Kenneth Andrew Norman

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Employment

July 2019 – present
Huo Professor in Computational and Theoretical Neuroscience, Princeton University

July 2017 – present
Chair
Department of Psychology, Princeton University

July 2012 – July 2014, October 2016 – June 2017
Associate Chair
Department of Psychology, Princeton University

July 2013 – present
Professor
Department of Psychology and Princeton Neuroscience Institute, Princeton University

July 2008 – June 2013
Associate Professor
Department of Psychology and Princeton Neuroscience Institute, Princeton University

July 2002 – June 2008
Assistant Professor
Department of Psychology, Princeton University

Education

June 1999
Ph.D. in Psychology, Harvard University
Advisor: Daniel Schacter, Ph.D.
Thesis: "Differential Effects of List Strength on Recollection and Familiarity"

June 1996
MA in Psychology, Harvard University

June 1993
BS with distinction, Stanford University
Advisors: John Gabrieli, Ph.D., Fred Dretske, Ph.D.
Honors Thesis: "Is Consciousness the Gatekeeper of Memory?"

Additional Education

June 1999 – June 2002
NIH NRSA postdoctoral fellow, University of Colorado, Boulder
Mentor: Randall O'Reilly, Ph.D.

Summer 1995
Fellow, McDonnell Summer Institute in Cognitive Neuroscience, Davis, CA

Research Interests

Using computational models to explore the neural basis of learning and memory

Testing the predictions of these models, using behavioral and neuroimaging measures

Developing multivariate methods for extracting information about cognitive states from neuroimaging data

Fellowships and Awards

Psychonomic Society Mid-Career Award, 2023

Fellow, Society of Experimental Psychologists, 2018

Fellow, Association for Psychological Science, 2018

Fellow, Psychonomic Society

Graduate Mentoring Award, Princeton University, 2016

Thomas A. Wasow Visiting Scholar, Stanford University, January 2014

Princeton Engineering Commendation List for Outstanding Teaching, 2011

President's Award for Distinguished Teaching, Princeton University, 2007

Lawrence S. Brodie University Preceptorship, Princeton University, 2006-2009

NIH NRSA Postdoctoral Fellowship, "Hippocampal and Neocortical Contributions to Recognition", Grant MH12582-01, February, 2000 to June, 2002

Harvard University Graduate Society Fellowship, 1998

Sackler Scholarship in Psychobiology, Harvard University, 1996-1998

National Defense Science & Engineering Fellowship, 1993-1996

National Science Foundation Graduate Fellowship (awarded), 1993

Grants: Active

NIH R61 MH128492-01, "Reducing neural perseveration through closed loop real time fMRI neurofeedback to alleviate depressive symptoms", Sheline, PI, Norman co-PI, 2 years, $1,599,926 total costs, 12/01/21 – 11/30/24

We will test the efficacy of a new psychotherapeutic strategy to reduce depression severity, the first real-time fMRI feedback therapy to use cloud-based pattern classification to decode the patient's attentional state and dynamically modulate task stimuli (in a "closed loop") based on this state.

NIH RF1 MH125318, "Cloud-based Software Framework to Simplify and Standardize Real-Time fMRI", Norman and Cohen, co-PIs, 3 years, $250,000 annual direct costs, 9/15/20 – 9/14/24

This project will support the development of an open-source, cloud-based framework for real-time fMRI analysis.

NSF DRL-2024587, "NCS-FO: How Cognitive Maps Potentiate New Learning: Constraining a Computational Model by Decoding the Thoughts of Superior Memorists", Norman, PI, 3 years, $76,667 annual direct costs, 9/01/20 – 8/31/24

This project uses fMRI and computational modeling to study the structure and dynamics of neural representations in memory experts.

ONR N00014-17-1-2961 "MURI: A computational cognitive neuroscience approach to understanding event representation and episodic memory", Ranganath, PI, Norman, Princeton subcontract PI, 5 years, $224,516 annual direct costs for Princeton subcontract, 9/01/17 – 8/31/24

The goal of this multi-site project is to develop and test a computational model of how the brain represents and remembers complex events.

NIH 3R01 MH069456, "Computational, neural, and behavioral studies of competition-dependent learning", Norman and Turk-Browne, co-PIs, 5 years, $298,000 annual direct costs, 9/19/16 – 6/30/23 (renewal under review)

The goal of this research is to explore how competition between memories can drive differentiation and integration of neural representations.

NIH T32 MH065214, "NRSA training grant in quantitative neuroscience", Norman and Cohen, co-PIs, 5 years, $475,000 annual direct costs, 8/01/13 – 7/31/23 (renewal under review)

This grant is a renewal of Princeton's existing graduate & postdoctoral training program in quantitative and computational neuroscience.

Grants: Completed

Princeton University, J. Insley Blair Pyne fund, "Tracing the formation and replay of neural representations for musical sequences during learning", Margulis & Norman, co-PIs, 2 years, $75,000 annual direct costs, 7/01/21 – 6/30/23

The goal of this project is to develop and validate methods for tracking the occurrence of involuntary musical imagery ("earworms") in the brain, and to assess how this involuntary musical replay drives learning.

The John Templeton Foundation, proposal 61454 "Toward a scientific understanding of the human capacity for cognitive control" Cohen, PI, Norman co-PI, 3 years, $1,447,857 annual direct costs, 8/01/19 – 7/31/22

The goal of this research was to understand the structure and learning of natural tasks, and how task representations are used in the service of goal-directed behavior.

NIH 1R01 MH112357, "Neural dynamics supporting integration and recall over long timescales during natural continuous input", Hasson and Norman, co-PIs, 5 years, $307,000 annual direct costs, 2/15/17 – 11/30/22

This project used fMRI to characterize the role of cortex in representing information about narratives over a long timescale, and to explore how hippocampally-based memory contributes to this long-timescale representation.

Schmidt DataX award, "Decoding the language of the brain", Hasson, PI, Norman co-PI, 1 year, $100,000 direct costs, 9/01/19 – 8/31/20

This goal of this project was to develop new computational techniques for decoding meaning information from ECoG data.

Intel Corporation, "Optimization and Development of High-Performance Methods for fMRI Analysis", Cohen, PI, Norman co-PI, 3 years, $680,000 annual costs, 1/05/15-1/05/20

This grant funded part of a large-scale partnership between Intel Labs and the Princeton Neuroscience Institute, aimed at developing new methods for advanced analysis of fMRI data.

NSF BCS-1533511, "NCS-FO: Collaborative Research: Sleep's role in determining the fate of individual memories", Norman and Paller, co-PIs, 3 years, $200,000 annual costs, 9/01/15 – 2/28/19

The goal of this BRAIN initiative grant was to track the factors that shape the accessibility of specific associative memories, from encoding to consolidation to retrieval. Towards this end, we used fMRI, EEG, computational modeling, and "deep learning" decoders to track how rewards during encoding affect memory replay during sleep, and how competition between memories during sleep affects memory storage and retrieval.

NSF BCS-1461088, "Manipulating and Classifying Memory Processing During Sleep", Paller and Norman, co-PIs, 3 years, $50,000 annual costs, 4/01/15 – 3/31/19

The goal of the Princeton subcontract on this grant was to explore how pattern classifiers (applied to EEG) can be used to measure memory reactivation during sleep.

The John Templeton Foundation, Proposal ID 57876, "Toward a scientific understanding of the human capacity for cognitive control", $868,861 annual direct costs, J. Cohen, PI, 12/01/15 – 11/30/18

This project involved the construction of formal theoretical models and empirical tests of these models in behavioral and neuroimaging experiments studying higher-level forms of cognitive control. I was a co-PI on multiple sub-projects (relating to prospective memory, latent cause models, and development of advanced multivariate pattern analysis methods).

Princeton University, J. Insley Blair Pyne fund, "Hierarchical methods for decoding high-dimensional brain data", Pillow, Engelhardt, & Norman, co-PIs, 2 years, $50,000 annual direct costs, 1/01/15 – 12/31/16

The goal of this work was to develop methods for sparse, spatially-structured regression that can be applied to fMRI decoding.

NSF IIS-1009542, "Text, neuroimaging, and memory: Unified models of corpora and cognition", Blei and Norman, co-PIs, 3 years, $166,000 annual direct costs, 8/01/10 – 12/31/15

The goal of this research was to develop new machine learning algorithms that can infer (based on fMRI data, behavioral memory data, and text corpus statistics) how a person's mental state evolves as they encode and retrieve memories.

NIH 2R01 MH069456, "Computational, neural, and behavioral studies of competition-dependent learning", Norman, PI, 5 years, $250,000 annual direct costs, 8/07/09 – 10/31/15

The goal of this research was to further develop neural network models of how the brain implements competition-dependent learning, and to test these models by running fMRI and EEG memory experiments.

NSF BCS-1229597, "MRI: Acquisition of high performance compute cluster for multivariate real-time and whole-brain correlation analysis of fMRI data", Cohen, PI, 3 years $527,978 direct costs, 8/15/12 – 7/31/15

This grant funded the purchase of a computer cluster to support real-time multivariate pattern analysis of fMRI data and also multivariate decoding of cognitive state information from functional connectivity data. I was a co-PI on this grant.

The John Templeton Foundation, Proposal ID 36751, "Toward a scientific understanding of the human capacity for cognitive control", $1,127,000 annual direct costs, Cohen, PI, 08/01/12 – 07/31/15

This project involved the construction of formal theoretical models and empirical tests of these models in behavioral and neuroimaging experiments studying higher-level forms of cognitive control. I was a co-PI on two sub-projects (relating to prospective memory and development of advanced multivariate pattern analysis methods).

Princeton University, J. Insley Blair Pyne fund and Essig-Enright fund, "Integrating new information with existing knowledge in human decision making", Norman and Schapire, co-PIs, 2 years, $35,000 annual direct costs, 6/23/12 – 6/22/14

The goal of this research was to examine how periods of offline processing (such as sleep or quiet rest) affect reward-based decision making. To achieve this goal, we developed formal theory within a reinforcement-learning (RL) framework and we will tested the theory using a newly developed decision-making task in humans.

