MATTHEW DOUGHERTY

Toronto, ON | matthew.dougherty@mail.utoronto.ca

EDUCATION

University of Toronto *School of Graduate Studies; Anticipated Completion May 2028*
PhD Candidate in Psychology; Perception, Cognition, and Cognitive Neuroscience Concentration
University of Pennsylvania *College of Arts & Sciences; May 2020*
Bachelor of Arts in Cognitive Science; Cognitive Neuroscience Concentration
GPA: 3.79 | Within-Major GPA: 3.94 | Magna Cum Laude | Dean's List 2017-2019

HONORS & AWARDS

Ontario Graduate Scholarship (International) *2025-2026*

- One of 22 international graduate students from nearly 5,000 at the University of Toronto selected as a recipient of the Ontario Graduate Scholarship (international)
- Selected based on academic merit and proposed research program evaluating the interactions between attention & memory and their manifestations in attention deficit disorders

RESEARCH EXPERIENCE

Duncan Lab, University of Toronto Psychology
PhD Candidate *September 2023 - Present*

- Lead analysis plan, analysis execution, and writing of fMRI project evaluating sequential dependencies in associative memory retrieval and their neural underpinnings
- Developed competency analyzing complex behavioral and fMRI data in R using advanced statistical methods (e.g. linear mixed effects models)
- Conceptualized novel behavioral experiment exploring the optimal conditions for memory retrieval, motivated by classical retrieval mode theories
- Managed and mentored undergraduate students in the University of Toronto Research Opportunities Program and Mini Thesis Program
- Presented projects at multiple talk series, local conferences, and international conferences

Computational Memory Lab, University of Pennsylvania Psychology
Research Coordinator *October 2020 – June 2023*

- Developed, deployed, and analyzed data from an online multi-experiment study on forward and backward serial recall using Javascript, Amazon Mechanical Turk, and Python, respectively
- Collected & cleaned data on two multi-session scalp EEG studies investigating neural correlates of correct memories under different encoding conditions
- Analyzed neural biomarkers of encoding and retrieval from scalp EEG experiments using Python. Studied the effects of spatiotemporal context and repeated item presentation on memory
- Managed a team of five undergraduate researchers in assisting scalp EEG & online behavioral data collection, annotation, and quality checks
- Presented findings from aforementioned projects at international conferences, internal lab meetings, and as a visiting presenter at meetings of collaborating labs
- Managed communication with PIs & research staff at seven hospitals for collaborative multi-site intracranial EEG project aimed at elucidating neural correlates of memory
- Tested patients at Jefferson University Hospital with intracranial electrode implants on various memory paradigms
- Maintained & promoted collaboration with intracranial EEG researchers on projects focused on understanding spatiotemporal aspects of memory at the single-neuron level at Columbia University
- Established collaboration with intracranial EEG researchers at UCLA to further understand the presence & function of human space & time cells
- Compiled & edited figures from over 80 contributing authors on the upcoming second edition of the *Oxford Handbook of Human Memory*
- Planned, scheduled, and organized the Context and Episodic Memory Symposium 2021, 2022, & 2023
- Trained & gained extensive experience in Python & Linux Command Line

Chronobiology Isolation Laboratory, Perelman School of Medicine Psychiatry
Research Assistant *August 2018 – May 2020*

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- Investigated the effects of stress & sleep deprivation on aspects of human mental state in participants with & without a history of mental illness
- Administered a variety of cognitive assessments during week-long studies
- Communicated one on one with subjects about their mental & physical states
- Reported data on subjects' body language, tone of voice, and concerns to research staff & PhD researchers; ensured subjects received resources & care necessary to comfortably continue studies

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PUBLICATIONS

Dougherty, M. R.*, Patil, A.*, and Duncan, K. On a roll: Recent familiarity primes the brain to retrieve other memories via dopaminergic nuclei responses. *bioRxiv* 2025.03.28.646007; doi: https://doi.org/10.1101/2025.03.28.646007

Dougherty, M.R., Halpern, D. J., and Kahana, M. J. (2023). Forward and backward recall dynamics. *Journal of Experimental Psychology: Learning, Memory and Cognition, 49*(11), 1752 – 1772. https://doi.org/10.1037/xlm0001254

Dougherty, M. R., Chang, W., Rudoler, J. H., Katerman, B. S., Halpern, D. J., Bruska, J. P., Diamond, N. B., and Kahana, M. J. Neural correlates of memory in a naturalistic spatiotemporal context. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 50(9),* 1404 - 1420. https://doi.org/10.1037/xlm0001341

Rudoler, J. H., Bruska, J. P., Chang, W., **Dougherty, M. R.**, Katerman, B. S., Halpern, D. J., Diamond, N. B., and Kahana, M. J. (2024). Decoding EEG for optimizing naturalistic memory. *Journal of Neuroscience Methods, 410.* https://doi.org/10.1016/j.jneumeth.2024.110220

FORTHCOMING CONTRIBUTIONS

Katerman, B. S., Adrogue, R. T., Schonhaut, D., **Dougherty, M. R.**, Snyder, E. A., Paron, M., Bruska, J. P., Colyer, R. A., and Kahana, M. J. Brain-wide responses to item repetition. *Manuscript in preparation*.

