David J. Freedman, Ph.D.

Stahl Professor of Neurobiology in the Wallman Society of Fellows
Department of Neurobiology and the College
Chair, Department of Neurobiology
Member, Neuroscience Institute
Faculty Affiliate, Data Science Institute
The University of Chicago

Contact Information

The University of Chicago
Department of Neurobiology
5812 S. Ellis Ave, MC0912, P-419
Chicago, IL 60637
773-834-5186
dfreedman@uchicago.edu
http://www.freedmanlab.org

Education

1997-2002	Ph.D. in Systems Neuroscience, Massachusetts Institute of Technology (MIT)
1993-1997	B.A. in Brain and Cognitive Sciences, University of Rochester

Current Positions and Appointments

2024-	Chair, Department of Neurobiology, The University of Chicago
2016-	Professor, Department of Neurobiology and The College, The University of Chicago
2014-	Member, Neuroscience Institute, The University of Chicago
2022-	Faculty Affiliate, Data Science Institute, The University of Chicago

Past Positions and Appointments

2015-2021	Chair, Graduate Program in Computational Neuroscience, The University of Chicago
2018-2020	Consultant, Institute for Defense Analyses
2014-2016	Associate Professor (tenured), Department of Neurobiology, The University of Chicago
2008-2014	Assistant Professor, Department of Neurobiology, The University of Chicago
2003-2008	Postdoctoral Research Fellow, Laboratory of John Assad at Harvard Medical School
2002-2003	Postdoctoral Associate, Laboratory of Earl K. Miller at MIT
1997-2002	Graduate Student, Laboratory of Earl K. Miller at MIT
1996-1997	Research Assistant, Laboratories of Walter Makous and David R. Williams at U Rochester

Awards, Fellowships and Noteworthy Accomplishments

2023	Elected Fellow, American Association for the Advancement of Science (AAAS)
2018	DOD Bush Fellows Research Study Team (BFRST)
2018	University of Chicago Faculty Award for Excellence in Graduate Teaching and Mentoring
2018	Vannevar Bush Faculty Fellowship from USA Department of Defense
2017	Elected Member, Memory Disorders Research Society
2016	National Academy of Sciences Troland Research Award
2013	Elected Member, International Neuropsychological Symposium
2013	University of Chicago Distinguished Junior Investigator Award in Biomedical Sciences
2012	McKnight Scholar Award
2010	Sloan Research Fellowship
2010	National Science Foundation CAREER Award
2008	Brain Research Foundation Fay/Frank Award
2006	King Trust and Charles H. Hood Foundation Postdoctoral Fellowship
2006	Edward R. and Anne G. Lefler Center Postdoctoral Fellowship (declined)
2005	Eli Lilly Society for Neuroscience Chapters Postdoctoral Travel Fellowship Award
2003	NIH Kirschstein National Research Service Award Individual Postdoctoral Fellowship
2002	Outstanding Ph.D. Thesis Award, Department of Brain and Cognitive Sciences, MIT
1997	Cum Laude, University of Rochester

Currently Funded Grants

Federal

2023-2028 NIH R01, EY019041-15 (NEI), PI
2023-2025 NIH R21, EY035901-01 (NEI), PI
2022-2027 DOD, N00014-23-1-2040-P00001 (ONR), Co-I, PI: Xiao-Jing Wang
2023-2027 NIH R01, EY037119 (NEI), PI, Co-PI: Brent Doiron

Completed Grants

Federal

2009-2014 NIH R01, EY019041 (NEI), Role: PI
2010-2012 NIH R03, NS067322 (NINDS), Role: PI
2010-2015 NSF CAREER Award 0955640, Role: PI
2010-2015 NIH R01, CRCNS MH092927 (NIMH), Role: Co-PI with Xiao-Jing Wang (NYU)
2014-2018 NIH R01, EY019041 (NEI), PI
2016-2019 NSF-NCS, 1631571, Role: Co-PI with Xiao-Jing Wang (NYU)
2018-2023 Department of Defense Vannevar Bush Faculty Fellowship
2017-2023 NIH R01, MH115555 (NIMH), Co-PI with Nicolas Brunel (Duke) and Yali Amit (UChicago)
2018-2023 NIH R01, EY019041-15 (NEI), PI
2018-2023 NIH U19 (NINDS), PI of Project #2. Overall PI: Elizabeth Buffalo

Private

2010-2011 Brain Research Foundation Fay/Frank Seed Grant
2008-2009 Brain Research Foundation Fay/Frank Seed Grant
2012-2013 Brain Research Foundation Fay/Frank Seed Grant
2010-2014 Sloan Research Fellowship, Role: PI
2015-2016 Big Ideas Generator Vision Award
2012-2017 McKnight Scholar Award

Editorships

2019-2020 Guest Editor, PNAS
2018-2022 Guest Reviewing Editor, eLife
2010-2017 Associate Editor, Frontiers in Perception Science

