

Laura Green

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Education

New York University School of Medicine, New York, NY 2018-2023 (expected)
Ph.D., Neuroscience

McMaster University, Hamilton, Ontario 2014-2018

B.Sc (Hons), Integrated Science, minor in Physics

- Integrated Science is a four-year honours science program, with a focus on research, connecting scientific disciplines, and problem-based learning

Scholarly and Professional Activities

Research Experience

July **Graduate Research Assistant**

2019-current Supervisors: Dr. György Buzsáki, NYU School of Medicine, and Dr. John Rinzel, NYU

- Develop and apply quantitative neuroscience modelling Techniques to rodent hippocampal silicon probe recordings to Determine physiological mechanisms of memory

September **Rotation Student**

2018-June 2019 Supervisors: Dr. Andre Fenton and Dr. Cristina Savin, Neuroscience Department, NYU

- Implemented a GP model (Savin & Tkacik, 2016) to analyze tetrode recordings of rats exploring in familiar environments, to determine the effects of ζ -inhibitory peptide (ZIP) injection on functional connectivity within CA1

June-July **Mathematical Model of 1/f noise in EEG signals**

2018 Supervisor: Dr. Lennaert van Veen, University of Ontario, Institute of Technology

- Created a stochastic dynamical systems model of EEG Frequencies to determine the origin of 1/f noise

Sept. 2017- **Undergraduate Thesis Project: Model of the Auditory Nerve**
April 2018 **Fibre**

Supervisor: Dr. Ian Bruce, Auditory Engineering Laboratory, McMaster University

- Adjusted previous Auditory Nerve Fibre model to model patch-clamp recordings from rat
- Added M-current to model to improve model

May-Aug. **Undergraduate Student Research Award (NSERC USRA):**
2017 **Model of the IHC-AN Fibre Synapse**

Supervisor: Dr. Ian Bruce, Auditory Engineering Laboratory, McMaster University

- Implemented mathematical descriptions of synaptic ion channels into a Hodgkin and Huxley-based Auditory Nerve Fibre model
 - Analyzed simulations results using statistical tests to improve the model
- Sept. 2015-
June 2017 **Volunteer project: Physiology of the Heart and Mood**
Supervisor: Dr. Paul Andrews, Evo-Health Lab, McMaster University
- Planned and implemented an experiment to investigate how expressive writing affects heart rate variability, salivary cortisol, and theory of mind in undergraduate students
 - Drafted a paper on the antioxidant properties of serotonin
- Feb.-Apr.
2016 **Mathematical Model of a Serotonergic Neuron**
Supervisor: Dr. Deda Gillespie, McMaster University
- Modelled a serotonergic synapse in the hippocampus in MATLAB, for a six-week enrichment project; presented at an in-class poster session (2016)

Awards

Training Program in Computational Neuroscience, NIH grant R90DA043849 (2019-2021)

NSERC Canadian Graduate Scholarship-Master's (CGSM) at University of Toronto (2018 - *Declined*)

University (Senate) Scholarship (2016)

McMaster President's Award (2014-2015)

Publications

Green, L., Tingley, D., Rinzel, J. & Buzsáki, G. (2022). Action-driven remapping of hippocampal neuronal populations in jumping rats. *Proceedings of the National Academy of Sciences*, 119(26), e2122141119.
<https://www.pnas.org/doi/pdf/10.1073/pnas.2122141119>

Undergraduate Student Publications

Panuelos, J. and **Green, L.** (2016). What would the world be like to a borrower? *Journal of Interdisciplinary Science Topics* 5.
<https://physics.le.ac.uk/jist/index.php/JIST/article/view/187/114>

Fare, I. and **Green, L.** (2016). "Formation of the Earth and Solar System" in: Eyles and Symons (eds.), *History of the Earth Vol VI*. McMaster University. pp. 4-9.
[\[http://hdl.handle.net/11375/20732\]](http://hdl.handle.net/11375/20732).

(Course credit was received for the above publications)

Contributed Talks and Posters

Society for Neuroscience 2021

Joint Symposium in Computational Neuroscience, 2021

NeuroXchange Undergraduate Neuroscience Conference 2016

Courses and Conferences

Attendee, Cosyne 2020

Attendee, Society for Neuroscience 2018, 2019

Science Communication Workshop, Arthur L. Carter Journalism Institute, NYU, 2019

Workshop on the Mathematics of Hearing, The Fields Institute, 2017

Software Carpentry Workshop, McMaster University, 2016

Ontario Summer School on High Performance Computing, McMaster University, 2016

Teaching

Teaching Assistant: McMaster University, ISCI 2A18 Neuroscience (Fall 2017)

Professor: Dr. Deda Gillespie

Neuroscience High School Workshop Co-Leader, 2017

Reviewing

The iScientist Editorial Board (2015-2018; Senior Editor 2017-2018)

- Co-wrote a grant that earned \$2500 over a three-year period from the McMaster Science Society's Science Initiative Fund

Competitions

Society for Neuroscience Brain Awareness Video Contest, 2016

- Created a five-minute video, working in a group, to explain neural networks to a general audience