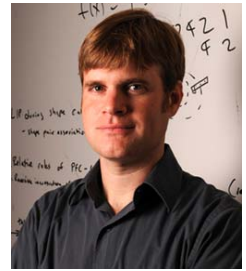


## David J. Freedman, Ph.D.

Assistant Professor, Department of Neurobiology at The University of Chicago  
Member, Graduate Programs in Neurobiology and Computational Neuroscience, and  
Center for Integrative Neuroscience and Neuroengineering Research



### Contact Information

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### 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

2008- Assistant Professor, Department of Neurobiology, The University of Chicago

### Past Positions

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

### Honors, Awards and Fellowships

2010 Sloan Research Fellowship  
2010 National Science Foundation CAREER Award  
2008 Brain Research Foundation Fay/Frank Seed Grant Award  
2006 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  
1999 Lucille P. Markey Charitable Trust Fellowship Award  
1997 Cum Laude, University of Rochester

### Editorships and Editorial Boards

2008- Reviewing Editor, Frontiers in Systems Neuroscience  
2010- Associate Editor, Frontiers in Perception Science

### Teaching

2009- U of Chicago, BIOS 24205, Systems Neuroscience (undergraduate), primary instructor  
2009- U of Chicago, Psychiatry Residency Program, several lectures  
2009- U of Chicago, CPNS 33100 Computational Neuroscience 2 (graduate), co-instructor  
1998-2000 Teaching Assistant: Introduction to Psychology (prof. Steven Pinker), Brain and Behavior Laboratory (prof. Earl Miller), Introduction to Neuroanatomy (prof. Mandar Jog), MIT.  
1995-1997 Teaching Assistant: Sensation and Perception (prof. David Williams), Mammalian Anatomy and Physiology (prof. Alan Dietsche), University of Rochester.

### Ad Hoc Reviewer

Animal Cognition, Cerebral Cortex, Cognitive Affective and Behavioral Neuroscience, Current Biology, European Journal of Neuroscience, Experimental Brain Research, Faculty of 1000, Frontiers in Systems Neuroscience, Journal of Neurophysiology, Journal of Neuroscience, Learning and Memory, National

Science Foundation, Nature Neuroscience, Neural Computation, Neuron, Science, Psychological Science, Vision Research, Wellcome Trust

### Academic Committees and Service

2009- U of Chicago, Neuroscience Website Committee, Chair  
2009- U of Chicago, Animal Resources Advisory Committee  
2009- U of Chicago, Executive Committee, Committee on Neurobiology  
2009- U of Chicago, Executive Committee, Committee on Computational Neuroscience  
2008-2009 U of Chicago, Neurobiology and Computational Neuroscience Admissions Committee  
2008- U of Chicago, Neurobiology Faculty Chalk Seminar Series, organizer  
2008-2010 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, Chairman and coordinator, Brain Lunch seminar series

### Professional Memberships

Society for Neuroscience

### Peer-Reviewed Publications

Fitzgerald J.K, Assad J.A., and Freedman D.J. Flexible Associative Visual Representations in Parietal Cortex. *Manuscript in preparation.*

Freedman D.J., Riesenhuber M., Poggio T., and Miller E.K. Task-Dependence of Visual Representations in Prefrontal and Inferior Temporal Cortices. *Manuscript in preparation.*

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. (ePub, 12/2005)

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.

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.

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.

### Review Articles and Book Chapters

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

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. 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.

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

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. In: *The Physiology of Cognitive Processes*. Parker A., Derrington A., Blakemore C. (eds.). Oxford University Press, pp 252-273, 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.

## **Invited Talks and Symposia**

2011

Boston University, CELEST Science of Learning Seminar. Boston, MA. TBD  
International Neuropsychological Symposium, Mondsee, Austria. June.

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.  
McGill University, Montreal Neurological Institute, Killam Lecture, Montreal, Quebec. October.

2009

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

2008

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

2007

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

2006

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

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

MIT, NIH-Conte Center for Detection and Recognition of Objects in Visual Cortex, September.

Johns Hopkins, Department of Psychological and Brain Sciences, Baltimore, MD. May.

Johns Hopkins, Zanvyl Krieger Mind/Brain Institute, Baltimore, MD. March.

Harvard University, Department of Psychology, Cambridge, MA. February.

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, The Picower Center for Learning and Memory Retreat, Kennebunkport, ME. June.

Brown University Brain Science Program, March.

RIKEN Brain Sciences Institute, Tokyo, Japan, October.

MIT, Center for Biological and Computational Learning, Object Recognition Workshop. January.

2000

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

### **Conference Proceedings**

Swaminathan S.K., McClellan S., Rishel C., and Freedman D.J. A Comparison of Prefrontal and Parietal Cortices During Visual Motion Categorization. Society for Neuroscience Abstracts, 2009.

Fitzgerald J.K., Assad J.A. and Freedman D.J. Associative Representations in Lateral Intraparietal (LIP) Area. Computational and Systems Neuroscience, 2009.

