Nichole Rochelle Bouffard

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EDUCATION

April 2024 – Present	Postdoctoral Research Scholar Washington University in St. Louis Department of Psychological and Brain Sciences Mentors: Dr. Zach Reagh and Dr. Jeff Zacks
Sept 2019 – June 2024	Ph.D., Psychology University of Toronto Department of Psychology Advisors: Dr. Morgan Barense and Dr. Morris Moscovitch Thesis: *Hippocampal gradients of single voxel autocorrelation are related to behavior and memory dysfunction*
Sept 2018 – Sept 2019	M.A., Psychology University of Toronto Department of Psychology Advisors: Dr. Morgan Barense and Dr. Morris Moscovitch Thesis: *Goal changes during navigation change hippocampal representations of space and time.*
June 2015	Bachelor of Science, Psychology University of California, Davis Overall GPA: 3.86/4.00 Honors Thesis: *Temporal encoding strategies result in boosts to final free recall performance comparable to spatial ones*

HONORS AND AWARDS

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

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PUBLICATIONS

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.

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.

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.

Manuscripts in prep

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

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.

Bouffard, N.R., Brunec, I.K., Moscovitch, M., Barense, M.D. (in prep). Goal changes during navigation change hippocampal representations of space and time.

*signifies co-first author

PRESENTATIONS AND TALKS

2023

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.

2022

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.

2019

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

July 2022	Co-lecturer for SPRINT (high school outreach summer program) Title of lecture: Coding and Statistics with R
March 2022	Guest lecture for PSY 260 course
November 2021	Guest lecture for PSY 290 course Title of lecture: Understanding the neural mechanisms of navigation
2019-2021	Co-instructed workshops with Anisha Khosla and Stephanie Simpson Organized via the Research Training Centre at the Rotman Research

	Institute:
July 2021, July 2020	Workshop title: *A beginner's guide to data analysis and visualization in R*
November 2019	Workshop title: *Using R for Data Analysis and Visualization*
July 2019	Workshop title: *Introduction to R*
October 2018	Lectured for tutorial in PSY 100 course Title of lecture: *Learning and Memory*

MENTORSHIP AND SERVICES

2020–2022	Equity and Diversity Initiative Leader (Initiative goal: breaking down the systemic racism and barriers faced by undergraduates involved in research in the UofT Psych Department)
2022	Mentor for PURC undergraduate program (proof-read graduate school applications and participate in informational workshops about graduate school applications)
July 2022	Mentor for SPRINT program (mentored a group of high school students and advised their summer project. Our group won the project proposal competition)
May 2022	Toronto Area Memory Meeting (TAMeG) Conference Organizer (graduate student volunteer)
March 2022	Judge for the Ontario Ethics Bowl (High school debate event)
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 ROP students (Michael Truong, Rena Seeger)

REFERENCES

Morgan Barense, Ph.D.	Morris Moscovitch, Ph.D.	Charan Ranganath Ph.D.
Professor, Psychology	Professor, Psychology	Professor, Psychology
University of Toronto	University of Toronto	University of California, Davis
barense@psych.utoronto.ca	momos@psych.utoronto.ca	cranganath@ucdavis.edu