

March 14, 2019

Michael J. Kahana, Ph.D.

Address

Department of Psychology
University of Pennsylvania
425 S. University Avenue Room 263
Philadelphia, PA 19104
Lab: (215) 746-3500, Office: (215) 746-3501, Fax: (215) 746-6848
e-mail: kahana@psych.upenn.edu
website: <http://memory.psych.upenn.edu>

Personal

Born: May 7, 1969, St. Louis, MO
Citizenship: USA
Married to Jessica A. Wachter, Ph.D.
finance.wharton.upenn.edu/~jwachter/

Children:

Nathan Abraham, April 26, 2006
Joseph Morris, February 29, 2008
Benjamin Aryeh, January 25, 2011
Samuel Tzvi, May 14, 2013
Leah Eta Shari, June 19, 2015

Professional

- 2004 — present, Professor, Department of Psychology, University of Pennsylvania
- 2000 — 2004, Associate Professor, Department of Psychology and Center for Complex Systems, Brandeis University.
- 1994 — 2000, Assistant Professor, Department of Psychology and National Center for Complex Systems, Brandeis University

Education

- 1989 B. A., Case Western Reserve University.
- 1993 Ph.D., University of Toronto (Psychology); (Ph.D. Thesis: *Interactions between item, associative, and serial order information*, B. B. Murdock, chair).
- 1993–1994 Postdoctoral Fellow, Harvard University (Psychology). Individual National Research Service Award (N.I.H. Grant NS09559, Sponsor: W. K. Estes) *A temporal coding model of human memory*)

Honors and Awards

- Howard Crosby Warren Medal, *Society of Experimental Psychologists*, 2018.
- Mid-career Award, *Psychonomic Society*, 2018
- Troland Award, *National Academy of Sciences*, 2010.
- Fellow, *Society of Experimental Psychologists*, 2008
- Fellow, *American Psychological Society*, 2010
- Merritt-Putnum Distinguished Lecture — American Epilepsy Society, 2017
- Keynote address, *The 6th International Conference on Memory*, 2016
- Plenary address – 40th Annual Meeting of the Society for Mathematical Psychology, Irvine, CA, 2007
- Plenary address – Computational Cognitive Neuroscience Conference, Houston, 2006

Editorial Activities

- Associate Editor: *Psychological Review*, 2015–
- Associate Editor: *Cognitive Psychology*, 2005 – 2009
- Associate Editor: *Memory & Cognition*, 2001 – 2005
- Guest Editor: *NeuroImage* special issue “New Horizons for Neural Oscillations”, 2014
- Consulting Editor: *Journal of Experimental Psychology: General*, 2008 – 2010
- Consulting Editor: *Journal of Mathematical Psychology*, 2012 –
- Consulting Editor: *Psychonomic Bulletin & Review*, 2005 – 2007.
- Consulting Editor: *Memory & Cognition*, 1997 – 2001.

- Consulting Editor: *Journal of Experimental Psychology: Learning, Memory and Cognition*, 1999 – 2001.

Other Professional Activities

- Founder and Organizer of the Context and Episodic Memory Symposium, an annual meeting since 2002
- Director of graduate studies, Psychology Graduate Group, University of Pennsylvania, 2008-2011
- Chair of the 2010 meeting of the *Society of Experimental Psychologists*
- Member, BBBP-4 (Cognition and Perception) study section, *Centers for Scientific Review, National Institutes of Health*, 2003–2007
- Member, Advisory Board, Princeton Neuroscience Institute, 2012
- Organizer – 39th Annual Meeting of the Society for Mathematical Psychology, 2006
- Member, Advisory Panel. Doris Duke Charitable Foundation, 2005
- Member, Advisory Panel. N.I.H. Silvio O. Conte Center for Neuroscience Research: Cognitive and Neural Mechanisms of Conflict and Control (Princeton University), 2003
- N.I.M.H. First Award, 1996
- **Invited Colloquia:** Albert Einstein College of Medicine, Albert-Ludwigs-Universität Freiburg, Boston University, Brandeis University, Brown University, California Institute of Technology, Carnegie Mellon University, Columbia University (Psychology), Columbia University (Neuroscience), Cornell University, Courant Institute (NYU), Dartmouth College, Donders Institute, Nijmegen, Netherlands, Duke University, Harvard University, Hungarian Academy of Sciences, Indiana University, Jerusalem Brain Institute, Johns Hopkins University, Max Planck Institute-Berlin, McGill University, Monell Research Institute, Montreal Neurological Institute, National Institute of Neurological Disorders and Stroke, New York University, Northwestern University, Ohio State University, Princeton University, Rutgers University, Salk Institute, Shriver Center, Stanford University, Swiss Federal Institute of Technology (EPFL), Syracuse University, Thomas Jefferson University, Tufts University, University of California, Davis, University of California, Irvine, U.C.L.A. School of Medicine, U.C.L.A. Psychology, University of California, San Diego, University of California at San Francisco, University of Delaware, University of Massachusetts at Amherst, University of Toronto, Washington University, Williams College, Yale University.

Professional Society Memberships:

- Psychonomic Society
- Society for Neuroscience
- Memory Disorders Research Society
- Society for Cognitive Neuroscience,
- Society for Mathematical Psychology
- Society of Experimental Psychologists

Grant Support

- NIH Grant 4R01 MH55687 *Associative Processes in Episodic Memory*. M. J. Kahana, P.I. May 5, 2016 – January 31, 2021. \$250,000 annual direct costs.
- NSF/CRCNS Grant NSF 1724243 *US-German Research Proposal: Role of place and grid cells and phase precession in human spatial and episodic memory*. J. Jacobs, P.I., M. J. Kahana, Co-P.I. November 1, 2017 – August 31, 2020. \$60,000 annual direct costs.
- NIH Grant 3R01 MH61975 *Electrophysiology of Human Spatial Cognition*. M. J. Kahana, P.I. March 1, 2014 – January 31, 2020. \$263,131 annual direct costs.
- DARPA RAM Cooperative Agreement N66001-14-2-4-032 *Memory Enhancement with Modeling, Electrophysiology, and Stimulation*. M. J. Kahana, P.I. July 16, 2014 – October 31, 2019. \$4,758,025 annual direct costs.
- NIH Grant R21 AG048233 *A model-based approach to understanding memory impairments*. M. J. Kahana, P.I. August 15, 2015 – May 31, 2017. \$150,000 annual direct costs.
- Educational Testing Service Grant *EEG Correlates of Engagement*. M. J. Kahana, P.I. August 15, 2013 – December 31, 2014. \$41,445 annual direct costs.
- NIH Grant 4R01 MH55687 *Associative Processes in Episodic Memory*. M. J. Kahana, P.I. May 1, 2011 – May 4, 2016. \$300,386 annual direct costs.
- NSF grant 1058886 *Retrieved Context Models of Episodic Memory*. M. J. Kahana, P.I. June 1, 2011– May 31, 2014. \$93,600 annual direct costs.
- NIH Grant 2R01 MH61975 *Electrophysiology of Spatial Cognition*. M. J. Kahana, P.I. Sept 26, 2007 – July 31, 2013. \$252,687 annual direct costs.

