

HANNAH TARDER-STOLL

ROTMAN RESEARCH INSTITUTE • 3560 BATHURST ST • TORONTO, ON

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EDUCATION

PhD, Columbia University, *Psychology* 2018–2023

- **Dissertation:** Flexible representations of temporal structure guide multistep prediction
- **Co-advisors:** Mariam Aly and Christopher Baldassano

Honours BSc with High Distinction, University of Toronto 2015–2018

- Psychology Research Specialist

Honours BMus in Performance, University of Toronto 2010–2014

- Voice Performance (Classical)

RESEARCH TRAINING

Postdoctoral Scientist, Rotman Research Institute 2023–

- PI: Asaf Gilboa and Morris Moscovitch

Graduate Researcher, Columbia University 2018–2023

- PI: Mariam Aly and Christopher Baldassano

Research Assistant, University of Toronto 2017–2018

- PI: Morris Moscovitch

Research Assistant, University of Toronto 2016–2018

- PI: Katherine Duncan and Meg Schlichting

PUBLICATIONS

PEER-REVIEWED PUBLICATIONS

Tarder-Stoll, H., Baldassano, C.*, Aly, M.* (Accepted, *Nature Communications*). The brain hierarchically represents the past and future during multistep anticipation. **preprint:** <https://www.biorxiv.org/content/10.1101/2023.07.24.550399v1>.

Tarder-Stoll, H., Schlichting, M.*, Duncan, K.* (Accepted In-Principle, *Journal of Experimental Psychology: General*). Investigating how reward retroactively improves memory for associations and items. preprint: <https://osf.io/preprints/psyarxiv/hjm49/>

Tarder-Stoll, H., Baldassano, C.*, Aly, M.* (2024) . Consolidation enhances multistep anticipatory judgements but diminishes access to perceptual features. *Psychological Science*.

Lalla, A.*, **Tarder-Stoll, H.***, Hasher, L., Duncan, K. (2022). Aging changes the relative contributions of memory systems to decision making. *Psychology and Aging*, 37(6), 667–680.

Tarder-Stoll, H., Gasser, C., Yu, W., Dimsdale-Zucker, H. R. (2021), Challenges in Understanding the Role of Reactivation in Modifying Hippocampal Representations. *Journal of Neuroscience*, 41 (22) 4750–4753.

Tarder-Stoll, H.*, Jayakumar, M.*, Dimsdale-Zucker, H. R., Günseli, E., Aly, M. (2020), Dynamic internal states shape memory retrieval. *Neuropsychologia*, 138, 107328.

*denotes equal contributions

PREPRINTS (UNDER REVIEW)

Anderson, P.G., **Tarder-Stoll, H.**, Alpaslan, M., Keathley, N., Levin, D, Venkatesh, S., Bartel, E., Sicular, S., Howell, S., Lindsey, R.V., Jones, R.M. (In revision, *npj Digital Medicine*). Deep learning improves physician accuracy in the comprehensive detection of abnormalities on chest X-rays.

MANUSCRIPTS IN PREPARATION

Tarder-Stoll, H., Baldassano, C.*, Aly, M.* (In prep). Rapid updating of hippocampal representations guides flexible multi-step prediction.

Poskanzer, C.*, **Tarder-Stoll, H.***, Javid, R., Spoloare, E., Aly, M.* (In prep). Prediction and encoding are coupled, not competitive.

Tarder-Stoll, H., Sekeres, M., Levine, B., Gilboa, A., Moscovitch, M. (In prep). Multiple levels of representations of an event in memory from encoding to retrieval: Comparison of evidence and memory models in humans and non-humans.

Nau, M, **Tarder-Stoll, H.**, Greene, A., Lossio-Ventura, J.A., Pereira, F., Baldassano, C., Chen, J., Baker, C.I. (In prep). Linking brain activity during movie viewing and recall through gaze behavior.

