

## **Academic Appointments and Education**

Postdoctoral Research Associate Massachusetts Institute of Technology Computer Science and Artificial Intelligence Lab (CSAIL) Supervisor: Dr. Aude Oliva	2017-
Ph.D. Cognitive Neuroscience University of Toronto Advisors: Dr. Jonathan S. Cant and Dr. Susanne Ferber	2014-2017
M.A. Cognitive Neuroscience University of Toronto Principle Research Scientists: Dr. Jonathan S. Cant and Dr. Susanne Ferber	2013-2014
B.Sc. Psychology University of Cape Town	2008-2010

## **Research**

### ***Publications***

- [1] **Lowe, M.X.**, Stevenson, R.A., Barense, M.D., Cant, J.S., and Ferber, S. (2018). Relating the perception of visual ensemble statistics to individual levels of autistic traits, *Attention, Perception, & Psychophysics*, 80 (7), 1667-1674
- [2] **Lowe, M.X.**, Rajsic, Ferber, S., and Walther, D.B. (2018). Discriminating scene categories from brain activity within 100ms, *Cortex*, 106, 275-287\*  
**\*Featured on the journal cover**
- [3] **Lowe, M.X.**, Rajsic, J., Gallivan, J.P., Ferber, S., and Cant, J.S. (2017). Neural representation of geometry and surface properties in object and scene perception, *NeuroImage*, 157, 586-597\*  
**\*Featured on the journal cover**
- [4] Robin, J., **Lowe, M.X.**, Pishdadian, S., Rivest, J., Cant, J.S., & Moscovitch, M. (2017). Selective scene perception deficits in a case of topographical disorientation, *Cortex*, 92, 70-80
- [5] **Lowe, M.X.**, Gallivan, J.P., Ferber, S., and Cant, J.S. (2016). Feature diagnosticity and task context shape activity in human scene-selective cortex, *NeuroImage*, 125, 681-692\*  
**\*Featured on the journal cover**
- [6] **Lowe, M.X.**, Stevenson, R.A., Wilson, K.E., Ouslis, N.E., Barense, M.D., Cant, J.S., and Ferber, S. (2016). Sensory processing patterns predict the integration of information held in visual working

memory, *Journal of Experimental Psychology: Human Perception and Performance*, 42(2), 294-301

- [7] Wilson, K.E., **Lowe, M.X.**, Ruppel, J., Pratt, J., and Ferber, S. (2016). The scope of no return: Openness predicts the spatial distribution of Inhibition of Return, *Attention, Perception, & Psychophysics*, 78, 209-217
- [8] **Lowe, M.X.**, Ferber, S., and Cant, J.S. (2015). Processing context: Asymmetric interference of visual form and texture in object and scene interactions, *Vision Research*, 117, 34-40\*  
\*Featured on the journal cover

### ***Submitted Manuscripts***

- [9] Assaf, H., Mzozoyana, M., Noesen, B., **Lowe, M.X.**, and Cant, J.S. (under review). Artificially-generated scenes demonstrate the importance of global scene properties for scene perception.
- [10] Wilson, K., Sun, S.Z., Emrich, S., **Lowe, M.X.**, Kosnik, R., Ruppel, J., and Ferber, S. (under review) Individual differences in visual attention: Conscientiousness and selective attention.

### ***Manuscripts in Preparation for Submission***

- [11] **Lowe, M.X.**, Mohsenzadeh, Y., Lahner, B., Charest, I., Oliva, A, and Teng, S. Spatiotemporal dynamics of sound representations reveals a progression of category selectivity.
- [12] **Lowe, M.X.**, Mohsenzadeh, Y. A neural time signature of visual imagery in the human brain.

### ***Conference Presentations***

#### **2019**

- [1] **Lowe, M.X.**, Mohsenzadeh, Y., Lahner, B., Teng, S., Charest, I., and Oliva, A. Spatiotemporal dynamics of sound representations in the human brain. Poster to be presented at the Society for Neuroscience Annual Meeting, Chicago, IL.
- [2] **Lowe, M.X.**, Mohsenzadeh, Y., Lahner, B., Teng, S., Charest, I., and Oliva, A. Neural dynamics of human auditory perception across space and time. Poster presented at the Cognitive Neuroscience Society Annual Meeting, San Francisco, CA. \*  
\*Abstract awarded the Postdoctoral Fellow Award
- [3] **Lowe, M.X.**, Mohsenzadeh, Y., Lahner, B., Teng, S., Charest, I., and Oliva, A. Spatiotemporal neural representations in high-level visual cortex evoked from sounds. Talk presented at the Vision Science Society Annual Meeting, St. Petersburg, FL.

#### **2018**

- [4] **Lowe, M.X.**, Teng, S., Mohsenzadeh, Y., Charest, I., Pantazis, D., and Oliva, A. Temporal dynamics underlying sound discrimination in the human brain. Abstract presented at the Conference on Cognitive Computational Neuroscience, Philadelphia, PA.

