

Andrew Miri, Ph.D.

Northwestern University
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POSITIONS

Northwestern University

Assistant Professor, January 2018-
Department of Neurobiology

Columbia University

Postdoctoral Fellow/Associate, September 2011 - December 2017
Advisor: Thomas Jessell

EDUCATION

Princeton University

Ph.D. in Molecular Biology/Neuroscience, September 2005 - July 2011
Thesis: "Multidimensional Firing Rate Dynamics in a Neural Integrator"
Advisor: David Tank

Brown University

Sc.B. in Neuroscience and A.B. in Mathematics, September 1997 - May 2002
Undergraduate Thesis: "Inhibition of Rod Cyclic Nucleotide-gated Ion Channels by Retinoids"
Advisor: Anita Zimmerman

AWARDS AND HONORS

2021	nominated for the Presidential Early Career Award for Scientists and Engineers
2021	Baker Faculty Research Program, Northwestern University
2020	NIH Director's New Innovator Award
2020	Chicago Biomedical Consortium Catalyst Award
2020	Sloan Research Fellowship
2019	Searle Scholar Award
2018	Whitehall Foundation Research Grant Award
2017	Allen Brain Institute Next Generation Leadership Council
2015	NYU Med SPiNES seminar selection
2013-16	Helen Hay Whitney Foundation Postdoctoral Fellowship
2010	Princeton University Graduate Teaching Award in Neuroscience
2006-10	National Science Foundation Predoctoral Fellowship
2006	National Defense Science and Engineering Graduate Fellowship (declined)
2005-06	Ronald E. Cape Graduate Fellowship, Princeton University
2004	Massachusetts Charter School Association Summer Fellowship
2002	Massachusetts Institute for New Teachers Scholarship
2002	Magna cum laude, Brown University
2002	Member, Phi Beta Kappa
2002	Research at Brown grant
2001-02	Brown University Undergraduate Teaching and Research Assistantship

2001	Member, Sigma Xi
2000-01	Howard Hughes Undergraduate Research Fellowship
1999	Brown University Undergraduate Teaching and Research Assistantship
1998	Brown University Undergraduate Council of Students Scholar Award

PUBLICATIONS

14. Warriner, C.L., Fageiry, S., Saxena, S., Costa, R.M. and **Miri, A.** (2022) "Motor cortical influence relies on task-specific activity covariation." *Cell Reports* 40(13):111427.
13. **Miri, A.***, Bhasin, J.*, Aksay, E., Goldman, M.S., Tank, D.W. (2022) "Oculomotor plant and neural dynamics suggest gaze control requires integration on distributed timescales." *Journal of Physiology* 600(16):3837-3863.
*co-first authors
12. Warriner, C.L., Fageiry, S.K., Carmona, L.M., **Miri, A.** (2020) "Towards Cell and Subtype Resolved Functional Organization: Mouse as a Model for the Cortical Control of Movement." *Neuroscience* 450:151-160.
11. Russo, A., Perkins, S., Bittner, S., Seely, J., London, B., Lara, A., **Miri, A.**, Kohn, A., Jessell, T.M., Abbott, L., Cunningham, J.P., Churchland, M.M. (2018) "Motor cortex activity diverges from muscle activity, allowing smooth untangled dynamics." *Neuron* 97(4):953-966.
10. **Miri, A.**, Warriner, C.L., Seely, J.S., Elsayed, G.F., Cunningham, J.P., Churchland, M.M., Jessell, T.M. (2017) "Behaviorally-selective engagement of short-latency effector pathways by motor cortex." *Neuron* 95(3):683-696. ****cover article****
9. Bikoff, J.B., Drobac, E., Gabitto, M., Machado, T.M., **Miri, A.**, Brenner-Morton, S., Famojure, E., Mentis, G.Z., Jessell, T.M. (2016) "Spinal inhibitory interneuron diversity delineates variant motor microcircuits." *Cell* 165(1):51-63.
8. Machado, T.A., Pnevmatikakis, E., Paninski, L., Jessell, T.M., **Miri, A.** (2015) "Primacy of flexor locomotor pattern revealed by ancestral reversion of motor neuron identity." *Cell* 162(2):338-50. ****cover article****
7. Kim, C.K., **Miri, A.**, Leung, L.C., Mourrain, P., Tank, D.W., Burdine, R.D. (2014) "Prolonged, brain-wide expression of nuclear-localized GCaMP3 for functional circuit mapping." *Frontiers in Neural Circuits* 8(138):1-12.
6. **Miri, A.**, Azim, E., Jessell, T.M. (2013) "Edging toward entelechy in motor control." *Neuron* 80(3):827-34.
5. De Palo, G., Boccaccio, A., **Miri, A.**, Menini, A., Altafini, C. (2012) "A dynamical feedback model for adaptation in the olfactory transduction pathway." *Biophysical Journal* 102(12):2677-86.
4. **Miri, A.**, Daie, K., Arrenberg, A.B., Baier, H., Aksay, E., Tank, D.W. (2011) "Spatial gradients and multidimensional dynamics in a neural integrator circuit." *Nature Neuroscience* 14(9):1150-1159.