- NIH Grant 1R21 NS067316 *Intracranial EEG for Neuronal Oscillatory Contingency during Cognitive Tasks*. M. J. Kahana, P.I. September 30, 2009 – August 31, 2012. \$163,228 annual direct costs.
- NIH Grant R90 DA023424 *Integrated Interdisciplinary Training in Computational Neuroscience*. M. J. Kahana, P.I. September 30, 2006 – July 31, 2011. \$296,519 annual direct costs.
- NIH Grant T90 DA022763 *Integrated Interdisciplinary Training in Computational Neuroscience*. M. J. Kahana, P.I. September 30, 2006 – July 31, 2011. \$166,888 annual direct costs.
- NIH Grant 2R01 MH68404 *Short Term Visual Episodic Recognition Memory*. R. Sekuler, P.I., M. J. Kahana, Co-I. June 6 2009 – June 5, 2011.
- Dana Foundation Grant *Intracranial EEG for Theta Rhythm Contingency During Cognitive Tasks*. December, 2007 – February, 2011. \$100,000 annual direct costs.
- NIH/NIMH Grant P50 MH062196. Subproject on Conte Center Grant *Retrieval Dynamics in Item and Source Memory*. October 1, 2005 – August 31, 2011
- NIH Grant 3R01 MH55687 *Associative Processes in Episodic Memory*. M. J. Kahana, P.I. February 1, 2007 – Jan 30, 2011.
- NSF grant SBE 0354378 Subproject 14 on Science of Learning Center Grant *CELEST: A Center for Learning in Education, Science, and Technology*. S. Grossberg P.I. October 1, 2004 – September 30, 2009.
- NIH Grant R01 MH68404 *Short Term Visual Episodic Recognition Memory*, R. Sekuler, P.I., M. J. Kahana, Co-P.I.. April 1, 2004 – March 31, 2009.
- Swartz Foundation Grant 2004/10-04 *Electrophysiology of Human Memory Formation*. M. J. Kahana P.I. November 28, 2003 – November 27, 2004.
- NIH Grant 2R01 MH55687 *Associative Processes in Episodic Memory*. M. J. Kahana, P.I. April 1, 2002 – January 30, 2007.
- NIH Grant R29 MH55687 *Mathematical Models of Human Memory*. M. J. Kahana, P.I., April 1, 1997 – March 30, 2002.
- NIH Grant R01 MH61975 *Using intracranial recordings to study task-dependent theta..* M. J. Kahana, P.I. December 12, 2001 – December 11, 2006.
- AFOSR Grant F49620-03-1-0376 *Model driven study of visual memory*. R. Sekuler, P.I., M. J. Kahana, Co-P.I.. July 1, 2003 – December 31, 2003.
- NIH Grant R01 AG15852 *Aging and the temporal dynamics of self-initiated*

recall A. Wingfield, P.I., M. J. Kahana, Co-P.I. August 1, 1998 – July 30, 2003.

Postdoctoral Supervision

- Dan Kimball, J.D., Ph.D. (Postdoc, 2002 – 2003). Morris Associate Professor, Department of Psychology, *University of Oklahoma*.
- Sean Polyn, Ph.D. (Postdoc, 2005 – 2008). Associate Professor, Department of Psychology, *Vanderbilt University*.
- Christoph Weidemann, Ph.D. (Postdoc, 2006 – 2010). Assistant Professor, Department of Psychology, *Swansea University*
- Kareem A. Zaghoul, M.D. Ph.D. (Postdoc, 2007 – 2008). Assistant Professor, Department of Neurosurgery, *National Institutes of Health and George Washington University*.
- Mijail Serruya, M.D., Ph.D. (Postdoc, 2009 – 2011). Assistant Professor, Department of Neurology, *Jefferson Hospital*.
- Brad Lega, M.D. (Postdoc, 2009 – 2011). Assistant Professor, Department of Neurosurgery, *University of Texas Southwestern, Dallas*.
- Karl Healey, Ph.D. (Postdoc, 2011 – 2016). Assistant Professor, Department of Psychology, *Michigan State University*
- Max Merkow, M.D. (Postdoc, 2013 – 2016). Neurosurgeon, Bayarea Neurosciences, *John Muir Hospital*
- James Kragel, Ph.D. (Postdoc, 2015 – 2018). Postdoctoral fellow, *Northwestern University*.
- Youssef Ezzyat, Ph.D. (Postdoc, 2014 – 2018). Assistant Professor, Department of Psychology, *Swarthmore College*.
- Nora Herweg, Ph.D. (Postdoc, 2017 –).
- Ethan Solomon, Ph.D. (Postdoc, 2019 –).

Doctoral Supervision

- Marc W. Howard, Ph.D. (1995 – 2000). Professor, Psychology, *Boston University*.
- Jeremy B. Caplan, Ph.D. (1997 – 2002). Associate Professor, Psychology, *University of Alberta*.
- Daniel S. Rizzuto, Ph.D. (1997 – 2002). CEO, *Nia Therapeutics*.
- Arne D. Ekstrom, Ph.D. (2001 – 2004). Associate Professor, Psychology

and Neuroscience, *University of Arizona*.

- Kelly Addis, Ph.D. (2000 – 2004). Thesis Title: *Constraining models of serial learning*.
- Per Sederberg (2001 – 2006). Associate Professor, Department of Psychology, *University of Virginia*.
- Grace Hwang, Ph.D. (2002 – 2005). Engineer, *Mitre Corporation*.
- Marieke van Vugt, Ph.D. (2003 – 2008). Assistant Professor, Cognitive Science, *University of Groningen*.
- Joshua Jacobs, Ph.D. (2004 – 2008). Assistant Professor, Bioengineering, *Columbia University*.
- Jeremy R. Manning, Ph.D. (2006 – 2011). Assistant Professor, Psychological and Brain Sciences, *Dartmouth University*.
- Lynn Lohnas, Ph.D. (2007 – 2012). Assistant Professor, Department of Psychology, *Syracuse University*.
- John Burke, M.D./Ph.D. (2010 – 2013). Resident in Neurosurgery, *U.C.S.F*
- Ashwin Ramayya M.D./Ph.D. (2011 – 2014). Resident in Neurosurgery, *University of Pennsylvania*.
- Nicole Long, Ph.D. (2010 – 2015). Assistant Professor, Department of Psychology, *University of Virginia*.
- Ethan Solomon (2015 – 2019). Bioengineering M.D./Ph.D. Student, *University of Pennsylvania*.
- Daniel Schonhaut (2018 –). Neuroscience Ph.D. Student, *University of Pennsylvania*.

Other Trainees

- Etan Cohen, Director/Screenwriter.
- Emily Dolan, Ph.D., Evaluation Coordinator, *VA Puget Sound*.
- Gennady Erlikhman, Ph.D., Postdoctoral Fellow, *University of Nevada, Reno*.
- Lynne Gauthier, Ph.D., Assistant Professor, *Ohio State University*.
- Aaron S. Geller, M.D., Resident Physician (Neurology), *New York University*.
- Roger Khazan, Ph.D., Associate Group Leader, *MIT Lincoln Laboratory*.
- Matt P. Kirschen, M.D., Ph.D., Assistant Professor of Critical Care Medicine, *Children's Hospital of Pennsylvania*.

- Igor Korolev, D.O., Ph.D. Resident Physician (Psychiatry), *University of Miami Hospital*.
- Richard Lawrence, Ph.D., *U.C. Berkley*.
- Eben Lazarus, Assistant Professor of Finance, *MIT*.
- Ningcheng Li, M.D., *Yale University*.
- Jonathan Miller, Ph.D. Postdoctoral Fellow, *Columbia University*
- Matt Mollison, Ph.D. Data Scientist, *Silicon Valley Data Science*.
- Neal Morton, Ph.D. Postdoctoral Fellow, *University of Texas at Austin*.
- Ehren Newman, Ph.D. Assistant Professor, *Indiana University*.
- Peter Pantelis, Ph.D. Postdoctoral Researcher, *Indiana University-Bloomington*.
- Eric Pressman, Usability Group Sr. Team Lead, *MathWorks*.
- Colin Sauder, Postdoctoral Fellow, *University of Texas*.
- Greg Schwartz, Ph.D. Assistant Professor, *Northwestern University*.
- Yevgeniy Sirotin, Ph.D. Human Factors Scientist, *Scitor Corporation*.
- Alec Solway, Ph.D. Assistant Professor, *University of Maryland*.
- Jessica Spencer, M.D., Associate Professor, *Emory School of Medicine*.
- Michelle Tully Tine, Ph.D. Associate Professor, *Dartmouth College*.
- Daniil Utin, Research Staff, *MIT Lincoln Laboratory*.
- Brad Wyble, Ph.D. Associate Professor, *Penn State University*.
- Robert Yaffe, Ph.D. Software Engineer, *Google*.
- Franklin Zaromb, Ph.D. Research Scientist, *ETS*.

