Richter Research Fellowship (2005)
Caltech, McKinney Prize in Literature (2005)
Caltech Summer Undergraduate Research Fellowship (2003, 2004)
International Science and Engineering Fair (ISEF) Finalist (2002)
Intel Science Talent Search Semifinalist (2002)

PUBLICATIONS

For a complete list of publications, including preprints, see also B. W. Brunton's Google Scholar profile at
`https://scholar.google.com/citations?user=UftAYPkAAAAJ&hl=en`.

† co-first authors who contributed equally to the manuscript
‡ co-senior authors who jointly directed the work

▶ PEER-REVIEWED PUBLICATIONS:

2023 Singh, S.H., van Breugel, F., Rao, R. P. N. & **Brunton, B. W.**
Emergent behavior and neural dynamics in artificial agents tracking turbulent plumes.
Nature Machine Intelligence (2023), 5 (1), 58-70.

Stanchak, K. E., Miller, K. E., Shikiar, D., **Brunton, B. W.**, & Perkel, D. J.
Mechanistic hypotheses for proprioceptive sensing within the avian lumbosacral spinal cord.
Integrative and Comparative Biology (2023), icad052.

Boyaclu, B., Schwarze, A.C., **Brunton, B.W.** & Morgansen, K.A.
Neural-inspired measurement observability.
Journal of Guidance, Control, and Dynamics (2023): 1-12.

Hickner, M., Fasel, U., Nair, A.G., **Brunton, B.W.** & Brunton, S.L.
Data-driven unsteady aeroelastic modeling for control.
AIAAJ (2023), Vol. 61, No. 2, pp. 780-792.

Sun, J.J.†, Karashchuk, P.†, Dravid, A.†, Ryou, S., Fereidooni, S., Tuthill, J., Katsaggelos, A., **Brunton, B.W.**, Gkioxari, G., Kennedy, A., Yue, Y., Perona, P.
BKinD-3D: Self-Supervised 3D Keypoint Discovery from Multi-View Videos.
Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition CVPR (pp. 9001-9010).

Weber, A., Babaei, M., Mamo, A, **Brunton, B.W.**, Daniel, T.D. & Bergbreiter, S.
Nonuniform structural properties of wings confer sensing advantages.
Journal of the Royal Society Interface 20 (200), 20220765.

2022 Peterson, S. M., Rao, R. P. N. & **Brunton, B. W.**
Learning neural decoders without labels using multiple data streams.
Journal of Neural Engineering (2022), 19: 046032.

Stanchak, K.E., Miller, K.E., Lumsden, E.W., Shikiar, D., Davis, C., **Brunton, B. W.** & Perkel, D. J.
Molecular markers of mechanosensation in glycinergic neurons in the avian lumbosacral spinal cord.
eNeuro (2022), 9 (5) ENEURO.0100-22.2022.

Pandey, B., Pachitariu, M., **Brunton, B. W.** & Harris, K.D.
Structured random receptive fields enable informative sensory encodings.
PLoS Computational Biology (2022), 18 (10), e1010484.

Tabuena, D. R., Huynh, R., Metcalf, J., Richner, T., Stroh, A., **Brunton, B. W.**, Moody, W.J. & Easton, C.R.
Large-scale waves of activity in the neonatal mouse brain in vivo occur almost exclusively during sleep cycles.
Developmental Neurobiology (2022), 82 (7-8), 596-612.

Peterson, S. M., Singh, S. H., Dichter, B., Scheid, M., Rao, R. P. N. & **Brunton, B. W.**

AJILE12: Long-term naturalistic human intracranial neural recordings and pose.
Scientific Data (2022), 9 (1), 1–10.

't Hart, B.M., et al., including **Brunton, B.W.** among 160 co-authors.
Neuromatch Academy: a 3-week, online summer school in computational neuroscience.
Journal of Open Source Education (2022), 5 (49).

Fasel, U., Kutz, J. N., **Brunton, B. W.** & Brunton, S. L.
Ensemble-SINDy: Robust sparse model discovery in the low-data, high-noise limit, with active learning and control.
Proc. R. Soc. A. (2022) 478: 20210904.

Van Breugel, F., Liu, Y., **Brunton, B.W.**, & Kutz, J.N.
PyNumDiff: A Python package for numerical differentiation of noisy time-series data
Journal of Open Source Software (2022), 7(69), 4078. https://doi.org/10.21105/joss.04078.

2021 Linden, N. J., Tabuena, D. R., Steinmetz, N. A., Moody, W. J., Brunton, S. L. & **Brunton, B. W.**
Go with the FLOW: Visualizing spatiotemporal dynamics in optical widefield calcium imaging.
Journal of the Royal Society Interface (2021), 18: 20210523.

Hirsh, S. M., Ichinaga, S. M., Brunton, S. L., Kutz, J. N. & **Brunton, B. W.**
Structured time-delay models for dynamical systems with connections to Frenet-Serret frame.
Proceedings Royal Society A. (2021).

Karashchuk, P., Rupp, K. L., Dickinson, E. S., Sanders, E., Azim, E., **Brunton, B. W.**[‡] & Tuthill, J. C.[‡]
Anipose: a toolkit for robust markerless 3D pose estimation.
Cell Reports (2021), 36 (13), 109730.

Deora, T., Ahmed, M. A., **Brunton, B. W.** & Daniel, T. L.
Learning to feed in the dark: how light level influences feeding in the hawkmoth *Manduca sexta*.
Biology Letters (2021), 17 (9), 20210320.

Nair, A. G., Taira, K. **Brunton, B. W.,** & Brunton, S. L.
Phase-based control of periodic flows.
Journal of Fluid Mechanics (2021), 927, A30. doi:10.1017/jfm.2021.735.

Harris, K. D., Aravkin, A., Rao, R. P. N. & **Brunton, B. W.**
Time-varying autoregression with low rank tensors.
SIAM Journal on Dynamical Systems (2021), 20 (4), 2335-2358

Weber, A. I., Daniel, T. L. & **Brunton, B. W.**
Wing structure and neural encoding jointly determine sensing strategies in insect flight.
PLoS Computational Biology (2021), 17 (8), e1009195.

Aiello, B. R.[†], Stanchak, K. E.[†], Weber, A. I.[†], Deora, T., Sponberg, S. & **Brunton, B. W.**
Spatial distribution of wing mechanosensors: Form, function, and phylogeny.
Current Opinion in Insect Science (2021), https://doi.org/10.1016/j.cois.2021.06.002.

Peterson, S. M.[†], Singh, S. H.[†], Wang, N. X. R., Rao, R. P. N. & **Brunton, B. W.**
Behavioral and neural variability of naturalistic arm movements.
eNeuro (2021), 0007-21.2021; DOI: https://doi.org/10.1523/ENEURO.0007-21.2021.