NSF IIS-1146294, "CRCNS 2011 PI meeting at Princeton University", Norman, PI, 1 year, $23,300 direct costs, 10/1/11 – 9/30/12

This grant funded the annual PI meeting for the NSF/NIH Collaborative Research in Computational Neuroscience program, which was held in Princeton in October 2011.

NIH R01 MH075706, "Analysis of Multi-Voxel Patterns of Activity in fMRI Data", Haxby, PI, 5 years, $225,000 annual direct costs, 9/18/06 – 5/31/12

The goal of this research was to develop and refine multivariate methods for analyzing spatially distributed patterns of fMRI activity (e.g., applying pattern classifiers to fMRI data to read out the information represented in the subject's brain). I was a co-investigator on this grant.

NIH P50 MH062196, Project 3, "Dynamics of Decision Making and Control in Memory Retrieval", Kahana, PI, 5 years, $250,000 annual direct costs, 9/21/05 – 8/31/11 (no-cost extension)

The goal of this research was to use new neuroimaging analysis methods, applied to fMRI and EEG data, to test computational models of how top-down control interacts with the accumulation of evidence during memory retrieval. I was a co-investigator on this grant.

NIH R01 MH069456-01, "Modeling the Neural Basis of Episodic Memory", Norman, PI, 5 years, $200,000 annual direct costs, 2/01/04 – 1/31/09

The goal of this research was to further develop computational models of how hippocampus and perirhinal cortex contribute to recognition memory, and to test the predictions of these models by conducting memory experiments on normal and brain-damaged populations.

NIH R01 MH052864, "Functional MRI and Modeling Studies of Prefrontal Cortex", Cohen, PI, 5 years, $250,000 annual direct costs, 9/25/03 – 6/30/08

The goal of this research was to use functional MRI and computational modeling to explore how hippocampus and prefrontal cortex interact during task switching paradigms. I was a co-investigator on this grant.

Publications

Research Papers (In Preparation / Preprints / Submitted / Under Revision)

Beukers, A.O., Collin, S.H.P., Kempner, R.P., Franklin, N.T., Gershman, S.J., & Norman, K.A. (under revision). Blocked training facilitates learning of multiple schemas. Preprint: https://osf.io/preprints/psyarxiv/9bptj

Brooks, P.P., Guzman, B.A., Kensinger, E.A., Norman, K.A., & Ritchey, M. (submitted). Eye tracking evidence for the reinstatement of emotionally negative and neutral memories. Preprint: https://osf.io/preprints/psyarxiv/c3n9m/

Iordan, M.C., Ritvo, V.J.H., Norman, K.A., Turk-Browne, N.B. & Cohen, J.D. (under revision). Sculpting new visual concepts into the human brain. Preprint: https://www.biorxiv.org/content/10.1101/2020.10.14.339853v1

Kumar, S., Sumers, T.R., Yamakoshi, T., Goldstein, A., Hasson, U., Norman, K.A., Griffiths, T.L., Hawkins, R.D., Nastase, S.A. (under review). Reconstructing the cascade of language processing in the brain using the internal computations of a transformer-based language model. Preprint: https://www.biorxiv.org/content/10.1101/2022.06.08.495348v2

Lu, Q., Chen, P.-H., Pillow, J. W., Ramadge, P., Norman, K. A., & Hasson, U. (2018). Shared representational geometry across neural networks. Preprint: https://arxiv.org/abs/1811.11684

Lu, Q., Nguyen, T.T., Zhang, Q., Hasson, U., Griffiths, T.L., Zacks, J.M., Gershman, S.J., & Norman, K.A. (2023). Toward a more biologically plausible neural network model of latent cause inference. Preprint: https://arxiv.org/abs/2312.08519

Michelmann, S., Kumar, M., Norman, K.A., & Toneva, M. (2023). Large language models can segment narrative events similarly to humans. Preprint: https://arxiv.org/abs/2301.10297

Peng, K., Wammes, J.D., Nguyen, A., Iordan, M.C., Norman, K.A., & Turk-Browne, N.B. (2023). Inducing representational change in the hippocampus through real-time neurofeedback. Preprint: https://www.biorxiv.org/content/10.1101/2023.12.01.569487v1

Ritvo, V.J.H., Nguyen, A., Turk-Browne, N.B., & Norman, K.A. (under revision). Differentiation and integration of competing memories: a neural network model. Preprint: https://www.biorxiv.org/content/10.1101/2023.04.02.535239v2

Research Papers (In Press / Published)

Cornell, C.A., Norman, K.A., Griffiths, T.L., & Zhang, Q. (in press). Improving memory search through model-based cue selection. *Psychological Science.*

Beukers, A.O., Hamin, M., Norman, K.A., & Cohen, J.D. (2023). When working memory may be just working, not memory. *Psychological Review.*

Bornstein, A.M., Aly, M., Feng, S., Turk-Browne, N.B., Norman, K.A., & Cohen, J.D. (2023) Perceptual decisions result from the continuous accumulation of memory and sensory evidence. *Cognitive, Affective, and Behavioral Neuroscience.*

Callaway, F., Griffiths, T.L., Norman, K.A., & Zhang, Q. (2023). Optimal metacognitive control of memory recall. *Psychological Review.*

Kumar, M., Goldstein, A., Michelmann, S., Zacks, J.M., Hasson, U., & Norman, K.A. (2023). Bayesian surprise predicts human event segmentation in story listening. *Cognitive Science.*

Michelmann, S., Hasson, U., & Norman, K.A. (2023). Evidence that event boundaries are access points for memory retrieval. *Psychological Science*.

Rier, L., Michelmann, S., Ritz, H., Shah, V., Hill, R.M., Osborne, J., Doyle, C., Holmes, N., Bowtell, R., Brookes, M.J., Norman, K.A., Hasson, U., Cohen, J.D., & Boto, E. (2023). Test-retest reliability of the human connectome: an OPM-MEG study. *Imaging Neuroscience*.

Scotti, P.S., Banerjee, A., Goode, J., Shabalin, S., Nguyen, A., Cohen, E., Dempster, A.J., Verlinde, N., Yundler, E., Weisberg, D., Norman, K.A., & Abraham, T.M. (2023) Reconstructing the mind's eye: fMRI-to-image with contrastive learning and diffusion priors. *Advances in Neural Information Processing Systems (NeurIPS) 37*.

Goldstein, A., Zada, Z., Buchnik, E., Schain, M., Price, A., Aubrey, B., Nastase, S.A., Feder, A., Emanuel, D., Cohen, A., Jansen, A., Gazula, H., Choe, G., Rao, A., Kim, C., Casto, C., Lora, F., Flinker, A., Devore, S., Doyle, W., Friedman, D., Dugan, P., Hassidim, A., Brenner, M., Matias, Y., Norman, K.A., Devinsky, O., & Hasson, U. (2022). Thinking ahead: Prediction in context as a keystone of language in humans and machines. *Nature Neuroscience*.

Lu, Q., Hasson, U., & Norman, K.A. (2022). A neural network model of when to retrieve and encode episodic memories. *eLife*.

Masís-Obando, R., Norman, K.A., & Baldassano, C. (2022). Schema representations in distinct brain networks support narrative memory during encoding and retrieval. *eLife.*

Mennen, A.C., Nastase, S.A., Yeshurun, Y., Hasson, U., & Norman, K.A. (2022). Real-time neurofeedback to alter interpretations of a naturalistic narrative. *Neuroimage: Reports*.

Singh, D., Norman, K.A., & Schapiro, A.C. (2022). A model of autonomous interactions between hippocampus and neocortex driving sleep-dependent memory consolidation. *PNAS*.

Wallace, G., Polcyn, S., Brooks, P.P., Mennen, A.C., Zhao, K., Scotti, P., Michelmann, S., Li, K., Turk-Browne, N B., Cohen, J.D., & Norman, K.A. (2022). RT-Cloud: A cloud-based software framework to simplify and standardize real-time fMRI. *Neuroimage*.

Wammes, J.D., Norman, K.A., & Turk-Browne, N.B. (2022). Increasing stimulus similarity drives nonmonotonic representational change in the hippocampus. *eLife*.

Williams, J.A., Margulis, E.H., Nastase, S.A., Chen, J., Hasson, U., Norman, K.A., & Baldassano, C.A. (2022). High-order areas and auditory cortex both represent the high-level event structure of music. *Journal of Cognitive Neuroscience*.

Zadbood, A., Nastase, S.A., Chen, J., Norman, K.A., & Hasson, U. (2022). Neural representations of naturalistic events are updated as our understanding of the past changes. *eLife*.

Zhang, Q., Griffiths, T., & Norman, K.A. (2022). Optimal policies for free recall. *Psychological Review*.

Zhuang, C., Xiang, V., Bai, Y., Jia, X., Turk-Browne, N., Norman, K.A., DiCarlo, J.J., & Yamins, D.L.K. (2022). How well do unsupervised learning algorithms model human real-time and life-long learning? *Advances in Neural Information Processing Systems (NeurIPS) 36*.

Chang, C.H., Lazaridi, C., Yeshurun, Y., Norman, K.A., & Hasson, U. (2021). Relating the past with the present: Information integration and segregation during ongoing narrative processing. *Journal of Cognitive Neuroscience.*

Chen, C., Lu, Q., Beukers, A., Baldassano, C., & Norman, K.A. (2021). Learning to perform role-filler binding with schematic knowledge. *PeerJ.*

Meshulam, M., Hasenfratz, L., Hillman, H., Liu, Y., Nguyen, M., Norman, K.A. & Hasson, U. (2021). Think like an expert: neural alignment predicts understanding in students taking an introduction to computer science course. *Nature Communications*.