Current Teaching (University of Chicago)

2020- NSCI 20101, Foundations of Neuroscience, course co-organizer and primary lecturer
2021- BIOS 24205, Systems Neuroscience, undergraduate (several lectures)
2011- BIOS 24208, Survey of Systems Neuroscience, graduate (several lectures)
2010- BIOS 25126, Animal Models of Human Disease, undergraduate (one lecture/year)

Past Teaching

2009-2020 BIOS 24205, Systems Neuroscience, undergraduate
Primary instructor and course director
2019 BIOS 24231 Methods in Computational Neuroscience, course co-organizer
2009-2014 U of Chicago, Psychiatry Residency Program (one lecture/year)
2013 Neurobiology in Paris, primary lecturer
2010 U of Chicago, Medical Neurobiology (Medical School), several lectures
2009-2011 U of Chicago, CPNS 33100 Computational Neuroscience 2 (graduate), several lectures
1998-2000 MIT: Teaching Assistant: Introduction to Psychology (prof. Steven Pinker), Brain and Behavior Laboratory (prof. Earl Miller), Introduction to Neuroanatomy (prof. Mandar Jog).
1995-1997 University of Rochester: Teaching Assistant: Sensation and Perception (prof. David Williams), Mammalian Anatomy and Physiology (prof. Alan Dietsche).

Ad Hoc Reviewer

Animal Cognition, Cell, Cerebral Cortex, Cognitive Affective and Behavioral Neuroscience, COSYNE, Current Biology, eLife, European Journal of Neuroscience, Experimental Brain Research, Faculty of 1000,

Frontiers in Systems Neuroscience, Hippocampus, IEEE, Journal of Cognitive Neuroscience, Journal of Experimental Psychology, Journal of Neurophysiology, Journal of Neuroscience, Journal of Neuroscience Methods, Learning and Memory, PLoS, PLoS Computational Biology, PNAS, Nature, Nature Neuroscience, Neural Computation, Neuron, Science, Psychological Science, Vision Research

Study Sections and Grant Review Service

NIH SPC/NBVP study section (full member 2020-; ad hoc, 2015, 2017, 2019)

NIH K99 study section (ad hoc, 2014, 2015, 2019, 2025), NIH SEP ZRG1 IFCN-Y study section (2018), NIH ZRG1 IFCN-T study section (2019), National Science Foundation (ad hoc), Department of Defense, Biotechnology and Biological Sciences Research Council (ad hoc), European Research Council (ad hoc), Flanders Research Council (ad hoc), University of Leuven Research Council (ad hoc), Wellcome Trust (ad hoc), Canada Foundation for Innovation review committee.

Current Academic Committees and Service

2024-2025	U of Chicago, Provost's Research Computing Advisory Committee
2022-	U of Chicago, Eric and Wendy Schmidt AI in Science Postdoctoral Fellowship Program, Co-Director
2021-	U of Chicago, Grossman Center for Quantitative Biology and Human Behavior Steering Committee
2017-	U of Chicago, Grossman Institute Communications Committee, Chair
2014-	U of Chicago, Neuroscience Institute Steering Committee
2011-	U of Chicago, Undergraduate Neuroscience (NEURO) Club, Faculty Advisor
2009-	U of Chicago, Animal Resources Advisory Committee
2009-	U of Chicago, Executive Committee, Committee on Computational Neuroscience

Past Academic Committees and Service

2022-2023	U of Chicago, Committee of the College Council, Elected Member
2021-2022	U of Chicago, Department of Neurobiology, Faculty Search Committee, Chair
2015-2021	Chair, Graduate Program in Computational Neuroscience
2016-2022	Gordon Conference in The Neurobiology of Cognition, Vice-Chair (2018), Chair (2020/2022)
2021-2022	U of Chicago, Biological Sciences Division Graduate Affairs Dean Search Committee
2020-2023	U of Chicago, College Council, Elected Member
2020-2022	U of Chicago, BSD015/020 BSD faculty search committee to enhance diversity
2017-2021	U of Chicago, Executive Committee, Committee on Neurobiology
2019	University of Chicago, Graduate Teaching Awards Committee
2016-2018	University of Chicago, BSD Strategic Advisory Committee
2016-2017	University of Chicago, Center for Cognitive and Social Neuroscience, Executive Committee
2015	Chair, Grossman Institute & Dept. of Neurobiology Faculty Search Committee
2014	University of Chicago, Animal Resources Center Veterinarian Search Committee
2013-2015	University of Chicago, Neuroscience Graduate Admissions Committee, Chair
2012-2013	University of Chicago, Dept. of Psychology, cognition search committee
2011-2013	Computational and Systems Neuroscience Conference (COSYNE), Program Committee
2011-2013	Chicago Chapter, Society for Neuroscience, Councilor
2011-2013	U of Chicago, Undergraduate Neuroscience Major Committee
2010	Gordon Conference in The Neurobiology of Cognition, Social Activities Chair
2009-2011	U of Chicago, Neurobiology Faculty Search Committee
2009-2013	U of Chicago, Neuroscience Website Committee, Chair
2009-2013	U of Chicago, Executive Committee, Committee on Neurobiology
2008-2009	U of Chicago, Neurobiology and Computational Neuroscience Admissions Committee
2008-2014	U of Chicago, Neurobiology Faculty Chalk Seminar Series, organizer
2008-2011	U of Chicago, Neurobiology, Student Preliminary and Awards Committee
2006-2007	Harvard, Graduate student rotation supervisor, mentorship of first year graduate students
2000-2003	MIT, UROP supervisor, mentorship of MIT undergraduate research assistants
1998-1999	MIT, Chair and coordinator, Brain Lunch seminar series

