Context and Episodic Memory Symposium

Philadelphia, Pennsylvania

May 7-8, 2018

The Inn at Penn

Penn
University of Pennsylvania

Table of Contents

Monday Schedule

The first author is presenting unless marked with an asterisk (*).

8:00 Registration and Breakfast *(Woodlands A/B Foyer)*

8:30 **Michael Kahana:** Welcome and introductory remarks;

Woodlands A/B

8:35 **Lila Davachi** *(Columbia University)*: What is an 'episode' in episodic memory?

9:00 **Geoff Ward, Lydia Tan** *(University of Essex)*: Examining the role of inter-item associations in rehearsal, free recall, and cued recall.

9:20 **Gregory E Cox, Amy H Criss** *(Syracuse University)*: What's in an association? The relationship between similarity and episodic memory for associations.

9:40 Morning Break

10:00 **Mikhail Katkov, Stefano Recanatesi, Misha Tsodyks*** *(Weizmann Institute of Science)*: Emergence of language-like structures in memory for random material.

10:20 **Ansgar Endress** (*University of London)*: Interference and memory capacity limitations.

10:40 **Jeff Starns**, **Caren Rotello, Andrea Cataldo** (*University of Massachusetts-Amherst)*: Validity of researcher inference in recognition memory: A blinded validation study.

11:00 Coffee and Snack Break

11:20 **Keynote Address: Nora Newcombe** *(Temple University)*: Development of episodic memory: A componential approach. *Please see pages 9-11 for a bio and associated materials.*

12:20 Assemble for Group Photo (*Sansom St. Staircase*)

12:30 Lunch Break *(Catered on-site)*

1:35 **Kevin J. Miller, Amitai Shenhav, Elliot A. Ludvig** *(Princeton University)*: Habits without values.

2:00 **Luke Strickland, Shayne Loft, Roger W. Remington, Andrew Heathcote*** *(University of Tasmania & University of Newcastle)*: Racing to remember: A theory of decision control in event-based prospective memory.

2:25 **Brandon Turner** *(Ohio State University):* Toward a common theoretical framework for adaptation.

2:50 Afternoon Snack and Beverage Break

3:10 **Lili Sahakyan, Kenneth J. Malmberg** *(University of Illinois at Urbana-Champaign)*: Divided attention during encoding causes separate memory traces to be encoded for repeated events.

3:30 **Talya Sadeh, Janice Chen, Yonatan Goshen-Gottstein, Morris Moscovitch** *(Ben-Gurion University of the Negev & University of Toronto)*: Spontaneous pre-encoding activation of neural patterns predicts memory.

3:50 **Christopher Baldassano, Rolando Masís-Obando, Uri Hasson, Kenneth A. Norman** *(Princeton University)*: Recall of schematic narrative events.

4:10 Coffee Break

4:30 **Data Blitzes, Session 1** *(see "Data Blitz" section for presenters)*

5:35 **Reception and Poster Session** *(Woodlands)*

Locations

All sessions will take place in Woodlands A/B/C/D on the main floor of the Inn at Penn (around the corner from the front desk, towards Sansom Street). Breakfast, lunch, and snacks will be served in the foyer outside Woodlands. Monday will include an evening reception and poster session in Woodlands banquet hall.

Tuesday Schedule

The first author is presenting unless marked with an asterisk (*).

8:00 Breakfast and Late Registrations *(Woodlands A/B foyer)*

8:30 **Neal W. Morton, Ellen L. Zippi, Alison R. Preston** *(University of Texas, Austin)*: Tracking semantic item features during encoding reveals mechanisms for assimilating memories into existing schemas.

8:50 **Lynn J. Lohnas, M. Karl Healey, & Lila Davachi** *(New York University)*: Event boundaries cause shifts in electrophysiological measures of temporal context.

9:10 **Marc N. Coutanche** *(University of Pittsburgh):* Using existing knowledge to promote the integration of new memories.

9:30 Morning Break

9:50 **Symposium: *Human ECoG and Single Unit Recordings***

Vaidehi S Natu, Sarah Seger, Michael Rugg, Bradley Lega* *(UT Southwestern)*: Deep brain stimulation to investigate the role of mesial parietal cortex in the human episodic memory network.

Christoph T. Weidemann, James E. Kragel*, Bradley C. Lega, Gregory A. Worrell, Michael R. Sperling, Ashwini D. Sharan, Barbara C. Jobst, Fatemeh Khadjevand, Kathryn A. Davis, Paul A. Wanda, Allison Kadel, Daniel S. Rizzuto, Michael J. Kahana *(University of Pennsylvania)*: Neural activity reveals interactions between episodic and semantic memory systems during retrieval.

