

# Sean Matthew Polyn, Ph.D.

## Curriculum Vitae

### Address

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### Biographical Information

Born: May 30<sup>th</sup>, 1977; Queens, NY  
Citizenship: USA Married to Joanna L. Polyn.  
Children: Sophia Hazel, August 23, 2005  
Daphne Wren, January 15, 2009

### Education

- 1999, B.A. (Echols Interdisciplinary), University of Virginia.
- 2005, Ph.D. (Psychology and Neuroscience), Princeton University; (Ph.D. Thesis: Neuroimaging, behavioral, and computational investigations of memory targeting).
- 2005 - 2009, Postdoctoral Fellow, University of Pennsylvania (Psychology).  
Individual National Research Service Award (N.I.H. Grant MH078513, Sponsor: M. J. Kahana)

### Professional

- 2009 - present, Assistant Professor, Department of Psychology, Vanderbilt University.
- 2005 - 2009, Postdoctoral researcher, Computational Memory Laboratory, University of Pennsylvania, Michael J. Kahana, director
- 2000 - 2005, Graduate Student, Neuroscience of Cognitive Control Laboratory, Princeton University, Jonathan D. Cohen and Kenneth A. Norman, co-advisors
- 1997 - 1999, Research and Teaching Assistant, Laboratory of Systems Neuroscience, Department of Neurological Surgery, University of Virginia, William B Levy, director

### Honors, Awards, Professional Activities

- Junior Faculty Teaching Fellowship, 2010, *Center for Teaching*, Vanderbilt University.
- Postdoctoral National Research Service Award (NIMH), 2006-2009
- Predoctoral National Research Service Award (NIMH), 2003-2005
- Ad Hoc Reviewer: Brain Research; Human Brain Mapping; Journal of Experimental Psychology: Learning, Memory, and Cognition; Memory & Cognition; Psychological Review; Psychonomic Bulletin & Review; Science.
- Professional Society Memberships: Memory Disorders Research Society, Psychonomic Society, Society for Mathematical Psychology, Society for Neuroscience.
- Invited talks: Center for Functional Neuroimaging, University of Pennsylvania School of Medicine, Feb. 2006; Episodic Memory Symposium, Philadelphia, PA, March 2005; Episodic Memory Symposium, New Orleans, LA, Nov. 2003; Pattern classification minisymposium at Vision Science Society conference, Sarasota, FL, May, 2007.
- Departmental Teaching Prize – Princeton University Psychology Department, Academic year 2003-04
- National Science Foundation Graduate Research Fellowship, 2000-2003
- Bachelor of Arts with Distinction, January 1999
- Echols Scholar, University of Virginia, 1995-1998
- Dean's List, University of Virginia, Fall 1995-Spring 1998

## Articles

1. Polyn, S. M., Erlichman, G., & Kahana, M. J. (*in press*) Semantic cuing and the scale-invariance of recency and contiguity. *Journal of Experimental Psychology: Learning, Memory & Cognition*.
2. Lohnas, L. J., Polyn, S. M., & Kahana, M. J. (*in press*) Contextual variability in free recall. *Journal of Memory and Language*.
3. Polyn, S. M., Norman, K. A., & Kahana, M. J. (2009) Task context and organization in free recall. *Neuropsychologia*, 47 (11), 2158-2163.
4. Polyn, S. M., Norman, K. A., & Kahana, M. J. (2009) A context maintenance and retrieval model of organizational processes in free recall. *Psychological Review*, 116 (1), 129-156.
5. Kahana, M. J., Howard, M. W., & Polyn, S. M. Associative Processes in Episodic Memory. In H. L. Roediger, III, editor, *Cognitive psychology of memory. Vol. 2 of Learning and memory: A comprehensive reference, 4 vols.* (J. Byrne, Editor). Elsevier, Oxford, 2008.
6. Norman, K. A., Detre, G. J., and Polyn, S. M. Computational models of episodic memory. In R. Sun, editor, *The Cambridge Handbook of Computational Psychology*. Cambridge University Press, Cambridge, 2008.
7. Polyn, S. M. & Kahana, M. J. (2008) Memory search and the neural representation of context. *Trends in Cognitive Science*, 12 (1), 24-30.