Singh, S. H., Peterson, S. M., Rao, R. P. N. & **Brunton, B. W.**

Mining naturalistic human behaviors in long-term video and neural recordings.
Journal of Neuroscience Methods (2021), https://doi.org/10.1016/j.jneumeth.2021.109199.

Dallmann, C. J.[†], Karashchuk, P.,[†] **Brunton, B. W.**[‡] & Tuthill, J. C.[‡]
A leg to stand on: computational models of proprioception.
Current Opinion in Physiology (2021), https://doi.org/10.1016/j.cophys.2021.03.001.

Deora, T., Ahmed, M. A., Daniel, T. L., & **Brunton, B. W.**
Tactile active sensing in insect-plant pollination.
Journal of Experimental Biology (2021), 224 no. 4, jeb239442.

de Silva, B. M., Manohar, K., Clark, E., **Brunton, B. W.,** Brunton, S. L. & Kutz, J. N.
PySensors: A Python package for sparse sensor placement.
Journal of Open Source Software (2021), 6(58), 2828.

Callaham, J. L., Kutz, J. N., **Brunton, B. W.,** & Brunton, S. L.
Learning dominant physical processes with data-driven balance models.
Nature Communications (2021), 12 (1), 1-10

Fasel, U., Kaiser, E., Kutz, J. N., **Brunton, B. W.** & Brunton, S. L.
SINDy with Control: A Tutorial.
60th IEEE Conference on Decision and Control (CDC 2021)

Azadian, E., Velchuru, G., Wang, N. X. R., Peterson, S. M., Staneva, V. & **Brunton, B. W.**
Decoding happiness from neural and video recordings for better insight into emotional processing in the brain.
IEEE Engineering in Medicine and Biology Conference (EMBC 2021).

Peterson, S. M., Steine-Hanson, Z., Davis, N., Rao, R. P. N. & **Brunton, B. W.**
Generalized neural decoders for transfer learning across participants and recording modalities.
Journal of Neural Engineering (2021), 18, 026014.

2020 Stanchak, K. E., French, C., Perkel D. J.[‡], & **Brunton, B. W.**[‡]
The balance hypothesis for the avian lumbosacral organ and an exploration of its morphological variation.
Integrative Organismal Biology (2020), obaa024.

van Breugel, F., Kutz, J. N., & **Brunton, B. W.**
Numerical differentiation of noisy data: A unifying multi-objective optimization framework.
IEEE Access (2020), 8, 196865 - 196877.

Stepaniants, G., **Brunton, B. W.** & Kutz, J. N.
Inferring causal networks of dynamical systems through transient dynamics and perturbation.
Physical Review E (2020), 102 (4), 042309.

Hirsh, S. M., Harris, K. D., Kutz, J. N. & **Brunton, B. W.**
Centering data improves the Dynamic Mode Decomposition.
SIAM Journal on Dynamical Systems (2020) 19 (3), 1920-1955.

Hirsh, S.M., **Brunton, B. W.**, & Kutz, J. N.
Data-driven spatiotemporal modal decomposition for time frequency analysis.
Applied and Computational Harmonic Analysis (2020), 49 (3), 771-790.

Nair, A. G., Strom, B., **Brunton, B. W.,** & Brunton, S. L.
  Phase-consistent dynamic mode decomposition from multiple overlapping spatial domains.
  Physical Review Fluids (2020), 5 (7), 074702.

Caldwell, D. J., Cronin, J. A., Rao, R. P. N., Collins, K. L., Weaver, K. E., Ko, A. K., Ojemann, J. G., Kutz, J. N. & **Brunton, B. W.**
  Signal recovery from stimulation artifacts in intracranial recordings with dictionary learning.
  Journal of Neural Engineering (2020), 17 (2), 026023.

Azadian, E., Velchuru, G., Wang, N. X. R., Peterson, S. M., Staneva, V. & **Brunton, B. W.**
  Decoding happiness from neural and video recordings.
  NeurIPS 2020, workshop on Learning Meaningful Representations of Life.

2019 **Brunton, B. W.** & Beyeler, M.
  Data-driven models for human neuroscience and neuroengineering.
  Current Opin Neurobiol (2019), 58, 21-29.

Kunert-Graf, J. M., Eschenburg, K. M., Galas, D. J., Kutz, J. N., Rane, W. D., & **Brunton, B. W.**
  Extracting reproducible time-resolved resting state networks using dynamic mode decomposition.
  Frontiers in Comp. Neurosci. (2019).

Curtu, R., Wang, X., **Brunton, B. W.** & Nourski, K.
   Neural signatures of auditory perceptual bistability revealed by large-scale human intracranial recordings.
  J. Neurosci (2019).

2018 Mohren, T. L., Daniel, T. L., Brunton, S. L., **Brunton, B. W.**
  Neural-inspired sensors enable sparse, efficient classification of spatiotemporal data.
  Proc Natl Acad Sci U.S.A (2018) 115 (42) 10564-10569.
  * Featured in a Commentary by Hale, M, *PNAS (2018) 115 (42) 10545-10547.*

Manohar, K., **Brunton, B. W.**, Kutz, J. N. & Brunton, S. L.
   Data-Driven Sparse Sensor Placement for Reconstruction: Demonstrating the Benefits of Exploiting Known Patterns.
   IEEE Control Systems Magazine (2018) 38 (3), 63–86.

Wang, N. X. R., Farhadi, A., Rao, R. P. N. & **Brunton, B. W.**
   AJILE movement prediction: Multimodal deep learning for natural human neural recordings and video.
   Proceedings of AAAI Conference (2018).

Kaiser, E., Morzynski, M., Daviller, G., Kutz, J. N., **Brunton, B. W.** & Brunton, S. L.
  Sparsity enabled cluster reduced-order models for control.
  Journal of Computational Physics (2018) 352, 388–409.

2017 Brunton, S. L., **Brunton, B. W.**, Proctor, J. L., Kaiser, E. & Kutz, J. N.
  Chaos as an intermittently forced linear system.
  Nature Communications (2017) 8.

2016 **Brunton, B. W.**, Brunton, S. L., Proctor, J. L. & Kutz, J. N.
  Sparse sensor placement optimization for classification.
  SIAM Journal on Applied Mathematics (2016) 76 (5), 2099-2122.

Wang, N. X. R., Olson, J. D., Ojemann, J. G., Rao, R. P. N. & **Brunton, B. W.**
  Unsupervised decoding of long-term, naturalistic human neural recordings with automated video and audio annotations.
  Frontiers in Human Neuroscience (2016) 10, 165.

