Emily T. Cowan

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Academic Appointments

Fall 2024 — Assistant Professor of Neuroscience
- Gordon F. Derner School of Psychology
- Adelphi University, Garden City, NY

2019 - 2024 — Postdoctoral Fellow
- Temple University, Philadelphia, PA
- Advisors: Vishnu “Deepu” Murty (Temple University) & Anna Schapiro, Ph.D. (University of Pennsylvania)

Education

2012 - 2019 — New York University
- Ph.D. in Neural Science
- Advisor: Lila Davachi, Ph.D.

2007 - 2011 — Skidmore College, Saratoga Springs, NY
- Bachelor of Arts, *summa cum laude*
- Major: Neuroscience, Minor: Art History

Awards & Honors

2024	National Academy of Sciences Kavli Fellow
2024	Postdoctoral Fellowship Award, Cognitive Neuroscience Society
2020	*Journal of Neuroscience*’s Annual Spotlight on top papers (Cowan et al., 2020)
2017, 2018	GSAS Dean’s Student Travel Grant, New York University
2016	Kavli Summer Institute in Cognitive Neuroscience Fellowship
2014 - 2015	NYU Center for Brain Imaging Pilot Research Grant
2014 - 2017	National Science Foundation Graduate Research Fellowship
2012 - 2017	Henry M. MacCracken Fellowship, New York University
2011	Departmental Honors in Neuroscience, Skidmore College
2011	Phi Beta Kappa, Skidmore College
2009 - 2011	Fred and Paula Harstock Thomas '53 Endowed Scholarship, Skidmore College

Publications

Cowan ET, Chanales AC, Davachi L, Clewett D (In press). Goal shifts structure memories and prioritize event-defining information in long-term memory. *Journal of Cognitive Neuroscience.* Preprint available on PsyArXiv at https://doi.org/10.31234/osf.io/ejsrf

Cowan ET, Zhang Y, Rottman BM, & Murty VP (2024). The effects of mnemonic variability and spacing on memory over multiple timescales. *Proceedings of the National Academy of Sciences.* 121(12) e2311077121. https://doi.org/10.1073/pnas.2311077121

Tanriverdi B, **Cowan ET**, Metoki A, Jobson KR, Murty VP, Chein J, Olson IR (2023). Awake hippocampal-cortical co-reactivation is associated with forgetting. *Journal of Cognitive Neuroscience. 35*(9):1446-1462. https://doi.org/10.1162/jocn_a_02021

Benear SL, Horwath EA, **Cowan ET**, Camacho MC, Ngo CT, Newcombe NS, Olson IR, Perelman SB, Murty VP (2022). Children show adult-like hippocampal pattern similarity for familiar but not novel events. *Brain Research*. 147991. https://doi.org/10.1016/j.brainres.2022.147991

Cowan ET, Schapiro AC, Dunsmoor JE, Murty VP (2021). Memory consolidation as an adaptive process. *Psychonomic Bulletin and Review.* 28:1796–1810. https://doi.org/10.3758/s13423-021-01978-x

Cowan ET, Fain MR, O'Shea I, Ellman MR, Murty VP (2021). VTA and anterior hippocampus target dissociable neocortical networks for post-novelty enhancements. *Journal of Neuroscience*. *41*(38):8040-8050. https://doi.org/10.1523/JNEUROSCI.0316-21.2021

Cowan ET, Liu A, Henin S, Kothare S, Devinsky O, Davachi L (2021). Time-dependent transformations of memory representations differ along the long-axis of the hippocampus. *Learning & Memory. 28*(9):329-340. https://doi.org/10.1101/lm.053438.121

Cowan E, Liu A, Henin S, Kothare S, Devinsky O, Davachi L (2020). Sleep spindles promote the restructuring of memory representations in ventromedial prefrontal cortex through enhanced hippocampal–cortical functional connectivity. *The Journal of Neuroscience. 40*(9):1909–191. https://doi.org/10.1523/JNEUROSCI.1946-19.2020

Foley MA, Fried AR, **Cowan E**, Bayes RB (2014). Collaborative encoding and memory accuracy: Examining the effects of interactive components of co-construction processes*. Journal of Experimental Psychology: Learning, Memory and Cognition, 40*(1), 25-40. https://doi.org/10.1037/a0034303

Foley MA, **Cowan E**, Schlemmer E, & Belser-Ehrlich J (2012). Acts of generating and their sources: Predicting the effects of imagery encoding in false recognition errors. *Memory, 20*(4), 384-399. https://doi.org/10.1080/09658211.2012.667813

Preprints & Manuscripts In Preparation

Cowan ET, Tanriverdi B, Murty VP, Olson IR, Chein J (*In prep*). Repetition facilitates differentiation of neural representations in the hippocampus and MTL cortex.

Fain MR, **Cowan ET**, Tambini A, Murty VP (*In prep*). Reward-related memory benefits cannot be explained by post-encoding rehearsal.

