Nichole Rochelle Bouffard

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ACADEMIC POSITIONS

April 2024 – Present	Postdoctoral Research Scholar Washington University in St. Louis Department of Psychological and Brain Sciences Mentors: Dr. Zachariah Reagh and Dr. Jeffrey Zacks

EDUCATION

Sept 2019 – June 2024	Ph.D., Psychology University of Toronto Department of Psychology Advisors: Dr. Morgan Barense and Dr. Morris Moscovitch
Sept 2018 – Sept 2019	M.A., Psychology University of Toronto Department of Psychology Advisors: Dr. Morgan Barense and Dr. Morris Moscovitch
June 2015	Bachelor of Science, Psychology University of California, Davis Overall GPA: 3.86/4.00

HONORS AND AWARDS

2025	Sallie P. Asche Travel Award Dallas Aging and Cognition Conference
2023-2024	Doctoral Completion Award University of Toronto Award value: $7,500 CAD
2023-2024	Marni & Mel Cappe Family Graduate Student Scholarship Rotman Research Institute, Baycrest Award value: $4,500 CAD
2020-2021, 2019-2020	Ontario Graduate Scholarship University of Toronto, School of Graduate Studies, Award value: $15,000 CAD
2019-2020	Finkler Graduate Student Fellowship Rotman Research Institute, Baycrest Award Value: $2,000 CAD

2019	School of Graduate Studies Conference Grant University of Toronto, Award value: $740 CAD
2018	**National Science Foundation Graduate Research** Fellowship Recipient, Award value: $138,000 USD (*Award declined; could not take award to Univ. of Toronto)*
2015	Graduated with Highest Honors With Citations for Outstanding Performance University of California, Davis
2011-2015	Letters and Science Dean's List University of California, Davis Received all eligible quarters in attendance

RESEARCH SUPPORT

2024-Present	**Postdoctoral Scholar**, National Institute on Aging (5T32AG000030-48), "*Aging and Development"*

PUBLICATIONS

Bouffard, N.R., Barense, M.D., & Moscovitch, M. (in prep for submission) Discrete subfields and continuous gradients coexist: A multi-scale view of hippocampal organization. *bioRxiv,* https://doi.org/10.1101/2025.08.19.671141

Bouffard, N.R., Audrain, S., Golestani, A., Barense, M.D., Moscovitch, M., McAndrews, M.P. (under review). Single voxel autocorrelation reflects hippocampal function in temporal lobe epilepsy. *bioRxiv,* https://doi.org/10.1101/2023.12.15.571916

Bouffard, N.R.*, Fidalgo, C.*, Brunec, I.K., Lee, A.C.H., Barense, M.D. (2023) Older adults can use memory for distinctive objects, but not distinctive scenes, to rescue associative memory deficits. *Aging, Neuropsychology, and Cognition,* 1-25. https://doi.org/10.1080/13825585.2023.2170966

Bouffard, N.R.*, Golestani, A.*, Brunec, I.K., Bellana, B., Park, J.Y., Moscovitch, M., Barense, M.D. (2022). Single voxel autocorrelation uncovers gradients of temporal dynamics in the hippocampus and entorhinal cortex during rest and navigation. *Cerebral cortex*; bhac480, https://doi.org/10.1093/cercor/bhac480

Coughlan, G., **Bouffard, N.R.**, Golestani, A., Thakral, P.P., Grady, C., Schacter, D.L., Moscovitch, M. (2022). Transcranial magnetic stimulation to the angular gyrus modulates the temporal organization of the hippocampus and entorhinal cortex. *Cerebral cortex*; bhac273, https://doi.org/10.1093/cercor/bhac273

Mızrak, E., **Bouffard, N. R.,** Libby, L. A., Boorman, E. D., & Ranganath, C. (2021). The hippocampus and orbitofrontal cortex jointly represent task structure during memory-guided decision making. *Cell reports*, *37*(9), 110065. https://doi.org/10.1016/j.celrep.2021.110065

Bouffard, N.R.*, Ladyka-Wojcik, N.*, Barense, M.D., Giving evolution its due in memory systems research (2019) [Review of the book Evolution of Memory Systems, by Murray, E., Wise, S., & Graham, K.] *Quarterly Journal of Experimental Psychology*, 72 (5), 1282-1283. https://doi.org/10.1177/1747021819832227

