

## 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

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

## EXPERIENCE

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

## PROJECTS

<b>CNN for Binary Image Classification (Computer Vision)</b>   <a href="#">Link</a>   PyTorch, Transfer Learning	<b>Dec. 2024 – Mar. 2025</b>
<ul style="list-style-type: none"><li>• <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%.</li><li>• <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.</li></ul>	
<b>Automated Image Segmentation (Computer Vision)</b>   <a href="#">Link</a>   TensorFlow, Keras	<b>Dec. 2023 – Jan. 2024</b>
<ul style="list-style-type: none"><li>• Built a custom U-Net convolutional neural network with a multi-step encoder-decoder architecture.</li></ul>	
<b>Machine Learning to Predict Coma Patient Outcomes</b>   <a href="#">Link</a>   sklearn, feature engineering	<b>Oct. 2022 – Aug. 2024</b>
<ul style="list-style-type: none"><li>• <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.</li></ul>	
<b>Improving Analysis &amp; Interpretation of Neuroimaging Data</b>   <a href="#">Link</a>   TensorFlow, Optimization	<b>Sep. 2022 – Oct. 2023</b>
<ul style="list-style-type: none"><li>• <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.</li></ul>	