Fitzgerald J.K., Assad J.A. and Freedman D.J. Associative Representations in Lateral Intraparietal (LIP) Area. Society for Neuroscience Abstracts, 2008.

Fitzgerald J.K., Assad J.A. and Freedman D.J. Learning-Dependent Shape Representations in Lateral Intraparietal (LIP) Area. Society for Neuroscience Abstracts, 2007.

Freedman D.J and Assad J.A. Non-Spatial Encoding of Behaviorally Relevant Information in Parietal Cortex During Visual Motion Categorization. Society for Neuroscience Abstracts, 2007.

Freedman D.J and Assad J.A. Experience-Dependent Representation of Visual Categories in Parietal Cortex Area LIP. Society for Neuroscience Abstracts, 2006.

Freedman D.J. and Assad J.A. Categorical Representation of Visual Motion Direction in Primate Posterior Parietal Cortex. Vision Sciences Society Abstracts, 2006.

Freedman D.J. and Assad J.A. Categorical Representation of Visual Motion Direction in Primate Posterior Parietal Cortex. Society for Neuroscience Abstracts, 2005.

Freedman D.J., Riesenhuber M., Poggio T., and Miller E.K. Shape-Tuning in Primate Inferior Temporal Cortex is Enhanced by Experience. Society for Neuroscience Abstracts, 2004.

Freedman D.J., Riesenhuber M., Machon M., Poggio T., and Miller E.K. Experience-Dependent 2D Orientation Tuning in Primate Inferior Temporal Cortex. Society for Neuroscience Abstracts, 2003.

Freedman D.J., Riesenhuber M., Poggio T., and Miller E.K. Stimulus-Specificity of Category-Related Neurons in Primate Prefrontal and Inferior Temporal Cortices. Society for Neuroscience Abstracts, 2002.

Nieder A., Freedman D.J., and Miller E.K. Neurons in Primate Prefrontal Cortex Reflect Numerical Information in Visual Displays. Society for Neuroscience Abstracts, 2002.

Knoblich U., Freedman D.J., Poggio T., and Miller E.K., Riesenhuber M. Category-Tuning vs. Stimulus-Tuning in Inferotemporal and Prefrontal Cortex: Insights From Modeling. Society for Neuroscience Abstracts, 2002.

Freedman D.J., Riesenhuber M., Poggio T., and Miller E.K. Comparison of Primate Prefrontal and Inferior Temporal Lobe Cortical Activity During Visual Categorization. Society for Neuroscience Abstracts, 2001.

Freedman D.J., Riesenhuber M., Poggio T., and Miller E.K. Neuronal and Psychophysical Correlates of Categorical Perception in the Macaque Monkey. Cognitive Neuroscience Society Abstracts, 2001.

Freedman D.J., Riesenhuber M., Poggio T., and Miller E.K. Neuronal Correlates of Categorical Learning in the Primate Prefrontal Cortex. Society for Neuroscience Abstracts 2000, 26:975.

Freedman D.J., Riesenhuber M., Shelton C., Poggio T., and Miller E.K. Categorical Representation of Objects in the Primate Prefrontal Cortex. Cognitive Neuroscience Society Abstracts 2000.

Freedman D.J., Riesenhuber M., Shelton C., Poggio T., and Miller E.K. Categorical Representation of Visual Stimuli in the Monkey Prefrontal Cortex. Society for Neuroscience Abstracts 1999, 25:884.

Freedman D., Barbur J.L., and Lennie P. Pupil Response Latencies and Reaction Times to Chromatic and Achromatic Stimuli. Association for Research in Vision and Ophthalmology Abstracts, 1997.

### **Supervision of Students and Postdoctoral Researchers**

2001-2003	Michelle Machon, MIT undergraduate
2006-2008	Jamie Fitzgerald, Harvard Ph.D. graduate student in neurobiology
2008-	Sruthi Swaminathan, U of Chicago Ph.D. graduate student in neurobiology
2008-	Christopher Rishel, U of Chicago, M.D./Ph.D. student in computational neuroscience
2008	Richard Williams, of Chicago rotation graduate student in computational neuroscience
2008	Jared Clemens, U of Pittsburgh, summer student
2008-	Steve McClellan, Reed College, summer student
2008	Ryan Walters, U of Chicago, rotation graduate student in neurobiology
2008	Etienne Manderscheid, U of Chicago, rotation student in computational neuroscience
2009	Yelena Grinberg, U of Chicago, rotation student in neurobiology
2009-	Guilhem Ibos, U of Chicago, postdoctoral scholar
2009-	Jillian McKee, U of Chicago, Ph.D. student in computational neuroscience
2009	Arup Sarma, U of Chicago, rotation student in computational neuroscience
2009-	Patrick Stinson, U of Chicago, undergraduate research assistant
2009-	Gang Huang, U of Chicago, undergraduate research assistant