Wu, J., Shuman, B. R., **Brunton, B. W.**, Steele, K. M., Olson, J. D., Rao, R. P. N. & Ojemann, J. G.
  Multistep model for predicting upper-Limb 3D isometric force application from pre-movement electrocorticographic features.
  IEEE Engineering in Medicine and Biology Society Conference (EMBC 2016).

Brunton, S. L., **Brunton, B. W.**, Proctor, J. L. & Kutz, J. N.
  Koopman observable subspaces and finite linear representations of nonlinear dynamical systems for control.
  PLoS ONE (2016) 11(2): e0150171.

Brunton, B. W., Johnson, L. A., Ojemann, J. G. & Kutz, J. N.
  Extracting spatial-temporal coherent patterns in large-scale neural recordings using dynamic mode decomposition.
  J Neuroscience Methods (2016) 258, 1–15.

2015 Kopec, C. D., Erlich, J. C., **Brunton, B. W.**, Deisseroth, K. & Brody, C. D.
  Cortical and subcortical contributions to short-term memory for orienting movements.
  Neuron (2015) 88 (2), 367–377.

Erlich, J. C., **Brunton, B. W.**, Duan, C. A., Hanks, T. D., & Brody, C. D.
  Distinct behavioral effects of prefrontal and parietal cortex inactivations on an accumulation of evidence task in the rat.
  eLife (2015) 4:e05457.

Hanks, T., Kopec, C. D., **Brunton, B. W.**, Duan, C. A., Erlich, J. C. & Brody, C. D.
  Distinct relationships of parietal and prefrontal cortices to evidence accumulation.
  Nature (2015) 520, 220–223.

2014 Proctor, J. L., Brunton, S. L., **Brunton, B. W.** & Kutz, J. N.
  Exploiting sparsity and equation-free architecture in complex systems.
  European Physical Journal Special Topics (2014) 223, 1–20.

2013 **Brunton, B. W.**, Botvinick, M. M. & Brody, C. D.
  Rats and humans can optimally accumulate evidence for decision-making.
  Science (2013) 340:95–98.
  * Featured in News & Views by Kauffman, M. T. & Churchland, A. K, *Nature (2013) 496:172–173.*

Granstedt, A. E., **Brunton, B. W**. & Enquist, L. W.
  Imaging the transport dynamics of single alphaherpesvirus particles in intact peripheral nervous system explants from infected mice.
  mBio (2013) 4:e00358.

Kubanek, J., Snyder, L. H., **Brunton, B. W.**, Brody, C. D. & Schalk, G.
  A low-frequency oscillatory neural signal in humans encodes a developing decision variable.
  NeuroImage (2013) 83:795–808.

2008 Huang, K. C., Mukhopadhyay, R., **Wen, B.**, Gitai, Z. & Wingreen, N. S.
  Cell shape and cell-wall organization in Gram-negative bacteria.

Proc Natl Acad Sci U.S.A. (2008) 105:19282–19287.

▶ ADDITIONAL PUBLICATIONS:

van Breugel, F. & **Brunton, B. W.**
Flies catch wind of where smells come from.
Nature (2022). https://doi.org/10.1038/d41586-022-03561-3

Karashchuk, P., Tuthill, J. C. & **Brunton, B. W.**
The DANNCE of the rats: a new toolkit for 3D tracking of animal behavior.
Nat Methods (2021). https://doi.org/10.1038/s41592-021-01110-w

Kutz, J. N, Brunton, S. L., **Brunton, B. W.**, & Proctor, J. L.
Dynamic Mode Decomposition: Data-Driven Modeling of Complex Systems.
Society for Industrial and Applied Mathematics (2016) ISBN: 9781611974492.

▶ PREPRINTS AND SUBMITTED MANUSCRIPTS:

2023 Dallmann, C.J., Agrawal, S., Cook, A., **Brunton, B. W.** & Tuthill, J.C.
Presynaptic inhibition selectively suppresses leg proprioception in behaving Drosophila.
preprint https://doi.org/10.1101/2023.10.20.563322

Stanchak, K. E., Deora, T., Weber, A. I., Hickner, M. K., Moalin, A., Abdalla, L., Daniel, T. L. & **Brunton, B. W.**
Intraspecific variation in the placement of campaniform sensilla on the wings of the hawkmoth Manduca sexta.
preprint https://doi.org/10.1101/2023.06.26.546554

Bashford, L., Rosenthal, I.A., Kellis, S., Bjanes, D., Pejsa, K., **Brunton, B. W.**, Andersen, R.
Neural subspaces of imagined movements in parietal cortex remain stable over several years in humans.
preprint bioRxiv, 2023.07.05.547767

Jacobs, M., **Brunton, B. W.**, Brunton, S.L., Kutz, J.N. & Raut, R.V.
HyperSINDy: Deep Generative Modeling of Nonlinear Stochastic Governing Equations.
arXiv preprint arXiv:2310.04832.

2022 Talukder, S., Sun, J.J., Leonard, M., **Brunton, B.W.** & Yue, Y.
Deep Neural Imputation: A framework for recovering incomplete brain recordings.
arXiv preprint arXiv:2206.08094.

Schwarze, A. C., Ichinaga, S. M., & **Brunton, B. W.**
Network inference via process motifs for lagged correlation in linear stochastic processes.
arXiv preprint arXiv:2208.08871.

Kahan, A., Coughlin, G., Borsos, M., **Brunton, B. W.** & Gradinaru, V.
Estrous cycle and egg release resets with light entrainment inspired by neurodynamics in the circadian pacemaker.
preprint https://doi.org/10.21203/rs.3.rs-2069847/v1

DOD/AFOSR, 09/01/2019–08/31/2024, $7.5M
  PI: B. W. Brunton
  Co-PIs: S. E. Bergbreiter, S. L. Brunton, T. L. Daniel, J. N. Kutz, J. P. How
  MURI: Neural inspired sparse sensing and control for agile flight

DARPA, 04/01/2023–03/31/2025, $10M
  PI: A. Widge (U Minnesota),
  Role: Co-PI B. W. Brunton ($800K to UW)
  Fast, Reliable, Electrical Unconscious Detection (FREUD)

NIH/NINDS, 08/01/2023–07/31/2026, $270K
  PI: C. Bergstrom
  Role: Co-I B. W. Brunton
  Developing user-centric training in rigorous research: post-selection inference, publication bias, and critical evaluation of statistical claims

NSF, 09/01/2023–08/31/2027, $2M
  PI: F. van Breugel (U Nevada)
  Role: Co-I B. W. Brunton
  EFRI BRAID: Resilient autonomous navigation inspired by the insect central complex and sensorimotor control motifs