Monographs and Edited Books

- Kahana, M. J. (2012). *Foundations of Human Memory*. Oxford University Press. 2nd Edition under contract with OUP.
- Kahana, M. J. and Wagner, A. D. (under contract). *Oxford Handbook of Human Memory*, Vol 1 and 2. Oxford University Press.

Working Papers

1. Weidemann, C.T., & Kahana, M.J. *Neural measures of subsequent memory reflect endogenous variability in cognitive function*. Manuscript submitted for publication.
2. Pazdera, J.K. & Kahana, M.J. *Modality effects in free recall: A retrieved-context account*. Manuscript submitted for publication.
3. Meisler, S.L., Ezzyat, Y., & Kahana, M.J. *Does data cleaning improve brain state classification?*. Manuscript submitted for publication.
4. Kragel, J.E., Worrell, G.A., Sperling, M.R., Gross, R.E., Lega, B.C., Jobst, B.C., Sheth, S.A., Zaghoul, K.A., Stein, J.M., & Kahana, M.J. *Distinct cortical systems reinstate content and context information during memory search*. Manuscript submitted for publication.
5. Aka, A., Phan, T., & Kahana, M.J. *Predicting recall of words and lists*. Manuscript submitted for publication.
6. Broitman, A.W., Kahana, M.J., & Healey, M.K. *Modeling retest effects in a longitudinal measurement burst study of memory*. Manuscript submitted for publication.
7. Randazzo, M., Ezzyat, Y., & Kahana, M. J. *Spectral tilt underlies mathematical problem solving*. Manuscript submitted for publication.
8. Halderman, L.K., Finn, B., Long, N.M., Lockwood, J.R. & Kahana, M.J. *EEG correlates of engagement during assessment*. Manuscript submitted for publication.
9. Healey, M.K., & Kahana, M.J. *Age-related changes in the neural dynamics of memory encoding*. Manuscript submitted for publication.
10. Herweg, N.A., Sharan, A.D., Sperling, M.R., Brandt, A., Schulze-Bonhage, A. & Kahana, M.J. *Reactivated spatial context guides episodic recall*. Manuscript submitted for publication.
11. Khambhati, A., Kahn, A., Costantini, J., Ezzyat, Y., Soloman, E.A., Gross, R.E., Jobst, B.C., Sheth, S.A., Zaghoul, K.A., Worrell, G.A., Seger, S., Lega, B.C., Weiss, S., Gorniak, R., Sperling, M.R., Das, S., Stein, J.M., Kahana, M.J., Lucas, T., Davis, K.A., Tracy, J., Rizzuto, D.S., & Bassett, D. *Functional control of electrophysiological network architecture using direct neurostimulation in humans*. Manuscript submitted for publication.
12. Lohnas, L.J., Davachi, L., & Kahana, M.J. *Neural fatigue influences memory encoding in the human hippocampus*. Manuscript submitted for publication.

13. Phan, T.D., Solomon, E. A., Wachter, J.A., & Kahana, M.J. *Multivariate stochastic volatility modeling of neural data*. Manuscript submitted for publication.

Refereed Journal Articles

1. Solomon, E.A., Stein, J.M., Das, S., Gorniak, R., Sperling, M.R., Worrell, G., Inman, C., Lega, B., Jobst, B.C., Rizzuto, D.S., & Kahana, M. J. (2019). Dynamic theta networks within the human MTL support episodic encoding and retrieval. *Current Biology*, in press.
2. Healey, M.K., Long, N.M., & Kahana, M.J. (2019). Contiguity in Episodic Memory. *Psychonomic Bulletin & Review*, in press.
3. Weidemann, C.T., & Kahana, M.J. (2019). Dynamics of brain activity reveal a unitary recognition signal. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 45(3), 440-451.
4. Weidemann, C.T., Kragel, J.E., Lega, B.C., Worrell, G.A., Sperling, M.R., Sharan, A.D., Jobst, B.C., Khadjevand, F., Davis, K.A., Wanda, P. A., Kadel, A., Rizzuto, D.S., & Kahana, M.J. (2019). Neural activity reveals interactions between episodic and semantic memory systems during retrieval. *Journal of Experimental Psychology: General*, 148(1), 1-12.
5. Kucewicz, M.T., Saboo, K., Berry, B.M., Kremen, V., Miller, L.R., Khadjevand, F., Inman, C., Wanda, P., Sperling, M.R., Gorniak, R., Davis, K.A., Jobst, B.C., Lega, B., Sheth, S.A., Rizzuto, D.S., Iyer, R., Kahana, M.J., & Worrell, G.A. (2019). Human verbal memory encoding is hierarchically distributed in a continuous processing stream. *eNeuro*.
6. Long, N.M., & Kahana, M.J. (2019). Hippocampal contributions to serial-order memory. *Hippocampus*, 29(3), 252-259.
7. Gifford, A.M., Sperling, M.R., Sharan, A.D., Gorniak, R.J., Williams, R.B., Davis, K.A., Kahana, M.J., & Cohen, Y.E. (2018). Neuronal phase consistency tracks dynamic changes in acoustic spectral regularity. *European Journal of Neuroscience*, in press.
8. Arora, A., Lin, J., Gasperian, A., Maldjian, J., Stein, J., Kahana, M.J. & Lega, B.C. (2018). Comparison of logistic regression, support vector machines, and deep learning classifiers for predicting memory encoding success using human intracranial EEG recordings. *Journal of Neural Engineering*, 15(6), 066028.
9. Solomon, E.A., Kragel, J.E., Gross, R.E., Lega, B., Sperling, M.R., Worrell, G., Sheth, S.A., Zaghoul, K.A., Jobst, B.C., Stein, J.M., Das, S., Gorniak, R., Inman, C., Seger, S., Rizzuto, D.S., & Kahana, M.J. (2018).

Medial temporal lobe functional connectivity predicts stimulation-induced theta power. *Nature Communications*, 9, 4437.

10. Herweg, N.A. & Kahana, M.J. (2018). Spatial representations in the human brain. *Frontiers in Human Neuroscience*, 12, 297.
11. Kahana, M.J., Aggarwal, E.V. & Phan, T.D. (2018). The variability puzzle in human memory. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 44(12), 1857-1863.
12. Kuhn, J.R., Lohnas, L.J., & Kahana, M.J. (2018). A spacing account of negative recency in final free recall. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 44(8), 1180-1185.
13. Ezzyat, Y., Sperling, M.R., Sharan, A.D., Lega, B.C., Burks, A., Gross, R.E., Jobst, B.C., Davis, K.A., Worrell, G.A., Stein, J.M., Gorniak, R., Das, S.R., Rizzuto, D.S., & Kahana, M.J. (2018). Closed-loop stimulation of temporal cortex rescues functional networks and improves memory. *Nature Communications*, 9(1), 365.
14. Kucewicz, M.T., Berry, B.M., Kremen, V., Miller, L.R., Khadjevand, F., Ezzyat, Y., Stein, J.M., Wanda, P., Sperling, M.R., Gorniak, R., Davis, K.A., Jobst, B.C., Gross, R.E., Lega, B., Stead, S.M., Rizzuto, D.S., Kahana, M.J. & Worrell, G.A. (2018). Electrical stimulation modulates high gamma activity and human memory performance. *eNeuro*. doi: 10.1523/ENEURO.0369-17.2018.
15. Kucewicz, M.T., Berry, B.M., Miller, L.R., Khadjevand, F., Ezzyat, Y., Stein, J.M., Kremen, V., Brinkmann, B.H., Wanda, P., Sperling, M.R., Gorniak, R., Davis, K.A., Jobst, B.C., Gross, R.E., Lega, B., Van Gompel, J., Stead, S.M., Rizzuto, D.S., Kahana, M.J., & Worrell, G.A. (2018). Evidence for verbal memory enhancement with electrical brain stimulation in the lateral temporal cortex. *Brain*. 141, 971-978.
16. Solomon, E.A., Kragel, J.E., Sperling, M.R., Sharan, A., Worrell, G., Kucewicz, M., Inman, C.S., Lega, B., Davis, K.A., Stein, J.M., Jobst, B.C., Zaghoul, K.A., Sheth, S.A., Rizzuto, D.S., & Kahana, M.J. (2017). Widespread theta synchrony and high-frequency desynchronization underlies enhanced cognition. *Nature Communications*, 8(1), 1704.
17. Lin, J.J., Rugg, M., Das, S.R., Stein, J.M., Rizzuto, D.S., Kahana, M.J., & Lega, B.C. (2017). Theta band power increases in the posterior hippocampus predict successful episodic memory encoding in humans. *Hippocampus*, 27, 1040-1053.
18. Kragel, J.E., Ezzyat, Y., Sperling, M.R., Gorniak, R.J, Worrell, G.A., Berry, B.M., Inman, C.S., Lin, J., Davis, K.A., Das, S.R., Stein, J.M.,