Professional Memberships

Society for Neuroscience
American Association for the Advancement of Science
Chicago Chapter of the Society for Neuroscience
American Physiological Society
Vision Sciences Society
Memory Disorders Research Society

Peer-Reviewed Research Publications

Mohan K., Pereira-Obilinovic U., Srednyak S., Brunel N., and Freedman D.J. Visual Learning at Fast and Slow Timescales is Driven by Distinct Plasticity Rules in Primate Inferotemporal Cortex. *Nature Communications*, in press.

Rosen M.C. and **Freedman, D.J.** Multiplexing of cognitive encoding by oculomotor networks leads to incidental gaze shifts. *PNAS*, 122(15): e2422331122, 2025.

Peysakhovich B., Zhu O., Tetrick, S.M., Shirhatti V., Silva A.A., Li S., Ibos G., Rosen M.C., Johnston W.J., and **Freedman D.J.** Primate superior colliculus is causally engaged in abstract higher-order cognition. *Nature Neuroscience*, 27: 1999-2008, 2024.

Johnston W.J. and **Freedman D.J.** Redundant representations are required to disambiguate simultaneously presented complex stimuli. *PLoS Computational Biology*, 19: e1011327, 2023.

Goudar V., Peysakhovich B., **Freedman D.J.**, Buffalo E.A., and Wang X.J. Schema formation in a neural population subspace underlies learning-to-learn in flexible sensorimotor problem-solving. *Nature Neuroscience,* 25: 879-890, 2023.

Tilley, M. J., Miller, M., and **Freedman, D.J.** Artificial neuronal ensembles with learned context dependent gating. In Proceedings of the International Conference on Learning Representations, 2023.

Latimer K.W. and **Freedman D.J.** Low-dimensional encoding of decisions in parietal cortex reflects long-term training history. *Nature Communications,* 14: 1010, 2023.

Zhou Y., Mohan K., and **Freedman D.J.** Abstract Encoding of Categorical Decisions in Medial Superior Temporal and Lateral Intraparietal Cortices. *Journal of Neuroscience*, 42: 9069-9081, 2022.

Wildenberg G.A., Rosen M.C., Lundell J., Paukner D., and **Freedman D.J.**, and Kasthuri N. Primate neuronal connections are sparse in cortex as compared to mouse. *Cell Reports,* 36: 109709, 2021.

Zhou Y.*, Rosen M.C.*, Swaminathan S.K., Masse N.Y., Zhu O., and **Freedman D.J.** Distributed functions of prefrontal and parietal cortices during sequential categorical decisions. *eLife*, 10: e58782, 2021.

Mohan K., Zhu O, and **Freedman D.J.** Interaction between neuronal encoding and population dynamics during categorization task switching in parietal cortex. *Neuron*, 109: 700-712, 2021.

Ding X. and **Freedman D.J.** Learning Deep Generative Models with Annealed Importance Sampling. *NeurIPS Workshop*, 2020.

Cone J.J., Bade M.L., Masse N.Y., Page E.A., **Freedman D.J.**, and Maunsell J.H.R. Mice Preferentially Use Increases in Cerebral Cortex Spiking to Detect Changes in Visual Stimuli. *Journal of Neuroscience*, 40: 7902-7920, 2020.

De Rossi P., Nomura T., Andrew R.J., Masse N.Y., Sampathkumar V., Musial T.F., Sudwarts A., Recupero A.J., Le Metayer T., Hansen M.T., Shim H.N., Krause S.K., **Freedman D.J.**, Bindokas V.P., Kasthuri N., Nicholson D.A., Contractor A., and Thinakaran G. Neuronal BIN1 Regulates Presynaptic Neurotransmitter Release and Memory Consolidation. *Cell Reports,* 30: 3520-3535, 2020.

Johnston W.J., Palmer S, and **Freedman D.J.** Nonlinear mixed selectivity supports reliable neural computation. *PLOS Computational Biology,* 16: e1007544, 2020.

Zhou Y. and **Freedman D.J.** Posterior parietal cortex plays a causal role in perceptual and categorical decisions. *Science*, 365: 180-185, 2019.