Youssef Ezzyat, Paul Wanda, Joel M. Stein, Sandhitsu Das, Richard Gorniak, Michael R. Sperling, Ashwini D. Sharan, Robert Gross, Cory S. Inman, Bradley C. Lega, Kareem Zaghloul, Gregory A. Worrell, Barbara C. Jobst, Katherine A. Davis, Daniel S. Rizzuto, Michael J. Kahana *(University of Pennsylvania)*: Closed-loop stimulation of lateral temporal cortex rescues functional networks and improves memory.

Andrew Watrous, Jonathan Miller, Salman E. Qasim, Itzhak Fried, Joshua Jacobs *(Columbia University)*: Phase-tuned neuronal firing encodes human contextual representations for navigational goals.

Shachar Maidenbaum, Michael Sperling, Ashwini Sharan, Gregory A. Worrell, Brent M. Berry, Joshua P. Aronson, Kathryn A. Davis, Robert E. Gross, Bradley Lega, Sameer Sheth, Sandhitsu R. Das, Joel M. Stein, Richard Gorniak, Daniel S. Rizzuto, Joshua Jacobs (*Columbia University)*: Grid-like hexadirectional modulation of theta power in human entorhinal cortex during virtual navigation.

10:50 Coffee and Snack Break

11:10 **In Memoriam: Jeff Greenberg**

12:00 Lunch Break *(Catered on-site)*

1:15 **Adam F. Osth, Simon Farrell** *(University of Melbourne)*: Using RT distributions and race models to characterize primacy and recency in free recall initiation.

1:35 **Deborah Talmi**, **Lynn J. Lohnas** *(The University of Manchester)*: A retrieved context model of the emotional modulation of memory.

1:55 **Rivka Cohen, Michael J. Kahana** *(University of Pennsylvania)*: A memory-based theory of mood.

2:15 Afternoon Snack and Beverage Break

2:35 **Rahul Bhui**, **Samuel J. Gershman** *(Harvard University)*: Decision by sampling implements efficient coding of psychoeconomic functions.

2:55 **Nicole M Long, Brice A. Kuhl** *(University of Oregon)*: Signatures of successful encoding depend on the state of the memory system.

3:15 **Zoran Tiganj**, **Inder Singh, Marc W. Howard** *(Boston University)*: Cognitive, neural, and computational arguments for memory as a log-compressed timeline.

3:35 **Jordana S. Wynn**, **Jennifer D. Ryan, & Bradley R. Buchsbaum** *(University of Toronto)*: Reinstatement of encoding-related gaze patterns increases false alarms to lures.

3:55 Coffee Break

4:15 **Data Blitzes, Session 2** *(see "Data Blitz" section for presenters)*

Keynote Speaker: Dr. Nora Newcombe

Nora S. Newcombe is Laura H. Carnell Professor of Psychology at Temple University. She received her B.A. in 1972 from Antioch College and her Ph.D. in 1976 from Harvard University. Her research focuses on spatial cognition and development, and the development of episodic memory. She is currently Principal Investigator of the NSF-funded Spatial Intelligence and Learning Center (SILC) whose purpose is to develop the science of spatial learning and to use this knowledge to support children and adults in acquiring scientific, technical, engineering, and mathematical (STEM) skills. Dr. Newcombe is the author of numerous publications including *Making Space* with Janellen Huttenlocher (MIT Press, 2000). She has received numerous awards, including the Distinguished Scientific Contributions Award from SRCD (2015), the William James Award from APS (2014), the George A. Miller Award for an Outstanding Recent Article in General Psychology (twice, 2004 and 2014) and the G. Stanley Hall Award for Distinguished Contribution to Developmental Psychology (2007). She was elected to the American Academy of Arts and Sciences (2006) and to the Society of

Experimental Psychologists (2008). She has served as Editor of the *Journal of Experimental Psychology: General* and Associate Editor of *Psychological Bulletin,* has been a Visiting Professor at the University of Pennsylvania, Princeton, and the Wissenschaftskolleg in Berlin. She is currently the Past Chair of the Governing Board of the Cognitive Science Society, Chair of Section J (Psychology) of the American Association for the Advancement of Science, and President-Elect of the Federation of Associations of Behavioral and Brain Sciences.

Keynote: Development of Episodic Memory: A Componential Approach

Presented by Dr. Nora S. Newcombe
Temple University

Data from autobiographical memory research and from spatial-relational memory tasks suggest that periods of infantile amnesia (birth to age two years) and childhood amnesia (2 to 6 years) are bounded by underlying neural development. Research on the development of source memory and relational memory supports this characterization. My most recent research has used an appealing video format to assess pattern separation as well as relational memory in the same task, and to evaluate the association between these two components of episodic memory. We have studied a wide age span using this task, including 4- and 6- year-olds, young adults and aging adults. We find marked development between 4 and 6 years and a fall-off in aging, but the two components are related only in aging. The similarity of the contexts does, however, affect the developmental curve.

