
SKILLS

- **Programming:** Python, SQL, R, MATLAB, BASH, HTML & CSS
- **Machine learning:** TensorFlow, Keras, sklearn, PyTorch, supervised/unsupervised learning, convolutional neural networks, feature engineering, model optimization, Google Cloud Platform (GCP), and MLOps with Azure
- **Neuroimaging preprocessing and analysis:** fMRI, EEG, and fNIRS
- **Research methodology:** quantitative and qualitative statistic analysis, experimental design, project planning and execution, problem-solving and troubleshooting, data interpretation

EDUCATION

University of Western Ontario, London, ON **Sept. 2022 – Aug. 2024**

Master of Science (M.Sc.) - Cognitive, Developmental and Brain Sciences

- Thesis title: “*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 Debecki

King’s University College, London, ON

Sept. 2018 – Apr. 2022

Bachelor of Arts (B.A.) - Honours Specialization in Psychology

- Thesis title: “*Cortical Function of Super Refractory Status Epilepticus: An fMRI Case Study*”
- Supervisor: Dr. Loretta Norton

PROJECTS

EEG Complexity for Prognosis of ICU Patients [Link](#) *Python, sklearn, feature engineering* **Oct. 2022 – Aug. 2024**

- Used various algorithms to perform binary classification on EEG complexity features to assess ICU patient prognosis. Results showed 80% Accuracy in predicting a patient's future clinical outcome (AUC = 0.80–0.83).

MRI Image Segmentation of Mouse Kidneys and Bladders [Link](#) *Pytorch, TensorFlow, Keras* **Dec. 2023 – Jan. 2024**

- Developed and implemented a U-NET convolutional neural network to automate MRI image segmentation for kidney and bladder volume analysis in oncological mouse models, reducing manual processing time from months to minutes while maintaining high accuracy.
- The model consistently produced results like those obtained by experienced manual segmenters, with a mean difference of only 2-5%. Thus, the model reliably assesses cancer progression in preclinical studies.

HRF of ICU Patients with Simultaneous EEG-fNIRS [Link](#) *TensorFlow, Optimization* **Sept. 2022 – Oct. 2022**

- Awarded a Provincial Scholarship for my written proposal to more accurately estimate the hemodynamic response function (HRF) of patients using a gradient descent-based search algorithm that maximizes the Pearson correlation between the recorded fNIRS and EEG signals. This method will vastly improve the accuracy and sensitivity of functional neuroimaging results as it accounts for important underlying physiological mechanisms.

ADDITIONAL EXPERIENCE

Clinical Researcher – Center for Brain & Mind, London, ON **Sept. 2022 – Apr. 2024**

- Collected EEG, fNIRS, and fMRI data from ICU patients to investigate neural activity in critical care settings.
- Applied machine learning techniques to neuroimaging data for enhanced prognostic and diagnostic capabilities.

Teaching Assistant – University of Western Ontario, London, ON

Sept. 2022 – May. 2024

- Led tutorials for applying course concepts (courses: PSYCH 2801, 1002, 1003).
- Collaborated with the course coordinator to align teaching and marking strategies with course objectives.

Data Analyst – The Owen Lab at Western, London, ON

Oct. 2021 – Aug. 2022

- Preprocessed and analyzed large datasets, applying advanced techniques for noise reduction, artifact removal, signal enhancement, statistical testing, data visualization, feature extraction, dimensionality reduction, etc...

Team Lead – Kognitive Sales Solutions, Windsor, ON

Mar. 2018 – Jan. 2020

- Led a high-performing sales team during promotional events, driving product visibility and customer engagement.
- Initially hired as a Field Marketing Representative, exceeded sales targets, and was promoted to Team Lead.