Masse N.Y., Yang G.R., Song H.F., Wang X.J., and **Freedman D.J.** Circuit mechanisms for the maintenance and manipulation of information in working memory. *Nature Neuroscience,* 22: 1159-1167, 2019.

Masse N.Y., Grant G.D., and **Freedman, D.J.** Alleviating catastrophic forgetting using context-dependent gating and synaptic stabilization. *PNAS*, 115: 11103-11105, 2018.

Masse N.Y., Hodnefield J.M., and **Freedman D.J.** Mnemonic Encoding and Cortical Organization in Parietal and Prefrontal Cortices. *Journal of Neuroscience*, 37: 6098-6112, 2017.

Ibos G. and **Freedman D.J.** Sequential sensory and decision processing in posterior parietal cortex. *eLife*, 6: e23743, 2017.

Chaisangmongkon W., Swaminathan S.K., **Freedman D.J.**, and Wang X.J. Computing by robust transience: How the fronto-parietal network performs sequential category-based decisions. *Neuron*, 93: 1504-1517, 2017.

Ibos G. and **Freedman D.J.** Interaction between Spatial and Feature Attention in Posterior Parietal Cortex. *Neuron,* 91: 931-943, 2016.

Sarma A., Masse N.Y., Wang X.J., and **Freedman D.J.** Task Specific versus Generalized Mnemonic Representations in Parietal and Prefrontal Cortices. *Nature Neuroscience,* 19: 143-149, 2016.

Lim S., McKee J.L., Woloszyn L., Amit Y., **Freedman D.J.**, Sheinberg D.L., and Brunel N. Inferring learning rules from distribution of firing rates in cortical neurons. *Nature Neuroscience,* 18: 1804-1810, 2015.

Engel T.A., Chaisangmongkon W., **Freedman D.J.**, and Wang X.J. Choice-correlated activity fluctuations underlie learning of neuronal category representation. *Nature Communications,* 6: 6454, 2015.

McKee J.L., Riesenhuber M., Miller E.K., and **Freedman D.J.** Task Dependence of Visual and Category Representations in Prefrontal and Inferior Temporal Cortices. *Journal of Neuroscience,* 34: 16065-16075, 2014.

Murray J.D., Bernacchia A., **Freedman D.J.**, Romo R., Wallis J.D., Cai X., Padoa-Schioppa C., Pasternak T., Seo, H., Lee D., and Wang X.J. A Hierarchy of Intrinsic Timescales Across Primate Cortex. *Nature Neuroscience,* 17: 1661-1663, 2014.

Ibos G. and **Freedman D.J.** Dynamic integration of task-relevant visual features in posterior parietal cortex. *Neuron,* 83: 1468-1480, 2014.

Swaminathan S.K.*, Masse N.Y.*, and **Freedman D.J.** A comparison of lateral and medial intraparietal areas during a visual categorization task. *Journal of Neuroscience*, 33: 13157-13170, 2013.

Rishel C.A., Huang G., and **Freedman D.J.** Independent category and spatial encoding in parietal cortex. *Neuron,* 77: 969-979, 2013.

Fitzgerald J.K., **Freedman D.J.**, Fanini A., Bennur S., Gold J.I., and Assad J.A. Biased associative representations in parietal cortex. *Neuron*, 77: 180-191, 2013.

Asaad W.F., Santhanam N., McClellan S.M., and **Freedman D.J.** High-performance execution of psychophysical tasks with complex visual stimuli in MATLAB. *Journal of Neurophysiology,* 109: 249-260, 2013.

Swaminathan S.K. and **Freedman D.J.** Preferential encoding of visual categories in parietal cortex compared to prefrontal cortex. *Nature Neuroscience*, 15: 315-320, 2012.

Fitzgerald J.K, **Freedman D.J.**, and Assad J.A. Generalized Associative Representations in Parietal Cortex. *Nature Neuroscience,*14: 1075-1079, 2011.

Freedman D.J. and Assad J.A. Distinct Encoding of Spatial and Non-Spatial Factors in Parietal Cortex. *Journal of Neuroscience,* 29: 5671-5680, 2009.

Meyers E.M., **Freedman D.J.**, Krieman G., Miller E.K , Poggio T. Dynamic population coding of category information in inferior temporal and prefrontal cortex. *Journal of Neurophysiology,* 100: 1407-1419, 2008.

Freedman D.J. and Assad J.A. Experience-Dependent Representation of Visual Categories in Parietal Cortex. *Nature,* 443: 85-88, 2006.

Freedman D.J., Riesenhuber M., Poggio T., and Miller E.K. Experience-Dependent Sharpening of Visual Shape Selectivity in Inferior Temporal Cortex. *Cerebral Cortex,* 16: 1631-1644, 2006.