3. **Miri, A.**, Daie, K., Burdine, R.D., Aksay, E., Tank, D.W. (2011) "Regression-based identification of behavior-encoding neurons during large-scale optical imaging of neural activity at cellular resolution." *Journal of Neurophysiology* 105(2):964-980.
2. McCabe, S.L., Pelosi, D.M., Tetreault, M., **Miri, A.**, Nguitragool, W., Kovithvathanaphong, P., Mahajan, R. and Zimmerman, A.L. (2004) "All-trans-retinal is a closed-state inhibitor of rod cyclic nucleotide-gated ion channels." *Journal of General Physiology* 123(5):521-531.
1. Dean, D.M., Nguitragool, W., **Miri, A.**, McCabe, S.L. and Zimmerman, A.L. (2002) "All-trans-retinal shuts down rod cyclic nucleotide-gated ion channels: a novel role for photoreceptor retinoids in the response to bright light?" *Proceedings of the National Academy of Sciences USA* 99(12):8372-8377.

INVITED TALKS

2023	Okinawa Institute of Science and Technology, Neuroscience Seminar Series (virtual)
2023	Lurie Children's Hospital of Chicago, Neuroscience of Disease Lecture Series
2023	Simons Collaboration on the Global Brain, annual meeting
2023	Janelia Research Center, Computation and Theory Seminar
2023	Emory University, Department of Biology
2022	ALM working group, multiple institutions (virtual)
2022	Simons Collaboration on the Global Brain, annual meeting
2021	Feinberg School of Medicine, Neuroscience Department
2021	University of Maryland, Neuroscience and Cognitive Science graduate program
2021	Carnegie Mellon University, Motor Group (virtual)
2020	Northwestern University, Motor Control Mechanisms and Disease Preceptor Lecture
2019	Brain Initiative Cell Census Network meeting, Jackson Hole, WY
2018	Allen Brain Institute, annual showcase symposium
2018	Feinberg School of Medicine, Shirley Ryan Ability Lab
2017	Allen Brain Institute, annual showcase symposium
2017	NUIN Program at Northwestern University, annual retreat, St. Charles, IL
2017	Simons Foundation, postdoctoral seminar series
2017	New York University, Center for Neural Science
2017	University of California San Francisco, Department of Anatomy
2017	Johns Hopkins University, Mind/Brain Institute
2017	University of California Davis, Department of Neurobiology, Physiology and Behavior
2017	Carnegie Mellon University, Department of Biological Sciences
2017	Northwestern University, Department of Neurobiology
2017	Duke University, Department of Neurobiology
2016	Salk Institute for Biological Sciences, Motor Systems Symposium
2016	New York University, SPiNES seminar series,
2016	Cold Spring Harbor Laboratory, Neuronal Circuits meeting
2016	Princeton University, Princeton Neuroscience Institute
2016	Cornell University, Department of Neurobiology and Behavior
2015	Helen Hay Whitney Foundation, annual retreat
2008	Society for Neuroscience, annual meeting
2007	Princeton University, Molecular Biology Outreach Program
2005	Massachusetts Charter School Association, annual convention

