

# Manda Fischer, PhD Candidate

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Department of Psychology  
Rotman Research Institute at Baycrest Centre  
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## EDUCATION AND TRAINING

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- 2019-2023 (expected) **PhD Candidate**, Psychology - Cognitive Neuroscience, University of Toronto  
**Thesis:** *Auditory memory and how it prepares us in real-time: Examining the neural correlates of memory-guided behaviour*  
Advisors: Dr. Morris Moscovitch and Dr. Claude Alain
- Researching the neural correlates of memory-biased attention in hearing.
  - To date, this work has resulted in 10 conference presentations, The Ebbinghaus Award for Best Talk at the Toronto Area Memory Group Meeting, two publications in peer-reviewed journals, and rank 1 federal funding from the Natural Sciences and Engineering Research Council of Canada (NSERC).
- 2022 **Visiting Researcher**, Oxford University  
Advisors: Dr. Holly Bridge and Dr. Kate Watkins
- 2018-2019 **MA Psychology**, University of Toronto
- 2015-2018 **BSc Honours Psychology** [GPA 3.96 - high first-class honours], McGill University  
**Thesis 1:** *The role of timbre in auditory stream segregation: Investigating the critical link between auditory perception and human expression*  
**Thesis 2:** *Timbre saliency and stratification in orchestral musical excerpts*  
Advisor: Dr. Stephen McAdams
- Summer 2018 **Undergraduate Student Research Award (NSERC)**, McGill University
- Project 1: *Neural encoding of audio-motor sequences in music learning using machine learning multi-pattern voxel analysis*  
Advisor: Dr. Robert Zatorre
  - Project 2: *Publication preparation (previous two theses)*  
Advisor: Dr. Stephen McAdams
- Summer 2017 **Undergraduate Student Research Award (NSERC)**, McGill University  
Project: *Perceptual segregation in orchestral musical excerpts*  
Supervisor: Dr. Stephen McAdams

## PUBLICATIONS

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### Published in peer-reviewed journals

- Fischer, M.**, Moscovitch, M., & Alain, C. (2020). Incidental auditory learning and memory-guided attention: Examining the role of attention at the behavioural and neural level using EEG. *Neuropsychologia*, 147, 107586. <https://doi.org/10.1016/j.neuropsychologia.2020.107586>.
- Fischer, M.**, Moscovitch, M., & Alain, C. (2020). A systematic review and meta-analysis of memory-guided attention: Frontal and parietal activation suggests involvement of fronto-parietal networks. *WIREs Cognitive Science*, 12(1), e1546. <https://doi.org/10.1002/wcs.1546>.
- Fischer, M.**, Soden, K., Thoret, E., Montrey, M., & McAdams, S. (2021). Instrument timbre enhances perceptual segregation in orchestral music. *Music Perception*, 38(5), 473-498. <https://doi.org/10.1525/mp.2021.38.5.473>.

### Submitted manuscripts

- Fischer, M.**, Moscovitch, M., Keisuke, F., & Alain, C. (submitted). Ready for Action: Directed attention at encoding facilitates covert response preparation.

## RESEARCH FUNDING

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2020	Alexander Graham Bell Canada Graduate Scholarship - Doctoral Award, rank 1 Natural Sciences and Engineering Research Council (NSERC) <i>National level (CAN): \$105,000, over 36 months</i>
2020 (declined)	Complex Dynamics Training (CREATE) Grant, NSERC <i>National level (CAN): \$26,000</i>
2020	Michael Smith Foreign Study Supplement, NSERC <i>National level (CAN): \$6,000</i>
2020	Mitacs Globalink Research Award <i>National level (CAN): \$4,000</i>
2019	CREATE Grant, NSERC <i>National level (CAN): \$26,000</i>
2019 (declined)	Canada Graduate Scholarship (CGS-M), NSERC <i>National level (CAN): \$17,500</i>
Summer 2018	Supplements of the NSERC Undergraduate Student Research Awards Fonds de Recherche du Québec Nature et Technologies (FRQNT) <i>Provincial level (CAN): \$2,000</i>
Summer 2018	Undergraduate Student Research Award, NSERC <i>National level (CAN): \$5,600</i>
Summer 2017	Supplements of the NSERC Undergraduate Student Research Awards, FRQNT <i>Provincial level (CAN): \$2,000</i>
Summer 2017	Undergraduate Student Research Award, NSERC <i>National level (CAN): \$5,600</i>