Freedman D.J., Riesenhuber M., Poggio T., and Miller E.K. A Comparison of Primate Prefrontal and Inferior Temporal Cortices During Visual Categorization. *Journal of Neuroscience,* 23: 5235-5246, 2003.

Nieder A., **Freedman D.J.**, and Miller E.K. Representation of the Quantity of Visual Items in the Primate Prefrontal Cortex. *Science*, 297: 1708-1711, 2002.

Freedman D.J., Riesenhuber M., Poggio T., and Miller E.K. Visual Categorization and the Primate Prefrontal Cortex: Neurophysiology and Behavior. *Journal of Neurophysiology,* 88: 914-928, 2002.

Freedman D.J., Riesenhuber M., Poggio T., Miller E.K. Categorical Representation of Visual Stimuli in the Primate Prefrontal Cortex. *Science*, 291: 312-316, 2001.

Patents

Masse N.Y., Grant G.D., and **Freedman D.J.** Training artificial neural networks using context-dependent gating with weight stabilization. US Patent 12,579,440. 2026/3/17

Masse N.Y., Grant G.D., and **Freedman D.J.** Training Artificial Neural Networks Using Context-Dependent Gating with Weight Stabilization. US Patent 11,205,097. 2021/12/21.

Reviews and Book Chapters

Rosen M.C. and **Freedman D.J.** How distributed is the brain-wide network that is recruited for cognition? *Nature Reviews Neuroscience,* 2026 Feb;27(2):138-150. doi: 10.1038/s41583-025-00992-5.

Cooley R.A. and **Freedman D.J.** Now you recall it, now you don't: Working memory performance fluctuates with a theta rhythm. *Neuron*, 114(1): P6-8, 2026.

Li S., Rosen M.C., Chang S., David S., and **Freedman D.J.** Alterations of neural activity in the prefrontal cortex associated with deficits in working memory performance. *Frontiers in Behavioral Neuroscience*, 17:1213435, 2023.

Mansouri F.A., **Freedman D.J.**, and Buckley M.J. Emergence of abstract rules in the primate brain. *Nature Reviews Neuroscience*, 21: 595-610, 2020.

Masse N.Y., Rosen M.C., and **Freedman D.J.** Reevaluating the Role of Persistent Neural Activity in Short Term Memory. *Trends in Cognitive Sciences,* 24: 242-258, 2020.

Freedman D.J. and Ibos G. An integrative framework for sensory, motor, and cognitive functions of posterior parietal cortex. *Neuron,* 97: 1219-1234, 2018.

Freedman D.J. and Pesaran B. Where are perceptual decisions made in the brain? *Trends in Neurosciences*, 39: 642-644, 2016.

Assad J.A. and **Freedman D.J.** Neuronal Mechanisms of Visual Categorization: An Abstract View on Decision Making. *Annual Review of Neuroscience*, 39:129-147, 2016.

Fitzgerald J.K, Swaminathan S.K., and **Freedman D.J.** Visual categorization and the Parietal Cortex. *Frontiers in Integrative Neuroscience,* 6: 18, 2012.

Freedman D.J. and Assad J.A. A Proposed Common Neural Mechanisms for Categorization and Perceptual Decisions. *Nature Neuroscience,* 14:143-146, 2011.

Freedman D.J. Visual Categorization: Physiological Mechanisms. In: *The Sage Encyclopedia of Perception*. Goldstein B.E. (ed.). Sage Publications, 2010.

Freedman D.J. Neuronal Mechanisms of Visual Categorization and Category Learning. In: *The Neuroscience of Rule-Guided Behavior*. Wallis J.D. and Bunge S. (eds.). Oxford University Press, pp 391-418, 2007.

Miller E.K., Nieder A., **Freedman D.J.**, and Wallis J.D. Neural Correlates of Categories and Concepts. *Current Opinion in Neurobiology,* 13:2:198-203, 2003.

Miller E.K., **Freedman D.J.**, and Wallis J.D. The Prefrontal Cortex: Categories, Concepts, and Cognition. *Philosophical Transactions of the Royal Society London: Biological Sciences*, 357: 1123-1136, 2002.

Technical reports, commentary, and conference proceedings

Freedman D.J. Familiarity Breeds Plasticity: Distinct Effects of Experience on Putative Excitatory and Inhibitory Neurons in Inferior Temporal Cortex. *Neuron,* 74: 8-11, 2012.

Freedman D.J. and Miller E.K. Neural Mechanisms of Visual Categorization: Insights from Neurophysiology. *Neuroscience and Biobehavioral Reviews,* 32: 311-329, 2008.

Freedman D.J. Posterior Parietal Cortex: Space…and Beyond. *Neuron*, 42: 881-883, 2004.

Knoblich U., **Freedman D.J.**, and Riesenhuber M. Categorization in IT and PFC: Model and Experiments. *AI Memo,* 2002-007, Artificial Intelligence Lab, Massachusetts Institute of Technology, 2002.