Michelmann, S., Price, A.R., Aubrey, B., Doyle, W.K., Friedman, D., Dugan, P.C., Devinsky, O., Devore, S., Flinker, A., Hasson, U. & Norman, K.A. (2021). Moment-by-moment tracking of naturalistic learning and its underlying hippocampo-cortical interactions. *Nature Communications.*

Momennejad, I., Norman, K., Lewis-Peacock, J., Cohen, J., Singh, S., & Lewis, R. (2021). Rational use of long-term and working memory for cognitive control: A normative account of prospective memory. *Neuropsychologia*.

Nastase, S.A., Liu, Y.-F., Hillman, H., Zadbood, A., Hasenfratz, L., Kashavarzian, N., Chen, J., Honey, C.J., Yeshurun, Y., Regev, M., Nguyen, M., Chang, C. H.-C., Baldassano, C., Lositsky, O., Simony, E., Chow, M.A., Leong, Y. C., Brooks, P.P., Micchiche, E., Choe, G., Goldstein, A., Vanderwal, T., Halchenko, Y.O., Norman, K.A., & Hasson, U. (2021). Narratives: fMRI data for evaluating models of naturalistic language comprehension. *Scientific Data.*

Schechtman, E., Antony, J., Lampe, A., Wilson, B. J., Norman, K. A., & Paller, K. A. (2021). Multiple memories can be simultaneously reactivated during sleep as effectively as a single memory. *Communications Biology.*

Kumar, M., Anderson, M.J., Antony, J.W., Baldassano C., Brooks, P.P., Cai, M.B., Chen, P.H.C., Ellis, C.T., Henselman-Petrusek, G., Huberdeau, D., Hutchinson, J.B., Li, P.Y., Lu, Q., Manning, J.R., Mennen, A.C., Nastase, S.A., Hugo, R., Schapiro, A.C., Schuck, N.W., Shvartsman, M., Sundaram, N., Suo, D., Turek, J.S., Vo, V.A., Wallace, G., Wang, Y., Williams, J., Zhang, H., Zhu, X., Capota, M., Cohen, J.D., Hasson, U., Li, K., Ramadge, P.J., Turk-Browne, N.B., Willke, T.L. & Norman, K.A. (2021). BrainIAK: The Brain Imaging Analysis Kit. *Aperture Neuro.*

Wu, A., Nastase, S.A., Baldassano, C.A., Turk-Browne, N.B., Norman, K.A., Engelhardt, B.E., & Pillow, J.W. (2021). Brain kernel: a new spatial covariance function for fMRI data. *Neuroimage*.

Antony, J.W., Hartshorne, T.H., Pomeroy, K., Gureckis, T.M., Hasson, U., McDougle, S.D. & Norman, K.A. (2020). Behavioral, physiological, and neural signatures of surprise during naturalistic sports viewing. *Neuron.*

Franklin, N., Norman, K.A., Ranganath, C., Zacks, J.M., & Gershman, S.J. (2020). Structured event memory: a neuro-symbolic model of event cognition. *Psychological Review*

Kumar, M., Ellis, C.T., Lu, Q., Zhang, H., Capota, M., Willke, T.L., Ramadge, P.J., Turk-Browne, N.B., & Norman, K.A. (2020). BrainIAK tutorials: user-friendly learning materials for advanced fMRI analysis. *PLoS Computational Biology*.

Mennen, A.C., Turk-Browne, N.B., Wallace, G., Seok, D., Jaganjac, A., Stock, J., deBettencourt, M.T., Cohen, J.D., Norman, K.A. & Sheline, Y.I. (2020). Cloud-based functional magnetic resonance imaging neurofeedback to reduce the negative attentional bias in depression: a proof-of-concept study. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*.

Nastase, S. A., Liu, Y., Hillman, H., Norman, K. A., & Hasson, U. (2020). Leveraging shared connectivity to aggregate heterogeneous datasets into a common response space. *Neuroimage.*

Rouhani, N., Norman, K. A., Niv, Y., & Bornstein, A. M. (2020). Reward prediction errors create event boundaries in memory. *Cognition.*

Shin, Y.S., Masís-Obando, R., Keshavarzian, N., Davé, R. & Norman, K.A. (2020). Context-dependent memory effects in two immersive virtual reality environments: on Mars and underwater. *Psychonomic Bulletin & Review.*

Zuo, X., Honey, C. J., Barense, M. D., Crombie, D., Norman, K. A., Hasson, U., & Chen, J. (2020). Temporal integration of narrative information in a hippocampal amnesic patient. *Neuroimage*.

deBettencourt, M. T., Turk-Browne, N. B., & Norman, K. A. (2019). Neurofeedback helps to reveal a relationship between context reinstatement and memory retrieval. *Neuroimage.*

Fan, J. E., Wammes, J. D., Gunn, J. B., Yamins, D. L., Norman, K. A., & Turk-Browne, N. B. (2019). Relating visual production and recognition of objects in human visual cortex. *Journal of Neuroscience.*

Tachihara, K., Norman, K.A., Turk-Browne, N., & Goldberg, A.E. (2019). A generalization becomes suppressed over time in the context of exceptions. *Proceedings of the 41st Annual Conference of the Cognitive Science Society*.

Wang, B., Antony, J. W., Lurie, S., Brooks, P. P., Paller, K. A., & Norman, K. A. (2019). Targeted memory reactivation during sleep elicits neural signals related to learning content. *Journal of Neuroscience*

Antony, J., Cheng, L. Y., Brooks, P. P., Paller, K., & Norman, K. A. (2018). Competitive learning modulates memory consolidation during sleep. *Neurobiology of Learning and Memory*.

Antony, J., Piloto, L., Wang, M., Pacheco, P., Norman, K. A., & Paller, K. (2018). Sleep spindle refractoriness segregates periods of memory reactivation. *Current Biology.*

Baldassano, C., Hasson, U., & Norman, K. A. (2018). Representation of real-world event schemas during narrative perception. *Journal of Neuroscience*.

Hoskin, A.N., Bornstein, A.M., Norman, K.A., & Cohen, J.D. (2018). Refresh my memory: Episodic memory reinstatements intrude on working memory maintenance. *Cognitive, Affective, & Behavioral Neuroscience*.

Kim, G., Norman, K. A., & Turk-Browne, N. B. (2018). Neural overlap in item representations across episodes impairs context memory. *Cerebral Cortex*.

Manning, J. R., Zhu, X., Willke, T., Ranganath, R., Stachenfeld, K., Hasson, U., Blei, D. M., & Norman, K. A. (2018). A probabilistic approach to discovering dynamic full-brain functional connectivity patterns. *Neuroimage.*

Momennejad, I., Otto, A. R., Daw, N., & Norman, K. A. (2018). Offline replay supports planning in human reinforcement learning. *eLife.*

Rafidi, N. S., Hulbert, J. C., Brooks, P. P., & Norman, K. A. (2018). Reductions in retrieval competition predict the benefit of repeated testing. *Scientific Reports*.

Rouhani, N., Norman, K. A., & Niv, Y. (2018). Dissociable effects of surprising rewards on learning and memory. *Journal of Experimental Psychology: Learning, Memory and Cognition*.

Schapiro, A. C., McDevitt, E. A., Rogers, T. T., Mednick, S. C., & Norman, K. A. (2018). Human hippocampal replay during rest prioritizes weakly-learned information and predicts memory performance. *Nature Communications.*

Baldassano, C., Chen, J., Zadbood, A., Pillow, J., Hasson, U., & Norman, K. A. (2017). Discovering event structure in continuous narrative perception and memory. *Neuron*.

Bornstein, A. M. & Norman, K. A. (2017). Reinstated episodic context guides sampling-based decisions for reward. *Nature Neuroscience*.

Chan, S. C. Y., Applegate, M. C., Morton, N. W., Polyn, S. M., Norman, K. A (2017). Lingering representations of stimuli influence recall organization. *Neuropsychologia*.

Chen, J., Leong, Y. C., Honey, C. J., Yong, C. H., Norman, K. A., & Hasson, U. (2017). Shared memories reveal shared structure in neural activity across individuals. *Nature Neuroscience*.

Gershman, S. J., Monfils, M.-H., Norman, K. A., & Niv, Y. (2017). The computational nature of memory modification. *eLife.*

Kim, G., Norman, K. A., & Turk-Browne, N. B. (2017). Neural differentiation of incorrectly predicted memories. *Journal of Neuroscience*.

Poppenk, J. & Norman, K. A. (2017). Parametrically scalable memory reactivation using multiple object tracking. *Journal of Cognitive Neuroscience.*

Schapiro, A. C., McDevitt, E. A., Chen, L., Norman, K. A., Mednick, S. C., & Rogers, T. T., (2017). Sleep benefits memory for semantic category structure while preserving exemplar-specific information. *Scientific Reports.*

Vodrahalli, K., Chen, P.-H., Liang, Y., Chen, J., Yong, E., Honey, C., Baldassano, C., Hasson, U., Ramadge, P., Norman, K. A., & Arora, S. (2017). Mapping between natural movie fMRI responses and word-sequence representations. *Neuroimage*.

Zadbood, A., Chen, J., Leong, Y. C., Norman, K. A., & Hasson, U. (2017). How we transmit memories to other brains: Constructing shared neural representations via communication. *Cerebral Cortex*.

Anderson, M., Capota, M., Turek, J., Zhu, X., Willke, T., Wang, Y., Chen, P.-H., Manning, J. R., Ramadge, P., & Norman, K. A. (2016). Enabling factor analysis on thousand-subject neuroimaging datasets. *IEEE-BigData Conference.*

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Review Papers

Beukers., A.O., Buschman, T.J., Cohen, J.D., & Norman, K.A. (2021). Is activity silent working memory simply episodic memory? *Trends in Cognitive Sciences*.

Mennen, A.C., Norman, K.A., & Turk-Browne, N.B. (2019). Attentional bias in depression: Understanding mechanisms to improve training and treatment. *Current Opinion in Psychology.*

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Book Chapters

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Conference Presentations (partial listing)

Cornell, C. A., Norman, K. A., Griffiths, T. L., & Zhang, Q. (2023). Improving memory search through model-based cue selection. *Poster presented at the Psychonomic Society Annual Meeting*.