Book Chapters

Cowan ET & Murty VP (In press). Motivation and Memory. In *The Encyclopedia of the Human Brain, 2nd Edition.* https://doi.org/10.1016/B978-0-12-820480-1.00112-1

Invited & Conference Talks

Cowan ET (2024). *A computational model of replay-facilitated retroactive memory effects* . Data blitz talk to be presented at the Context and Episodic Memory Symposium, Philadelphia, PA.

Cowan ET (2023). *Repetition facilitates differentiation of neural representations in the hippocampus and MTL cortex*. Nanosymposium talk presented at the Society for Neuroscience Annual Meeting, Washington D.C.

Cowan ET (2023)*. The formation and consolidation of adaptive memories.* Computational Neuroscience Initiative Seminar, University of Pennsylvania, Philadelphia, PA.

Cowan ET (2023)*. Contributions of the spacing effect and variability to memory across multiple timescales.* The International Conference on Learning & Memory, Huntington Beach, CA.

Cowan ET (2023)*. The relationship between mnemonic variability and the spacing effect over multiple time scales*. University of California, Los Angeles CogFog meeting. Virtual.

Cowan ET (2023)*. The effects of mnemonic variability on the spacing effect over multiple time scales*. Penn Memory Seminar. University of Pennsylvania, Philadelphia, PA.

Cowan ET (2023)*. Interactions between the spacing effect and encoding variability*. CNI +/- Seminar Series. University of Pennsylvania, Philadelphia, PA.

Cowan ET (2021)*. How consolidation supports adaptive memories*. University of Chicago Cognition Workshop. Virtual.

Cowan ET (2021)*. Novelty-related engagement of VTA and anterior hippocampus propagate changes in cortical network plasticity at different scales*. Temple University Postdoctoral Association Research Symposium. Virtual.

Cowan ET (2020)*. Sleep spindles organize memory traces through enhanced functional connectivity.* Rutgers University, Camden Brown Bag. Virtual.

Cowan ET (2019)*. Sleep spindles are related to the neural reorganization of memory traces.* Manhattan Area Memory Meeting, Princeton, NJ.

Cowan ET (2018)*. Sleep and the reorganization of memory traces.* Columbia University Hippocampus Club, New York, NY.

Cowan ET (2017)*. Reorganization of memory traces with sleep.* Manhattan Area Memory Meeting, New York, NY.

Cowan ET (2015)*. Sleep architecture relates to the neural representation and behavioral stability of memories*. Manhattan Area Memory Meeting, Princeton, NJ.

Conference Posters

Cowan ET, Horwath EA, Dunsmoor JE, Murty VP (2024). *A computational model of replay-facilitated retroactive memory effects.* Poster presented at the Cognitive Neuroscience Society Annual Meeting, Toronto, Canada.

Cowan ET, Zhang Y, Rottman B, Murty VP (2023). *Contributions of the spacing effect and variability to memory across multiple time scales.* Poster presented at the International Conference on Learning and Memory, Huntington Beach, CA.

Tanriverdi B*, **Cowan ET***, Murty VP, Olson I, Chein J (2023). *Encoding repetition leads to hippocampal differentiation.* Poster presented at the International Conference on Learning and Memory, Huntington Beach, CA. ***** *denotes equal contribution*

Spangler BC‡, Gregory DF, **Cowan ET**, Murty VP (2023). *Affinity for horror inhibits the perceived valence of aversive movie clips.* Poster presented at The Philadelphia Chapter of the Society for Neuroscience Annual Meeting, Philadelphia, PA.
‡undergraduate student

Cowan ET, Zhang Y, Rottman B, Murty VP (2022). *The interaction between the spacing effect and encoding variability over multiple timescales.* Poster presented at the Society for Neuroscience Annual Meeting, San Diego, CA.

Cowan ET, Zhang Y, Rottman B, Murty VP (2022). *The effects of spaced learning and encoding variability on associative memory.* Poster presented at Context and Episodic Memory Symposium Annual Meeting, Philadelphia, PA.

Cowan ET, Zhang Y, Rottman B, Murty VP (2022). *The effects of spaced learning and encoding variability on associative memory.* Poster presented at Cognitive Neuroscience Society Annual Meeting, San Francisco, CA.

Cowan ET, Chanales AC, Clewett DV, Davachi L (2021). *Event boundaries selectively enhance source memory for event-defining information.* Poster presented at Cognitive Neuroscience Society Annual Meeting. Virtual.

Cowan E, Eberts EA, Schapiro AC, Murty VP (2020). *The effect of consolidation on recall for high-reward naturalistic stimuli.* Poster presented at Context and Episodic Memory Symposium Meeting. Virtual.

Cowan E, Fain MR, O'Shea I, Murty VP (2020). *Dissociations in the specificity of functional networks centered on hippocampus and VTA following exposure to novelty.* Poster presented at Cognitive Neuroscience Society Annual Meeting. Virtual.

Eberts E, Benear S, Ngo C, **Cowan E**, Perlman S, Murty V (2020). *Evidence for adult-like hippocampal pattern similarity across shared contexts in early childhood.* Poster presented at Cognitive Neuroscience Society Annual Meeting. Virtual.