- Jobst, B.C., Zaghoul, K.A., Sheth, S.A., Rizzuto, D.S., & Kahana, M.J. (2017). Similar patterns of neural activity predict memory function during encoding and retrieval. *NeuroImage*, *155*, 60-71.
19. Ramayya, A.G., Pedisch, I., Levy, D.F., Lyalenko, A., Wanda, P., Rizzuto, D., Baltuch, G.H., & Kahana, M.J. (2017). Proximity of Substantia Nigra Microstimulation to Putative GABAergic Neurons Predicts Modulation of Human Reinforcement Learning. *Frontiers in Human Neuroscience*, *11*.
 20. Long, N.M., Sperling, M.R., Worrell, G.A., Davis, K.A., Gross, R.E., Lega, B.C., Jobst, B.C., Sheth, S.A., Zaghoul, K.A., Stein, J.M., & Kahana, M.J. (2017). Contextually mediated spontaneous retrieval is specific to the hippocampus. *Current Biology*, *27*(7), 1074-1079.
 21. Kucewicz, M.T., Berry, B.M., Kremen, V., Brinkmann, B.H., Sperling, M.R., Sharan, A.D., Jobst, B.C., Gross, R.E., Lega, B.C., Sheth, S.A., Stein, J.M., Das, S.R., Stead, M.S., Rizzuto, D.S., Kahana, M.J., & Worrell, G.A. (2017). Dissecting gamma frequency activity during human memory processing. *Brain*, *140*(5), 1337-1350.
 22. Ezzyat, Y., Kragel, J.E., Burke, J.F., Levy, D.F., Lyalenko, A., Wanda, P., O'Sullivan, L., Hurley, K.B., Busygin, S., Pedisich, I., Sperling, M.R., Worrell, G.A., Kucewicz, M.T., Davis, K.A., Lucas, T.H., Inman, C.S., Lega, B.C., Jobst, B.C., Sheth, S.A., Zaghoul, K.A., Jutras, M.J., Stein, J.M., Das, S.R., Gorniak, R.J., Rizzuto, D.S., & Kahana, M.J. (2017). Direct brain stimulation modulates encoding states and memory performance in humans. *Current Biology*, *27*(9), 1251-1258.
 23. Long, N.M., & Kahana, M.J. (2017). Modulation of task demands suggests that semantic processing interferes with the formation of episodic associations. *Journal of Experimental Psychology: Learning, Memory and Cognition*, *43*(2), 167-176.
 24. Horak, P.C., Meisenhelter, S., Song, Y., Testorf, M.E., Kahana, M.J., Viles, W.D., Bujarski, K.A., Connolly, A.C., Robbins, A.A., Sperling, M.R., Sharan, A.D., Worrell, G.A., Mille, L.R., Gross, R.E., Davis, K.A., Roberts, D.W., Lega, B.C., Sheth, S.A., Zaghoul, K.A., Stein, J.M., Das, S.R., Rizzuto, D.S., & Jobst, B.C. (2017). Interictal epileptiform discharges impair word recall in multiple brain areas. *Epilepsia*, *58*(3), 373-380.
 25. Merkow, M.B., Burke, J.F., Ramayya, A.G., Sharan, A.D., Sperling, M.R., & Kahana, M.J. (2017). Stimulation of the human medial temporal lobe between learning and recall selectivity enhances forgetting. *Brain Stimulation*, *10*(3), 645-650.
 26. Jacobs, J., Miller, J.F., Lee, S.A., Coffey, T., Watrous, A.J., Sperling,

- M.R., Sharan, A.D., Worrell, G.A., Berry, B.M., Jobst, B.C., Davis, K.A., Gross, R.E., Sheth, S.A., Ezzyat, Y., Das, S.R., Stein, J.M., Gorniak, R.J., Kahana, M.J., & Rizzuto, D.S. (2016). Direct electrical stimulation of human entorhinal region and hippocampus impairs memory. *Neuron*, *92*(5),983-990.
27. Weidemann, C.T., & Kahana, M.J. (2016). Assessing recognition memory using confidence ratings and response times. *Royal Society open science*, *3*(4),150670.
28. Healey, M.K., & Kahana, M.J. (2016). A four-component model of age-related memory change. *Psychological Review*, *123*(1), 23-69.
29. Merkow, M.B., Burke, J.F., & Kahana, M.J. (2015). The human hippocampus contributes to both the recollection and familiarity components of recognition memory. *Proceedings of the National Academy of Sciences*, *112*(46), 14378-14383.
30. Long, N.M., & Kahana, M.J. (2015). Successful memory formation is driven by contextual encoding in the core memory network. *NeuroImage*, *119*, 332-337.
31. Ramayya, A.G., Pedisich, I., & Kahana, M.J. (2015). Expectation modulates neural representations of valence throughout the human brain. *NeuroImage*, *115*, 214-223.
32. Greenberg, J.A., Burke, J.F., Haque, R., Kahana, M. J., & Zaghoul, K.A. (2015). Decreases in theta and increases in high frequency activity underlie associative memory encoding. *NeuroImage*, *114*, 257-263.
33. Long, N.M., Danoff, M.S., & Kahana, M.J. (2015). Recall dynamics reveal the retrieval of emotional context. *Psychonomic Bulletin & Review*, *22*(5), 1328-1333.
34. Lohnas, L.J., Polyn, S.M., & Kahana, M.J. (2015). Expanding the scope of memory search: Modeling intralist and interlist effects in free recall. *Psychological Review*, *122*(2), 337-363.
35. Burke, J.F., Merkow, M.B., Jacobs, J., Kahana, M.J., & Zaghoul, K.A. (2015). Brain computer interface to enhance episodic memory in human participants. *Frontiers in Human Neuroscience*, *8*, 1-10.
36. Burke, J.F., Ramayya, A.G., & Kahana, M.J. (2015). Human intracranial high-frequency activity during memory processing: neural oscillations or stochastic volatility? *Current Opinion in Neurobiology*, *31*, 104-110.
37. Lega, B.C., Burke, J.F., Jacobs, J., & Kahana, M.J. (2014). Slow theta-to-gamma phase-amplitude coupling in human hippocampus supports the formation of new episodic memories. *Cerebral Cortex*, *26*(1), 268-278.

