Emily Olafson

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EDUCATION

Doctor of Philosophy (in progress), Neuroscience
Weill Cornell Graduate School, New York, NY, USA August 2019 - Present
Thesis - *Prediction of post-stroke motor deficits from neuroimaging data using a machine learning approach*, Supervisor: Dr. Amy Kuceyeski

Bachelor of Science, Neuroscience
McGill University, Montreal, Quebec, Canada September 2015 - April 2019
GPA 3.94. Thesis -*Can the tissue intensity ratio capture atypical cortical development in autism spectrum disorder?* Supervisor: Dr. Mallar Chakravarty

RESEARCH EXPERIENCE

Graduate Thesis Student March 2020 – present
Computational Connectomics Lab, Weill Cornell Medicine, New York, USA

- Evaluated brain plasticity related to recovery in stroke subjects using a graph-matching approach
- Applied machine learning models to predict stroke outcome from imaging and diagnostic data

Undergraduate Honours Thesis Student September 2018 – April 2019
Douglas Mental Health University Institute, Quebec, Canada

- Developed a pipeline to measure the tissue intensity ratio from structural magnetic resonance images and applied it to a large autism spectrum disorder dataset.
- Performed a vertex-wise meta-analysis to assess diagnostic differences and to determine how factors such as age, sex, and FIQ contribute to variation in the tissue intensity ratio.

Research Assistant May 2018 – August 2018
Douglas Mental Health University Institute, Quebec, Canada

- Processed a multi-site dataset through the MAGeTbrain (Multiple Automatically Generated Templates) subcortical segmentation pipeline and assessed the outputs for segmentation quality.
- Generated a quantitative MAGeTbrain quality control manual for the lab

Research Assistant May 2017 – April 2018
Institut de recherches cliniques de Montréal, Quebec, Canada

- Knocked down candidate proteins using electroporation and the CRISPR-cas9 system and characterized developmental defects with immunohistochemistry and fluorescence microscopy.

PUBLICATIONS

Emily Olafson, Saashi A Bedford, Gabriel A Devenyi, Raihaan Patel, Stephanie Tullo, Min Tae M Park, Olivier Parent, Evdokia Anagnostou, Simon Baron-Cohen, Edward T Bullmore, Lindsay R Chura, Michael C Craig, Christine Ecker, Dorothea L Floris, Rosemary J Holt, Rhoshel Lenroot, Jason P Lerch, Michael V Lombardo, Declan G M Murphy, Armin Raznahan, Amber N V Ruigrok, Michael D Spencer, John Suckling, Margot J Taylor, MRC AIMS Consortium, Meng-Chuan Lai, M Mallar Chakravarty, *Examining the boundary sharpness coefficient as an index of cortical microstructure in autism spectrum disorder*, Cerebral Cortex (2021), https://doi.org/10.1093/cercor/bhab015

Stefan Drakulich*, Anne-Charlotte Thiffault*, Emily Olafson, Aurelie Labbe, Matthew D. Albaugh, Budhachandra Khundrakpam, Simon Ducharme, Alan Evans, Mallar M. Chakravarty, *"Maturational Trajectories of Pericortical Contrast in Typical Brain Development"* Neuroimage March (2021), https://doi.org/10.1016/j.neuroimage.2021.117974

TEACHING & MENTORSHIP

Student mentorships

Georgia Russello (2020 - present, junior at Pelham Memorial High School, Pelham, NY)

- Mentoring high school student over the course of a year-long research project, helping her learn topics such as experimental methods, technical writing, coding, and presentation and interpretation of scientific findings

Teaching

Instructor - HD 3250 Neurochemistry of Human Behavior Fall 2021
Five Points Correctional Facility

- Undergraduate-level neuroscience course covering the principles of chemical neurotransmission and how alterations in signalling can manifest in disease.

Neuroscience Bootcamp organizer and lecturer August 2020
Weill Cornell Graduate School

- Along with 2 other co-organizers, I determined the syllabus and contacted lecturers to speak at a 3-day program for incoming PhD students. The goal of this mini course was to provide a common knowledge base of neuroscience fundamentals to serve as an introduction and/or refresher to students prior to official classes.
- Created and presented a 45 minute lecture on genetic models

CoCo lab Summer Skills Development Workshops lecturer June 2020
Weill Cornell Graduate School

- Presented two lectures, "How to read a scientific paper" and "Introduction to MATLAB for neuroimaging" to summer students in the Kuceyeski lab

Neuroethics Undergraduate TA September - December 2019
McGill University

- Graded and gave detailed feedback to third year undergraduate students' neuroethics essays

on a weekly basis

Physics Undergraduate TA January - April 2017, January - April 2018
McGill University

- Helped students to solve homework problems and develop their understanding of course material during office hours
- Guided students through practice problems during lectures (the class had a 'reverse learning' format where students learned on their own and came to class to solve problems in small groups)
- Proctored exams

EXTRACURRICULARS

- Organizer and project leader for the first implementation of Brainhack New York 2020, a hackathon and conference with 50 registered participants
- Artificial Intelligence Health Hackathon February 2020 - Best Diagnostic Application (project: OpenCellAI)

HONORS

- 2021 - Organization for Human Brain Mapping Merit Abstract award
- 2019 - Canadian Institutes of Health Research Canada Graduate Scholarships Master's Program Award
- 2017, 2019 - Natural Sciences and Engineering Research Council Undergraduate Student Research Award (Kania Lab, Chakravarty Lab)
- 2016, 2017, 2018 - Tomlinson Engagement Award for Mentoring (TEAM) for NSCI 300 (Neuroethics) and PHYS 102 (Physics - Electromagnetism) at McGill
- 2017 - Faculty of Science Scholarship - McGill University

INTERESTS

Oil painting and sketching, gardening, French language, fitness