Michelmann, S., Strauss, C., Doyle, W. K., Friedman, D., Melloni, L., Dugan, P., Devinsky, O., Devore, S., Flinker, A., Hasson, U., & Norman, K. A. (2023). Tracking the reinstatement of event representations during continuous memory search with human ECoG. *Poster presented at the 2023 International Conference on Learning and Memory, Huntington Beach, USA.*

Brooks, P. P., Mao, M., Noyes, M., Yi, H. Y., Hutchinson, S. P., Kensinger, E. A., Norman, K. A., & Ritchey, M. (2022). Eye-tracking evidence for reinstatement of emotionally negative and neutral memories. *Poster presented at the Psychonomic Society Annual Meeting, Boston, MA*.

Collin, S.H.P., Kempner, R., Srivatsan, S., Beukers, A., Hasson, U., & Norman, K.A. (2022). Effect of context-dependent temporal structure on episodic memory. *Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.*

Kumar, M., Goldstein, A., Michelmann, S., Zacks, J.M., Hasson, U., & Norman, K.A. (2022). Event segmentation in story listening using deep language models. *Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.*

Kumar, M., Goldstein, A., Michelmann, S., Zacks, J.M., Hasson, U., & Norman, K.A., (2022). Event segmentation in story listening using deep language models. *Talk presented at the Psychonomic Society Annual Meeting, Boston, MA.*

Kumar, S., Sumers, T.R., Yamakoshi, T., Goldstein, A., Hasson, U., Norman, K.A., Griffiths, T.L., Hawkins, R.D., Nastase, S.A. (2022). Reconstructing the cascade of language processing in the brain using the internal computations of a transformer-based language model. *Poster presented at the Cognitive Computational Neuroscience Annual Meeting.*

Masís-Obando, R., Norman, K.A., & Baldassano, C. (2022). Decoding mental walkthroughs of spatial memories in an immersive virtual reality environment.
Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.

McDevitt, E.A., Kim, G., Turk-Browne, N.B., & Norman, K.A. (2022). Investigating how memory representations change as a function of competition-dependent learning and sleep. *Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.*

Michelmann, S., Strauss, C. K., Doyle, W. K., Friedman, D., Dugan, P. C., Devinsky, O., Devore, S., Flinker, A., Hasson, U., & Norman, K. A. (2022). Detecting slowly unfolding event patterns in naturalistic perception and memory using human ECoG. *Poster presented at the Cognitive Neuroscience Society Annual Meeting, San Francisco, CA.*

Peng, K., Wammes, J.D., Norman, K.A., Turk-Browne, N.B. (2022). Activating visual competitors during real-time feedback drives nonmonotonic representational change. *Poster presented at the Real-Time Functional Imaging and Neurofeedback Conference, New Haven, CT.*

Peng, K., Wammes, J.D., Norman, K.A., Turk-Browne, N.B. (2022). Synthesizing images to build layer-specific mappings between convolutional neural networks and the brain. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Ritvo, V.J.H., Nguyen, A., Turk-Browne, N.B., & Norman, K.A. (2022). Differentiation and integration of competing memories: a neural network model. *Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.*

Scotti, P., Hennings, A., & Norman, K.A. (2022). RT-fMRI studies with the realtime fMRI cloud framework (RT-Cloud). *Workshop presented at the Real-Time Functional Imaging and Neurofeedback Conference*, *New Haven, CT.*

Toneva, M., Vo, V., Turek, J., Jain, S., Michelmann, S., Capota, M., Huth, A., Hasson, U., & Norman, K.A. (2022). Memory for long narratives. *Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.*

Williams, J.A., Baldassano, C., Margulis, E., Kempner, R., Hasson, U., Chen, J., & Norman, K.A. (2022). What's the score: Music-evoked reactivation of naturalistic events. *Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.*

Collin, S.H.P., Kempner, R., Srivatsan, S., Beukers, A., Hasson, U., & Norman, K.A. (2021). Effect of context-dependent temporal structure on episodic memory. *Poster presented at the Society for Neuroscience Annual Meeting (virtual).*

Singh, D., Norman, K.A., & Schapiro, A.C. (2021). A neural network model of sleep-dependent consolidation via autonomous hippocampal-cortical replay. *Poster presented at the Society for Neuroscience Annual Meeting (virtual).*

Antony, J. W., McDougle, S. D., Hasson, U., & Norman K. A. (2019). March madness: an fMRI study of continuously updated surprise and suspense during basketball-watching. *Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Kumar, M., Ellis, C. T., Lu, Q., Zhang, H., Ramadge, P. J., Turk-Browne, N. B., & Norman, K. A. (2019). BrainIAK education: user-friendly tutorials for advanced, computationally-intensive fMRI analysis. *Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

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McDevitt, E. A., Kim, G., Turk-Browne, N. B., & Norman, K. A. (2019). Stimulus prediction in the hippocampus resulting from rapid statistical learning. *Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Masis-Obando, R., Hasson, U., Norman, K. A., & Baldassano, C. (2019). Decoding mental walkthroughs of spatial memories in an immersive virtual reality environment. *Talk presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Meshulam, M., Hasenfratz, L., Hillman, H., Liu, Y.-F., Nguyen, M., Norman, K. A., & Hasson, U. (2019). Shared structure in neural activity across individuals during learning and during test facilitates performance in an introduction to computer science course. *Talk presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Nastase, S. A., Liu, Y.-F., Hillman, H., Zadbood, A., Hasenfratz, L., Keshavarzian, N., Chen, J., Honey, C. J., Yeshurun, Y., Regev, M., Nguyen, M., Chang, C. H. C., Baldassano, C., Lositsky, O., Chow, M. A., Leong, Y. C., Brooks, P. P., Goldstein, A., Choe, G., Norman, K. A., & Hasson, U. (2019). Narratives: fMRI data for evaluating models of naturalistic language comprehension. *Talk presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Schechtman, E., Antony, J. W., Lampe, A., Wilson, B., Norman, K. A., & Paller, K. A. (2019). Multiple memories can be simultaneously reactivated during sleep as effectively as a single memory. *Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Wammes, J. D., Yamins, D. L. K., Norman, K. A., & Turk-Browne, N. B. (2019). Model-based multivariate mapping of the visual hierarchy with image synthesis. *Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Zadbood, A., Nastase, S. A., Chen, J., Norman, K., & Hasson, U. (2019). Twisting your memory: How the brain rewrites memories as the understanding of the past changes. *Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Zuo, X., Honey, C. J., Barense, M. D., Crombie, D., Norman, K. A., Hasson, U., & Chen, J. (2019). Temporal integration of narrative information in a hippocampal amnesic patient. *Talk presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Antony, J. W., Piloto, L., Wang, M., Brooks, P., Norman, K. A., & Paller, K. A. (2018). Sleep spindle refractoriness segregates periods of memory reactivation. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Iordan, M. C., Ritvo, V. J. H., Norman, K. A., Turk-Browne, N. B., & Cohen, J. D. (2018). Using closed-loop real-time fMRI neurofeedback to induce neural plasticity and influence perceptual similarity. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Kumar, M., Ellis, C. T., Lu, Q., Zhang, H., Ramadge, P. J., Norman, K. A., Turk-Browne, N. B. (2018). BrainIAK education: user-friendly tutorials for advanced, computationally-intensive fMRI analysis. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Masis-Obando, R., Norman, K. A., & Baldassano, C. (2018). Decoding mental walkthroughs of spatial memories in an immersive virtual reality environment. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Wammes, J. D., Norman, K. A., & Turk-Browne, N. B. (2018). Impact of representational overlap on learning-induced representational change. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Williams, J. A., Baldassano, C., Chen, J., Hasson, U., & Norman, K. A. (2018). Neural representations of music in higher-order cortical regions. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Antony, J., Cheng, L.Y., Pacheco, P., Paller, K., & Norman, K. A. (2017). Competitive learning modulates memory consolidation during sleep. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Baldassano, C., Masis-Obando, R., Hasson, U., & Norman, K. A. (2017). Perception and recall of narrative event schemas. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Capota, M., Willke, T. L., Norman, K. A., Cohen, J. D., & Turk-Browne, N. B. (2017) Brain imaging analysis kit: Advanced fMRI analysis at scale. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

DuBrow, S., Niv, Y., & Norman, K. A. (2017). A role for conflict in segmenting memories. *Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.*

DuBrow, S., Niv, Y., & Norman, K. A. (2017). Hold that thought! When mental contexts survive interruptions to bind memories. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Fan, J. E., Gunn, J., Wammes, J., Lee, R., Yamins, D., Norman, K. A., & Turk-Browne, N. B. (2017). Consequences of visual production training on object representations. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Hoskin, A. N., Bornstein, A. M., Norman, K. A., & Cohen, J. D. (2017). Measuring a covert influence of episodic memory on working memory. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Iordan, M. C., Ritvo, V. J. H., Norman, K. A., Turk-Browne, N. B., & Cohen, J. D. (2017) Inducing neural plasticity and perceptual similarity via real-time fMRI neurofeedback. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Mennen, A. C., Poppenk, J., deBettencourt, M. T., & Norman, K. A. (2017). Inhibiting scene memories through closed-loop modulation of retrieval strength. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Momennejad, I., Norman, K. A., Cohen, J. D., Singh, S., & Lewis, R. (2017). Rational use of long-term and working memory: A normative account of prospective memory. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Suo, D., Hutchinson, J., deBettencourt, M. T., Mennen, A. C., Wang, Y., Willke, T., Turk-Browne, N. B., Norman, K. A., Cohen, J. D., Li, K. (2017). Real-time fMRI analysis in the cloud. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Wang, B., Antony, J., Lurie, S., Pacheco, P., Paller, K., & Norman, K. A. (2017). Targeted memory reactivation during sleep elicits neural signals related to learning content. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Williams, J. A., Baldassano, C., Chen, J., Hasson, U., & Norman, K. A. (2017). Neural representation of musical contexts in high-level cortical regions. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Antony, J. W., Baldassano, C., Aly, M., Norman, K. A., & Turk-Browne, N. B. (2016). Reconstructing spatial location and forward planning during navigation. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Baldassano, C., Hasson, U., & Norman, K. A. (2016). Representation of real-world event schemas during narrative perception. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Bornstein, A. M., Aly, M., Feng, S. F., Turk-Browne, N. B., Norman, K. A., & Cohen, J. D. (2016). First you remember, then you see: Dynamic sampling from learned associations biases perceptual inference. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