38. Merkow, M.B., Burke, J.F., Stein, J.M., & Kahana, M.J. (2014). Prestimulus theta in the human hippocampus predicts subsequent recognition but not recall. *Hippocampus*, *24*, 1562-1569.
39. Ramayya, A.G., Zaghloul, K.A., Weidemann, C.T., Baltuch, G.H., & Kahana, M.J. (2014). Electrophysiological evidence for functionally distinct neuronal populations in the human substantia nigra. *Frontiers in Human Neuroscience*, *8*, 1-9.
40. Geller, A.S., Burke, J.F., Sperling, M.R., Sharan, A.D., Litt, B., Baltuch, G.H., Lucas, T.H., & Kahana, M.J. (2014). Eye closure causes widespread low-frequency power increase and focal gamma attenuation in the human electrocorticogram. *Clinical Neurophysiology*, *9*, 1764-1773.
41. Misra, A., Burke, J.F., Ramayya, A.G., Jacobs, J., Sperling, M.R., Moxon, K., Kahana, M.J., Evans, J.J., & Sharan, A.D. (2014). Methods for implantation of micro-wire bundles and optimization of single/multiunit recordings from human medial temporal lobe. *Journal of Neural Engineering*, *11*(2), 1-13.
42. Healey, M.K., & Kahana, M.J. (2014). Is memory search governed by universal principles or idiosyncratic strategies?. *Journal of Experimental Psychology: General*, *143*, 575-596.
43. Burke, J.F., Sperling, M.R., Sharan, A.D., Evans, J.J., Ramayya, A.G., Healy, M.K., Beck, E.N., Davis, K.A., Lucas, T.H., & Kahana, M.J. (2014). Theta and high-frequency activity mark spontaneous recall of episodic memories. *Journal of Neuroscience*, *34*, 11355-11365.
44. Healey, M.K., Crutchley, P., & Kahana, M.J. (2014). Individual differences in memory search and their relation to intelligence. *Journal of Experimental Psychology: General*, *143*, 1553-1569.
45. Manning, J.R., Lew, T.F., Li, N., Sekuler, R., & Kahana, M.J. (2014). MAGELLAN: A cognitive map-based model of human wayfinding. *Journal of Experimental Psychology: General*, *143*, 1314-1330.
46. Ramayya, A.G., Misra, A., Baltuch, G.H., & Kahana, M.J. (2014). Microstimulation of the human Substantia Nigra alters reinforcement learning. *Journal of Neuroscience*, *20*, 6887-6895.
47. Lohnas, L.J., & Kahana, M.J. (2014). A retrieved context account of spacing and repetition effects in free recall. *Journal of Experimental Psychology: Learning, Memory & Cognition*, *40*, 755-764.
48. Dube, C., Zhou, F., Kahana, M.J., & Sekuler, R. (2014). Similarity-based distortion of visual short-term memory is due to perceptual averaging. *Vision Research*, *96*, 8-16.

49. Serruya, M.D., Sederberg, P.B., & Kahana, M.J. (2014). Power shifts track serial position and modulate encoding in human episodic memory. *Cerebral Cortex*, *24*, 403-413.
50. Lohnas, L.J., & Kahana, M.J. (2014). Compound cueing in free recall. *Journal of Experimental Psychology: Learning, Memory & Cognition*, *40*(1)12-24.
51. Burke, J.F., Long, N.M., Zaghoul, K.A., Sharan, A.D., Sperling, M.R., & Kahana, M.J. (2014). Human intracranial high-frequency activity maps episodic memory formation in space and time. *NeuroImage*, *85*, 834-843.
52. Long, N.M., Burke, J.F., & Kahana, M.J. (2014). Subsequent memory effect in intracranial and scalp EEG. *NeuroImage*, *84*, 488-494.
53. Solway, A., Miller, J.F., & Kahana, M.J. (2013). PandaEPL: A library for programming spatial navigation experiments. *Behavior Research Methods*, *45*, 1293-1312.
54. Lohnas, L.J., & Kahana, M.J. (2013). Parametric effects of word frequency on recall and recognition. *Journal of Experimental Psychology: Learning, Memory & Cognition*, *39*, 1943-1946.
55. Miller, J.F.*, Neufang, M.*, Solway, A., Brandt, A., Hefft, S., Trippel, M., Vader, I., Hefft, S., Merkow, M.B., Polyn, S.M., Jacobs, J., & Kahana, M. J.*, & Schulze-Bonhage, A*. (2013). Neural activity in human hippocampal formation reveals the spatial context of retrieved memories, *Science*, *342*, 1111-1114. (* denotes equal contributions).
56. Morton, N.W., Kahana, M.J., Rosenberg, E.A., Sperling, M.R., Sharan, A.D., & Polyn, S.M. (2013). Category-specific neural oscillations predict recall organization during memory search. *Cerebral Cortex*, *23*, 2407-2422.
57. Miller, J.F., Lazarus, E., Polyn, S.M., & Kahana, M.J. (2013). Spatial clustering during memory search. *Journal of Experimental Psychology: Learning, Memory & Cognition*, *39*, 773-781.
58. Jacobs, J., Weidemann, C.T., Miller, J.F., Solway, A., Wei, X., Suthana, N., Sperling, M.R., Sharan, A.D., Fried, I., & Kahana, M.J. (2013). Direct recordings of grid-like neuronal activity in human spatial navigation. *Nature Neuroscience*, *16*, 1188-1190.
59. van Vugt, M.K., Sekuler, R., Wilson, H.R., & Kahana, M.J. (2013). An electrophysiological signature of summed similarity in visual working memory. *Journal of Experimental Psychology: General*, *142*, 412-425.
60. Burke, J.F., Zaghoul, K.A., Jacobs, J., Williams, R.B., Sperling, M.R., Sharan, A.D., & Kahana, M.J. (2013). Synchronous and asynchronous theta and gamma activity during episodic memory formation. *Journal of*

Neuroscience, 33, 292–304.

61. Han, X., Byrne, P., Kahana, M.J., & Becker, S. (2012). When do objects become landmarks? A VR study of the effect of task relevance on spatial memory. *PLoS One*, 7(5), e35940.
62. Manning, J.R., & Kahana, M.J. (2012). Interpreting semantic clustering effects in free recall. *Memory*, 20, 511–517.
63. Manning, J.R., Sperling, M.R., Sharan, A.D., Rosenberg, E.A., & Kahana, M.J. (2012). Spontaneously reactivated patterns in frontal and temporal lobe predict semantic clustering during memory search. *Journal of Neuroscience*, 32, 8871–8878.
64. Miller, J.F., Weidemann, C.T., & Kahana, M.J. (2012). Recall termination in free recall. *Memory & Cognition*, 4, 540–550.
65. Solway, A., Murdock, B.B., & Kahana, M.J. (2012). Positional and temporal clustering in serial order memory. *Memory & Cognition*, 40(2), 177–190.
66. van der Meij, R., Kahana, M.J., & Maris, E. (2012). Phase-amplitude coupling in human ECoG is spatially distributed and phase diverse. *Journal of Neuroscience*, 32, 111–123.
67. Lega, B.C., Jacobs, J., & Kahana, M.J. (2012). Human hippocampal theta oscillations and the formation of episodic memories. *Hippocampus*, 22(4), 748–761.
68. Zaghoul, K.A., Weidemann, C.T., Lega, B.C., Jaggi, J., Baltuch, G.H., & Kahana, M.J. (2012). Neuronal activity in the human subthalamic nucleus encodes decision conflict during action selection. *Journal of Neuroscience*, 32, 2453–2460.
69. Lega, B.C., Kahana, M.J., Jaggi, J., Baltuch, G.H., & Zaghoul, K.A. (2011). Neuronal and oscillatory activity during reward processing in the human ventral striatum. *Neuroreport*, 22, 795–800.
70. Lohnas, L.J., Polyn, S.M., & Kahana, M.J. (2011). Contextual variability in free recall. *Journal of Memory and Language*, 64(3), 249–255.
71. Manning, J.R., Polyn, S.M., Baltuch, G.H., Litt, B., & Kahana, M.J. (2011). Oscillatory patterns in temporal lobe reveal context reinstatement during memory search. *Proceedings of the National Academy of Sciences, USA*, 108(31), 12893–12897.
72. Maris, E., van Vugt, M.K., & Kahana, M.J. (2011). Spatially Distributed Patterns of Oscillatory Coupling between High-Frequency Amplitudes and Low-Frequency Phases in Human iEEG. *NeuroImage*, 54, 836–850.