## DISTINCTIONS AND AWARDS

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2022	Jack and Rita Catherall Fund Rotman Research Institute at Baycrest <i>Institutional level (CAN): \$500</i>
2019	Finkler Graduate Student Fellowship Rotman Research Institute at Baycrest <i>Institutional level (CAN): \$3,000</i>
2019	The Ebbinghaus Award for Best Talk Toronto Area Memory Group (TAMEG) <i>Regional level (CAN): \$75 and invited manuscript</i>
2018	Faculty of Arts and Science Admissions Award The University of Toronto <i>Institutional level (CAN): \$5,000</i>
2017-2018	Celia Hendler Scholarship in Psychology McGill University <i>Institutional level (CAN): \$3,545</i>
2016-2018	Dean's Honour List (top 10%) McGill University <i>Institutional level (CAN): \$0</i>

## PRESENTATIONS & POSTERS

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### Invited Talks

**Fischer, M.,** Moscovitch, M., & Alain, C. (2021). Mapping 'expectation for perception': Directed attention at encoding facilitates response preparation to high probability events. *The Society for Psychophysiological Research 2021 – The Faces of the Future Flash Talks.*

**Fischer, M.,** Moscovitch, M., & Alain, C. (2021). Memory-guided attention: A look at the neural correlates that underly “expectation for perception”. *The Neuroscience Research Group at York University*.

**Fischer, M.,** Soden, K., Thoret, E., Montrey, M., & McAdams, S. (2019). The role of timbre in perceptual segregation in orchestral music. *The Symposium on Interdisciplinary Studies in Orchestration and Timbre: The ACTOR Project at the Society of Music Perception and Cognition (SMPC)*, New York, USA.

**Fischer, M.,** Moscovitch, M., & Alain, C. (2019). Does everyday auditory experience facilitate memory-guided attention? *The Graduate Speaker Series*, University of Toronto, Canada.

**Fischer, M.,** Soden, K., Goodchild, M., & McAdams, S. (2017). The role of timbre in auditory stream segregation. *The Cognition and Communication Laboratory*, Université du Québec à Montréal, Canada.

**Fischer, M.,** Soden, K., & McAdams, S. (2017). Orchestral timbre in perceptual segregation. *The Faculty of Science Undergraduate Research Conference (competitive)*, McGill University, Canada.

## Talks

**Fischer, M.,** Moscovitch, M., & Alain, C. (2021). What you heard is where you listen: Alpha and theta differences localized to parietal and temporal lobes support memory retrieval for cued sound location. *The Ebbinghaus Empire Data Blitz*, The University of Toronto.

**Fischer, M.,** Moscovitch, M., & Alain, C. (2021). Mapping 'expectation for perception': Directed attention at encoding facilitates response preparation to high probability events. *The Canadian Society for Brain, Behaviour and Cognitive Science 2021 (CSBBCS)*.

**Fischer, M.,** Moscovitch, M., & Alain, C. (2021). Optimizing attention and performance: The role of experience and memory. *The Ebbinghaus Empire Data Blitz*, The University of Toronto.

**Fischer, M.,** Moscovitch, M., & Alain, C. (2020). Directed attention at exposure modulates implicit memory for real-world soundscapes at retrieval. *The Auditory Perception, Cognition, & Action Meeting (APCAM) 2020*.

**Fischer, M.** (2019). Memory-guided attention in hearing. *Rotman Research Trainee SpeakEasy*, The Rotman Research Institute at Baycrest Hospital, Toronto, Canada.

**Fischer, M.,** Moscovitch, M., & Alain, C. (2019). Incidental auditory learning and memory-guided attention: A behavioural and electroencephalogram (EEG) study. *The Auditory Perception, Cognition, & Action Meeting 2019*, Montreal, Canada.

**Fischer, M.,** Moscovitch, M., & Alain, C. (2019). Does everyday auditory experience facilitate memory-guided attention? *Toronto Area Memory Group (TAMEG)*, York University, Toronto, Canada.

**Fischer, M.,** Moscovitch, M., & Alain, C. (2019). Incidental auditory learning and memory-guided attention: A behavioural and EEG study. *The Toronto Auditory Research Group (TARG)*, Toronto, Canada

## Posters

**Fischer, M.,** Moscovitch, M., & Alain, C. (2022). Implicit memory for target location and parietal source-localized alpha-band power facilitate memory-guided attention in real-world sound-clips. *The Cognitive Neuroscience Society Meeting 2022 (CNS)*, San Francisco, California, USA.

**Fischer, M.,** Moscovitch, M., & Alain, C. (2021). Implicit memory for target location facilitates memory-guided attention in real-world sound-clips. *The Society for Neuroscience 2021 (SfN)*.

**Fischer, M.,** Moscovitch, M., & Alain, C. (2021). Memory-guided attention: Lateralized event-related potentials (ERPs) index location of lateralized targets embedded in learned soundscapes. *The Psychonomic Society* 2021.