deBettencourt, M. T., Turk-Browne, N. B., & Norman, K. A. (2016). Externalizing the internal process of context reinstatement through closed-loop neurofeedback. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Kim. G., Norman, K. A., & Turk-Browne, N. B. (2016). Differentiation of incorrectly predicted memories after restudy. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Mennen, A. C., Poppenk, J., deBettencourt, M. T., & Norman, K. A. (2016). Weakening memories through closed-loop modulation of perceptual distraction. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Momennejad, I., Tomov, M., & Norman, K. A., & Cohen, J. D. (2016). The strategic allocation of working memory and episodic memory in prospective remembering: A neural network model. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Novick, A., Bornstein, A. M., Norman, K. A., & Cohen, J. D. (2016). Blast from the past: Episodic memory supports working memory maintenance. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Rouhani, N., Norman, K. A., & Niv, Y. (2016). Reward prediction errors enhance episodic memory. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Schapiro, A. C., Turk-Browne, N. B., Botvinick, M. M., & Norman, K. A. (2016). Complementary learning systems within the hippocampus: A neural network modeling approach to reconciling episodic memory with statistical learning. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Momennejad, I., Otto, A. R., Daw, N., & Norman, K. A. (2015). Changing the past: the interplay of replay and uncertainty in retrospective revaluation. *Talk presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Zadbood, A., Leong, Y.-C., Chen, J., Norman, K. A., & Hasson, U. (2015). Differentiation of neural patterns during reinstatement vs. scene construction. *Talk presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Chen, J., Chow, M., Norman, K. A., & Hasson, U. (2015). Differentiation of neural representations during processing of multiple information streams. *Talk presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Kim, G., Norman, K. A., & Turk-Browne, N. B. (2015). Prior contextual associations are weakened based on competition from new contexts. *Talk presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Schapiro, A. C., Rogers, T. T., McDevitt, E. A., Mednick, S. C., & Norman, K. A. (2015). Human hippocampal replay prioritizes weakly-learned information and predicts memory performance. *Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Bornstein, A. M., Aly, M., Feng, S. F., Norman, K. A., Turk-Browne, N. B., & Cohen, J. D. (2015). Memory-guided perception: Sampling from past experience during perceptual inference. *Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Novick, A., Bornstein, A. M., Norman, K. A., & Cohen, J. D. (2015). Refresh my memory: Context information from episodic memory affects working memory maintenance. *Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Stachenfeld, K. L., Manning, J. R., Cohen, J. M., Ranganath, R., Willke, T., Zhu, X., Blei, D. M., & Norman, K. A. (2015). A probabilistic approach for exploring functional brain networks. *Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

deBettencourt, M. T., Turk-Browne, N. B., & Norman, K. A. (2015). Reinstating mental context with closed-loop neurofeedback. *Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.*

Manning, J. R., Ranganath, R., Norman, K. A., & Blei, D. (2014). Efficient discovery of functional brain networks in large multisubject fMRI datasets. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Poppenk, J. & Norman, K. A. (2014). Parametrically scalable memory cueing using multiple object tracking. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Bornstein, A. M. & Norman, K. A. (2014). Reinstatement of contextual information from episodic memory alters decisions for reward. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Antony, J. W., Piloto, L. R., Paller, K. A., & Norman, K. A. (2014). Using multivariate pattern analysis to investigate memory reactivation during sleep. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Schnyer, D. M., deBettencourt, M. T., Beevers, C. G., Sherman, S., Cohen, J. D., Norman, K. A, & Turk-Browne, N. B. (2014). Development of real-time fMRI neurofeedback attention training for depression. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

deBettencourt, M. T., Turk-Browne, N. B., & Norman, K. A. (2014). Manipulating mental context in a memory task using real-time fMRI. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Chan, S. C. Y, Niv, Y., & Norman, K. A. (2014). Posterior distributions over hidden variables: Schemas in the brain. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Momennejad, I., Cohen, J. D., & Norman, K. A. (2014). Imagine the future! How does episodic simulation enhance prospective memory? *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Manning. J. R., Hulbert, J. C., Williams, J. A., Piloto, L. R, Sahakyan, L., & Norman, K. A. (2014). Neural evidence for a context-change account of list-method directed forgetting. *Poster presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Schapiro, A. C., Norman, K. A., Turk-Browne, N. B., & Botvinick, M. M. (2014). Rapid learning of complex temporal regularities in the hippocampus: Evidence from fMRI and a neural network model. *Talk presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Chen, J., Leong, Y., Norman, K. A., & Hasson. U. (2014). Reinstatement of neural patterns during narrative free recall. *Talk presented at the Society for Neuroscience Annual Meeting, Washington, DC.*

Poppenk, J. L. & Norman, K. A. (2013). Briefly cueing memories leads to suppression of their neural representations. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Lositsky, O., Toker, D., Chen, J., Honey, C. J., Poppenk, J. L., Hasson, U., Norman, K. A. (2013). Time perception and contextual drift with a naturalistic stimulus. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Chan, S. C. Y., Applegate, M. C., Morton, N. W., Polyn, S. M., & Norman, K. A. (2013). Recall order is predicted by category-specific neural activity of preceding items at study. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Hulbert, J. C. & Norman, K. A. (2013). Alternating study and retrieval practice leads to neural and behavioral differentiation of competing memory representations. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Manning, J. R., Ranganath, R., Blei, D. M., & Norman, K. A. (2013). Topographic Factor Analysis: inferring brain networks from fMRI data. *Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.*

Chan, S. C. Y., Applegate, M. C., Morton, N. W., Polyn, S. M., & Norman, K. A. (2013, May). Recall order is predicted by category-specific neural activity of preceding items at study. *Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.*

Hulbert, J. C. & Norman, K. A. (2013, May). Alternating study and retrieval practice leads to differentiation of competing memories. *Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.*

Lositsky, O., Toker, D., Chen, J., Honey, C., Hasson, U, & Norman, K. A. (2013, May). Time perception and contextual drift with a naturalistic stimulus. *Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.*

Manning, J. R., Blei, D. M., & Norman, K. A. (2013, May). A probabilistic temporal context model for tracking mental context using neural and behavioral data. *Poster presented at the Context and Episodic Memory Symposium, Philadelphia, PA.*

Manning, J. R., Gershman, S. J., Norman, K. A., & Blei, D. M. (2012, December). Factor topographic latent source analysis: factor analysis for brain images. *Poster presented at the Neural Information Processing Systems Conference, Workshop on Machine Learning and Interpretation in Neuroimaging, Lake Tahoe, NV.*

deBettencourt, M. T., Lee, R. F., Cohen, J. D., Norman, K. A., & Turk-Browne, N. B. (2012, October). Decoding and training sustained attention with real-time fMRI. *Poster presented at the Annual Meeting of the Society for Neuroscience, New Orleans, LA.*

Gershman, S. J., Schapiro, A. C., Hupbach, A., & Norman, K. A. (2012, October). Neural context reinstatement predicts memory misattribution.*Poster presented at the Annual Meeting of the Society for Neuroscience, New Orleans, LA.*

Lewis-Peacock, J. A., Cohen, J. D., & Norman, K. A. (2012, October). Neural evidence for the flexible use of working memory and episodic memory in prospective remembering. *Poster presented at the Annual Meeting of the Society for Neuroscience, New Orleans, LA.*

Lewis-Peacock, J. A. & Norman, K. A. (2012, October). Deactivation of items in working memory can weaken long-term memory. *Talk presented at the Annual Meeting of the Society for Neuroscience, New Orleans, LA.*

Manning, J. R., Blei, D. M., & Norman, K. A. (2012, October). Decoding topic vectors during memory encoding and retrieval. *Poster presented at the Annual Meeting of the Society for Neuroscience, New Orleans, LA.*

Poppenk, J. & Norman, K. A. (2012, October). Suppression of word-scene paired associate memories using an RSVP task. *Poster presented at the Annual Meeting of the Society for Neuroscience, New Orleans, LA.*

Schapiro, A. C., Norman, K. A., & Rogers, T. T. (2012, October). The role of sleep in consolidating semantic knowledge. *Poster presented at the Annual Meeting of the Society for Neuroscience, New Orleans, LA.*

Kim, G., Lewis-Peacock, J. A., Norman, K. A., & Turk-Browne, N. B. (2012, October). Context-based prediction and memory suppression. *Poster presented at the Annual Meeting of the Society for Neuroscience, New Orleans, LA.*

Schapiro, A. C., Trippe, A. M., Herd, S. A., O'Reilly, R. C., Rogers, T. T., & Norman, K. A. (2012, July). The computational mechanisms underlying learning during sleep. *Poster presented at the Neural Computation and Psychology Workshop, San Sebastian, Spain.*

Lewis-Peacock, J.A. & Norman, K.A. (2012, May). Deactivation of items in working memory can weaken long-term memory. *Poster presented at the Context and Episodic Memory Symposium, Bloomington, IN.*

Manning, J.R., Blei, D.M. & Norman, K.A. (2012, May). Tracking item representations during free recall. *Poster presented at the Context and Episodic Memory Symposium, Bloomington, IN*.

Lewis-Peacock, J.A. & Norman, K.A. (2012, March). Deactivation of items in working memory can weaken long-term memory. *Poster presented at the Cognitive Neuroscience Society meeting, Chicago, IL*.