73. Polyn, S.M., Erlikhman, G., & Kahana, M.J. (2011). Semantic cuing and the scale-insensitivity of recency and contiguity. *Journal of Experimental Psychology: Learning, Memory and Cognition*, *37*, 766–775.
74. Jacobs, J., Kahana, M.J., Ekstrom, A.D., Mollison, M.V., & Fried, I. (2010). A sense of direction in human entorhinal cortex. *Proceedings of the National Academy of Sciences*, *107*, 6487–6492.
75. Sederberg, P.B., Miller, J.F., Howard, M.W., & Kahana, M.J. (2010). The temporal contiguity effect predicts episodic memory performance. *Memory & Cognition*, *38*, 689–699.
76. Jacobs, J. & Kahana, M.J. (2010). Direct brain recordings fuel advances in cognitive electrophysiology. *Trends in Cognitive Science*, *4*, 162–171.
77. van Vugt, M.K., Schulze-Bonhage, A., Litt, B., Brandt, A., & Kahana, M.J. (2010). Hippocampal gamma oscillations increase with working memory load. *Journal of Neuroscience*, *30*, 2694–2699.
78. Kahana, M.J., Mollison, M.V., & Addis, K.M. (2010). Positional cues in serial learning: The spin-list technique. *Memory & Cognition*, *38*, 92–101.
79. Viswanathan, S., Perl, D.R., Visscher, K.M., Kahana, M.J., & Sekuler, R. (2010). Homogeneity computation: How interitem similarity in visual short term memory alters recognition. *Psychonomic Bulletin & Review*, *17*(1), 59–65.
80. Solway, A., Geller, A.S., Sederberg, P.B., & Kahana, M.J. (2010). PyParse: A semiautomated system for scoring spoken recall data. *Behavior Research Methods*, *42*, 141–147.
81. Galster, M., Kahana, M.J., Wilson, H.R., & Sekuler, R. (2009). Identity modulates short-term memory for facial emotion. *Cognitive, Affective, and Behavioral Neuroscience*, *9*, 973–984.
82. Howard, M.W., Sederberg, P. B., & Kahana, M. J. (2009). Reply to Farrell and Lewandowsky: Recency-contiguity interactions predicted by the temporal context model. *Psychonomic Bulletin & Review*, *15*, 973–984.
83. Huang, J., Kahana, M.J., & Sekuler, R. (2009). A task-irrelevant stimulus attribute affects perception and short-term memory. *Memory & Cognition*, *37*, 1088–1102.
84. Jacobs, J., Korolev, I.O., Caplan, J.B., Ekstrom, A.D., Litt, B., Baltuch, G.H., Fried, I., Schulze-Bonhage, A., Madsen, J.F., & Kahana, M.J. (2009). Right-Lateralized brain oscillations in human spatial navigation. *Journal of Cognitive Neuroscience*, *25*, 824–836.
85. Weidemann, C.T., Mollison, M.V., & Kahana, M.J. (2009). Electrophysi-

- ological correlates of high-level perception during spatial navigation. *Psychonomic Bulletin & Review*, *16*, 313–319.
86. van Vugt, M.K., Schulze-Bonhage, A., Sekuler, R., Litt, B., Brandt, A., Baltuch, G.H., & Kahana, M.J. (2009). Intracranial electroencephalography reveals two distinct similarity effects during item recognition. *Brain Research*, *1299*, 33–44.
 87. Manning, J.R., Jacobs, J., Fried, I., & Kahana, M.J. (2009). Broadband shifts in LFP power spectra are correlated with single-neuron spiking in humans. *Journal of Neuroscience*, *29*, 13613–13620.
 88. Jacobs, J., & Kahana, M.J. (2009). Neural representations of individual stimuli in humans revealed by gamma-band ECoG activity. *Journal of Neuroscience*, *29*, 10203–10214. F
 89. Polyn, S.M., Norman, K.A., & Kahana, M.J. (2009). Task context and organization in free recall. *Neuropsychologia*, *47*, 2158–2163.
 90. Seligman, M.E.P., & Kahana, M.J. (2009). Unpacking intuition: A conjecture. *Perspectives on Psychological Science*, *4*(4), 399–402.
 91. Zaghoul, K.A., Blanco, J.A., Weidemann, C.T., McGill, K., Jaggi, J.L., Baltuch, G.H., & Kahana, M.J. (2009). Human Substantia Nigra encodes unexpected financial rewards. *Science*, *323*, 1496–1499.
 92. 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*, 129–156.
 93. Visscher, K.M., Kahana, M.J., & Sekuler, R. (2009). Trial-to-trial carry-over in auditory short-term memory. *Journal of Experimental Psychology: Learning, Memory and Cognition*, *4*, 893–912.
 94. Agam, Y., Hyun, J.S., Danker, J., Zhou, F., Kahana, M.J., & Sekuler, R. (2009). Early neural signatures of visual short-term memory. *NeuroImage*, *2*, 531–536.
 95. Kahana, M.J., Sederberg, P.B., & Howard, M.W. (2008). Putting short-term memory into context: Reply to Usher and colleagues (2008). (Postscript: Howard, M. W., Kahana, M. J., and Sederberg, P. B. Distinctions between temporal context and short-term store.) *Psychological Review*, *115*, 1119–1126.
 96. Sederberg, P.B., Howard, M.W., & Kahana, M.J. (2008). A context-based theory of recency and contiguity in free recall. *Psychological Review*, *115*, 893–912.
 97. Pantelis, P.C., van Vugt, M.K., Sekuler, R., Wilson, H.R., & Kahana,

- M.J. (2008). Why are some people's names easier to learn than others? The effects of similarity on memory for face-name associations. *Memory & Cognition*, *36*, 1182–1195.
98. Danker, J., Hwang-Grodzins, G., Gauthier, L.V., Geller, A.S., Kahana, M.J., & Sekuler, R. (2008). Characterizing the ERP old-new effect in a short-term memory task *Psychophysiology*, *45*, 784–793.
 99. Serruya, M.D., & Kahana, M.J. (2008). Techniques and Devices to Restore Cognition. *Behavioral Brain Research*, *192*, 149–165.
 100. Golomb J.D., Peelle J.E., Addis, K.M., Kahana, M.J., & Wingfield A.W. (2008). Effects of Adult Aging on Utilization of Temporal and Semantic Associations during Free and Serial Recall. *Memory & Cognition*, *36*, 947–956.
 101. Yotsumoto, Y., McLaughlin, C., Kahana, M.J., & Sekuler, R. (2008). Recognition and position information in working memory for visual textures. *Memory & Cognition*, *36*, 282–294.
 102. Davis, O., Geller, A.S., Rizzuto, D.S., & Kahana, M.J. (2008). Temporal associative processes revealed by intrusions in paired-associate recall. *Psychonomic Bulletin & Review*, *15*, 64–69.
 103. Polyn, S.M., & Kahana, M.J. (2008). Memory search and the neural representation of context. *Trends in Cognitive Science*, *12*, 24–30.
 104. Sekuler, R., & Kahana, M.J. (2007). A stimulus-oriented approach to memory. *Current Directions in Psychological Science*, *16*, 305–310.
 105. Geller, A.S., Schleifer, I., Sederberg, P.B., Jacobs, J., & Kahana, M.J. (2007). PyEPL: A Cross-Platform Experiment Programming Library *Behavior Research Methods*, *39*(4).
 106. Sederberg, P.B., Schulze-Bonhage, A., Madsen, J.R., Bromfield, E.B., Litt, B., Brandt, A., & Kahana, M.J. (2007). Theta and gamma oscillations distinguish true from false memories. *Psychological Science*, *18*, 927–932.
 107. Kimball, D.R., Smith, T.A., & Kahana, M.J. (2007). The fSAM model of false recall. *Psychological Review*, *114*, 954–993.
 108. Howard, M.W., Venkatadass, V., Norman, K.A., & Kahana, M.J. (2007). Associative Processes in Immediate Recency. *Memory & Cognition*, *35*, 1698–1709.
 109. Ekstrom, A.D., Viskontas, I., Kahana, M.J., Jacobs, J., Upchurch, K., Bookheimer, S., & Fried, I. (2007). Contrasting roles of neural firing rate and local field potentials in human memory. *Hippocampus*, *17*, 606–617.
 110. Kahana, M.J., Zhou, F., Geller, A.S., & Sekuler, R. (2007). Lure-similarity

affects visual episodic recognition: Detailed tests of a noisy exemplar model. *Memory & Cognition*, *35*, 1222-1232.