Monday Data Blitz Session

The first author is presenting unless marked with an asterisk (*).

James W. Antony, Luis Piloto, Margaret Wang, Paula Pacheco, Kenneth A. Norman, Ken A. Paller *(Princeton University)*: Sleep spindle refractoriness segregates periods of memory reactivation.

Erin Kendall Braun, Katherine Duncan, Ragy Girgis, Suzanne Wood, Madeleine Sharp, Camilla van Geen, Anissa Abi-Dargham, Daphna Shohamy *(Columbia University)*: Dopaminergic modulation of associative memory in healthy humans.

Sarah DuBrow, Yael Niv, Kenneth A. Norman *(Princeton University)*: Hold that thought: When mental contexts survive interruptions to bind memories.

Megan T. deBettencourt, Stephanie Williams, Edward Awh, Edward K. Vogel *(University of Chicago)*: Manipulating attention influences memory encoding.

Jamal Williams, Christopher Baldassano, Janice Chen, Uri Hasson, Kenneth Norman *(Princeton University)*: Exploring event structure in song perception.

Nicholas Diamond, Brian Levine *(University of Toronto)*: Age-related decline in the temporal organization of real-world memory recall.

Vishnu P. Murty, Rachel A. McKinney, Sarah DuBrow, Maria Jalbrizkowski, Gretchen L. Haas, Beatriz Luna *(Temple University)*: Differential patterns of contextual organization of memory in first-episode psychosis.

Tuesday Data Blitz Session

The first author is the presenting author unless marked with an asterisk (*)

William J. Hopper, David E. Huber *(University of Massachusetts-Amherst)*: Guided convergent retrieval practice enhances feature-cued object recall.

Rebecca A. Cutler, Nathaniel B. Klooster, Melissa C. Duff, Sean M. Polyn *(Vanderbilt University)*: Searching for semantic knowledge: A vector space semantic model of the feature generation task.

Jack Wilson, Amy H. Criss *(Syracuse University)*: Evaluation of noise sources in a 3-phase cued recall framework.

Ida Momennejad, Beau Sievers *(Princeton University)*: Sculpting memory networks: Retrieval-induced propagation and plasticity restructure memory.

Patrick Sadil, David E. Huber, Rosemary A. Cowell *(University of Massachusetts-Amherst)*: Episodic-like retrieval mechanisms for non-episodic memories: Visual recollection in the absence of identification.

Christopher N. Wahlheim, Timothy R. Alexander, Michael J. Kane *(University of North Carolina)*: Retrieval induced context change in dual-list free recall: Individual differences in list isolation.

Min Kyung Hong, Lisa K. Fazio, Sean M. Polyn *(Vanderbilt University)*: Exploring factors that eliminate contiguity in free recall.

Monday Poster Session

The first author is presenting unless marked with an asterisk (*).

Nina Rouhani, Yael Niv *(Princeton University)*: Dynamics of memory for events triggering reward anticipation versus those at reward outcome.

Elizabeth A. McDevitt, Ghootae Kim, Nicholas B. Turk-Browne, Kenneth A. Norman *(Princeton University)*: Measuring the behavioral consequences of statistical learning: increased memory interference and/or generalization.

Andre Beukers, Christopher Baldassano, Uri Hasson, Kenneth A. Norman *(Princeton University)*: Learning the statistics of events.

Kevin Himberger, Amy S. Finn, Christopher J. Honey *(Johns Hopkins University)*: Perceptual properties of stimuli robustly modulate visual statistical learning.

Hsiang-Yun Sherry Chien, Christopher J. Honey *(Johns Hopkins University)*: A hierarchical model for sequential perception and learning.

Xiaoye Zuo, Christopher J. Honey, Morgan Barense, Janice Chen *(Johns Hopkins University)*: Parcel-based functional-anatomical alignment between brains using a naturalistic stimulus in healthy individuals and a hippocampal amnesic.

Elizabeth Musz, Janice Chen *(Johns Hopkins University)*: Pinpointing versus summarizing events: Temporal precision during recall modulates neural activity.

Yoonjin Nah, Uri Hasson, Janice Chen *(Johns Hopkins University)***:** Neural dynamics during free memory search for naturalistic events.

Chi T. Ngo, Ying Lin, Ingrid R. Olson, Nora S. Newcombe *(Temple*

University): Pattern separation for contexts across the lifespan.