Poppenk, J. & Norman, K.A. (2011, November). Familiarization helps contextual features stick to item features: A multi-voxel pattern analysis study. *Poster presented at the Annual Meeting of the Society for Neuroscience, Washington, DC.*

Lewis-Peacock, J.A., Salesi, M.R., Cohen, J.D. & Norman, K.A. (2011, November). Decoding the use of working memory & episodic memory in prospective remembering. *Poster presented at the Annual Meeting of the Society for Neuroscience, Washington, DC.*

Gershman, S. J., Blei, D. M., & Norman, K.A. (2011, October). New tools for decoding mental representations from neuroimaging data. *Poster presented at the Collaborative Research in Computational Neuroscience Principal Investigators Meeting, Princeton, NJ.*

Detre, G.J., Natarajan, A., & Norman, K.A. (2010, November). Moderate memory activation leads to forgetting in the think-no think paradigm. *Poster presented at the Annual Meeting of the Society for Neuroscience, San Diego, CA*.

Socher, R., Gershman, S. J., Perotte, A. J., Sederberg, P. B., Blei, D. M., & Norman, K. A. (2009, December). A Bayesian analysis of dynamics in free recall. *Poster presented at the Neural Information Processing Systems conference, Vancouver, Canada.*

Saxe, A. & Norman, K. A. (2009, November). Stop-learning systems: Unifying levels of abstraction in associative memory models. *Poster presented at the Computational Cognitive Neuroscience conference, Boston, MA.*

McDuff, S.G.R., Frankel, H.C. & Norman, K.A. (2008, November). Multi-voxel pattern analysis reveals increased memory targeting and reduced use of retrieved details during single-agenda source monitoring. *Poster presented at the Annual Meeting of the Society for Neuroscience, Washington, DC.*

Newman, E.L. & Norman, K.A. (2008, November). Weakening perceptual representations through moderate excitation. *Poster presented at the Annual Meeting of the Society for Neuroscience, Washington, DC.*

Sederberg, P.B. & Norman, K.A. (2008, November). The dynamics of semantic and temporal cuing during episodic memory retrieval. *Poster presented at the Annual Meeting of the Psychonomic Society, Chicago, IL.*

Quamme, J. R., Weiss, D. J., & Norman, K. A. (2008, April). Pattern classification of fMRI retrieval states in recognition memory. *Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA.*

Quamme, J. R., Weiss, D. J., & Norman, K. A. (2007, November). Pattern classification of fMRI retrieval states in recognition memory. *Poster presented at the Annual Meeting of the Psychonomic Society, Long Beach, CA*.

Detre, G. J., Polyn, S. M., Bannert, M. M., & Norman, K. A. (2007, November). Context in free recall - multi-voxel pattern analysis of fMRI. *Poster presented at the Annual Meeting of the Society for Neuroscience, San Diego, CA*.

Sederberg, P. B. & Norman, K. A. (2007, November). Tracking episodic and semantic retrieval with fMRI pattern classification. *Poster presented at the Annual Meeting of the Society for Neuroscience, San Diego, CA*.

Newman, E. L. & Norman, K. A. (2007, November). Reading minds: Using EEG pattern classification to predict behavior in negative priming. *Poster presented at the Annual Meeting of the Society for Neuroscience, San Diego, CA*.

Newman, E. L. & Norman, K. A. (2007, May). Using EEG pattern classification to track competition in negative priming. *Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, New York, NY.*

Polyn, S. M., Morton, N. W., Kogen, D., Norman K. A., & Kahana, M. J. (2007, May). Task context and memory accessibility in free recall. *Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, New York, NY.*

Polyn, S. M., Morton, N. W., Kogen, D. K., Norman, K. A., & Kahana, M. J. (2006, November). Task effects on memory accessibility in free recall. *Poster presented at the Annual Meeting of the Psychonomic Society, Houston, TX.*

Frankel, H. C., Robison, S. G., & Norman, K. A. (2006, October). fMRI correlates of retrieval orientation: Tracking contextual reinstatement using pattern classification. *Poster presented at the Annual Meeting of the Society for Neuroscience, Atlanta GA.*

Newman, E. L. & Norman, K. A. (2006, October). Tracking the sub-trial dynamics of cognitive competition. *Poster presented at the Annual Meeting of the Society for Neuroscience, Atlanta, GA.*

Polyn, S. M., Norman, K. A. , & Kahana, M. J. (2006, October). Tracking the stimulus representation in an fMRI study of free recall. *Poster presented at the Annual Meeting of the Society for Neuroscience, Atlanta, GA*

Quamme, J. R. & Norman, K. A. (2006, October). Using fMRI pattern classification of recollection and familiarity to predict false alarms in recognition memory. *Poster presented at the Annual Meeting of the Society for Neuroscience, Atlanta, GA.*

Robison, S. G., Osherson, D. N., Norman, K. A. & Cohen, J. D. (2006, October). Pattern classification of attentional control states. *Poster presented at the Annual Meeting of the Society for Neuroscience, Atlanta GA*

Polyn, S. M., Norman, K. A., & Kahana, M. J. (2006, July). Context and episode in a model of human memory. *Society for Mathematical Psychology Meeting, Vancouver, BC.*

Carroll, M. K., Norman, K. A., Haxby, J. V., & Schapire, R. E. (2006, June). Exploiting spatial information to improve fMRI pattern classification. *Poster presented at the Annual Meeting of the Organization for Human Brain Mapping, Florence, Italy.*

Detre, G., Polyn, S. M., Moore, C. D., Natu, V. S., Singer, B. D., Cohen, J. D., Haxby, J. V., & Norman, K. A. (2006, June). The Multi-Voxel Pattern Analysis (MVPA) toolbox. *Poster presented at the Annual Meeting of the Organization for Human Brain Mapping, Florence, Italy.*

Detre, G., Natu, V. S., Schneider, K., DeSimone, K., Kastner, S., & Norman, K. A. (2005, November). Reading out the location being stored in spatial working memory with fMRI. *Poster presented at the Annual Meeting of the Society for Neuroscience, Washington, DC.*

Quamme, J. R., Yonelinas, A. P., & Norman, K. A. (2005, November) Associative recognition in amnesia: spared performance is related to unitization and familiarity capacity. *Poster presented at the Annual Meeting of the Society for Neuroscience, Washington, DC.*

Robison, S. G. & Norman, K. A. (2005, November). Pattern classification of memory encoding tasks. *Poster presented at the Annual Meeting of the Society for Neuroscience, Washington DC.*

Polyn, S., Detre, G., Takerkart, S., Natu, V., Benharrosh, M., Singer, B., Cohen, J., Haxby, J., & Norman, K. A. (2005, June). A Matlab-based toolbox to facilitate multi-voxel pattern classification of fMRI data. *Poster presented at the Annual Meeting of the Organization for Human Brain Mapping, Toronto, Canada.*

Lenartowicz, A., Detre, G., Polyn, S., Chein, J., Yeung, N., Nystrom, L., Norman, K. A., & Cohen, J. D. (2005, April). Characterization of brain states during task-switching using a neural network classifier. *Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, New York, NY.*

Norman, K. A., Newman, E., & Detre, G. (2004, November). Further predictions from a neural network model of retrieval induced forgetting. *Poster presented at the 45th Annual Meeting of the Psychonomic Society, Minneapolis, MN.*

Polyn, S. M., Cohen, J., & Norman, K. A. (2004, October). Detecting distributed patterns in an fMRI study of free recall. *Poster presented at the Annual Meeting of the Society for Neuroscience, San Diego, CA.*

Polyn, S. M., Nystrom, L. E., Norman, K. A., Haxby, J. V., Gobbini, M. I., & Cohen, J. D. (2004, June). Using neural network algorithms to investigate distributed patterns of brain activity in fMRI. *Poster presented at the Annual Meeting of the Organization for Human Brain Mapping, Budapest, Hungary.*

Norman, K. A., Newman, E. L., Detre, G. J., & Polyn, S. M. (2004, April). How inhibitory oscillations can train neural networks and punish competitors. *Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA.*

Norman, K. A., Newman, E. L., Detre, G. J., & Polyn, S. M. (2004, March). How inhibitory oscillations can train neural networks and punish competitors. *Poster presented at the Computational and Systems Neuroscience Meeting, Cold Spring Harbor, NY.*

Newman, E. L. & Norman, K. A. (2003, November) Oscillations drive learning in retrieval induced forgetting. *Poster presented at the Annual Meeting of the Society for Neuroscience, New Orleans, LA.*

Polyn, S. M., Norman, K. A., & Cohen, J. D. (2003, March). Modeling prefrontal and medial temporal contributions to episodic memory. *Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, New York, NY.*

Newman, E. L. & Norman, K.A. (2003, April). A neural network model of retrieval induced forgetting. *Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, New York, NY.*

Polyn, S. M., Norman, K. A., & Cohen, J. D. (2002, November). Connectionist modeling of source memory phenomena. *Poster presented at the Annual Meeting of the Society for Neuroscience, Orlando, FL.*

Norman, K. A., Curran, T., & Tepe, K. (2002, April). Event-related potential correlates of interference effects on recognition memory. *Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA.*

Norman, K. A. (2000, November). Differential effects of list strength on recollection and familiarity. *Poster presented at the Annual Meeting of the Psychonomic Society, New Orleans, LA.*

Kirchhoff, B. A., Norman, K. A., Nicolas, M. M., Greicius, M., Breiter, H. C., Hasselmo, M. E., & Stern, C. E. (2000, November). Effect of cholinergic blockade on paired-associate learning in humans. *Poster presented at the Annual Meeting of the Society for Neuroscience, New Orleans, LA.*

Huber, D. E., O'Reilly, R. C., & Norman, K. A. (2000, May). Understanding memory strengthening in a model of neocortex: The deepening and sharpening of item attractors. *Poster presented at the Fourth International Conference on Cognitive and Neural Systems, Boston University, Boston, Massachusetts.*

Norman, K. A., O'Reilly, R. C., & Huber, D. E. (2000, April). Modeling hippocampal and neocortical contributions to recognition memory. *Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA.*

Savage, C. R., Schacter, D. L., Norman, K. A., Fisler, R. E., Rauch, S. L., Benson R. L., & Albert, M. S. (1997, March). A functional MRI study of episodic memory retrieval. *Poster presented at the Annual Meeting of the Cognitive Neuroscience Society, Boston, MA.*