▶ COMPLETED RESEARCH SUPPORT, SELECTED

DOD/AFOSR, 1/29/2018–1/28/2021, $445K
  PI: B. W. Brunton
  Sparse sensing with wing mechanosensory neurons for estimation of body rotation in flying insects

Burroughs-Wellcome Fund, 10/15/2018–10/14/2020, $150K
  PI: B. W. Brunton, Co-PI: B. Kerr
  Transforming biology graduate training through quantitative experimental dialectics (QED)

NSF, 9/1/2016–8/31/2021, $899K
  PI: B. W. Brunton, Co-PI: R. P. N. Rao
  NCS-FO: Understanding neural processing in long-term, naturalistic human brain recordings using data-intensive approaches

DOD/DARPA, 11/16/2017–11/15/2020, $527K
  PI: B. W. Brunton, Co-PI: R. P. N. Rao
  Multimodal neural decoding: Data-intensive approaches to understanding long-term, unlabeled human brain data

DOD/AFRL, 1/4/2016–1/3/2020, $395K
  PI: B. W. Brunton, Co-PI: S. L. Brunton
  Integrating compressive sensing and classification for dynamic target tracking

NSF, CRCNS, 9/1/2015–8/31/2019, $519K total with $145K to UW
  PI: R. Curtu, Co-PIs: B. W. Brunton and K Nourski
  Collaborative Research: Dynamic models of human auditory perceptual switching informed by large-scale ECoG recordings

2023 Oct.	† Antenna Measurements Techniques Association Symposium (Renton WA)
2023 Oct.	Massachusetts Institute of Technology, Open Data in Neurophysiology Symposium (Cambridge MA)
2023 Oct.	Columbia University, Theoretical Neuroscience Center (New York NY)
2023 Sept.	Janelia Research Campus, Workshop on Simulated Bodies (Ashburn VA)
2023 Sept.	Physics Review journal editors, Biophysics seminar (virtual)
2023 Aug.	Gordon Research Conference on Neuroethology: Behavior, Evolution and Neurobiology (Mt Snow VT)
2023 Aug.	NeuroHackademy 2023, Lecturer (Seattle, WA)
2023 July	Centre International des Sciences Mecaniques (CISM), Advanced School on Machine Learning for Fluid Mechanics (Udine, Italy)
2023 July	Cold Spring Harbor Laboratory, NeuroAI seminar (Cold Spring Harbor NY, remote)
2023 July	Telluride Neuromorphic Cognition Engineering Workshop (Telluride CO, remote)
2023 July	Imperial College London, Bioengineering (London, UK)
2023 May	University of Sydney, Systems Neuroscience and Complexity (SNAC) Seminar (Sydney, Australia, remote)
2023 Mar.	Computational and Systems Neuroscience (COSYNE), Workshop on A wrinkle in time: Neuroscience at multiple timescales (Mt. Tremblant, Canada)
2023 Mar.	COSYNE Workshop on Taming Complexity: Discovering Interpretable Latent Spaces in Human Brains and Behaviors (Mt. Tremblant, Canada)
2023 Feb.	Stanford University, Center for Mind, Brain, Computation and Technology (MBCT) seminar (Palo Alto CA)
2023 Feb.	Harvard University, Center for Brain Science seminar (Cambridge MA)
2023 Jan.	Salk Institute for Biological Sciences (La Jolla CA)
2022 Nov.	Society for Neuroscience (SFN) minisymposium, Advances in behavioral quantification to understand the brain (San Diego CA)
2022 Nov.	Society for Neuroscience (SFN) minisymposium, Dynamic communication between regions (San Diego CA)
2022 Nov.	† Janelia Research Campus, Junior Scientist Workshop on Mechanistic Cognitive Neuroscience (Ashburn VA)
2022 Nov.	University of California, Berkeley, Helen Wills Neuroscience Institute, Neuroscience Student Invited Speaker Series (Berkeley CA)
2022 Oct.	University of Washington, Graduate Program in Neuroscience (Seattle WA)
2022 Oct.	University of Washington, Department of Biology (Seattle WA)
2022 Oct.	Short Course on the Application of Machine Learning for Automated Quantification of Behavior, Lecturer (Bar Harbor ME, remote)
2022 Sept.	NeuroAI in Seattle Conference (Seattle WA)
2022 Sept.	† Bernstein Conference for Computational Neuroscience (Berlin, Germany)
2022 Aug.	Banff International Research Station, Casa Matematica Oaxaca, workshop on M^5 - Mathematics of Multiphase, Multiscale, Mutiphysics Models (Oaxaca, Mexico, remote)
2022 July	NeuroHackademy 2022, Lecturer (Seattle, WA)
2022 June	BRAIN Initiative PI Meeting, Symposium on Behavioral quantification: from tracking to understanding (Bethesda MD, remote)
2022 June	Cajal Summer Course, Quantitative Approaches to Behaviour (Lisbon, Portugal)
2022 Apr.	University of Zurich, Institute of Neuroinformatics Seminar (Zurich, Switzerland, remote)
2022 Apr.	Caltech, Chen Institute Women in Neuroscience (Pasadena CA)
2022 Apr.	Ernst Strangmann Inst (ESI) for Neuroscience and Max Planck Society (Frankfurt am Main, Germany, remote)
2022 Apr.	Flatiron Institute, Center for Computational Neuroscience (New York NY)
2022 Mar.	Weill Neurohub annual leadership meeting (Seattle WA)
2022 Mar.	Computational and Systems Neuroscience (COSYNE), Workshop on Why is everything everywhere? (Lisbon, Portugal)