Invited Talks and Symposia

2026
National Eye Institute Intramural Research Seminar, NIH, Bethesda, MD. March.
McGill University, Department of Physiology Seminar Series. Montreal, QC. May.
Vanderbilt Department of Psychology Seminar. Nashville, TN. May.

2025
8th workshop on Natural Environments, Tasks and Intelligence. University of Texas, Austin. April.
Center for Neural Systems Restoration Seminar, Houston Methodist Research Institute. Houston, TX. May.
National Institute of Theoretical and Mathematical Biology. Seminar. Chicago, IL. May.
Gordon Research Conference on Eye Movements. Invited speaker. South Hadley, MA. July.
Northwestern U. Feinberg School of Medicine Dept of Pharmacology. Annual Retreat Keynote. September

Institute For Mind and Biology 25th Anniversary Symposium. The University of Chicago. October.
University of Pittsburgh, Neuroscience Department Seminar. Sept.

2024
Grand Rounds, Department of Psychiatry, University of Chicago. February.
Computational and Systems Neuroscience (Cosyne) Conference Workshop. Cascais, Portugal. March.
Pucón Learning and AI Summit. Pucón, Chile. April.
Gordon Conference on the The Neurobiology of Cognition. West Dover, VT. July.

2023
Institute of Neuroscience (ION) Shanghai. Neuroscience Seminar Series. Spring
Simian Collective Conference. September.
MIT, Brain and Cognitive Sciences Department Seminar. October
University of Rochester, David Knill Memorial Seminar. December

2022
American University in Beirut Lebanon. Biomedical Engineering Seminar Series. February.
University of California Santa Barbara. AI and Neuroscience Summit. February.
COSYNE Workshop Talk. Cascais, Portugal. March.
Office of Naval Research, Computational Neuroscience Workshop and Program Review. June.
Boston University Neuroscience Institute Seminar. September.
Princeton University Neuroscience Seminar Series. October.
Cold Spring Harbor Lab Seminar Series. October.
State University of New York College of Optometry, Vision Seminar. New York, NY. December.

2021
Office of Naval Research, Computational Neuroscience Workshop and Program Review. June.

2020
COSYNE Workshops Talk. Breckenridge, CO. March.
UNAM Institute for Neurobiology. Neuroscience Seminar. Querétaro, Mexico. March. (cancelled/COVID)
State University of New York College of Optometry Vision Seminar. New York, NY. May. (cancelled/COVID)
Harvard University Dept. of Psychology, Caramazza Lab Seminar. May.

2019
DOD Office of Basic Research, Vannevar Bush Fellows Annual Meeting. Alexandria, VA. April.
Office of Naval Research, Computational Neuroscience Workshop and Program Review. June.
International Neuropsychological Symposium, Invited talk. Vietri Sul Mare, Italy. June.
Oxford University, Cognitive Neuroscience and Experimental Psychology Seminar, December.

2018
University of California Irvine. Neuroscience Seminar. Irvine, CA. February.
Johns Hopkins University. Mind/Brain Institute Bodian Seminar. Baltimore, MD. April.
Montana State University. Department of Cell Biology and Neuroscience seminar. Bozeman, MT. Sept.

2017
Winter Conference in Neural Plasticity Symposium on Working Memory. St. George, Grenada. February.
University of Wisconsin Madison, Department of Neuroscience Seminar. Madison, WI. March.
Yale University School of Medicine, Department of Neuroscience Seminar Series. New Haven, CT. June.
Memory Disorders Research Society Meeting, Chicago, IL. September.

2016
University of Texas at Austin. Center for Perceptual Systems seminar. Austin, TX. March.
Vision Sciences Society, Symposium on Parietal Cortex, Chair and Speaker. St. Petersburg, FL. May.
University of Chicago, Department of Psychology Seminar Series. Chicago, IL. May.
Gordon Research Conference, Neurobiology of Cognition. Sunday River, ME. July.

2015
UC San Diego, Psychology Department CNS Seminar Series speaker. San Diego, CA. January.
Salk Institute for Biological Studies Seminar. San Diego, CA. February.
Vision Sciences Society, Symposium on Visual Learning, invited speaker. St. Petersburg, FL. May.
Pint of Science Festival, Invited Speaker. Chicago, IL. May.
McKnight Conference on Neuroscience, invited speaker. Aspen, CO. June.
Society for Neuroscience Annual Meeting Minisymposium, Chair and Speaker. Chicago, IL. October.
Harvard University, Department of Psychology seminar. Cambridge, MA. October.
The University of Chicago, Booth School of Business Seminar. Chicago, IL. October.
New York University, Sloan Schwartz seminar. New York, NY. December.

2014
Chicago Skeptics Society, Chicago, IL. March.
University of Chicago, Alpha Delta Phi Literary Society. May.
DePaul University, Neuroscience Day Symposium invited speaker. May.
NSF/NIH Collaborative Research in Computational Neuroscience meeting. Tempe, AZ. October.

