

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

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| Doctor of Medicine / Doctor of Philosophy (MD/PhD) <i>Computational Neuroscience</i> | Jan. 2021 – Jun. 2028 |
| Bachelor of Science / Bachelor of Commerce (BSc/BCom) <i>Biological Science and Analytics</i> | <i>University of Alberta</i> Sep. 2014 – Jun. 2020 |
| | <i>University of Alberta</i> |

TECHNICAL SKILLS

Programming: **Python** (*pandas, numpy, matplotlib, seaborn, scikit-learn, pytorch*), **R** (*tidyverse, ggplot2, caret, e1071, randomForest, glmnet, parallel* with experience in time-to-event analysis), **SQL** (*queries, aggregating, subqueries, window functions, indexing* for extracting patient-level data), **Matlab**
Other: Jupyter/Jupyter Notebook, Markdown, L^AT_EX, Git/Github, Distributed Computing, Unix Shell, SLURM

EXPERIENCE

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| Machine Learning Engineer <i>Andromeda Medical Imaging</i> | May. 2025 – Aug. 2025 <i>Calgary AB, Canada</i> |
| <ul style="list-style-type: none">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 <i>New York University</i> | Jan. 2023 – present <i>New York City, NY United States</i> |
| <ul style="list-style-type: none">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 <i>Frontiers in Graph Learning</i>, and presented work at the <i>Joint Statistical Meetings, 2024</i>, the largest statistical conference in North America. | |
| Research Scientist <i>Neuroscience and Mental Health Institute</i> | Jan. 2021 – present <i>Edmonton AB, Canada</i> |
| <ul style="list-style-type: none">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 <i>North Edmonton Kia</i> | Sep. 2021 – Mar. 2023 <i>Edmonton AB, Canada</i> |
| <ul style="list-style-type: none">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 <i>Volkswagen Canada</i> | Jan. 2020 – Apr. 2020 <i>Remote</i> |
| <ul style="list-style-type: none">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. | |