2022 Mar.	Computational and Systems Neuroscience (COSYNE), Workshop on Understanding Variability (Lisbon, Portugal)
2022 Feb.	Charit Universittsmedizin Berlin, Movement Disorder and Neuromodulation Unit (Berlin, Germany, remote)
2022 Feb.	University of California, Santa Barbara (UCSB), Dept of Biomedical Engineering Seminar (Santa Barbara CA)
2022 Feb.	† University of California, Santa Barbara (UCSB), Summit on Mind and Machine Intelligence (Santa Barbara, CA)
2022 Jan.	Cincinnati Children's Hospital, Biomedical Informatics Seminar (Cincinnati OH, remote)
2022 Jan.	University of California, San Diego (UCSD), Neuroscience Seminar (San Diego CA, remote)
2021 Nov.	Montreal Artificial Intelligence and Neuroscience (Montreal, Canada, remote)
2021 Aug.	New York University Langone Health, symposium on FAIR Thee Well: The language and tools for sharing neurophysiological data (New York NY, remote)
2021 May	Air Force Headquarters, Biotechnology Lunch (Arlington VA, remote)
2021 May	Janelia Research Campus, Computation & Theory Seminar (Ashburn VA, remote)
2021 Mar.	† Interdisciplinary College (IK), Evening Lecture (Mahnesee-Günne, Germany, remote)
2021 Mar.	Allen Institute for Brain Science, online symposium on Open for (neuro)science
2020 Nov.	Johns Hopkins University, Zanvyl Krieger Mind/Brain Institute, David Bodian Seminar (Baltimore MD, remote)
2020 Oct.	University of Chicago, Neuroscience Seminar (Chicago IL, remote)
2020 Oct.	Columbia University, Center for Theoretical Neuroscience Seminar (New York NY, remote)
2020 Oct.	University of Virginia, Quantitative Psychology Colloquium (Charlottesvilla VA, remote)
2020 Sept.	University of Pennsylvania, Mahoney Institute for Neurosciences Colloquium (Philadelphia PA, remote)
2019 Nov.	Georgia Institute of Technology, Department of Biomedical Eng. (Atlanta GA)
2019 Nov.	University of Washington, Machine Learning Colloquium (Seattle WA)
2019 Nov.	Institute for Pure and Applied Mathematics (IPAM) at UCLA, Workshop on Machine Learning for Physics and the Physic of Machine Learning (Los Angeles CA)
2019 Oct.	University of Southern California, Department Aerospace and Mechanical Engineering (Los Angeles CA)
2019 Sept.	University of Washington, Graduate Program in Neuroscience Retreat (Seattle WA)
2019 Sept.	Harvard University, QBio Workshop on Making Sense of Turbulence (Cambridge MA)
2019 July	Sainsbury Wellcome Centre (London, UK)
2019 July	Telluride Neuromorphic Cognition Engineering Workshop (Telluride CO)
2019 June	Workshop on Multisensory Integration in Insect Flight Dynamics (Bangalore, India)
2019 May.	The Copenhagen Initiative Workshop: Developing a theory on how brains work (Copenhagen, Denmark)
2019 Feb.	Georgia Institute of Technology, School of Life Sciences (Atlanta GA)
2019 Jan.	† Dynamics Days, International Conference on Nonlinear Dynamics (Evanston IL)
2018 Oct.	Eglin Air Force Base (Destin FL)
2018 May	University of Washington Center for Integrative Neuroscience Spring Symposium (Seattle WA)
2018 May	Boeing Data Science Executive Workshop (Washington DC)
2018 May	American Psychiatric Association Annual Meeting, session on Big Data in Mental Health (New York NY)
2018 Mar.	University of Oregon, Institute of Neuroscience (Eugene OR)
2018 Mar.	American Physical Society (APS) March Meeting, focus session on Neural Control of Behavior (Los Angeles CA)
2018 Mar.	Computational and Systems Neuroscience (COSYNE), Workshop on Recent Computational Advances in Neuroengineering: From Theory to Applications (Breckenridge CO)
2018 Jan.	Boeing Data Science Executive Workshop (Seattle WA)
2017 Dec.	Neural Information Processing Systems (NIPS) Conference Workshop: Big Neuro (Long Beach CA)

2017 Nov.	École Normale Superieure, Center for Neural Theory (Paris, France)
2017 Oct.	University of California Los Angeles (UCLA), Dept. of Mathematics, Applied Math Colloquium (Los Angles CA)
2017 Aug.	Workshop on Data-Driven Methods for Multi-Scale Physics and Complex Systems (Rome, Italy)
2017 July	Johns Hopkins University, Dept. of Psychology (Baltimore MD)
2017 July	Naval Surface Warfare Center, Carderock Division (Bethesda MD)
2017 July	8th Bio-inspired Unmanned Autonomous Systems (BioUAS) State Of the Art Review (Oxford, UK)
2017 June	University of Washington Database (UWDB) Affiliates Workshop (Seattle WA)
2017 May	Society for Industrial and Applied Mathematics (SIAM) Conference on Applications of Dynamical Systems (Snow Bird UT)
2017 Jan.	Workshop on Data-Driven Methods for Reduced-Order Modeling and Stochastic Partial Differential Equations, Banff International Research Station (Banff Alberta, Canada)
2017 Jan.	Frontiers of Science and Engineering (Seattle WA)
2016 Nov.	University of Washington, Graduate Program in Neuroscience Seminar (Seattle WA)
2016 Nov.	Society for Mathematical Psychology and Psychonomics, Workshop on Rethinking Biological Plausibility (Boston MA)
2016 Nov.	Harvard University, Center for Brain Science (Cambridge MA)
2016 Oct.	University of Washington Institute for Neuroengineering Seminar (Seattle WA)
2016 Oct.	† BrainKDD: The 3nd International Workshop on Data Mining and Visualization for Brain Science (Seattle WA)
2016 July	University of Maryland, Brain and Behavior Initiative Seminar (College Park MD)
2016 June	NeuroFutures Conference (Seattle WA)
2016 April	Institute for Disease Modeling Annual Symposium (Bellevue WA)
2016 April	Society for Industrial and Applied Mathematics (SIAM) Conference on Uncertainty Quantification (Lausanne, Switzerland)
2016 Mar.	DARPA/ISAT Workshop on Bio-Integrated Processing, Sensing, and Storage (Seattle WA)
2016 Feb.	Computational and Systems Neuroscience (COSYNE), Workshop on Dimensionality Reduction in High-Dimensional Neural Datasets (Snowbird UT)
2016 Feb.	University of Washington, Neuroengineering and Computational Neuroscience Connection (Seattle WA)
2016 Feb.	University of Washington, Behavioral Neuroscience Research Seminar (Seattle WA)
2016 Jan.	Workshop on Neuromechanics & Dynamics of Locomotion (New Orleans LA)
2015 Dec.	DARPA/ISAT Workshop on Making-Sense (Washington DC)
2015 Oct.	Columbia University, Center for Theoretical Neuroscience (NYC NY)
2015 Oct.	New York University, Center for Data Science (NYC NY)
2015 Oct.	University of Washington, Dept. of Electrical Engineering Colloquium (Seattle WA)
2015 Oct.	† Moore-Sloan Data Science Environment Annual Summit (Suncadia WA)
2015 May	Society for Industrial and Applied Mathematics (SIAM) Conference on Applications of Dynamical Systems (Snow Bird UT)
2014 Dec.	University of Washington, Department of Statistics Seminar (Seattle WA)
2014 Nov.	New Perspectives on Neuroengineering and Neurotechnologies, DFG-NSF Research Conference (Washington DC)
2014 Aug.	University of Iowa, Department of Neurosurgery Research Seminar (Iowa City IA)
2014 June	Sloan-Swartz Center for Theoretical Neurobiology Annual Meeting (Seattle WA)
2014 June	NeuroFutures Conference (Seattle WA)
2014 May	University of Washington Institute for Neuroengineering (UWIN) and Department of Biology (Seattle WA)
2014 May	Allen Institute for Brain Science (Seattle WA)
2014 Apr.	Harvard University, Center for Brain Science (Cambridge MA)
2013 Dec.	University of Washington, Center for Sensorimotor Neural Engineering (CSNE), Kavli Seminar (Seattle WA)