111. Yotsumoto, Y., Kahana, M.J., Wilson, H.R., & Sekuler, R. (2007). Recognition memory for realistic synthetic faces. *Memory & Cognition*, *35*, 1233-1244.
112. Newman, E.L., Caplan, J.B., Kirschen, M.P., Korolev, I.O., Sekuler, R., & Kahana, M.J. (2007). Learning your way around town: Virtual taxi drivers reveal the secrets of navigational learning. *Cognition*, *104*, 231-253.
113. van Vugt, M.K., Sederberg, P.B., & Kahana, M.J. (2007). Comparison of spectral analysis methods for characterizing brain oscillations. *J. Neuroscience Methods*, *162*, 49-63.
114. Visscher, K.A., Kaplan, E., Kahana, M.J., & Sekuler, R. (2007). Auditory short-term memory behaves like visual short-term memory. *PLOS Biology*, *5*, 662-672.
115. Monaco, J., Abbott, L., & Kahana, M.J. (2007). Lexico-Semantic structure and the word-frequency effect. *Learning and Memory*, *14*, 204-213.
116. Jacobs, J., Kahana, M.J., Ekstrom, A.D., & Fried, I. (2007). Brain oscillations synchronize single-neuron activity in humans, *Journal of Neuroscience*, *27*, 3839-3844.
117. Sederberg, P.B., Schulze-Bonhage, A., Madsen, J.R., Bromfield, E.B., McCarthy, D.C., Brandt, A., Tully, M.S., & Kahana, M.J. (2006). Hippocampal and neocortical gamma oscillations predict memory formation in humans. *Cerebral Cortex*, *17*, 1190-1196.
118. Sekuler, R., McLaughlin, C., Kahana, M.J., Wingfield, A.W., & Yotsumoto, Y. (2006). Short-term visual recognition and temporal order memory are both well-preserved in aging. *Psychology and Aging*, *21*, 632-637.
119. Howard, M.W., Kahana, M.J., & Wingfield, A.W. (2006). Aging and contextual binding: modeling recency and lag-recency effects with the Temporal Context Model. *Psychonomic Bulletin & Review*, *13*, 439-445.
120. Sederberg, P.B., Gauthier, L.V., Terushkin, V., Miller, J.F., Barnathan, J.A., & Kahana, M.J. (2006). Oscillatory Correlates of the Primacy Effect in Episodic Memory. *NeuroImage*, *32*, 1422-1431.
121. Jacobs, J., Hwang, G., Curran, T., & Kahana, M.J. (2006). EEG oscillations and recognition memory: Theta correlates of memory retrieval and decision making. *NeuroImage*, *32*, 978-987.
122. Zaromb, F.M., Howard, M.W., Dolan, E.D., Sirotin, Y.B., Tully, M., Wingfield, A.W., & Kahana, M.J. (2006). Temporal associations and prior list

- intrusions in free recall. *Journal of Experimental Psychology: Learning, Memory and Cognition*, *32*, 792-804.
123. Kahana, M.J. (2006). The cognitive correlates of human brain oscillations. *Journal of Neuroscience*, *26*, 1669-1672
 124. Rizzuto, D.S., Madsen, J.R., Bromfield, E., Schulze-Bonhage, A., & Kahana, M.J. (2006). Phase dynamics of neocortical oscillations during working memory. *NeuroImage*, *31*, 1352-1358.
 125. Raghavachari, S., Lisman, J.E., Tully, M., Madsen, J.R., Bromfield, E.B., & Kahana, M.J. (2006). Theta oscillations in human cortex during a working memory task: evidence for local generators. *Journal of Neurophysiology*, *95*, 1630-1638.
 126. Hwang, G., Jacobs, J., Geller, A.S., Danker, J., Sekuler, R., & Kahana, M.J. (2005). EEG Correlates of Subvocal Rehearsal in Working Memory. *Behavioral and Brain Functions*, 1-20.
 127. Sirotin, Y.B., Kimball, D., & Kahana, M. J. (2005). Going beyond a single list: Semantic-episodic interactions in a large-scale model of episodic recall. *Psychonomic Bulletin & Review*, *12*, 787-805.
 128. Kahana, M.J., Rizzuto, D.S., & Schneider, A.R. (2005). Theoretical correlations and measured correlations: Relating recognition and recall in four distributed memory models. *Journal of Experimental Psychology: Learning, Memory and Cognition*, *5*, 933-953.
 129. Ekstrom, A.D., Caplan, J.B., Ho, E., Shattuck, K., Fried, I., & Kahana, M.J. (2005). Human Hippocampal Theta Activity During Virtual Navigation. *Hippocampus*, *15*, 881-889.
 130. Schwartz, G., Howard, M.W., Jing, B., & Kahana, M.J. (2005). Shadows of the past: Temporal retrieval effects in recognition memory. *Psychological Science*, *16*, 898-904.
 131. Klein, K., Addis, K.M., & Kahana, M.J. (2005). A comparative analysis of serial and free recall. *Memory & Cognition*, *33*, 833-839.
 132. Kahana, M.J., & Howard, M.W. (2005). Spacing and lag effects in free recall of pure lists. *Psychonomic Bulletin & Review*, *12*, 159-164.
 133. Kahana, M.J., Dolan, E., Sauder, C., & Wingfield, A.W. (2005). Intrusions in Episodic Recall: Age Differences in Editing of Overt Responses. *Journal of Gerontology*, *60*, 92-97.
 134. Sekuler, R., Kahana, M.J., McLaughlin, C., Golomb, J., & Wingfield, A.W. (2005). Preservation of episodic visual recognition memory in aging. *Experimental Aging Research*, *31*, 1-13.

135. Addis, K.M., & Kahana, M.J. (2004). Decomposing serial learning: What is missing from the learning curve? *Psychonomic Bulletin & Review*, *11*, 118-124.
136. Zhou, F., Kahana, M.J., & Sekuler, R. (2004). Episodic memory for visual textures: A roving probe gathers some memory. *Psychological Science*, *15*, 112-118.
137. Sederberg, P.B., Kahana, M.J., Donner, E., & Madsen, J.R. (2003). Theta and Gamma Oscillations During Encoding Predict Subsequent Recall. *Journal of Neuroscience*, *23*, 10809-10814.
138. Cantero, J.L., Atienza, M., Stickgold, R., Kahana, M.J., Madsen, J.R., & Kocsis, B. (2003). REM sleep-dependent theta waves in the human hippocampus and neocortex. *Journal of Neuroscience*, *34*, 10897-10903.
139. Howard, M.W., Rizzuto, D.S., Caplan, J.B., Madsen, J.R., Lisman, J., Aschenbrenner-Scheibe, R., Schulze-Bonhage, A., & Kahana, M.J. (2003). Gamma oscillations correlate with working memory load in humans. *Cerebral Cortex*, (13), 1369-1374.
140. Ekstrom, A.D., Kahana, M.J., Caplan, J.B., Fields, T.A., Isham, E.A., Newman, E.L., & Fried, I. (2003). Cellular networks underlying human spatial navigation. *Nature*, *425*, 184-187.
141. Caplan, J.B., Madsen, J.R., Schulze-Bonhage, A., Aschenbrenner-Scheibe, R., Newman, E.L., & Kahana, M.J. (2003). Human theta oscillations related to sensorimotor integration and spatial learning. *Journal of Neuroscience*, *23*, 4726-4736.
142. Rizzuto, D.S., Madsen, J.R., Bromfield, E., Schulze-Bonhage, A., Seelig, D., Aschenbrenner-Scheibe, R., & Kahana, M.J. (2003). Reset of human neocortical oscillations during a working Memory task. *Proceedings of the National Academy of Sciences*, *100*, 7931-7936.
143. Kahana, E., Lovegreen, L., Kahana, B., & Kahana, M.J. (2003). Person, environment, and person-environment fit as influences on residential satisfaction of elders. *Environment and Behavior*, *35*, 434-453.
144. Wingfield, A.W., & Kahana, M.J. (2002). The dynamics of memory retrieval in older adults. *Canadian Journal of Experimental Psychology*, *56*, 187-199.
145. Kahana, M.J. (2002). Associative symmetry and memory theory. *Memory & Cognition*, *30*, 823-840.
146. Kahana, M.J., & Caplan, J.B. (2002). Associative Asymmetry in Probed Recall of Serial Lists. *Memory & Cognition*, *30*, 841-849.