2013
Caltech, Computation and Neural Systems Seminar, Pasadena, CA. January.
Catholic University of Leuven, Lab for Neuro and Psychophysiology, Leuven, Belgium. February.
Université Paris Descartes, Institut Neurosciences Cognition Seminar, Paris, France. March
Michigan State University, Dept of Psychology, Cognitive Forum. Lansing, MI. April
University of Iowa, Behavioral and Cognitive Neuroscience Seminar, Iowa City, IA. May
University of Pennsylvania, Vision Colloquium Seminar. Philadelphia, PA. May
University of Chicago, Undergraduate NEURO Seminar. Chicago, IL. June

2012
Brain Research Foundation/Chicago Neuroscience Day, Chicago, IL. January.
Stanford University, Neuro-innovation & Translational Neuroscience Institute Seminar, Palo Alto, CA. Feb.
Computational and Systems Neuroscience (COSYNE) Meeting Workshop Chair, Salt Lake City, UT. Feb.
Perceptual Expertise Network Meeting, Invited Seminar, Chicago, IL. April.
Université Paris Descartes, Symposium on Decision Making, Invited speaker. Paris, France. June.
Columbia University, Department of Neuroscience Seminar, New York, NY. June.
Evolution and Function of Consciousness Symposium, University du Quebec a Montreal, Canada. July.
Carnegie Mellon, Center for the Neural Basis of Cognition, Pittsburgh, PA. December.

2011
Boston University, CELEST Science of Learning Seminar. Boston, MA. February.
University of Oregon, Department of Psychology Seminar. Eugene, OR. February.
Society for Neuroscience Chicago Chapter, Systems Neuroscience Symposium. Chicago, IL. March.
Champalimaud Foundation Neuroscience Program, Invited Lectures. Lisbon, Portugal. May.
International Neuropsychological Symposium, Mondsee, Austria. June.
Summer Institute of Cognitive Neuroscience, U California Santa Barbara, June. (declined)
University of Illinois at Chicago, Department of Psychology Seminar. Chicago, IL. August.
Collaborative Research in Computational Neuroscience, Princeton University, October.
Society for Neuroscience, Chair of Category Representations Nanosymposium. Washington, DC, Nov.

2010
Champalimaud Foundation Neuroscience Program, Invited Lectures. Lisbon, Portugal. April.
University of California Berkeley, Department of Psychology Seminar, Berkeley, CA. May.
AREADNE Conference, Santorini Island, Greece. June.
Gordon Research Conference, Neurobiology of Cognition, Waterville Valley, NH. August.
U of Western Ontario, Dept. of Physiology and Pharmacology Seminar, London, Ontario. September.
McGill University, Montreal Neurological Institute, Killam Lecture, Montreal, Quebec. October.
Georgetown University. Department of Neuroscience Seminar. Washington, DC. November.

2009
Computational and Systems Neuroscience Meeting Workshop, Salt Lake City, UT. March.
Johns Hopkins University, Zanvyl Krieger Mind/Brain Institute Bodian Seminar, March.
University of Minnesota, Department of Neuroscience Seminar, Minneapolis, MN. September.
Society for Neuroscience, Minisymposium on Non-Spatial Functions of Parietal Cortex, October.

2008
National Institute of Mental Health, Bethesda, MD. February.
The University of Chicago, Biopsychology Seminar Series, Chicago, IL. April.
Society for Neuroscience, Chair of Decision and Response Selection Session. Washington, DC, Nov.
Catholic University of Leuven, Symposium on Parietal Cortex, Leuven, Belgium. December.

2007
Washington University, Department of Anatomy and Neurobiology, St. Louis, MO. January.
University of Chicago, Department of Neurobiology, Chicago, IL. Februrary.
Yale School of Medicine, Department of Neurobiology. New Haven, CT. February.
OIST Workshop on Cognitive Neurobiology, Okinawa, Japan. March.
Vanderbilt University, Institute of Imaging Science, Nashville, TN. April.
Brigham and Women's Hospital, Visual Attention Lab, Cambridge, MA. November.

2006
Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Boston, MA, April.
Experimental Psychology Society, Symposium on Categorical Perception. Plymouth, UK. July.
University of Glasgow, Department of Psychology. Glasgow, Scotland, UK. October.

2005
MIT, NIH-Conte Center for Detection and Recognition of Objects in Visual Cortex, September.
Harvard Medical School, Department of Neurobiology, Boston, MA, December.

2004
Harvard University, Department of Psychology, Cambridge, MA. February.
Johns Hopkins, Zanvyl Krieger Mind/Brain Institute, Baltimore, MD. March.
Johns Hopkins, Department of Psychological and Brain Sciences, Baltimore, MD. May.
MIT, NIH-Conte Center for Detection and Recognition of Objects in Visual Cortex, September.