2013 Oct.	Allen Institute for Brain Science (Seattle WA)
2011 Dec.	Brandeis University, Decision-making Seminar (Waltham MA)
2011 Oct.	University of Washington, Computational Neuroscience Seminar (Seattle WA)
2011 July	Sloan-Swartz Centers for Theoretical Neurobiology Annual Meeting (Ashburn VA)

MENTORING   † **current group members in bold**

POST GRADUATE

2020–	**Katie Stanchak, Ph.D. in Biology**, co-advised with David Perkel, *Data Science Postdoctoral Research Associate in Biology*
2023–	**Harsha Gurnani, Ph.D. in Neuroscience**, *Schmidt Science Fellow*
2023–	**Elliott Abe, Ph.D. in Computational Neuroscience**, *Swartz Postdoctoral Fellow in Theoretical Neurosience*
2019–2023	Alison Weber, Ph.D. in Neuroscience, co-advised with Tom Daniel, *Postdoctoral Research Associate in Biology, Washington Research Foundation (WRF) Postdoctoral Fellow*
2022	George Plummer, M.D., *Resident at UW Medicine, Neurology*
2018–2023	Chris Dallmann, Ph.D. in Neuroscience, co-advised with John Tuthill, *Postdoctoral Research Associate in Physiology & Biophysics, Sackler Postdoctoral Scholar*
2021–2022	Urban Fasel, Dr.Sc. in Mechanical Engineering, co-advised with Steve Brunton, *Postdoctoral Research Associate in Mechanical Engineering*
2017–2022	Tanvi Deora, Ph.D. in Biology, co-advised with Tom Daniel, *Postdoctoral Research Associate in Biology, Human Frontiers Science Program (HFSP) Postdoctoral Fellow*
2019–2021	Alice Schwarze, D.Phil. in Mathematics, *Data Science Postdoctoral Research Associate in Biology*
2018–2021	Steven Peterson, Ph.D. in Biomedical Engineering, co-advised with Raj Rao, *Data Science Postdoctoral Research Associate in Biology*
2018–2020	Kameron Decker Harris, Ph.D. in Applied Mathematics, co-advised with Raj Rao, *Postdoctoral Research Associate in Computer Science & Engineering, Washington Research Foundation (WRF) Postdoctoral Fellow*
2018–2020	Aditya Nair, Ph.D. in Mechanical Engineering, co-advised with Steve Brunton, *Postdoctoral Research Associate in Mechanical Engineering*
2016–2018	C. Liz Gass, M.D., M.P.H., *Resident at UW Medicine, Psychiatry*
2016–2018	Bethany Lusch, Ph.D., co-advised with Steve Brunton and Nathan Kutz, *Postdoctoral Research Associate in Applied Mathematics*
2016	Eurika Kaiser, Ph.D., co-advised with Steve Brunton and Nathan Kutz, *Moore-Sloan-WRF Data Science Postdoctoral Fellow*

GRADUATE

2019–	**Zoe Steine-Hanson**, co-advised with Rajesh Rao, *Ph.D. student in UW Computer Sci. & Eng.*, National Science Foundation (NSF) Graduate Research Fellow
2022–	**Raveena Chhibber**, co-advised with John Tuthill, *Ph.D. student in UW Neuroscience*, National Science Foundation (NSF) Graduate Research Fellow
2023–	**Sarah Pugliese**, co-advised with John Tuthill, *Ph.D. student in UW Neuroscience*,
2023–	**Jianqiao (Lawrence) Hu**, co-advised with Edgar Walker, *Ph.D. student in UW Neuroscience*,
2019–2023	Michelle Hickner, Ph.D. in Mechanical Engineering, co-advised with Steve Brunton
2017–2023	Lili Karashchuk, PhD. in Neuroscience, co-advised with John Tuthill, National Science Foundation (NSF) Graduate Research Fellow
2017–2023	Aaron D. Garcia, Ph.D. in Neuroscience, co-advised with Beth Buffalo, *Ph.D. student in UW Neuroscience*, National Science Foundation (NSF) Graduate Research Fellow, Washington Research Foundation (WRF) Innovation in Neuroengineering Graduate Fellow
2019–2022	Maxwell Gray, M.S., co-advised with Steve Brunton, UW Computer Sci. & Eng.

2019–2021	Biraj Pandey, *Ph.D. student in UW Applied Math.*, National Science Foundation (NSF) Graduate Research Fellow
2018–2021	Satpreet Singh, Ph.D. in Electrical and Computer Engineering, co-advised with Rajesh Rao
2017–2020	Seth Hirsh, Ph.D. in Physics, co-advised with Nathan Kutz
2015–2018	Nancy X. R. Wang, Ph.D. in Computer Science & Engineering, co-advised with Rajesh Rao, Washington Research Foundation Innovation in Neuroengineering and Data Science Graduate Fellow, National Science and Engineering Research Council (NSERC) of Canada Graduate Fellow