8. Norman, K. A., Polyn, S. M., Detre, G. J., and Haxby, J. V. (2006) Beyond mind reading: Multi-voxel pattern analysis of fMRI data. *Trends in Cognitive Science*, 10 (9), 424-430.
9. Norman, K. A., Newman, E., Detre, G., and Polyn, S. M. (2006) How inhibitory oscillations can train neural networks and punish competitors. *Neural Computation*, 18, 1577-1610.
10. Polyn, S. M., Natu, V. S., Cohen, J. D., and Norman, K. A. (2005) Category-specific cortical activity precedes retrieval during memory search. *Science*, 310, 1963-1966.
11. Polyn S., Levy W.B. (2001) Dynamic control of inhibition improves performance of a hippocampal model. *Neurocomputing*, 38-40, 823-829.
12. Polyn S., Wu X.B., Levy W.B. (2000) Entorhinal / dentate excitation of CA3: A critical variable in hippocampal models. *Neurocomputing*, 32-33, 493-499.

### **Conference Spoken Presentations**

1. Polyn SM (May, 2007) Tracking category-specific cortical representations during memory search. Minisymposium at Vision Science Society conference, Sarasota, FL.
2. Polyn SM, Morton NW, Kogen DK, Norman KA, Kahana MJ (Nov., 2006) Task effects on memory accessibility in free recall. Psychonomic Society annual meeting, Houston, TX.
3. Polyn SM, Norman, KA, and Kahana MJ (July, 2006) Context and episode in a model of human memory. Society for Mathematical Psychology meeting, Vancouver, BC.

### **Conference Poster Presentations**

1. Polyn SM, Morton NW, Kogen D, Norman KA, and Kahana MJ (May., 2007) Task context and memory accessibility in free recall. Cognitive Neuroscience conference, New York, NY.
2. Polyn SM, Norman KA, and Kahana MJ (Nov., 2006) Tracking the stimulus representation in an fMRI study of free recall. Society for Neuroscience conference, Atlanta, GA.
3. Polyn SM, Detre G, Takerkart S, Natu V, Benharrosh M, Singer B, Cohen JD, Haxby J, Norman KA (June, 2005) A Matlab-based toolbox to facilitate multi-voxel pattern classification of fMRI data. Annual Meeting of the Organization of Human Brain Mapping, Toronto, Canada.
4. Lenartowicz A, Detre G, Polyn S, Chein J, Yeung N, Nystrom L, Norman KA, Cohen JD (2005) Characterization of brain states during task-switching using a neural network classifier. Cognitive Neuroscience Society conference, New York, NY.

5. Norman KA, Newman EL, Detre GJ, Polyn SM (2004). How inhibitory oscillations can train neural networks and punish competitors. Computational and Systems Neuroscience conference, Cold Spring Harbor, NY.
6. Norman KA, Newman EL, Detre GJ, Polyn SM (2004). How theta oscillations can train neural networks and punish competitors. Cognitive Neuroscience conference, San Francisco, CA.
7. Polyn SM, Cohen JD, Norman KA (2004) Detecting distributed patterns in an fMRI study of free recall. Society for Neuroscience conference, San Diego, CA.
8. Polyn SM, Nystrom LE, Norman KA, Haxby JV, Gobbini MI, & Cohen JD (2004). Using neural network algorithms to investigate distributed patterns of brain activity in fMRI. Human Brain Mapping conference, Budapest, Hungary.
9. Polyn SM, Norman KA, Cohen JD. Modeling prefrontal and medial temporal contributions to episodic memory. (2003, March) Tenth Annual Meeting of the Cognitive Neuroscience Society.
10. Polyn SM, Norman KA, Cohen JD. Connectionist modeling of source memory phenomena. (2002, November) Society for Neuroscience 32<sup>nd</sup> Annual Meeting.
11. Polyn S, Levy WB. Dynamic control of inhibition improves performance of a hippocampal model. (2000, July) Ninth Annual Computational Neuroscience Meeting.
12. Polyn S, Wu XB, Levy WB. Entorhinal / dentate excitation of CA3: A critical variable in hippocampal models. (1999, July) Eighth Annual Computational Neuroscience Meeting.