Current Graduate and Postdoctoral Supervision

Ph.D. advisor, Alex Nguyen, 9/2020 – present
Ph.D. advisor, Cody Dong, 8/2022 – present
Ph.D. advisor, Ariadne Letrou, 8/2023 – present

secondary Ph.D. advisor, Sade Abiodun, 8/2021 – present

postdoctoral supervisor, Elizabeth McDevitt, 9/2017 – present
postdoctoral co-supervisor, Sam Nastase, 9/2019 – present
postdoctoral supervisor, Augustin Hennings, 7/2022 – present
postdoctoral co-supervisor, Nitzan Lubianiker, 7/2023 – present

Prior Graduate and Postdoctoral Supervision

James Antony (postdoctoral advisee, 2015-2020), Assistant Professor of Psychology, California Polytechnic University

Chris Baldassano (postdoctoral advisee, 2015-2018), Assistant Professor of Psychology, Columbia University

Andre Beukers (graduated with Ph.D. in Psychology, 2023), data scientist, Bloomberg

Aaron Bornstein (postdoctoral advisee, 2013-2018), Assistant Professor of Cognitive Science, UC-Irvine

Paula Pacheco Brooks (graduated with Ph.D. in Neuroscience, 2023)

Stephanie Chan (graduated with Ph.D. In Neuroscience, 2016), research scientist, DeepMind

Claire Chang (postdoctoral co-advisee, 2017-2022), Assistant Professor, Graduate Institute of Mind, Brain, and Consciousness, Taipei Medical University

Janice Chen (postdoctoral advisee, 2013-2016), Assistant Professor of Psychological and Brain Sciences, Johns Hopkins University

Silvy Collin (postdoctoral advisee, 2018-2020), Assistant Professor of Cognitive Science and Artificial Intelligence, Tilburg University

Megan deBettencourt (graduated with Ph.D. in Neuroscience, 2016), research scientist, Ruby Neurotech

Greg Detre (graduated with Ph.D. in Psychology, 2010), co-founder of Memrise, Inc. (www.memrise.com), Chief Data Scientist at Channel 4 (www.channel4.com)

Sarah DuBrow (postdoctoral advisee, 2015-2018), Assistant Professor of Psychology, University of Oregon

Sam Gershman (graduated with Ph.D. in Psychology, 2012), Professor of Psychology, Harvard University

Robert Hawkins (postdoctoral co-advisee, 2019-2023), Assistant Professor of Psychology, University of Wisconsin-Madison

Abigail Novick Hoskin (graduated with Ph.D. in Psychology, 2022), Advisor, 80,000 Hours

Justin Hulbert (postdoctoral advisee, 2011-2015), Associate Professor of Psychology, Bard College

Marius Catalin Iordan (postdoctoral advisee, 2018-2022), Assistant Professor of Brain and Cognitive Sciences, University of Rochester

Ghootae Kim (graduated with Ph.D. in Neuroscience, 2016), senior researcher, Korea Brain Research Institute

Manoj Kumar (postdoctoral advisee, 2017-2023), data scientist, Princeton Precision Health Initiative

Olga Lositsky (graduated with Ph.D. in Neuroscience, 2016), research scientist, Siemens

Qihong Lu (graduated with Ph.D. in Psychology, 2023), postdoctoral fellow in Fusi and Shohamy labs, Columbia University

Rolando Masís-Obando (graduated with Ph.D. in Neuroscience, 2023), postdoctoral fellow in Chen and Honey labs, Johns Hopkins University

Anne Mennen (graduated with Ph.D. in Neuroscience, 2020)

Meir Meshulam (postdoctoral advisee, 2017-22), R & D scientist, machine learning and brain-computer interfaces, Snap

Sebastian Michelmann (postdoctoral advisee, 2018-2023), Assistant Professor of Psychology, New York University

Ida Momennejad (postdoctoral advisee, 2013-2018), Principal Researcher, Microsoft Research

Christopher D. Moore (graduated with Ph.D. in Psychology, 2010), Director of Research for the Chicago Cubs

Susan McDuff (graduated with Ph.D. in Psychology, 2009), Assistant Professor of Radiation Oncology, Duke University School of Medicine

Ehren Newman (graduated with Ph.D. in Psychology, 2008), Associate Professor of Psychological and Brain Sciences, Indiana University

Jarrod Lewis-Peacock (postdoctoral advisee, 2010-2013), Associate Professor of Psychology at the University of Texas, Austin

Jeremy Manning (postdoctoral advisee, 2011-2015), Assistant Professor of Psychological and Brain Sciences, Dartmouth College

Luis Piloto (graduated with Ph.D. in Neuroscience, 2021), research scientist, DeepMind

Sean Polyn (graduated with Ph.D. in Psychology, 2005), Associate Professor of Psychology at Vanderbilt University

Jordan Poppenk (postdoctoral advisee, 2010-2014), Associate Professor of Psychology at Queen's University, Canada

Joel Quamme (postdoctoral advisee, 2004-2008), Associate Professor of Psychology at Grand Valley State University

Victoria Ritvo (graduated with Ph.D. in Psychology, 2022), data scientist, Flatiron Health

Nina Rouhani (graduated with Ph.D. in Psychology, 2020), postdoctoral fellow, Adolphs Lab, California Institute of Technology

Anna Schapiro (graduated with Ph.D. in Psychology, 2014), Assistant Professor of Psychology, University of Pennsylvania

Monika Schönauer (postdoctoral advisee, 2018-2019), Assistant Professor of Neuropsychology, University of Freiburg

Paul Scotti (postdoctoral advisee, 2022-2023), Head of Neuroimaging, Stability AI; Visiting Research Scientist, Princeton University

Per Sederberg (postdoctoral advisee, 2006-2010), Professor of Psychology, University of Virginia.

Yeon Soon Shin (graduated with Ph.D. in Neuroscience, 2020), postdoctoral fellow, Crockett Lab, Princeton University.

Karina Tachihara (graduated with Ph.D. in Psychology, 2022), postdoctoral fellow, Ferreira Lab, UC Davis

Mariya Toneva (postdoctoral advisee, 2021-2022), tenure-track faculty (W2), Max Planck Institute for Software Systems

Boyu Wang (postdoctoral advisee, 2016-2018), Assistant Professor of Computer Science, University of Western Ontario

Jamal Williams (graduated with Ph.D. in Neuroscience, 2023), postdoctoral fellow, McDermott Lab, MIT

Asieh Zadbood (graduated with Ph.D. in Psychology, 2019), postdoctoral fellow, Davachi Lab, Columbia University

Qiong Zhang (postdoctoral advisee, 2019-2021), Assistant Professor of Psychology and Computer Science, Rutgers University

Professional Membership

American Psychological Society
Cognitive Neuroscience Society
Memory Disorders Research Society
Psychonomic Society
Society of Experimental Psychologists
Society for Neuroscience

Reviewing

Consulting Editor, *Psychological Review*, 2015 – 2020

Ad-hoc reviewer for:

Army Research Office
Behavioral and Brain Sciences
Biological Psychiatry
Brain Research
Cerebral Cortex
Cognition
Cognitive, Affective, & Behavioral Neuroscience
Cognitive Neuropsychology
Cognitive Science
Current Biology
Developmental Psychology
eLife
Frontiers in Human Neuroscience
Hippocampus
Journal of Cognitive Neuroscience
Journal of Experimental Psychology: General
Journal of Experimental Psychology: Learning, Memory, & Cognition
Journal of Gerontology: Psychological Sciences
Journal of Memory & Language
Journal of Neuroscience
Learning & Memory
Medical Research Council, UK
Memory & Cognition
National Science Foundation
Nature Communications

Nature Neuroscience
Network: Computation in Neural Systems
Neural Information Processing Systems Conference
Neuroimage
Neuron
Neuroscience Letters
Neuropsychologia
PLoS Biology
PLoS One
PNAS
Psychological Review
Psychological Science
Psychology & Aging
Psychonomic Bulletin & Review
Science
Wellcome Trust

Professional Activities

Organizing committee member, Memory in Artificial and Real Intelligence (MemARI) Workshop, NeurIPS, 2022, New Orleans, LA

Member, Scientific Advisory Board, Max Planck Institute for Cognition and Human Brain Sciences, Leipzig, Germany

Co-organizer (with Nicholas Turk-Browne), Memory Disorders Research Society annual meeting, September, 2016, Princeton, NJ

Member, NIH CP grant review panel, July 2011 – June 2017

Co-organizer (with William Bialek), Collaborative Research in Computational Neuroscience (CRCNS) Principal Investigators meeting, October, 2011, Princeton, NJ

Ad-hoc panelist, NIH CP grant review panel, June 2010

Panelist, NSF Perception, Action, and Cognition panel (three times)

Editor, special issue of *Neuropsychologia* on Multivariate Pattern Analysis and Cognitive Theories (published in March, 2012).

Member, Faculty of 1000 Biology, Theoretical Neuroscience section, July 2008 – December 2009

Organizer, Symposium on Computational Models of Memory, Memory Disorders Research Society, Chapel Hill, NC, October, 2009

Member, Context and Episodic Memory Symposium organizing committee, October 2008 – present

Panelist, NIH special emphasis grant review panels BBBP-E (January 2011), BBBP-E (November 2010), BBBP-D (June 2009), BBBP-L (March 2009)

Member, NIH ZRG1 F02A (20) study section (Neuroscience predoctoral & postdoctoral fellowships), March 2004 – June 2004

Co-organizer (with Michael Kahana), Second Annual Episodic Memory Symposium, New Orleans, LA, November 2003

Co-organizer (with Michael Kahana), First Annual Episodic Memory Symposium, Orlando, FL, November 2002

Consultant on NIH R01 grant, Tim Curran PI, "ERP studies of dual processes in human recognition memory", January 2002 – December 2006

Co-organizer (with Ken Malmberg), Symposium on New Approaches to Dual-Process Models of Recognition, Annual Interdisciplinary Conference, Jackson, WY, January 2001

Teaching

Spring 2015-16: NEU 202A/B, "Introduction to Cognitive Neuroscience"

This course surveys current knowledge about the neural underpinnings of cognitive functions such as attention, language, memory, learning, and decision making. Through this course, students learn to extract overarching principles of cognitive function and neural organization, and to effectively address questions about the neural substrates of high-level human behaviors using current neuroscientific methods and clever experimental design. Labs provide hands-on experience with behavioral experiments, fMRI, EEG and computational modeling.