Anaki, D., **Tarder-Stoll, H.**, Moscovitch, M. (In prep). Contamination underlies disgust salience in episodic memory.

*denotes equal contributions

CONFERENCE PRESENTATIONS

Tarder-Stoll, H., Baldassano, C., Aly, M. (2024). Flexible updating of hippocampal representations guides multi-step prediction. Poster presented at *Cognitive Neuroscience Society*, Toronto, Ontario.

Poskanzer, C., **Tarder-Stoll, H.**, Javid, R., Aly, M. (2024). Do encoding and prediction compete or cooperate? Poster presented at *Cognitive Neuroscience Society*, Toronto, Ontario.

Tarder-Stoll, H., Baldassano, C., Aly, M. (2023). Prospective and retrospective representations of temporal structure across hippocampal and visual regions. Poster presented at *Society for Neuroscience*, Washington, DC.

Tarder-Stoll, H., Baldassano, C., Aly, M. (2023). Consolidation enhances multistep anticipatory judgements but diminishes access to perceptual features. Talk presented at *Context and Episodic Memory Symposium*, Orlando, Florida.

M. Nau, **H. Tarder-Stoll**, A. Greene, J. Chen, C. Baldassano, C. I. Baker (2022). Event-specific gaze behavior and brain activity during movie viewing and recall. Poster presented at the *Society for Neuroscience*, San Diego, CA.

Tarder-Stoll, H., Baldassano, C., Aly, M. (2022). Top-down modulation of multi-step anticipation in changing environments. Talk presented at *Manhattan Area Memory Meeting*, Columbia University.

J. Huang, **H. Tarder-Stoll**, C. Baldassano (2022). Tracking neural representations when connecting new information to structured prior knowledge. Poster presented at the *International Mind, Brain and Education Society conference*, Montreal, Canada.

H. Tarder-Stoll*, J. Huang*, J.A. Chwe*, C. Durkin*, H. Dimsdale-Zucker*, C. Baldassano. (2022). Individual differences in the timing of neural event patterns during emotional stimuli. Talk presented at *SANS Naturalistic fMRI Data Challenge*, virtual. *3rd place in data analysis competition

Tarder-Stoll, H., Baldassano, C., Aly, M. (2022). Top-down modulation of multi-step anticipation in changing environments. Poster presented at the *Cognitive Neuroscience Society*, San Francisco, CA.

Tarder-Stoll, H., Baldassano, C., Aly, M. (2020). Multi-step prediction and integration in naturalistic environments. Poster presented at the *Cognitive Neuroscience Society*, virtual.

Tarder-Stoll, H., Schlichting, M., Duncan, K. (2018). The influence of reward on memory integration. Talk presented at *Global Undergraduate Awards Conference*, Dublin, Ireland.

Anaki, D., **Tarder-Stoll, H.**, Moscovitch, M. (2018). Touch increases disgust salience in episodic memory. Talk presented at *Psychonomics Society*, New Orleans, LA.

Tarder-Stoll, H., Duan, C., Schlichting, M., Duncan, K (2018). The influence of reward on associative memory and memory integration. Poster presented at the *Undergraduate Thesis Conference*, Ryerson University, Toronto, ON. *Notable Poster Award

Tarder-Stoll, H., Duan, C., Schlichting, M., Duncan, K (2018). The influence of reward on associative memory and memory integration. Poster presented at the *NeuroXchange Conference*, McMaster University, Hamilton, ON. *Outstanding Poster Award

Tarder-Stoll, H., Lalla, A., Hasher, L., Duncan, K (2018). Does aging influence the use of episodic memory in decision making? Poster presented at the *Cognitive Neuroscience Society*, Boston, MA.

Anaki, D., **Tarder-Stoll, H.**, Moscovitch, M (2018). Self-relevance underlies disgust salience in episodic memory. Poster presented at the *Cognitive Neuroscience Society*, Boston, MA.