Aaron T. Buss, Vincent Magnotta, Gregor Schöner, Theodore J. Huppert, & John P. Spencer *(University of Tennessee)*: How do neural processes give rise to cognition? Simultaneously predicting brain and behavior with a dynamic model of visual working memory.

Brendan I. Cohn-Sheehy, Charan Ranganath *(University of California, Davis)*: Recalling lifelike events in the context of coherent narratives.

D. Merika Wilson, Jeffrey J. Starns, Rosemary A. Cowell *(University of Massachusetts-Amherst)*: Item strength affects source memory zROC slopes when source interference is eliminated.

Vishnu Sreekumar, Carly Kaplan, Sara Inati, Kareem Zaghloul *(National Institutes of Health)*: Drifting neural activity states across spatial scales support temporal contiguity in memory: Evidence from a paired-associates task.

Augustin C. Hennings, Jarrod A. Lewis-Peacock, Joseph E. Dunsmoor *(University of Texas at Austin)*: Mental context reinstatement determines successful retrieval of extinction memories.

Alice Li, Rebecca A. Cutler, Sean M. Polyn *(Vanderbilt University)*: Property dominance and feature-type effects in semantic feature verification.

Adam Broitman *(Cornell University):* Attending to behaviorally relevant items enhances recollection under divided attention.

Geoff Ward, Cathleen Cortis Mack *(University of Essex)*: Using three different smartphone applications to further explore serial position curves and temporal contiguity effects of stimuli presented at very longer inter-stimulus intervals.

Tima Zeng, Sharon Thompson-Schill *(University of Pennsylvania)*: Pattern identification across multiple memories.

Ada Aka, Michael J. Kahana *(University of Pennsylvania)*: Predicting recall of words and lists.

Jesse Pazdera, Michael J. Kahana *(University of Pennsylvania)*: Modality and recency effects in free recall.

Logan J. Fickling, **Michael J. Kahana** *(University of Pennsylvania):* Mental chronometry of episodic memory retrieval.

Ryan P. Kirkpatrick, Per B. Sederberg *(University of Virginia)*: How should we fit our memory models to trial-level effects in free recall?

Kevin P. Darby, Per B. Sederberg *(University of Virginia)*: The temporal context model predicts continuous recognition memory deficits in mild cognitive impairment and Alzheimer's disease.

Tyler A. Spears, Brandon G. Jacques, Marc W. Howard, Per B. Sederberg *(University of Virginia)*: Scale-invariant temporal history (SITH): Applying neurally-inspired memory representations to complex environments.

Wei Zhong Goh, Marc W. Howard *(Boston University)*: Estimating the time constants for time cells driven by temporally unstructured stimuli.

Nathanael Cruzado, Zoran Tiganj, Marc W. Howard *(Boston University)*: Modeling learned perceptual representation similarity with temporal context models.

Ian M. Bright, Inder Singh, Marc W. Howard *(Boston University)*: Boundary conditions on scanning in long-term memory.

Yue Liu, Zoran Tiganj, Michael Hasselmo, Marc W. Howard *(Boston University)*: Biological stimulation of scale-invariant time cells.

John Bladon, Daniel Sheehan, Camilla DeFrietas, Howard Eichenbaum, Marc W. Howard *(Boston University)*: Neither hippocampal ensembles nor behavior reflect event segmentation in temporally-blocked learning.

Timothy C. Sheehan, Vishnu Sreekumar, Sara K. Inati, Michael R. Sperling, Richard Gorniak, Bradley C. Lega, Alexis Burks, Gregory A. Worrell, Sameer A. Sheth, Barbara C. Jobst, Robert E. Gross, Joel M. Stein, Michael J. Kahana, Kareem A. Zaghloul *(University of California, San Diego)*: Signal complexity indexes memory capacity across individuals.

Melina Tsitsiklis, Jonathan Miller, Salman Qasim, Sameer Sheth, Catherine Schevon, Elliot Smith, Robert Gross, Cory Inman, Michael Sperling, Ashwini Sharan, Joel Stein, Sandhitsu Das, Richard Gorniak, Joshua Jacobs *(Columbia University)*: Identifying single-neuron activity in the human medial temporal lobe relating to spatial memory.

Kirsten Ziman, Andrew C. Heusser, Paxton C. Fitzpatrick, Campbell E. Field, Jeremy R. Manning *(Dartmouth College)*: Is automatic speech-to-text transcription ready for use in psychological experiments.

Sucheta Chakravarty, Jeremy B. Caplan *(University of Alberta)*: A model that can do associative recognition without storing associations.

Blake L. Elliott, Chris Blais, Gene A. Brewer *(Arizona State University)*: Neural correlates underlying the effect of value on recognition memory encoding.