Michael Montemurri

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Education

McGill University Aug 2024 – Present
M.Sc. Mathematics and Statistics, supervised by Prof. Eric Kolaczyk *Montreal, QC*

- Thesis: Graph-embedded random forests and graph representation learning, focusing on applications for interpretable molecular property prediction in low data regimes.
- Teaching Assistant: Calculus II
- Courses: Network Science, PGMs (UdeM), Statistical Inference, Adv. Distribution Theory, Regression, GLMs.

Bowling Green State University Aug 2019 – Apr 2023
B.Sc. Physics & Applied Mathematics, supervised by Prof. Mikhail Zamkov *Bowling Green, OH*

- Graduated Summa Cum Laude, GPA: 3.99/4.00
- NCAA Division I Men's Soccer Team

Experience

Morgan Stanley | Quantitative Finance May 2025 – Aug 2025
Fixed Income Strats Summer Associate (Incoming) *Montreal, QC*

Mila | Quebec AI Institute Aug 2024 – Present
ML/AI Research Student *Montreal, QC*

- Investigated positional encoding methods for GNNs and graph transformers, particularly within the Learnable Structural Positional Encodings (LSPE) framework.
- Utilized the Calcul Québec HPC cluster to train and evaluate models on molecular graph datasets for interpretable property prediction.

South Essex Fabricating | Research and Development Sep 2023 – Aug 2024
Data Scientist *Windsor, ON*

- Built an end-to-end multi-modal ML model for weekly crop yield prediction, integrating crop scan images, climate sensor data, and harvest measurements, improving accuracy over the existing model by 23%.
- Fine-tuned and deployed a YOLOv5 model for seedling detection and germination rate tracking from uploaded images; developed a Flask web app with a SQL database backend for internal deployment.
- Integrated custom CV models to automate data collection pipelines, expanding sampling coverage area by 4x.
- Conducted ad-hoc statistical analysis to support decision-making and validate trial outcomes.

Zamkov Lab Sep 2020 – May 2023
Research Assistant *Bowling Green, OH*

- Conducted research on the synthesis and optoelectronic properties of colloidal semiconducting nanocrystals (quantum dots) for photovoltaic applications.
- Contributed to experiments on shape control of nanocrystals and co-authored peer-reviewed publications on the synthesis of quantum dots with enhanced bi-exciton lifetimes and quantum yields.
- Led a project developing quantum dots with infrared high-excitation emission spectra for solar cell applications. Presented research at the 2023 American Chemical Society Conference.

Technical Skills

Languages: Python, R, SQL, MATLAB, C++
Cloud/Platforms: Azure Functions, Azure Web Apps, COMSOL, OriginPro, PowerBI, Excel, Gephi
Libraries: PyTorch, DGL, Pandas, NumPy, Scikit-learn, RDKit, OpenCV, MAPIE, tidyverse, iGraph

Honors and Awards

NSERC Canada Master's Scholarship (CGS-M): Valued at $27,000/year. (2025)
Fonds de recherche du Québec Master's Scholarship (FRQNT): Valued at $20,000/year. (2025)
J. Robert Overman Scholarship: Highest GPA in the department. (Physics, 2022; Mathematics, 2022)
BGSU Putnam Math Team Member: Invitation based on academic standing. (2022)
CoSIDA Division I Men's Soccer Academic All-American Team (2022)