RESEARCH PRESENTATIONS

Dougherty, M. R.*, Patil, A.*, and Duncan, K. On a roll: Successful retrieval primes the brain to retrieve other memories via dopaminergic responses. Cognitive Neuroscience Society, March 2025. (Poster)

Dougherty, M. R.*, Patil, A.*, and Duncan, K**.** On a roll: Successful retrieval primes the brain to retrieve other memories via dopaminergic responses. Ebbinghaus Empire Talk Series, University of Toronto, December 2024 (Data Blitz)

Dougherty, M. R.*, Patil, A.*, and **Duncan, K.** On a roll: Successful retrieval primes the brain to retrieve other memories via dopaminergic responses. Society for Neuroscience, October 2024. (Talk)

Dougherty, M. R.*, Patil, A.*, and Duncan, K. On a roll: Successful retrieval primes the brain to retrieve other memories via dopaminergic responses. Toronto Area Memory Group, May 2024. (Data Blitz)

Dougherty, M. R.*, Patil, A.*, and Duncan, K. On a roll: Successful retrieval primes the brain to retrieve other memories via dopaminergic responses. Cognitive Neuroscience Society, April 2024. (Poster)

Dougherty, M. R.*, Patil, A.*, and Duncan, K. On a roll: Successful retrieval primes the brain to retrieve other memories via dopaminergic responses. Lake Ontario Visionary Establishment, 2024. (Poster)

Dougherty, M. R., Chang, W., Rudoler, J. H., Katerman, B. S., Halpern, D. J., Bruska, J. P., Diamond, N. B., and Kahana, M. J. Searching memory in time and space. Learning and Memory, 2023 (Lightening Talk)

Dougherty, M. R., Halpern, D. J., and Kahana, M. J. Forward and Backward Recall. Cognitive Science, 2022

Dougherty, M. R., Chang, W., Katerman, B. S., Halpern, D. J., Diamond, N., and Kahana, M. J. Searching memory in time and space. Context and Episodic Memory Symposium, 2022. (Poster)

Dougherty, M. R., Halpern, D. J., and Kahana, M. J. Forward and Backward Recall. Context and Episodic Memory Symposium, 2022. (Poster)

Dougherty, M. R., Chang, W., Katerman, B. S., Halpern, D. J., Diamond, N., and Kahana, M. J. Searching memory in time and space. Cognitive Neuroscience Society, 2022. (Poster)

ADDITIONAL WORK & EXTRACURRICULAR EXPERIENCE

Project Management Consultant *July 2023 - Present*

Computational Memory Lab at the University of Pennsylvania; Freelance

- Taught workshop on project management to leadership team (Principal Investigator, Director of Clinical Research, Director of Software Development) at the Computational Memory Lab at the University of Pennsylvania

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- Created and communicated strategies on effective goal setting, project planning, management of scope, resources, & budget, and project documentation

DaVita, Inc.
Business Analyst Intern *June 2019 – August 2019*

- Designed automatically updating key performance indicator dashboards for DaVita's National Home Dialysis Team in Tableau. Encouraged user action by displaying data-driven insights & individualized actionable recommendations in dashboards
- Conducted surveys with approximately 15 physicians, nurses, and regional directors to gain comprehensive understanding of needs
- Generated formulas to track the risk of adverse health events for over 25,000 patients

Social Planning and Events Committee at the University of Pennsylvania
Director of External Affairs, Speaking Division *April 2018 – May 2020*

- Planned celebrity keynote speaking events featuring guests such as Laverne Cox, Antoni Porowski, and Terry Crews.
- Negotiated, drafted and revised contracts, and managed communication with talent and talent agents
- Stayed abreast of culturally relevant topics & issues to inform event discussions
- Managed a yearly budget of $180,000 and delegated expenses for honorarium, travel, venue booking, security, and marketing

WQHSRadio.org
Financial Director & Show Host *September 2017 – May 2020*

- Prepared & managed $25,000 annual budget for the university's student-run radio station
- Secured funding approvals via presentations to university oversight staff
- Marketed, curated playlists, and managed program content for weekly show "Good Music"
- Recruited & conducted on-air interviews with local performers

TECHNICAL SKILLS

Extensive Experience: Python for Data Analysis (Pandas & Numpy libraries), Linux Command Line, Statistical Analysis (t-test, ANOVA, Linear Mixed Effects Models), R for Data Analysis, PsychoPy Experiment Builder
Moderate Experience: Microsoft Excel
Elementary Experience: Javascript, Dr. Java, mySQL