UNDERGRADUATE AND POST-BACCALAUREATE

2022–	**Maryam Bahadori-Nejad**, post-baccalaureate researcher
2022–2023	Laila Abdalla, undergraduate ENDURE scholar, *Biology major at Highline College*
2020–2022	Zeynep Toprakbasti, undergraduate researcher, *Computer Science major at UW*, Mary Gates Scholar
2021–2022	Sonia Fereidooni, undergraduate researcher, *Computer Science, Sociology double major at UW*
2021–2022	Abna Moalin, undergraduate ENDURE scholar, *Biology major at Highline College*
2019–2021	Sara Ichinaga, undergraduate researcher, *Applied Computational and Mathematical Sciences (ACMS) major at UW*
2019–2021	Nathan Davis, undergraduate researcher, *Computer Science graduate at UW*
2019–2020	Nathaniel Linden, undergraduate researcher, *Bioengineering graduate at UW*
2018–2019	Yuchen Wang, undergraduate researcher, *Computer Sci and Psychology graduate at UW*
2017–2019	George Stepaniants, undergraduate researcher, co-advised with Nathan Kutz, *Mathematics and Computer Science garduate at UW*, Mary Gates Scholar
2018	Frances Ingram-Bate, undergraduate researcher, *Bioengineering major at UW*
2018	AJ Krouse, undergraduate researcher, *Neurobiology major at UW*
2017–2018	Gautham Velchuru, undergraduate researcher, UWIN fellow, *Computer Sci major at UW*
2017–2018	Joe Christianson, undergraduate researcher, *Mathematics major at UW*
2017–2018	Jeffery Ni, undergraduate researcher, *Bioengineering major at UW*
2017	Nhi Ngo, undergraduate researcher, *Applied Comp & Mathematical Sci major at UW*
2016–2017	Ryan Shean, undergraduate researcher and UWIN fellow, *Microbiology major at UW*
2016	Wilven Smoody, undergraduate researcher, *Physics gradate at UW*
2016	Mathi Manavalan, undergraduate researcher, *Psychology major at UW*
2016	Sam Kinn, undergraduate researcher and UWIN fellow, *Eletrical Engineering graduate at UW*
2016	Mycole Brown, undergraduate researcher, *Biology graduate at UW*
2015–2016	Karl Marrett, post-baccalaureate researcher and UWIN Fellow, *Neurobiology/Computational Neuroscience graduate at UW*
2015	Christine McCreary, undergraduate researcher sponsored by UWIN and the Center for Sensorimotor Neural Engineering (CSNE), *Computer Science and Neurobiology major at UW*
2015	Monica Lamirand, undergrad researcher, CSNE UR, *Math/Psych major at Hanover College*
2013–2014	Justin Thompson, *post-baccalaureate researcher* at UW, Center for Sensorimotor Neural Engineering (CSNE) Research Experience for Veterans–University Projects (REV-UP)

HIGH SCHOOL STUDENTS

2021	Vanshika Balaji, Issaquah High School
2017–2018	Saijel Verma, Interlake High School

PH.D. GRADUATE COMMITTEES

Brandon Pratt	Physiology & Biophysics (Advisor: John Tuthill), thesis committee member
Samantha Sun	Bioengineering (Co-advisors: Raj Rao & Jeff Ojemann), thesis committee member

Si Jia Li	Bioengineering (Advisor: Amy Orsborn), thesis committee member
Leila Elabbady	Neuroscience (Advisors: John Tuthill, Forrest Collman), thesis committee member
Anna Li	Neuroscience (Advisor: Nick Steinmetz), thesis committee member
Grace Van Susteren	Biology (Advisor: Jeff Riffell), thesis committee member
Ian Jan	Bioengineering (Advisor: Nancy Allbritton), graduate school representative
Regan Kubicek	Carnegie Mellon University, Mechanical Engineering (Advisor: Sarah Bergbreiter), thesis committee member
Felix Taschbach	UCSD, Biological Science (Advisors: Kay Tye and Marcus Benna), thesis committee member
Ye (Mary) Hong	Neuroscience (Advisor: Michele Basso), thesis committee member
Daksh Dhingra	Mechanical Eng. (Advisor: Sawyer Fuller), graduate school representative
Jesse Miles, Ph.D.	Neuroscience (Advisors: David Gire & Sheri Mizumori), thesis committee member
Suzanne Lewis, Ph.D.	Psychology (Advisor: David Gire), graduate school representative
Akira Kawano	Okinawa Institute of Science and Technology (OIST), External Examiner in oral exam
Yoni Browning, Ph.D.	Neuroscience 2021 (Co-advisors: Beth Buffalo & Adrienne Fairhall), thesis committee member
Dennis Tabuena, Ph.D.	Neuroscience 2021 (Advisor: Bill Moody), thesis committee member
John Huddleston, Ph.D.	Molecular and Cell Biology 2021 (Advisor: Trevor Bedford), graduate school representative
Callie Bee, Ph.D.	Computer Science & Engineering 2021 (Advisor: Luis Ceze), graduate school representative
Claire Rusch, Ph.D.	Biology 2020 (Advisor: Jeff Riffell), thesis committee member
Eleanor Lutz, Ph.D	Biology 2020 (Advisor: Jeff Riffell), thesis committee member
Gideon Dunster, Ph.D.	Biology 2019 (Advisor: Horacio de la Iglesia), thesis committee member
Nile Wilson, Ph.D.	Bioengineering 2019 (Co-advisors: Raj Rao, Jeff Ojemann & Eric Chudler), thesis committee member
David Caldwell, Ph.D.	Bioengineering MD/PhD program 2019 (Co-advisors: Raj Rao, Jeff Ojemann & Eric Chudler), thesis committee member
Jing James Wu, Ph.D.	Bioengineering 2019 (Co-advisors: Raj Rao, Jeff Ojemann & Eric Chudler), thesis committee member
David Bjanes, Ph.D.	Electrical Engineering 2019 (Advisor: Chet Moritz), graduate school representative
Vaishnavi Ranganathan, Ph.D.	Electrical Engineering 2018 (Advisor: Josh Smith), graduate school representative
Alex Tank, Ph.D.	Statistics 2018 (Advisor: Emily Fox), graduate school representative
Maggie Thompson, Ph.D.	Electrical Engineering 2018 (Advisor: Howard Chiczek), graduate school representative
Jingjing Wang, Ph.D.	Computer Science & Engineering 2018 (Advisor: Magda Balazinska), graduate school representative
Andrew Haddock, Ph.D.	Electrical Engineering 2017 (Advisor: Howard Chiczek), thesis committee member
James Kunert, Ph.D.	Physics 2016, (Advisor: Nathan Kutz), graduate school representative
Vamsi Talla, Ph.D.	Electrical Engineering 2016, (Advisor: Josh Smith), graduate school representative
Brad Dickerson, Ph.D.	Biology 2015, (Advisor: Tom Daniel), thesis committee member

TEACHING

2024 Spring	UW, BIOL 461, **Neurobiology**
2024 Winter	UW, NEUSCI 450B, **Computational Neuroscience**
2023 Winter	UW, BIOL 461, **Neurobiology**
2021 Spring	UW, BIOL 511C, **High-dimensional Data Analysis**
2021 Winter	UW, BIOL 461, **Neurobiology**
2020 Spring	UW, BIOL 511B, **Mathematical Biology**, with B. Kerr
2020 Winter	UW, BIOL 419/519, **Data Science for Biologists**
2019 Spring	UW, BIOL 511B, **Mathematical Biology**, with B. Kerr
2019 Winter	UW, BIOL 419/519, **Data Science for Biologists**, with K. D. Harris
2018 Spring	UW, BIOL 511B, **Mathematical Biology**, with B. Kerr
2018 Spring	UW, BIOL 130, **Introduction to Neuroscience**, with T. Daniel & W. Moody
2018 Winter	UW, BIOL 419/519, **Data Science for Biologists**
2017 Winter	UW, BIOL 419/519, **Data Science for Biologists**
2016 Spring	UW, BIOL 300, **Introduction to Neuroscience**, with W. Moody
2016 Winter	UW, BIOL 419/519, **Data Science for Biologists**
2015 Spring	UW, BIOL 419/519, **Data Science for Biologists**

