EMILY OLAFSON

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LANGUAGES & APTITUDES

R (RStudio), python (NumPy, SciPy, pandas), Keras, TensorFlow, MATLAB, Linux shell, Git, AWS, FSL, SPM

TECHNICAL SKILLS

Regression (Linear, Multiple-Linear, SVR, Regularized), Classification (SVM), Clustering (k-means), Deep learning (Neural networks, CNNs, transfer learning), hypothesis testing (t-testing, ANOVA), scientific communication

EDUCATION

PhD Cornell University, Neuroscience Sept. 2019 – Exp. May 2023
Thesis lab: Computational Connectomics Lab (PI: Amy Kuceyeski)
Coursework: Machine Learning with Biomedical Data, Data Science

BS McGill University, Honors Neuroscience, GPA = 3.94/4 Sept. 2015 – May 2019
Thesis lab: Computational Brain Anatomy Lab (PI: Mallar Chakravarty)
Graduated with Distinction & First Class Honors in Neuroscience (top 25% of students in the Faculty of Science)
Coursework: Mathematical Models in Biology, Statistics, Probability

EXPERIENCE

Dissertation, Weil Cornell Graduate School of Medical Science 2019-present

- Built supervised machine learning models to predict long-term stroke outcomes from acute clinical imaging data (functional and structural MRI).
- Characterized pathological brain activity after stroke using clustering techniques.
- Identified network-level reorganization of brain activity in stroke using graph theory algorithms.

Prison Instructor, Five Points Supermax Prison - "Neuropsychopharmacology" 2021

- Designed university-level neuroscience course from scratch and lectured to prisoners on a weekly basis.
- Communicated complex topics to a neuroscience-naïve audience with a final course rating of 4.83/5.

Honors Research Student, Douglas Mental Health University Institute 2018 to 2019

- Built a pipeline using R and MATLAB to measure a novel biomarker from MRI data that captures 37% more age-related variance in brain structure than current measures.
- Analyzed autism-control differences in biomarker using multiple linear regression analyses across a 1136-subject dataset.

Research Assistant, Douglas Mental Health University Institute 2017 to 2018

- Used bash and R to analyze and process brain imaging data on a high performance computing cluster.
- Created an outlier replacement algorithm for network data in R and generated a quantitative framework quality control manual for brain data, used by current students for rigorous assessment of image processing outputs.

HONORS AND AWARDS

Merit Abstract Award ($3,000) - Organization for Human Brain Mapping (OHBM) 2021

- Awarded to the top ranked abstracts (top 3% out of 1,200) submitted to the annual OHBM conference.

Best Diagnostic Application ($1,000) - Artificial Intelligence Health Hackathon 2020

- Prototyped diagnostic software to detect and classify white blood cells from blood smear images with 96% validation accuracy.
- Implemented and annotated database for pathology data using AWS S3.

Canada Graduate Studies – Master's Graduate Fellowship Award ($17,500) 2019