2003
Cognitive Neuroscience of Category Learning Symposium. New York, NY. September.

2002
Harvard Medical School, Department of Neurobiology, Boston, MA. May.
National Institute of Mental Health, Bethesda, MD. May.

2001
MIT, Center for Biological and Computational Learning, Object Recognition Workshop. January.
Brown University Brain Science Program, March.
MIT, The Picower Center for Learning and Memory Retreat, Kennebunkport, ME. June.
RIKEN Brain Sciences Institute, Tokyo, Japan, October.

2000
MIT, The Picower Center for Learning and Memory Retreat, Ogunquit, ME. June.

Supervision of Students and Postdoctoral Researchers

Ph.D. Theses Supervised

2008-2012 Sruthi Swaminathan, U of Chicago Ph.D. student in neurobiology
Currently: Research Specialist, Unilever Corporation

2008-2012 Christopher Rishel, U of Chicago, M.D./Ph.D. student in computational neuroscience
Currently: Medical Resident in Anesthesiology, Stanford University

2009-2014 Jillian McKee, U of Chicago, M.D./Ph.D. student in computational neuroscience
Currently: Medical Resident in Neurology, U of Pennsylvania
2010-2015 Arup Sarma, U of Chicago, M.D./Ph.D. student in computational neuroscience
Currently: Medical student at U of Chicago Pritzker School of Medicine
2014-2019 Krithika Mohan, Ph.D. student in neurobiology
Currently: Postdoctoral Fellow, Caltech
2015-2020 William Johnston, Ph.D. student in computational neuroscience
Currently: Postdoctoral Fellow, Columbia University with PI Stefano Fusi.
2017-2023 Barbara Peysakhovich, U of Chicago Ph.D. student in Computational Neuroscience
Currently: Postdoctoral Fellow, Harvard Medical School.
2019- Matthew Rosen, Ph.D. student in Computational Neuroscience
2019-2024 Oliver Zhu, M.D./Ph.D. student in Computational Neuroscience
2021-2023 Ali Alamri, Ph.D. Student in Computational Neuroscience
2022- Rory Cooley, Ph.D. Student in Computational Neuroscience
2023- Maura Davis, M.D./Ph.D. Student in Computational Neuroscience

Postdoctoral Researchers Supervised

2009-2017 Guilhem Ibos, U of Chicago, Postdoctoral Scholar
Currently: CNRS Faculty in Neuroscience, U of Timone, Marseille, France
2011-2019 Nicolas Masse, U of Chicago Postdoctoral Scholar
Currently: Machine Learning Scientist at Meta Control Labs
2016-2020 Yang Zhou, U of Chicago Postdoctoral Scholar
Currently: Principal Investigator (Faculty), IDG/McGovern Institute at Peking University. Beijing, China
2017-2022 Pantea Moghimi, U of Chicago Postdoctoral Scholar
2018-2024 Kenneth Latimer, U of Chicago Postdoctoral Scholar
2020-2025 Matthew Tilley, U of Chicago Postdoctoral Scholar
2020- Vinay Shirhatti, U of Chicago Postdoctoral Scholar
2021-2025 Sihai Li, U of Chicago Postdoctoral Scholar
2024- Shira Lupkin, U of Chicago Postdoctoral Scholar

Service on Ph.D. Thesis Committees

Adam Dickey, The University of Chicago, Graduate Program in Computational Neuroscience, 2009-11
Yang Sun, The University of Chicago, Graduate Program in Integrative Neuroscience, 2010-11
Luke Woloszyn, Brown University, Graduate Program in Neuroscience, 2011-2012
Tim Brawn, The University of Chicago, Graduate Program in Psychology, 2012-2014
Alex Rajan, The University of Chicago, Graduate Program in Computational Neuroscience, 2012-
Jah Chaisangmongkon, Yale University Medical School, Program in Neuroscience, 2012-2015
Justin Lieber, The University of Chicago, Graduate Program in Computational Neuroscience 2013-
Doreen Rhee, The University of Chicago, Graduate Program in Neurobiology, 2013-
Joseph Lombardo, The University of Chicago, Graduate Program in Computational Neuroscience, 2015-
Thomas Luo, The University of Chicago, Graduate Program in Neurobiology, 2014-
Sofija Canavan, The University of Chicago, Graduate Program in Computational Neuroscience, 2016-
Julian Day-Cooney, The University of Chicago, Graduate Program in Computational Neuroscience, 2017-
Yuqing Zhu, The University of Chicago, Graduate Program in Computational Neuroscience, 2018-
Yuke Yan, The University of Chicago, Graduate Program in Computational Neuroscience, 2019-2022
Heather Macomber, The University of Chicago, Graduate Program in Neurobiology. 2019-
Lily Kramer, The University of Chicago, Graduate Program in Computational Neuroscience, 2023-
Grace DiRisio, The University of Chicago, Graduate Program in Neurobiology, 2023-