Libby, L. A., Reagh, Z. M., **Bouffard, N.**, Ragland, J. D., Ranganath, C. (2019). The hippocampus generalizes across memories that share item and context information. *Journal of Cognitive Neuroscience*, 31(1), 24-35. https://doi.org/10.1162/jocn_a_01345

Bouffard, N., Stokes, J., Kramer, H. J., Ekstrom, A. D. (2018). Temporal encoding strategies result in boosts to final free recall performance comparable to spatial ones. *Memory & cognition,* 46(1), 17-31. https://doi.org/10.3758/s13421-017-0742-z

Manuscripts in prep

Bouffard, N.R., Zacks, J.M., & Reagh, Z.M. (in prep). Age differences in hippocampal neural timescales during naturalistic memory encoding.

Bouffard, N.R., Koh, J., Barense, M.D., Moscovitch, M. (in prep). Temporal memory distortions at event boundaries are determined by competition between coarse- and fine-grained boundaries at retrieval.

*signifies co-first author

PRESENTATIONS AND TALKS

Bouffard, N.R.*, Delarazan, A.I., Karagoz, A.B., Zacks, J.M., & Reagh, Z.M. Age differences in hippocampal neural timescales during naturalistic memory encoding. Poster at the Annual meeting of Psychonomic Society 2025.

Bouffard, NR*, Zacks, J.M., & Reagh, Z.M. Hippocampal neural timescales during movie watching are related to gist memory and to age. Poster at Cognitive Neuroscience Society Annual Meeting 2025.

Bouffard, NR, Zacks, J.M., & Reagh, Z.M*. Hippocampal neural timescales during movie watching are related to gist memory and to age. Presented talk at Dallas Aging and Cognition Conference 2025.

Bouffard, NR*, Zacks, J.M., & Reagh, Z.M.. Intrinsic neural timescales in the hippocampus change with age. Talk at Aging & Development Training Program Retreat October 2024

Bouffard, N.R.*, Moscovitch, M., & Barense, M.D. Organization of temporal dynamics among hippocampal subfields as measured by single voxel autocorrelation in humans. Presented as a poster at the Cognitive Neuroscience Society Annual Meeting 2023.

Bouffard, N.R.*, Koh, J., Barense, M.D., Moscovitch, M. Temporal memory distortions at event boundaries are determined by competition between coarse- and fine-grained boundaries at retrieval. Presented as a poster at the Lake Ontario Visionary Establishment annual meeting 2023.

Bouffard, N.R.*, Golestani, A., Brunec, I.K., Bellana, B., Moscovitch, M., Barense, M.D. Single voxel autocorrelation uncovers gradients of temporal dynamics in the hippocampus and entorhinal cortex during rest and navigation. Presented as a talk at the Toronto Area Memory Meeting (TAMeG) annual meeting 2022.

Bouffard, N.R.*, Audrain, S., Brunec, I.K., Golestani, A., Barense, M.D., Moscovitch, M., McAndrews, M.P. Preservation of hippocampal long-axis organization, as revealed by clustering of autocorrelation values, is associated with better memory in temporal lobe epilepsy. Presented as a poster at the Annual meeting of the Cognitive Neuroscience Society 2022.

Bouffard, N.R.*, Brunec, I.K., Obzuko, J.D., Robin, J., Barense, M.D., Moscovitch, M. Goal changes during navigation change hippocampal representations of space and time. Presented as a poster at the Society for Neuroscience Annual Meeting 2019.

Bouffard, N.R.*, Brunec, I.K., Bellana, B., Golestani, A., Obzuko, J.D., Robin, J., Barense, M.D., Moscovitch, M. Navigational demand modulates representational gradients along the human hippocampal longitudinal axis. Presented as a poster at the Cognitive Neuroscience Society Annual Meeting 2019.

Bouffard, N.R.*, Brunec, I.K., Bellana, B., Golestani, A., Obzuko, J.D., Robin, J., Barense, M.D., Moscovitch, M. Navigational demand modulates representational gradients along the human hippocampal longitudinal axis. Presented as a talk at the Rotman Research Institute, Baycrest Spatial Memory Research Retreat 2019.

Bouffard, N.R.*, Brunec, I.K., Bellana, B., Golestani, A., Obzuko, J.D., Robin, J., Barense, M.D., Moscovitch, M. Navigational demand modulates representational gradients along the human hippocampal longitudinal axis. Presented as a poster at the Lake Ontario Visionary Establishment 2019.