**2017**

- [5] **Lowe, M.X.**, Rajsic, J., Cant, J.S., and Ferber, S. Efficient encoding of ensemble statistics in the visual periphery. Talk presented at the Society for Neuroscience Annual Meeting, Washing, D.C.
- [6] **Lowe, M.X.**, Rajsic, J., Gallivan, J.P., Ferber, S., and Cant, J.S. Making a scene: Neural representation of visual features in object and scene perception. Poster presented at the Organization for Human Brain Mapping Annual Meeting, Vancouver, BC.
- [7] **Lowe, M.X.**, Rajsic, J., Ferber, S., and Walther, D.B. Category discrimination of early electrophysiological responses reveals the time course of natural scene perception. Poster presented at the Vision Sciences Society Annual Meeting, St. Petersburg, FL. \*  
\*Abstract awarded the Elsevier Travel Award
- [8] Mzozoyana, M. W., **Lowe, M.X.**, Groen, I.I.A., Cant, J.S., and Harel, A. Artificially-generated scenes demonstrate the importance of global scene properties for scene perception. Poster presented at the Vision Sciences Society Annual Meeting, St. Petersburg, FL.

**2015**

- [9] Cant, J.S., **Lowe, M.X.**, Rajsic, J., Gallivan, J.P. Are scene-shape and scene-texture processing mediated by shared or distinct neuronal mechanisms in the parahippocampal place area? Talk presented at the Society for Neuroscience Annual Meeting, Chicago, IL
- [10] **Lowe, M.X.**, Ferber, S, and Cant, J.S. Dynamic representation of texture and spatial layout in human scene-selective cortex. Poster presented at the Organization of Human Brain Mapping Annual Meeting, Honolulu, HI
- [11] **Lowe, M.X.**, Ferber, S, and Cant, J.S. Texture and spatial layout converge in human scene-selective cortex. Poster presented at the Vision Sciences Society Annual Meeting, St. Petersburg, FL
- [12] **Lowe, M.X.**, Stevenson, R.A., Wilson, K.E., Ouslis, N.E., Barense, M.D., Cant, J.S., and Ferber, S. Sensory processing patterns predict the bias of ensemble statistics for items held in visual working memory. Poster presented at the Cognitive Neuroscience Society Annual Meeting, San Francisco, CA.

**Pre 2014**

- [13] **Lowe, M.X.**, and Cant, J.S. Revealing a global-processing bias for texture in scene perception. Poster presented at the Canadian Society for Brain, Behaviour, and Cognitive Science Annual Meeting, Toronto, ON.
- [14] **Lowe, M.X.**, and Cant, J.S. Perceiving the global: The role of surface texture consistency in object and background perception. Poster presented at the Vision Sciences Society Annual Meeting, St. Petersburg, FL

- [15] Wilson, K.E., Ruppel, J., **Lowe, M.X.**, Shaw, M., Kosnik, R., Pratt, J., and Ferber, S. Individual differences in the scope of spatial attention. Poster presented at Vision Sciences Society Annual Meeting, Naples, FL

### ***Neuroimaging Techniques***

Functional Magnetic Resonance Imaging (Univariate analysis; multivoxel pattern analysis (MPVA) including representational similarity analysis (RSA); fMR-adaptation); Electroencephalography (EEG); Magnetoencephalography (MEG)

### **Scholarly Awards & Honours**

Ontario Graduate Scholarship (OGS),	2017
Elsevier Travel Award (VSS Student Travel Award)	2017
Ontario Graduate Scholarship (OGS)	2016
Travel Award from the Faculty of Arts & Sciences, University of Toronto	2015
Travel Award from the Faculty of Arts & Sciences, University of Toronto	2014
University of Toronto Fellowship	2013-2016
Dean's Award for Academic Excellence, University of Cape Town	2009
Academic Scholarship, University of Cape Town	2007-2008

### **Invited Lectures**

<i>Neural representations of the visual world across time and space</i> University of Toronto Scarborough	2017
<i>Sensation and Perception</i> University of Toronto	2017
<i>Scene Perception,</i> University of Toronto	2015
<i>Introduction to experimental design and data analysis</i> University of Toronto	2014-2016

### **Teaching**

#### ***Teaching Assistant***

Cognitive Neuroscience	2017
Cognitive Psychology Laboratory	2014-2016
Cognitive Neuroscience of Vision	2014, 2015
Perception and Cognition	2014, 2016
Psychological Research Laboratory	2013

### **Service**

Volunteer, CVPR 2018 & CVPR 2018 Area Chair Workshop	2018
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fMRI Project Planning Committee Member University of Toronto  
 University of Toronto Scarborough Campus Representative, PGSA  
 Master of Arts Student Representative, PGSA

2014 - 2016  
 2014-2015  
 2013-2014

## Ad-Hoc Peer Reviewer

Attention, Perception, & Psychophysics  
 Cortex  
 Human Brain Mapping  
 Journal of Cognitive Neuroscience  
 Journal of Experimental Psychology: General  
 Experimental Brain Research

## Extra-curricular Achievements

### Mountaineering

<i>Summit of Mafadi Peak</i> , South Africa, highest mountain in South Africa (11,319ft)	2017
<i>Summit of Mt. Aconcagua</i> , Andes Mountain range; Argentina, highest mountain in the Western and Southern Hemispheres (22, 838ft)	2016
<i>Summit of Mt. Elbrus</i> , Caucasus Mountain Range, Russia, highest Mountain in Europe (18, 510ft)	2013
<i>Mt. Kilimanjaro</i> , Tanzania, highest mountain in Africa (19, 341 ft)	2005

## References

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