TEACHING

2021- Co-instructor, Great Experiments in Systems Neuroscience, Northwestern
 2019- Instructor, Systems and Behavioral Neuroscience, Northwestern
 2019- Guest Lecturer, Neural Control of Movement, Northwestern
 2018-20 Guest Lecturer, Great Experiments in Systems Neuroscience, Northwestern
 2018 Guest Lecturer, Systems and Behavioral Neuroscience, Northwestern
 2009 Teaching Assistant, Laboratory in Neuroscience, Princeton
 2008 Teaching Assistant, Cellular and Systems Neuroscience, Princeton
 2006-10 Instructor, Mathematical Modeling, W.E.B. DuBois Institute (secondary, Princeton, NJ)
 2005 Writing Instructor, Yeshiva High School (secondary, Tucson, AZ)
 2002-04 Mathematics Teacher, Academy of the Pacific Rim Charter School (secondary, Boston, MA)
 2001-02 Writing Fellow, Rose Writing Fellows Program, Brown
 2001 Teaching Assistant, Neuropharmacology, Brown

SERVICE

Degree committees:

2022- Doctoral thesis committee of Elena He (Dombeck)
 2022- Doctoral thesis committee of Sarah Frieda (Kozorovitskiy)
 2021 Outside examiner, doctoral thesis committee of Rick Warren (Sawtell lab, Columbia)
 2020-22 Doctoral thesis committee of Schnaude Dorizan (Hartmann)
 2020-21 Master's thesis committee of Ameen Kista (Slutzky)
 2020- Chair, doctoral thesis committee of Mauricio Medina (Raman)
 2019-21 Master's thesis committee of Qiwei Dong (Miller)
 2019-22 Doctoral thesis committee of Maite Azcorra-Sedano (Dombeck)
 2018- Doctoral thesis committee of Moneeza Agha (McLean)

Other Northwestern committee work:

2022 - Neurobiology Dept, Open Education Resources video production committee, member
 2022-23 Neurobiology Department faculty search committee, member
 2022 - Life Science Storage Pool - Allocation Advisory Committee, member
 2022- Vertically Integrated Neuroscience Education organizing committee, member
 2021- NU Interdepartmental Neuroscience graduate program, Associate Chair of Admissions
 2021- Neurobiology Department Diversity, Equity, and Inclusion Committee, member
 2021- Neurobiology Department Curriculum Committee, member
 2021-22 Neurobiology Department faculty search committee, member
 2020-22 K99 faculty mentor committee for Chris Vaaga (Raman)
 2020 Neurobiology Department undergraduate thesis reader
 2020-21 Neurobiology Department extramural postdoc seminar series, organizing committee
 2019-20 Department of Physiology, faculty search committee
 2019-23 General Motor Control Mechanisms and Disease Training Program, steering committee
 2019- HHMI Gilliam Fellowship internal nominating committee
 2019- Neurobiology Dept Summer Undergraduate Research Grant (URG), selection committee
 2019-20 Searle Scholars internal nominating committee, ad hoc member
 2018-21 NU Interdepartmental Neuroscience graduate program, admissions committee
 2018-23 Undergraduate Research Grant (URG), selection committee

Extramural:

2023 NSF Collaborative Research in Computational Neuroscience (CRCNS), reviewer

2022	French ALS Research Association Grant program, reviewer
2020	Allen Brain Institute, Mindscope Grant program, reviewer
2018-20	Allen Brain Institute Next Generation Leaders, application reviewer
2017-	Scientific Review: Nature, Cell, Neuron, Nature Neuroscience, Nature Communications PNAS, Science Advances, Journal of Neuroscience, Cerebral Cortex, Brain Stimulation
2016-17	Extramural Postdoctoral Seminars at Columbia (EPSC), organizing and selection committee
2015-16	European Research Council Advanced Grant program, reviewer
2014,19	Cosyne, abstract reader
2006-10	Princeton Science EXPO, demonstrator