Martin Ondrus

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About

MD/PhD candidate with experience in machine learning and statistical inference applied to neuroimaging and health data. With 10+ publications, I am interested in applying my interdisciplinary training to challenging problems at the intersection of medical imaging, health, data science, and machine learning.

Education

Doctor of Medicine / Doctor of Philosophy (MD/PhD) Jan. 2021 – Jun. 2028
Computational Neuroscience *University of Alberta*

Bachelor of Science / Bachelor of Commerce (BSc/BCom) Sep. 2014 – Jun. 2020
Biological Science and Analytics *University of Alberta*

Technical Skills

Programming: **Python** (*pandas, numpy, matplotlib, seaborn, scikit-learn, pytorch*), **R** (*tidyverse, ggplot2, caret, e1071, randomForest, glmnet, parallel*), **SQL** (*queries, aggregating, subqueries, window functions*), **Matlab**
Other: Jupyter/Jupyter Notebook, Markdown, LaTeX, Git/Github, Distributed Computing, Unix Shell, SLURM

Experience

Machine Learning Engineer May. 2025 – Aug. 2025
Andromeda Medical Imaging *Calgary AB, Canada*

- Developed a two-phase deep learning framework in PyTorch for intracranial vessel assessment from multiphase CTA, achieving AUROC up to 0.88 for occlusion detection and 0.94 for segment localization.
- Integrated CTA-derived surrogate features (time-to-perfusion and inter-phase difference maps), demonstrating that these significantly improved occlusion discrimination compared to standard CTA inputs.
- Implemented CBAM attention to highlight clinically relevant vascular regions, enabling interpretable and accurate occlusion localization for automated stroke triage.

Visiting Research Scientist Jan. 2023 – present
New York University *New York City, NY, United States*

- Developed multiSLICE [link] for estimating multilayer networks from multimodal data (accepted at *NeurIPS 2025* [link]), and demonstrated superiority in both simulated and real data compared 8 comparative baselines.
- Organized an invited session *Frontiers in Graph Learning*, and presented work at the *Joint Statistical Meetings, 2024*, the largest statistical conference in North America.

Research Scientist Jan. 2021 – present
Neuroscience and Mental Health Institute *Edmonton AB, Canada*

- Developed FaBiSearch [link], an innovative anomaly detection method for high-dimensional time series data implemented in R [link], with a focus on applications in clinical data analysis and precision medicine.
- Validated methodologies using both simulated and real-world datasets, achieving significant improvements in detection accuracy. Applied to real neuroimaging data and showed improvements over state-of-the-art [link].

Data Engineer Sep. 2021 – Mar. 2023
North Edmonton Kia *Edmonton AB, Canada*

- Created a recurrently updating dashboard for one of Western Canada's largest automotive dealership groups to empower executives and marketing departments to data-informed decision making in their advertising strategy.
- Designed and developed a SQL, Python, and Google Cloud based data transformation and visualization pipeline for over 60,000 semi-structured data points which unified key customer information across 4 different databases.

Data Scientist Jan. 2020 – Apr. 2020
Volkswagen Canada *Remote*

- Led a team of 3 data scientists in modeling 2022-2025 Canadian sales of Volkswagen's most important vehicle release in the past decade, the fully electric VW ID.4 vehicle.
- Presented deliverable and forecasts to Volkswagen Canada senior leadership and advised on regional allocation of over 6,000 new and highly valuable ID.4 vehicles.