Fain MR, **Cowan E**, O'Shea I, Ballard IC, Ellman L, Murty VP (2019). *Novelty influences coupling across multiple learning systems during post-task rest.* Poster presented at the Society for Neuroscience Annual Meeting, Chicago, IL.

Cowan E, Liu A, Henin S, Kothare S, Devinsky O, Davachi, L (2018). *Reorganization of memory representations and functional connectivity with sleep*. Poster presented at The International Conference on Learning and Memory, Huntington Beach, CA.

Cowan E, Liu A, Henin S, Kothare S, Devinsky O, Davachi, L (2018). *Thalamocortical spindles relate to changes in memory representations*. Poster presented at Cognitive Neuroscience Society Annual Meeting, Boston, MA.

Cowan E, Liu A, Henin S, Kothare S, Devinsky O, Davachi, L (2017). *Sleep spindle density relates to the reorganization of memory representations*. Poster presented at the Society for Neuroscience Annual Meeting, Washington D.C.

Cowan E, Liu A, Kothare S, Devinsky O, Davachi, L (2017). *Sleep relates to the pattern representation and behavioral stability of memories.* Poster presented at Cognitive Neuroscience Society Annual Meeting, San Francisco, CA.

Cowan E, Liu A, Kothare S, Devinsky O, Davachi, L (2016). *Features in prior night's sleep relates to changes in memory representations*. Poster presented at Society for Neuroscience Annual Meeting, San Diego, CA.

Liu A, Granitz E, Shankar A, **Cowan E**, Barnard S, Rajan S, Day C, Davachi L, Devinsky O, Kothare S (2016). *Experience with a healthy subject population at a sleep research center undergoing cognitive neuroscience research.* Poster presented at Sleep Research Society/APSS, Denver, CO.

Cowan E, Liu A, Kothare S, Devinsky O, Davachi, L (2016). *Sleep relates to the neural representation and behavioral stability of memory*. Poster presented at Context and Episodic Memory Symposium, Philadelphia, PA.

Cowan E, Liu A, Kothare S, Devinsky O, Davachi, L (2016). *Features in prior night's sleep relate to the neural representation and behavioral measures of new memories.* Poster presented at Cognitive Neuroscience Society Annual Meeting, New York, NY.

Cowan E, Liu A, Kothare S, Devinsky O, Davachi, L (2015) *Features of sleep architecture relate to the neural representation and behavioral stability of memories.* Poster presented at Society for Neuroscience Annual Meeting, Chicago, IL.

Cowan E, Liu A, Kothare S, Devinsky O, Davachi, L (2015) *The relationship between sleep and neural and behavioral markers of memory consolidation*. Poster presented at Cognitive Neuroscience Society Annual Meeting, San Francisco, CA.

Mentoring Experience

2023 - present	Kambria Armstrong, Masters Student, Temple University
2022 - 2023	Sarah Manzella, research assistant, Temple University
2022 - 2023	Bailey Spangler, undergraduate research assistant, Temple University
Summer 2021	Gianni Stovall, undergraduate research assistant, Temple University
2018 - 2019	Elizabeth Xu, undergraduate honors thesis student, NYU
2017 - 2018	Avisha Amarnani, undergraduate research assistant, NYU
Summer 2017	Anna Hector, undergraduate research assistant, NYU

Teaching Experience

Fall 2020	Guest lecturer, *Human Memory*, University of California, Los Angeles
Spring 2020	Guest lecturer, *Neuromodulation of Learning and Memory*, Temple University
Summer 2014	Curriculum course developer and laboratory manual re-design, *Brain & Behavior*, NYU
Spring 2014	Teaching Assistant and Lab Instructor, *Brain & Behavior*, NYU

Service

2023	Organizer and Chair, Nanosymposium on "Learning & Memory" Society for Neuroscience Annual Meeting 2023
2023	Moderator, Lightning Talks, International Conference on Learning & Memory
2022	Lead volunteer, Memory Disorders Research Symposium
2021	Speaker, Skype-a-Scientist "Science for Change" virtual talk series
2020 - present	Guest speaker, Skype-a-Scientist • 8th grade class in Alberta, Canada • 12th grade class in Oakland, CA • Sparks Girl Guides of Canada (ages 5-6), Toronto, Canada
2020- present	Member, Temple University Postdoctoral Association
2018	Judge, Westchester Science and Engineering Fair
2017	Co-organizer, Manhattan Area Memory Meeting Annual Conference
2017-2019	Member, Scientist Action and Advocacy Network, NYU
2016	Volunteer, Science Expo, The School at Columbia (ages K-8)
2012-2019	Member, Neuroscience Outreach Group at NYU

Ad hoc Reviewer

Current Biology, Scientific Reports, Memory and Cognition, Neuropsychologia, PLOS One, Memory Journal of Experimental Psychology: General, Learning and Memory, Psychonomic Bulletin & Review, Collabra: Psychology, Frontiers in Cognition

Academic and Professional Societies

2013 - present	Cognitive Neuroscience Society
2012 - present	Society for Neuroscience