INVITED TALKS

Hippocampus Club, Columbia University	2023
Empire Strikes Back Memory Meeting, Columbia University	2022
Monthly Memory Meeting Talk Series, University of Barcelona (virtual)	2022

Hutchinson and DuBrow Labs, University of Oregon (virtual)	2020
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FELLOWSHIPS & GRANTS

NSERC Postdoctoral Fellowship	2024–2026
Leo Rubinstein Endowed Fellowship Fund, Columbia University	2019–2021
NSERC Undergraduate Student Research Award, University of Toronto	2017

AWARDS & HONOURS

Ed Smith Memorial Award, Columbia University	2022
SANS Data Analysis Challenge, 3rd place	2022
McNab Scholarship in Psychology, University of Toronto	2018
Highly Commended Winner, Global Undergraduate Awards	2018
Top Student in Neuroscience Award, University of Toronto	2017
Dean's Honour List, University of Toronto	2016–2018
Jacqueline Desmarais Scholarship	2015
Scotiabank Scholarship	2010–2014
University of Toronto Top Scholar Award, University of Toronto	2010

TEACHING EXPERIENCE

Representational Similarity Analysis Workshop Instructor, Research Methods Club, Rotman Research Institute	2024
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Guest Lecturer for PSYC2210, Cognition: Basic Processes, Columbia University	2023
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Teaching Assistant for PSYC2210, Cognition: Basic Processes, Columbia University	2023
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Statistics and Research Methods Workshops, Summer Internship Program in Psychological Science, Columbia University	2021
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Guest Lecturer for PSYC2220, Memory and Stress, Columbia University 2021

Teaching Assistant for PSYC1610, Statistics for Behavioural Scientists, Columbia University 2021

Teaching Assistant for PSYC2220, Memory and Stress, Columbia University 2021

Introductory Workshop in R and Python, Columbia Psychology Scientific Computing, Columbia University 2020–2021

Teaching Assistant for FA2020, Introduction to Programming in R, Columbia University 2020

Teaching Assistant for PSYC1490, Experimental Psychology: Cognition and Decision Making, Columbia University 2019

Teaching Assistant for PSYC1001, Science of Psychology, Columbia University 2019

RESEARCH ADVISING

Dana Huang, Research Assistant, Rotman Research Institute 2024–

Leanne Alon, Research Assistant, Rotman Research Institute 2023–

Maggie Kuehl, Research Assistant, Columbia University 2021–2023

Laura Baruch, Research Assistant, Columbia University 2021–2023

Michele Miselvich, Research Assistant, Columbia University 2021

Edoardo Spoloare, Honours Thesis Student, Columbia University 2019–2021

Eleanor Dong, Honours Thesis Student, University of Toronto 2019–2020

Carissa Demarinis, Research Assistant, University of Toronto	2018–2019
Orly Lipsitz, Research Assistant, University of Toronto	2018
Lana Duan, Research Assistant, University of Toronto	2019–2021

SERVICE & OUTREACH

Research Training Centre – Rounds Coordinator	2024–2025
Diversity, Equity, and Inclusion Student Committee Member	2020–2022
Department Liaison – Women in Science at Columbia	2020–2022
Research Methods Coordinator	2020–2021
Graduate Student Representative	2019–2020
Volunteer – Girls Science Day, Columbia University	2019–2020
Editor – The Inkblot: Undergraduate Journal of Psychology	2016–2018
Volunteer – Holland Bloorview Kids Rehabilitation Hospital	2015–2016
Volunteer Performer – Baycrest Hospital, Toronto, Ontario	2016

REVIEWING

Journal of Neuroscience
Nature Communications
Memory & Cognition
Neuropsychologia
Cognitive, Affective, and Behavioral Neuroscience
Neuroscience and Biobehavioral Reviews

PROFESSIONAL MEMBERSHIPS

Society for Neuroscience	2021–present
Psychonomics Society	2021–present
Cognitive Neuroscience Society	2017–present