

# Nichole Rochelle Bouffard

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University of Toronto  
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## EDUCATION

- Sept 2019 – Present      Ph.D., Psychology  
University of Toronto  
Advisors: Dr. Morgan Barense and Dr. Morris Moscovitch
- Sept 2018 – Sept 2019      M.A., Psychology  
University of Toronto  
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

- 2020-2021,  
2019-2020      Ontario Graduate Scholarship  
University of Toronto, School of Graduate Studies,  
Award value: \$15,000
- 2019-2020      Finkler Graduate Student Fellowship  
Rotman Research Institute, Baycrest  
Award Value: \$2,000
- 2019      School of Graduate Studies Conference Grant  
University of Toronto, Award value: \$740
- 2018      National Science Foundation Graduate Research  
Fellowship Recipient, Award value: \$138,000  
(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.\***, Golestani, A.\*, Brunec, I.K., Bellana, B., Park, J.Y., Moscovitch, M., Barense, M.D. (*submitted*) Single voxel autocorrelation uncovers gradients of temporal dynamics in the hippocampus and entorhinal cortex during rest and navigation. *bioRxiv*.

Coughlan, G., **Bouffard, N.R.**, Golestani, A., Thakral, P.P., Grady, C., Schacter, D.L., Moscovitch, M. (*submitted*) Transcranial magnetic stimulation to the angular gyrus modulates the temporal organization of the hippocampus and entorhinal cortex.

**Bouffard, N.R.\***, Fidalgo, C.\*, Brunec, I.K., Lee, A.C.H., Barense, M.D. (*submitted*) Older adults can use distinctive objects, but not distinctive scenes, to rescue associative memory deficits.

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.

**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.**, 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

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## PRESENTATIONS AND TALKS

### 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.

## 2021

Golestani, A.\* , **Bouffard, N.R.**, Barense, M.D., Moscovitch, M. Brain function induces alterations in the autocorrelation of the fMRI signal. Presented as a poster at the International Society for Magnetic Resonance in Medicine (ISMRM) annual meeting 2021.

## 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.

## 2017

Mizrak, E.\* , **Bouffard, N. R.\***, Libby, L. A., Ranganath, C. Neural Mechanisms of context-dependent decision making. Co-presented as a poster at Society for Neuroscience Annual Meeting 2017.

Inhoff, M. C.\* , **Bouffard, N. R.**, Hsieh, L.-T., Ranganath, C. Neural basis underlying the generalization of sequence structure. Co-author of poster at Society for Neuroscience Annual Meeting 2017.

Libby, L. A., **Bouffard, N. R.\***, Ranganath, C. Context-dependent decision-making: hippocampal-cortical interactions. Presented as a poster at the Bay Area Memory Meeting 2017.

## 2016

Libby, L. A.\*, **Bouffard, N. R.**, Ranganath, C. Context-dependent decision-making: hippocampal-cortical interactions. Co-author of poster at Society for Neuroscience Annual Meeting 2016.

Roberts, B. M.\*, Wang, S. F., Montchal, M., Wade, A., **Bouffard, N.**, Ragland, J. D., Carter, C., Ranganath, C. Effects of transcranial direct current stimulation (tDCS) on neural oscillations during episodic memory encoding and retrieval. Co-author of poster at Society for Neuroscience Annual Meeting 2016.

## 2015

**Bouffard, N. R.\***, Stokes, J., Kyle, C., Lieberman, J., Ekstrom, A. Temporal encoding strategies produce comparable boosts in free recall performance to spatial encoding strategies. Presented as a poster at Society for Neuroscience Annual Meeting 2015.

**Bouffard, N. R.\***, Stokes, J., Kyle, C., Lieberman, J., Ekstrom, A. Temporal encoding strategies produce comparable boosts in free recall performance to spatial encoding strategies. Presented as a talk at the Bay Area Memory Meeting 2015.

**Bouffard, N. R.\***, Stokes, J., Kyle, C., Lieberman, J., Ekstrom, A. Temporal Method of Loci. Presented as a poster at the Stanford Undergraduate Research Conference 2015.

**Bouffard, N. R.\***, Stokes, J., Kyle, C., Lieberman, J., Ekstrom, A. Temporal Method of Loci. Presented as a talk at the University of California, Davis Undergraduate Research Conference 2015.

\*signifies presenter

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## RESEARCH EXPERIENCE

### **Graduate Student, Ph.D. (Sept 2018-Present)**

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

### **Research Assistant (April 2014-June 2015)**

Advisor: Kristin H. Lagattuta, Ph.D.

Mind-Emotion Development Lab, Center for Mind and Brain, 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 Title of lecture: Understanding the neural mechanisms of navigation
November 2021	Guest lecture for PSY 290 course Title of lecture: Understanding the neural mechanisms of navigation
July 2021 July 2020	Co-instructed workshop with Anisha Khosla and Stephanie Simpson Workshop title: <i>A beginner's guide to data analysis and visualization in R</i> Organized via the Research Training Centre at the Rotman Research Institute
November 2019	Co-instructed workshop with Anisha Khosla and Stephanie Simpson Workshop title: <i>Using R for Data Analysis and Visualization</i> Organized via the Research Training Centre at the Rotman Research Institute
July 2019	Co-instructed workshop with Anisha Khosla and Stephanie Simpson Workshop title: <i>Introduction to R</i> Organized via the Research Training Centre at the Rotman Research Institute
October 2018	Lectured for tutorial in PSY 100 course Title of lecture: <i>Learning and Memory</i>

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## MENTORSHIP AND SERVICES

2020–present	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 (Joshua Koh)
2020–2021	Research Mentorship Program mentor to three undergraduate students
2019–2020	Advise two undergraduate ROP students (Michael Truong, Rena Seeger)
May 2018	Invited guest speaker – Future Medical Health Professionals Club, Vanden High School
April 2018	Out-reach day at elementary school in Sacramento for Brain Awareness Week volunteer (with the UCD Neuroscience Graduate Group)
April 2017	Out-reach day at elementary school in Sacramento for Brain Awareness Week volunteer (with the UCD Neuroscience Graduate Group)

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## REFERENCES

Morgan Barens, Ph.D. Professor, Psychology University of Toronto barens@psych.utoronto.ca	Morris Moscovitch, Ph.D. Professor, Psychology University of Toronto momos@psych.utoronto.ca	Charan Ranganath Ph.D. Professor, Psychology University of California, Davis cranganath@ucdavis.edu	Arne Ekstrom, Ph.D. Associate Professor, Psychology University of Arizona adekstrom@email.arizona.edu
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