VIRTUAL AND ONLINE TEACHING

2023	YouTube video series on **Introduction to Neuroscience**, all lectures freely available on channel `@bingsbrain`
2020–23	**Neuromatch Academy**, an online school for computational neuroscience, lecturer, tutorial creator, and day chief on *Linear Systems*, materials freely available online
2016	**Data Science for Biologists**, lectures available on YouTube

GUEST LECTURES

2014–17, 20, 23	UW, NBIO 490 **Seminars in Computational Neuroscience**
2023	UW, CSSS 490, **Data Science Minor Seminar**
2022	Caltech CS 159, **Advanced Topics in ML: Representation Learning for Science**
2022	Caltech Bi 1, **Principles of Biology**
2021	UCSD, **Cognitive Neuroscience Colloquium**
2019, 20	UW, MATH 498 **Undergraduate Mathematical Sciences Seminar**
2017	UW, CSE 491 **Data Science and Society**
2017	UW, CSE/Neuro 528 **Computational Neuroscience**
2016	UW, PSYCH 502 **Core Concepts in Behavioral Neuroscience**
2014	UW, GEN ST 391B **Different Ways of Knowing**

PROFESSIONAL ACTIVITIES

ADVISORY AND EDITORIAL ROLES

Executive Board, Neurodata Without Borders (NWB), 2020–present

Editorial Board, Neurons, Behavior, Data analysis, and Theory (NBDT), 2018–present

Board of Directors, Neuromatch Conference (NMC), 2021–2022

UNIVERSITY OF WASHINGTON

2019–	eScience Institute, Member of Executive Committee
2022–	Undergraduate Neuroscience Program, Advisory Committee

2022–	Dept of Biology, Member of Faculty Search Committee
2018–	Dept of Biology, Member of Undergraduate Program Committee
2020–	Data Science Minor, Member of Curriculum Committee
2020–	Dept of Biology & eScience Institute, Data Science Minor advisor
2019–	Dept of Biology & eScience Institute, Data Science Ph.D. Option advisor
2019	Search Committee for the Director of the eScience Institute
2017–2019	eScience Institute & UW Institute of Neuroenginering, Neuroinformatics Working Group
2015–2018	Neuroscience Graduate Program, Member of Admissions Committee
2017–2018	eScience Institute, Co-Chair of Education Working Group
2017–2018	eScience Institute, Program Chair of UW Data Science Summit
2017–2018	Dept of Biology, Member of Faculty Search Committee
2014–2017	eScience Institute, Member of Education Working Group
2016–2017	Dept of Biology, Member of Graduate & Postdoc Committee
2016–2017	Dept of Biology, Member of Seminar Committee
2015–2016	Dept of Biology, Co-Chair of Seminar Committee

Ad Hoc Reviewer for: Mary Gates Merit Scholarship, Royal Research Fund, Innovation in Neuroengineering Postdoctoral Fellowship, Washington Research Foundation Data Science Postdoctoral Fellowship, Institute for Translational and Health Sciences Pilot Awards, Weill Neurohub.

EXTERNAL COMMITTEES

2021–	Shanahan Foundation Fellowship at the Interface of Data and Neuroscience, Allen Institute, Member of selection committee
2021–	Washington Research Foundation (WRF) Postdoctoral Fellowship, Member of selection committee

CONFERENCE AND WORKSHOP ORGANIZING

2023–2024	Computational and Systems Neuroscience Conference (COSYNE 2024), Co-Program Chair
2022	NSF-IOS Workshop on cross-disciplinary innovations in organismal biology (IOMM), co-organizer of Workshop on the Ins and Outs of Behavior
2021–	Neuromatch Conference, board of directors and member of executive committee
2021–2022	Computational and Systems Neuroscience Conference (COSYNE 2021), Member of Program Committee
2017–2018	Computational and Systems Neuroscience Conference (COSYNE 2018), co-organizer for Workshop on Recent Computational Advances in Neuroengineering: From Theory to Applications
2015–2018	Computational and Systems Neuroscience Conference (COSYNE 2016, 2017, 2018), Member of Program Committee
2016–2017	Organization for Human Brain Mapping (OHBM) Annual Meeting, Vancouver BC, Symposium Organizer for *Uncovering complexity with long-term naturalistic recordings*
2016–2017	Society for Industrial and Applied Mathematics (SIAM) Conference on Dynamical Systems, Snowbird UT, Mini-Symposium Organizer for *Equation-free modeling of biological systems*
2015–2016	International Conference on Brain Informatics & Health (BIH 2016), Co-Chair of Workshops and Tutorials

OTHER PROFESSIONAL ACTIVITIES

Proposal review for: NSF CRCNS, NSF CNS, HFSP.

Manuscript reviewer for: Proceedings of the National Academy of Science, Nature, Nature Neuroscience,

Neuron, Science Advances, Nature Communications, eLife, Nature Methods, Current Biology, Trans Biomedical Engineering, IEEE Trans Image Processing, IEEE Trans Signal Processing, Cell Reports, PLoS Computational Biology, PLoS One, NeurIPS, ICLR, SIAM Journal on Applied Dynamical Systems (SIADS), Journal of the American Statistical Association, Entropy, Neuroscience, Pattern Recognition Letters, Bioinformatics, J Neurosci Methods, J Experimental Biology, NeuroImage.

COMMUNITY AND OUTREACH ACTIVITIES

2023	Grey Matters Journal, interviewed for podcast on neurotechnology
2023	Peaks and Professors, hiked and talked
2023	Stories of Women in Neuroscience (WiN), interviewed for podcast
2022	Montgomery Blair High School (Silver Spring, MD), alum guest speaker
2021	*The Synapse* organized by students of Teachers College at Columbia University, featured guest to discuss *AI and the Brain*
2021	*Neuromatch for Kids* presenter, Neuromatch Conference 4
2015–18	*Girls in Science* volunteer instructor, Burke Museum of Natural History and Culture
2017	Neurobiology Club and SynapTech presenting *Neuroscience for Everyone*, Panelist leading discussion on consciousness, artificial intelligence, and ethics
2017	Grey Matters Journal presenting *Evening with Neuroscience*, Panelist
2017	UW Neurobiology Club, Guest Speaker
2012	Women in Science and Engineering (WISC) panel discussion on grad school, panelist
2009	Science Expo at Princeton University, volunteer
2009	Trenton Area Science Fair, volunteer
2007, 08, 09	New Jersey Science Olympiad, event coordinator and judge

Art and Insect Behavior: Watercolor on paper, select pieces on display at community galleries