
SKILLS

- **Neuroimaging Expertise:** MRI, fMRI, fNIRS, & EEG
- **Programming:** Python, SQL, R, Matlab, HTML & CSS
- **Machine learning:** TensorFlow, Keras, Scikit-learn, PyTorch, CNN, ANN, LLM, (un)supervised classification, Google Cloud Platform (GCP), & MLOps Azure
- **Research methodology:** Quantitative and qualitative statistics, experimental design, data manipulation, interpretation, and visualization (pandas, numpy, seaborn, matplotlib)

EDUCATION

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| University of Western Ontario | Sept. 2022 – Aug 2024 |
| Master of Science (M.Sc.) - Cognitive, Developmental and Brain Sciences (cGPA: 4.0) | London, ON, Canada |
| <ul style="list-style-type: none">• Thesis: Link “Machine Learning for Prognosis of Acute Brain-Injured Patients in the ICU Using EEG Complexity Analysis and Naturalistic Narrative Stimuli”• Supervisors: Dr. Adrian Owen & Dr. Derek Debicki | |
| King’s University College | Sept. 2018 – Apr. 2022 |
| Bachelor of Arts (B.A.) - Honours Specialization in Psychology (cGPA: 3.7) | London, ON, Canada |
| <ul style="list-style-type: none">• Thesis: “Cortical Function of Super Refractory Status Epilepticus: An fMRI Case Study”• Supervisor: Dr. Loretta Norton | |

EXPERIENCE

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| Research Technical Assistant – M31 AI (startup), Toronto, ON, Canada | Sept. 2025 – Present |
| <ul style="list-style-type: none">• Designed and executed large-scale GPU-accelerated experiments on HPC infrastructure.• Development of medical imaging ML workflows and deep learning architectures for 3D MRI analysis.• Predicting AVM recurrence in pediatric patients as part of a collaboration with the SickKids Hospital. | |
| Machine Learning Research Assistant – The Haeryfar Lab, London, ON, Canada | May 2025 – Sept. 2025 |
| <ul style="list-style-type: none">• Enabled faster, more reliable assessment of cancer growth in preclinical studies by automating histopathological evaluation of liver tissue. Replaced labor-intensive manual scoring with a deep learning computer vision model.• Leveraged pretrained models and enhanced training protocols for robust automated patch-based classification. | |
| Research Analyst – LHSC / London Health Sciences Centre, London, ON, Canada | Sept. 2022 – Dec. 2024 |
| <ul style="list-style-type: none">• Collected, organized, & analyzed complex neuroimaging datasets to create predictive models from acquired data.• Developed and implemented end-to-end ML pipelines, optimized to improve data-driven insights in the ICU. | |
| Data Analyst – The Owen Lab @ Western University, London, ON, Canada | Oct. 2021 – Aug. 2022 |
| <ul style="list-style-type: none">• Preprocessed & analyzed large high-dimensional datasets with advanced techniques for noise reduction, artifact removal, signal enhancement, statistical testing, optimization algorithms, feature extraction, & data visualization.• Utilized PCA for dimensionality reduction & ICA to eliminate artifacts & isolate meaningful patterns in the data. | |

PROJECTS

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| CNN for Binary Image Classification (Computer Vision) Link PyTorch, Transfer Learning | Dec. 2024 – Mar. 2025 |
| <ul style="list-style-type: none">• <u>Model:</u> Developed a model to automatically classify X-rays images of pneumonia-affected lungs, distinguishing them from normal lungs. Achieved 81% accuracy and an F1 score of 83.8%.• <u>Workflow:</u> Fine-tuned a pre-trained CNN in PyTorch through data manipulation and transfer learning techniques for better classification while minimizing computational resource usage. | |
| Automated Image Segmentation (Computer Vision) Link TensorFlow, Keras | Dec. 2023 – Jan. 2024 |
| <ul style="list-style-type: none">• Built a custom U-Net convolutional neural network with a multi-step encoder-decoder architecture. | |
| Machine Learning to Predict Coma Patient Outcomes Link sklearn, feature engineering | Oct. 2022 – Aug. 2024 |
| <ul style="list-style-type: none">• <u>Prognostic Modelling:</u> Complexity algorithms were used to extract features from EEG brain signal data. Features subsequently used to train classification models that predict clinical outcomes of coma patients with 80% accuracy. | |
| Improving Analysis & Interpretation of Neuroimaging Data Link TensorFlow, Optimization | Sept. 2022 – Oct. 2023 |
| <ul style="list-style-type: none">• <u>Innovative Brain Signal Detection:</u> Awarded a Provincial Scholarship for proposing a method that simultaneously integrates EEG and fNIRS data to improve sensitivity in detecting brain activity in ICU patients. This approach considers crucial underlying physiological mechanisms by estimating a patient’s hemodynamic response function (HRF) using a gradient descent-based search algorithm that optimizes the correlation between fNIRS and EEG data. | |