147. Kahana, M.J., & Sekuler, R. (2002). Recognizing spatial patterns: A noisy exemplar approach. *Vision Research*, *42*, 2177-2192.
148. Howard, M.W., & Kahana, M.J. (2002). A distributed representation of temporal context. *Journal of Mathematical Psychology*, *46*, 269-299.
149. Kahana, M.J., Howard, M.H., Zaromb, F., & Wingfield, A.W. (2002). Age dissociates recency and lag-recency effects in free recall. *Journal of Experimental Psychology: Learning, Memory and Cognition*, *28*, 530-540.
150. Howard, M.W., & Kahana, M.J. (2002). When does semantic similarity help episodic retrieval? *Journal of Memory and Language*, *46*, 85-98.
151. Kahana, M.J., Seelig, D., & Madsen, J.R. (2001). Theta Returns. *Current Opinion in Neurobiology*, *11*, 739-744.
152. Caplan, J.B., Madsen, J.R., Raghavachari, S., & Kahana, M.J. (2001). Distinct patterns of brain oscillations underlie two basic parameters of human maze learning. *Journal of Neurophysiology*, *86*, 368-380.
153. Rizzuto, D.S., & Kahana, M.J. (2001). An autoassociative model of paired-associate learning. *Neural Computation*, *13*, 2075-2092.
154. Raghavachari, S., Kahana, M.J., Rizzuto, D.S., Caplan, J.B., Kirschen, M.P., Bourgeois, B., & Lisman, J. (2001). Gating of human theta oscillations by a working memory task. *Journal of Neuroscience*, *21*, 3175-3183.
155. Kirschen, M.P., Kahana, M.J., Sekuler, R., & Burack, B. (2000). Optic flow aids learning in virtual environments. *Perception*, *29*, 801-818.
156. Kahana, M.J., & Wingfield, A.W. (2000). A functional relation between learning and organization in free recall. *Psychonomic Bulletin & Review*, *7*, 516-521.
157. Kahana, M.J., & Jacobs, J. (2000). Inter-response times in serial recall: Effects of intra-serial repetition. *Journal of Experimental Psychology: Learning, Memory and Cognition*, *26*, 1188-1197.
158. Rizzuto, D.S., & Kahana, M.J. (2000). Associative Symmetry vs. Independent Associations. *Neurocomputing*, *32*, 973-978.
159. Caplan, J.B., Kahana, M.J., Sekuler, R., Kirschen, M.P., & Madsen, J.R. (2000). Task dependence of human theta: the case for multiple cognitive functions. *Neurocomputing*, *32*, 659-665.
160. Howard, M.W., & Kahana, M.J. (1999). Contextual variability and serial position effects in free recall. *Journal of Experimental Psychology: Learning, Memory and Cognition*, *25*, 923-941.
161. Kahana, M.J., Sekuler, R., Caplan, J.B., Kirschen, M.P., & Madsen, J.R. (1999). Intracranial recordings reveal task-dependent changes in theta os-

- cillations during virtual maze navigation by human subjects. *Nature*, 399, 781-784.
162. Kahana, M.J., Caplan, J.B., Sekuler, R., & Madsen, J.R. (1999). Using intracranial recordings to study theta: Response to J. O'Keefe and N. Burgess (1999). *Trends in Cognitive Science*, 3, 406-407.
 163. Wingfield, A.W., Lindfield, K., & Kahana, M.J. (1998). Adult age differences in the temporal characteristics of category free recall. *Psychology and Aging*, 13, 256-266.
 164. Chance, F.S., & Kahana, M.J. (1997). Testing the role of associative interference and compound cues in sequence memory. In Bower, J. (Ed.) *Computational Neuroscience, Trends in research*. Plenum Press, NY. pp. 599-603.
 165. Kahana, M.J. (1996). Associative retrieval processes in free-recall. *Memory & Cognition*, 24, 103-109.
 166. Glatstein, I.Z., Hornstein, M.D., Kahana, M.J., Jackson, K.V., & Friedman, A.J. (1995). The predictive value of discriminatory human chorionic gonadotrophin levels in the diagnosis of implantation outcome in in-vitro fertilization cycles. *Fertility and Sterility*, 63, 350-356.
 167. Kahana, M.J., & Bennett, P.J. (1994). Classification and perceived similarity of compound gratings that differ in relative spatial phase. *Perception and Psychophysics*, 55, 642-656.
 168. Kahana, M.J., & Greene, R.L. (1993). The effects of spacing on memory for homogeneous lists. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 19, 159-162.
 169. Murdock, B.B., & Kahana, M.J. (1993). List-strength and list-length effects: Reply to Shiffrin, Ratcliff, Murnane and Nobel (1993). *Journal of Experimental Psychology: Learning, Memory and Cognition*, 19, 1450-1453.
 170. Murdock, B.B., & Kahana, M.J. (1993). Analysis of the list strength effect. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 19, 689-697.

Book chapters and invited reviews

1. Kahana, M. J. (2017). Memory search. In J. H. Byrne (Ed.), *Learning and Memory: A Comprehensive Reference, Second Edition*. Academic Press. pp. 181-200.
2. Manning, J.R., Kahana, M.J., & Norman, K.A. (2015). The role of context

in memory. In Gazzaniga M, (Ed.) *The Cognitive Neurosciences, Fifth Edition.*, Cambridge, MA:MIT Press.

3. Kahana, M.J., & Miller, J.F. (2013). Memory, recall dynamics. In H. Pashler (Ed.), *Encyclopedia of the mind*. SAGE Publications. pp. 493-497.
4. Kahana, M.J., Howard, M.W., & Polyn, S. M. (2008). Associative Processes in Episodic Memory. H.L. Roedger (Ed.) *Learning and Memory - A Comprehensive Reference*. Elsevier.
5. Howard, M.W., Addis, K. M., Jing, B., & Kahana, M.J. (2007). Semantic structure and episodic memory. In McNamara, D., Landauer, T., Dennis, S. and Kintsch, W. Editors, *LSA: A road to meaning*, Earlbaum, Mahwah, N.J., pp. 121-141.
6. Lisman, J., Jensen, O., & Kahana, M.J. (2001). Towards a physiological explanation of the behavioral data on human memory: the role of theta-gamma oscillations and NMDAR-dependent LTP. In Holscher, C. (Ed.) *Neural Mechanisms of Memory Formation*. Cambridge University Press, N.Y., pp. 195-223.
7. Kahana, M.J. (2000). Contingency Analyses of Human Memory. In E. Tulving and F.I.M. Craik (Eds.) *The Oxford Handbook of Memory*. Oxford University Press. pp. 59-72.
8. Kahana, M.J., & Loftus, G. (1999). Response time versus Accuracy in Human Memory. In R. Sternberg (Ed.) *The Nature of Cognition*, MIT Press, MA, pp. 323-384.
9. Andrist, C.G., Kahana, M.J., Spry, K., Knevel, S., Luo, D., Persanyi, M., Evans, S., & Detterman, D.K. (1992). Individual Differences in the Biological Correlates of Intelligence: a selected overview. In (Douglas K. Detterman Ed.) *Current Topics in Human Intelligence, Volume 2: Is mind modular or unitary?* Ablex Publishers, N.J., pp. 1-59.