*signifies presenter

RESEARCH EXPERIENCE

Graduate Student, Ph.D. (Sept 2019-June 2024)
Co-Advisors: Morgan Barense, Ph.D. and Morris Moscovitch, Ph.D.
University of Toronto, Department of Psychology and Rotman Research Institute, Baycrest

Graduate Student, M.A. (Sept 2018-Sept 2019)
Co-Advisors: Morgan Barense, Ph.D. and Morris Moscovitch, Ph.D.

University of Toronto, Department of Psychology and Rotman Research Institute, Baycrest

Junior Specialist (July 2015-June 2018)
Advisor: Charan Ranganath, Ph.D.
Dynamic Memory Lab, Center for Neuroscience, University of California, Davis

Research Assistant (July 2014-June 2015)
Advisor: Arne Ekstrom, Ph.D.
Human Spatial Cognition Lab, Center for Neuroscience, University of California, Davis

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TEACHING EXPERIENCE

Summer 2025	**Completed Teaching Certification, JHU Teaching Institute** Center for Integration of Research, Teaching, and Learning (CIRTL) Hosted by John's Hopkins University
Winter 2025	PSY4512 Neurobiology of Learning and Memory – Guest Lecturer
Summer 2023	PSY372 Human Memory – Teaching Assistant & Guest Lecturer
Winter 2023	PSY312 Cognitive Development – Teaching Assistant
Fall 2022	PSY201 Statistics I – Teaching Assistant
Summer 2022	Co-lecturer for SPRINT (high school outreach summer program) Title of lecture: Coding and Statistics with R
Summer 2022	PSY201 Statistics I – Teaching Assistant
Summer 2022	**Completed Teaching Certification** University of Toronto, Psychology Department Instructor: John Vervaeke
Winter 2022	PSY260 Learning and Plasticity – Teaching Assistant & Guest Lecturer
Fall 2021	PSY290 Physiological Psychology – Teaching Assistant & Guest lecture
Winter 2021	PSY260 Learning and Plasticity – Writing Intensive Teaching Assistant
2019-2021	**Created + Designed + Co-instructed R coding workshop series** Research Training Center at the Rotman Research Institute: • Title: *A beginner's guide to data analysis & visualization in R* (**July 2020, July 2021**), Class size: 42 students • Title: *Using R for Data Analysis and Visualization* (**November 2019**), Class size: 20 students • Title: *Introduction to R* (**July 2019**), Class size: 26 students

Fall 2020	PSY290 Physiological Psychology – Writing Intensive Teaching Assistant
Winter 2020	PSY260 Learning and Plasticity – Teaching Assistant
Fall 2019	PSY372 Human memory – Teaching Assistant
Summer 2019	PSY372 Human Memory – Teaching Assistant
Winter 2019	PSY260 Learning and Plasticity – Teaching Assistant
Fall 2018	PSY100 Introductory Psychology – Teaching Assistant & Tutorial leader

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MENTORSHIP

2024 – 2025	Advisor for undergraduate research assistants (Elizabeth Kulick and Mya Wolfe)
2022	Mentor for PURC undergraduate program (proof-read graduate school applications and participate in informational workshops about graduate school applications)
2022	Mentor for SPRINT program (mentored a group of high school students and advised their summer project. Our group won the project proposal competition)
2020–2022	Advise mini-thesis undergraduate student for their independent research project (Joshua Koh)
2020–2021	Research Mentorship Program mentor to three undergraduate students
2019–2020	Advise two undergraduate independent research (ROP) students (Michael Truong, Rena Seeger)

ACADEMIC SERVICE

Ad hoc reviewer

- *Nature Communications, Communications Biology, Cerebral Cortex, Neuropsychologia, Memory & Cognition, Cognition, Psychonomic Bulletin and Review, Behavioral and Brain Functions*

Cognitive Neuroscience Trainee Association (2024-2025)

- Postdoc Member and Co-Organizer

Equity and Diversity Initiative Leader (2020–2022)

- Initiative goal: breaking down the systemic racism and barriers faced by undergraduates involved in research in the University of Toronto Psychology Department

Conference Organizer (2022)

- Toronto Area Memory Meeting (TAMeG) – Graduate student volunteer

Judge for the Ontario Ethics Bowl (2022)

- High school debate event

REFERENCES

Jeffrey M. Zacks
Professor, Psychology
Washington University in St Louis
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Assistant Professor, Psychology
Washington University in St Louis
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