HANNAH TARDER-STOLL

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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

- **Major:** Psychology Research Specialist
- **Honors Thesis:** The Influence of Retroactive Reward on Memory Integration
- **Thesis Advisors:** Katherine Duncan and Meg Schlichting
- **Independent Project Advisor:** Morris Moscovitch

Honours BMus in Performance, University of Toronto   2010–2014

- **Major:** Voice Performance (Classical)

RESEARCH POSITIONS

Postdoctoral Scientist, Rotman Research Institute   2023–present

- Co-advisors: Asaf Gilboa and Morris Moscovitch

PUBLICATIONS

PEER-REVIEWED PUBLICATIONS

Tarder-Stoll, H., Schlichting, M.*, Duncan, K.* (2024). Investigating how reward retroactively improves memory for associations and items. Accepted In-Principle, *Journal of Experimental Psychology: General.* Preprint: https://osf.io/preprints/psyarxiv/hjm49/

Tarder-Stoll, H., Baldassano, C.* & Aly, M.* (2024). The brain hierarchically represents the past and future during multistep anticipation. *Nature Communications*, 15, 9094.

Tarder-Stoll, H., Baldassano, C.*, Aly, M.* (2024). Consolidation enhances multistep anticipatory judgements but diminishes access to perceptual features. *Psychological Science*, 35, 1178–1199.

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. (2024). Deep learning improves physician accuracy in the comprehensive detection of abnormalities on chest X-rays. *Scientific Reports, 14(1), 25151.*

 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.

PREPRINTS AND MANUSCRIPTS UNDER REVIEW

Poskanzer, C.*, **Tarder-Stoll, H.*,** Javid, R., Spoloare, E., Aly, M. (Under review, *Journal of Experimental Psychology: General*). Prediction and encoding are coupled, not competitive. Preprint: https://osf.io/preprints/psyarxiv/usjv2/

Nau, M., Greene, A., **Tarder-Stoll, H.,** Lossio-Ventura, J.A., Pereira, F., Baldassano, C., Chen, J., Baker, C.I. (Under review, *Nature Communications*). Neural and behavioral reinstatement jointly reflect retrieval of narrative events. Preprint: https://www.biorxiv.org/content/10.1101/2024.10.19.619187v1

*denotes equal contributions

MANUSCRIPTS IN PREPARATION

Tarder-Stoll, H., Baldassano, C.*, Aly, M.* (In prep). Rapid integration of hippocampal representations guides novel multistep prediction.

Huang, J., Manglik, A., Dutra, N., **Tarder-Stoll, H.,** Chamberlain, T., Ajemian, R.J., Zhang, Q., Norman, K.A., Baldassano., C. (In prep). Conjunctive representations in the default mode network support memory formation during the method of loci.

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.

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

*denotes equal contributions

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
Outstanding Poster, NeuroXchange Conference	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

Course Instructor:

The Cognitive Neuroscience of Learning and Memory	2023, 2024

Indigo Research Intensive Seasonal (IRIS) Program

- **Enrollment**: 16 students; High School Students; Completion for university transfer credits
- **Description:** Developed and taught a five week introductory course on research foundations in cognitive psychology and neuroscience, with two three-hour lectures a week. Upon course completion, students received transfer credits to the University of California, Santa Barbara.

Workshop Instructor & Developer:

Representational Similarity Analysis Workshop, Research Methods Club   2024

Rotman Research Institute

- **Enrollment**: 25 attendees, ranging from undergraduate students to professors
- **Description:** Developed and led a two-hour introductory workshop on multivariate functional MRI analysis techniques, with a focus on representational similarity analyses

Summer Internship Program in Psychological Science   2022

Columbia University

- **Enrollment**: 8-10 attendees; undergraduate students with little to no research experience
- **Description:** Developed and led five two-hour workshops on the following topics:
    - Introduction to Regression
    - Plotting Linear Models
    - Advanced Regression and Moderators
    - Preregistration and OSF
    - PsychoPy

Introductory Workshop in R and Python   2020, 2021

Columbia University

- **Enrollment**: 20-50 attendees depending on the semester; undergraduate and graduate students with varying experience in statistics and coding
- **Description:** Co-developed and led a three-day intensive workshop introducing students to programming and statistics in R and Python.

Teaching Assistantships:

Cognition: Basic Processes (PSYC2210), Columbia University   2023

Statistics for Behavioral Scientists (PSYC1610), Columbia University   2021

- **Teaching Intensive Teaching-Assistantship**: Led a weekly two-hour tutorial to 15 students to provide additional course material

Memory and Stress (PSYC2220), Columbia University   2021

Introduction to Programming in R (FA2020), Columbia University   2020

Experimental Psychology: Cognition and Decision-Making (PSYC1490), Columbia
University   2019

- **Teaching Intensive Teaching-Assistantship**: Led a weekly two-hour tutorial to 15 students to provide additional course material

Science of Psychology (PSYC1001), Columbia University   2019

Guest Lectures:

Columbia University:

- Introduction to Episodic Memory (*Course:* Cognition: Basic Processes)   2023
- Introduction to Episodic Memory (*Course:* Memory and Stress)   2021

Pedagogical Training:

Practicum in the Teaching of Psychology, Columbia University   2018

CONFERENCE PRESENTATIONS

Poskanzer, C., **Tarder-Stoll, H.,** Javid, R., Aly, M. (2024). Prediction and encoding are coupled, not competitive. Poster presented at *Society for Neuroscience*, Chicago, Illinois.

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

Lab Meeting (PI: Serra Favila), Brown University	2024
Hippocampus Club, Columbia University	2023
Empire Strikes Back Memory Meeting, Columbia University	2022
Memory Talk Series, University of Barcelona	2022
Lab Meeting (PIs: Sarah DuBrow, Ben Hutchinson), University of Oregon	2020

RESEARCH ADVISING

Dana Huang, Research Assistant, Rotman Research Institute	2024-
Leanne Alon, Research Assistant, Rotman Research Institute	2023-
Craig Poskanzer, Graduate Student, Columbia University	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	2017-2018

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

Funding Agencies
National Science Foundation
      Ad-hoc reviewer for cognitive neuroscience
Israel Science Foundation
      Ad-hoc reviewer

Journals

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

PROFESSIONAL MEMBERSHIPS

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

PERSONAL

Citizenship: Canadian

Languages: English (native), French (intermediate)