Spring 2004-05, Fall 2005-06, Fall 2007-08, Spring 2009-10, Fall 2011-12, Fall 2015-16, Spring 2016-17, Spring 2019-20: PSY/NEU 306, "Memory and Cognition"

This course provides an integrative treatment of learning and memory in humans and animals. We explore working memory (our ability to actively maintain thoughts in the face of distraction) and episodic memory (our ability to rapidly memorize specific details so we can recall them later), as well as more incremental forms of learning. In studying these topics, we consider the behavioral paradigms used to extract learning and memory data, as well as techniques from cognitive neuroscience (e.g., neuroimaging, lesion studies, computational modeling) that shed light on how the brain gives rise to learning and memory.

Fall 2003-04: FRS 165, "Memory Distortion and Forgetting"

This freshman seminar course provides an introduction to the neural basis of memory, and then applies this knowledge to the (closely related) problems of why we fail to remember things that happened and why we sometimes remember things that did not happen.

Spring 2002-03, Spring 2003-04, Spring 2005-06, Spring 2007-08, Spring 2008-09, Spring 2011-12, Spring 2014-15: PSY/NEU 330, "Introduction to Connectionist Models: Bridging Between Brain and Mind"

This course provides an introduction to the use of connectionist models (also known as neural network or parallel distributed processing models) as a tool for exploring how psychological functions are implemented in the brain. The goal of this course is to give students the theoretical background and practical skills that they will need to pursue further independent research in computational modeling of cognition.

Spring 2010-11, Spring 2012-13, Fall 2018-19, Spring 2020-21: ELE/NEU/PSY 480, "fMRI Decoding: Reading Minds Using Brain Scans"

This course (co-taught with Peter Ramadge in Electrical Engineering) teaches students how to use sophisticated pattern-classification algorithms, applied to patterns of functional MRI data, to decode the information that is represented in the subject's brain at a particular point in time. In lectures, students learn about cutting-edge techniques for finding meaningful patterns in large,

noisy datasets; in weekly computer labs, students use these techniques to gain insight into fMRI datasets.

Every year since 2009-10: NEU 501 and 502, "Neuroscience: From Molecules to Systems to Behavior"

This class is a year-long proseminar for Neuroscience Ph.D. students. I assist with teaching modules on neural networks, fMRI, and memory.

Fall 2011-12: Junior Paper Laboratory, "Sleep and Memory"

This course provides hands-on experience in experimental design, experiment programming, participant testing, and data analysis, with the goal of preparing Psychology juniors to carry out their senior thesis experiments. Students learned about the effects of sleep on memory, decided on a specific research topic (looking at the role of sleep in updating existing knowledge structures based on new information), and learned how to program experiments in Psychtoolbox; each student came up with their own variant of the same "core" experiment, ran at least 8 participants, and analyzed the data from these participants.

Other Research Activities

Faculty sponsor of Princeton Experience Based Cognition (EBC) team. Supervised cross-departmental team of researchers (from Psychology, Physics, Computer Science, Applied Math, and Electrical Engineering) who participated in the Pittsburgh Brain Activity Interpretation Competition in 2006 and 2007. The goal of the competition was to predict subjects' cognitive state from functional MRI data acquired while they were watching a movie (in 2006) and while they were playing a virtual reality video game (in 2007). In both 2006 and 2007, the Princeton team won second prize overall, and had three entries in the top ten. For more information on the competition see: http://www.braincompetition.org

University and Departmental Service

Chair, Department of Psychology, 2017 – present

Associate Chair, Department of Psychology, 2012 – 2014, 2016 – 2017

Director, Quantitative and Computational Neuroscience Training, Princeton Neuroscience Institute Ph.D. program, 2012 – present

Chair, Human Cognitive Neuroscience faculty search committee, 2018 – 2019

Member, Executive Committee, Program in Cognitive Science, July 2015 – present

Fellow, Butler College, September 2014 – present

Search Officer, Princeton Neuroscience Institute and Department of Psychology, July 2014 – June 2017

Member, Committee on Undergraduate Admission and Financial Aid, September 2011 – June 2014

Member, Princeton Neuroscience Institute graduate admissions committee, 2011

Member, Princeton Neuroscience Institute curriculum committee, 2012

Advisory board member, Keller Center for Innovation in Engineering Education, Princeton University, 2008

Chair, Cognitive Psychology faculty search committee, 2011-2012

Member, Princeton Neuroscience Institute faculty search committee, 2011-2012, 2013-2014

Member, Princeton Experimental Research Committee, Department of Psychology (this committee oversees the undergraduate subject pool), 2005 – 2012

Freshman & sophomore advisor, Wilson College, 2003-04 academic year

Invited Talks

Max Planck / UCL Centre for Computational Psychiatry and Ageing, October 2023 (virtual)

Generative Episodic Memory conference keynote, June 2023

British Neuropsychological Society, Symposium in Honor of Andrew Mayes, May 2023

University of Toronto Rotman Rounds, April 2023

SFB 936 Lecture Series, University Medical Center Hamburg-Eppendorf, November 2022 (virtual)

Edmond & Lily Safra Center for Brain Sciences Colloquium, Hebrew University, December 2021 (virtual)

Neuroscience and Cognitive Science Seminar, University of Maryland, April 2021 (virtual)

Westend Lecture, Max Planck Institute for Empirical Aesthetics, March 2020 (virtual)

Department of Psychology Colloquium, University of Virginia, February 2020

CogNeuro2020 Meeting, Tel Aviv University, January 2020

MindCORE Colloquium, University of Pennsylvania, December 2019

Mind Meeting, Max Planck Institute for Human Cognitive and Brain Sciences, September 2019

A Critical Examination of Real-Time Neurofeedback, NIMH, March 2019

Eastern Psychological Association Distinguished Scientist Lecture, March 2019

Cognitive Science Colloquium, Indiana University, January 2019

Gould Lecture, Princeton Public Library, November 2018

Joint Biology and Neuroscience Colloquium, Brandeis University, January 2018

Center for Cognitive Neuroscience Colloquium, Duke University, January 2018

Neuroscience Retreat, University of Chicago, September 2017

CMBN Colloquium, Rutgers-Newark, January 2017

Psychology Colloquium, Bard College, September 2017

Psychology Colloquium, University of Delaware, April 2016

Research Highlight Talk, BRAIN Initiative Principal Investigators Meeting, Bethesda, MD, December 2015

Psychology Colloquium, Union College, October 2015

Cognitive and Cognitive Neuroscience Colloquium, Vanderbilt University, March 2015

Cognitive Science Colloquium, Northwestern University, January 2015

Perspectives in Neuroscience Series, UC Davis, December 2014

Psychology Department Colloquium, University of Pennsylvania, April 2014

Symbolic Systems Forum, Stanford University, January 2014

Cognitive Seminar, Stanford University, January 2014

NIMH Summer Institute in Cognitive Neuroscience, Squaw Valley, CA, July 2013

Psychology Department Colloquium, UCSD, May 2013

NIMH Summer Institute in Cognitive Neuroscience, UC Santa Barbara, July 2012

Psychology Department Colloquium, Stanford University, June 2012

Tsukuba International Conference on Memory, Tokyo, Japan, March 2012

Yale Magnetic Resonance Research Center, Yale University, January 2012

Conference on Executive Function, University of Colorado at Boulder, January 2012

Advanced fMRI Educational Session, OHBM Conference, Quebec City, Canada, June 2011

Rotman Research Institute Rounds, Baycrest Hospital, Toronto, Canada, January 2011

Chaucer Club Symposium, MRC-CBU, Cambridge, UK, December, 2010

Recognition Memory Symposium, University of Bristol, Bristol, UK, July 2010

Psychology Department Colloquium, Brown University, May, 2010

Cognition and Perception Seminar, New York University, March, 2010

Center for the Neural Basis of Cognition Colloquium, Carnegie Mellon University, January, 2010

Symposium on fMRI and Source Memory, Psychonomic Society meeting, Boston, MA, November, 2009

Brain and Cognition Seminar, University of Illinois Urbana-Champaign, April, 2009

Neuroscience Institute Seminar, Princeton University, December, 2008

IPAM summer school on Mathematics in Brain Imaging, Los Angeles, CA, July 2008

Symposium on Neuroethics, Society for Philosophy and Psychology meeting, Philadelphia, PA, June 2008

Psychological and Brain Sciences Colloquium, Johns Hopkins University, March 2008

Symposium on Context and Episodic Memory, Tampa, FL, January 2008

Symposium on Computationally-Based Brain Imaging, Computational Cognitive Neuroscience conference, San Diego, CA, November 2007

Conference on Neuroimaging and Theories of Memory, Marburg, Germany, August 2006

Merck Summer Institute for the Study of Developmental Disabilities, June 2006

Episodic Memory Symposium, Computational Cognitive Neuroscience conference, Washington DC, November 2005

Institute for Research in Cognitive Science Colloquium, University of Pennsylvania, October 2005

Workshop on Computational Modeling of Inhibitory Processes, Arlington, TX, March 2005

Behavior, Brain, & Cognition Colloquium, Washington University in St. Louis, December 2004

Liverpool Memory Symposium, Liverpool, UK, June 2004

NACS Colloquium, University of Maryland, March 2004

Cognitive Lunch, Yale University, March 2004

Departmental Colloquium, Rutgers-Newark, October 2003

Center for Cognitive Neuroscience Colloquium, University of Pennsylvania, December 2002

Taught a neural network workshop at the Merck Summer Institute for the Study of Developmental Disabilities, July 2003

Personal Information

Date of Birth: October 15, 1971
Citizenship: USA