**Fischer, M.,** Moscovitch, M., & Alain, C. (2021). Mapping 'expectation for perception': Directed attention at encoding facilitates response preparation to high probability events. *The Society for Psychophysiological Research* 2021.

**Fischer, M.,** Moscovitch, M., & Alain, C. (2021). Directed attention at encoding facilitates response preparation to high probability events. *The Nonlinear Dynamics of Brain and Behaviour Symposium*.

**Fischer, M.,** Moscovitch, M., & Alain, C. (2020). Long-term memory-guided Attention and theta-band oscillations. *The Nonlinear Dynamics of Brain and Behaviour Symposium*.

**Fischer, M.,** Moscovitch, M., & Alain, C. (2020). Long-term memory-guided attention and alpha-band oscillations: Implicit access to spatial information. *The Cognitive Neuroscience Society Annual Meeting*.

## SERVICE & OUTREACH

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2020 - present	<b>Ad-Hoc Reviewer</b>   Cortex & Nature Communications
2022	<b>Panel Speaker</b>   University of Toronto Cognitive Neuroscience Recruitment
2019	<b>Speaker</b>   Brain & Cognition Lectures: Science outreach for older adults
2020	<b>Tech Specialist - EEG demo</b>   Baycrest Hospital Open House
2018	<b>Conference Organizer</b>   Timbre conference 2018, McGill University

## PROFESSIONAL MEMBERSHIPS

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Cognitive Neuroscience Society (CNS)

Society for Neuroscience (SfN)

Canadian Society for Brain, Behaviour and Cognitive Science (CSBBCS)

Society for Psychophysiological Research (SPR)

## TECHNICAL PROFICIENCIES

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### Hardware and brain imaging experience

- EEG experimentation and analyses, 76-channel system, and audiometer
  - Neurobehavioral Systems Presentation and MATLAB
  - BESA Research, BESA Statistics, and Brainstorm
- fMRI analyses and visualization
  - Preprocessed fMRI data and applied machine learning multi-pattern voxel analysis techniques to audio-motor cello training data set
  - Python, Shell scripting, FSL, and AFNI

### Statistical/modelling tools

- Statistical Analysis Software (SAS) used to create multi-level models
- Meta-analysis performed, using GingerALE
- R used for statistical analysis and visualization (GPA 4.0)

### Acoustic analyses and sound editing

- Implemented MATLAB's Timbre Toolbox to extract audio attributes from musical signals. Digital audio workstation and MIDI sequencer software (Logic Pro X) used to edit and render sound stimuli.

## TEACHING EXPERIENCE

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### **Advised and trained** | Rotman Research Institute at Baycrest Hospital

- I created a manual on EEG experimentation (76-channel system and audiometer set-up) and analyses and then trained the following students. Meeting with students weekly, I set up term goals to work and advise them at each research step: acquisition, analysis, and write-up.

2022	Undergraduate mini-thesis student   S. Mo
2021	Undergraduate research student   S. Mo
2021-2022	Undergraduate co-op student   J.M. Soto
2019-2020	Undergraduate research student   S. Paracha
2019	Undergraduate research student   K. Ramdeo
2019	Undergraduate research student   P. Tajbakhsh

### **Tutorial leader** | University of Toronto

- I led weekly tutorials on advanced undergraduate statistical concepts. I was also responsible for preparing graded worksheets and taught students how to use the statistical software JAMOV and G\*Power. Feedback from students (N = 11), Items on scale from 1-7: 6.8 overall in terms of being knowledgeable, prepared, responsive, respectful, and invested in student's success.

2019- present	Advanced Statistics (Statistics II)
	Introduction Statistics (Statistics I)
	Introduction to Psychology

### **Invited Guest Lecturer** | University of Toronto (PSY493H1 Cognitive Neuroscience, April 2019)

- I gave an in-depth presentation and review on perceptual grouping and music research. Feedback from students (N = 12), Items on scale from 1-5: 4.7 overall in terms of clarity of content, delivery, organization, use of visual aids, enthusiasm, responsiveness to questions, overall lecturer quality.

### **Teaching Assistantships** | University of Toronto

2019- present	Advanced Statistics
	Introductory Statistics (6 sessions)
	Psychological Research Methods
	Personality Psychology
	Introduction to Social Psychology
	Introduction to Psychology

### **Teaching Workshop 2021** | University of Toronto

## PERSONAL

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Citizenship: Canadian

Languages: English and French

## REFERENCES

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Morris Moscovitch, Ph.D.  
Professor Emeritus and PhD Advisor  
Department of Psychology  
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