



EDUCATION

University of Toronto | Toronto, Canada

Aug 2024 - July 2025

Master of Mathematical Finance

Relevant Coursework: Information Technology, Dynamic Data Science, Pricing Theory, Numerical Methods, Risk Management, Machine Learning for Finance

Queen's University | Kingston, Canada

Sept 2020 - April 2024

Bachelor of Applied Science - Computer Engineering (3.81 Cumulative GPA)

Honors: Principal's Scholarship, Dean's Scholar (2021, 2022, 2023, 2024)

Relevant Coursework: Machine Vision & Deep Learning, Database Management Systems, Advanced Data Analytics, Neural & Genetic Computing, Engineering Economics & Finance

Certifications:

[Financial Derivatives: A Quantitative Finance View](#), [Bloomberg Market Concepts](#), [Master Advanced Excel Data & Analytics Skills](#), [Machine Learning A-Z™ Udemey Course](#), CFA Level 1 Candidate (May 2025).

SKILLS

Python • Java • C/C++ • Visual Basic (VBA) • R • MATLAB • SQL • HTML • JavaScript
Power BI • Tableau • Microsoft Power Apps/Automate • Problem-Solving • Attention to Detail
Teamwork • Time Management

WORK EXPERIENCE

Toronto-Dominion Bank (TD) | Toronto, Canada

May 2022 - June 2024

Business Automation Analyst

- Summer internships (2022, 2023) and part-time employment throughout two academic school years (2022-2024), focusing on digital data transformation processes.
- Effectively managed data extraction, manipulation and visualization tasks on large-scale datasets, handling more than 2,000,000 rows of data, employing libraries such as Pandas, NumPy, Dask DataFrames & PySpark.
- Employed Visual Basic Macro Programming and Python to develop a sophisticated business control and audit dashboard, allowing senior managers to sort and track large data sets and confirm adherence to banking procedures.
- Designed and deployed a Power App, integrating Power Automate to seamlessly connect data from Microsoft Excel Online and Power BI Dashboards. This app streamlines full-time employee (FTE) calculations for the Client Transfer Services cost center, improves resource management and reinforces compliance with financial protocols. As a strategic digital tool, the app is currently used by 20 senior managers to track work location and FTE status for over 300 officers.

Queen's University | Kingston, Canada

Jan 2022 - April 2024

Teaching Assistant, Portfolio Manager, Algorithmic Developer

- Assisted in lab settings, marked assignments, proctored tests, and hosted office hour sessions for Fundamentals of Electromagnetism (ELEC 280) and Introduction to Data Science (ELEC 390).
- Managed a mock investment portfolio for Queen's Business & Engineering Team; developed stock pitches and industry reports, facilitated workshops on Financial Markets, Macroeconomics, and Valuations for over 35 members.
- Developed a buy-side, pairs-trading algorithm for the Queen's Algorithmic Trading Team, winning 1st place in a four-month trading period competition, achieving a 13% return and a \$500 cash prize.



WORK EXPERIENCE (Continued)

Custom Biologics | Etobicoke, Canada

May 2021 - Aug 2021

Summer Analyst

- Developed a VBA automation to scrape data from various Excel files, consolidate monthly expenses into a detailed list, and generate a PDF expense report, saving over three hours of work each month.
- Conducted time series analysis (ARIMA model) and regression modelling to interpret historical price movements and predict labor costs related to entry level lab technician roles, leveraging Tableau for data visualization and modelling.

PROJECTS

Early Warning of Ovarian Cancer

2024

Supervised by Michael Korenberg, Queen's University

Our project, "Early Warning of Ovarian Cancer," focused on enhancing the early detection of ovarian cancer in asymptomatic individuals. Using the PLCO dataset from the National Cancer Institute, we performed statistical analysis and feature selection to pinpoint critical predictive variables and consulted with a gynecologist to validate our findings. We then developed a user-friendly web and mobile application which enables users to input their family history and biomarker data, generating a personalized risk score for ovarian cancer. Our model achieved an accuracy of 94.58% and was awarded 1st Place in the Electrical and Computer Engineering Capstone Project class. Read our report at <https://matthewmamelak.github.io/resume/Early%20Warning%20of%20Ovarian%20Cancer%20Report.pdf>.

Predicting Airbnb Rates Influenced by Local Events

2024

Supervised by Dr. Yuan Tian, Queen's University

The project, "Predicting Airbnb Rates Influenced by Local Events," aimed to analyze how local events in New York City impact Airbnb pricing strategies. We conducted a comprehensive data analysis to uncover the relationship between local events, pricing, and booking patterns. Our approach included data cleaning, regression methods and machine learning algorithms to achieve a high predictive accuracy. We identified peak demand times, examined price elasticity during significant tourist events and analyzed booking duration distribution. These insights can help Airbnb hosts optimize their pricing strategies and inform city planners about the broader implications of event-driven tourism on urban housing and the hospitality industry. Read our report at <https://matthewmamelak.github.io/resume/Predicting%20Airbnb%20Rates.pdf>.

Evaluation of Online Sentiment Towards tPA Treatment

2023

Queen's Machine Intelligence & Neuroevolutionary Design Team, Health Care Lab

The goal of this project was to quantify public sentiment regarding the use of intravenous Tissue Plasminogen Activator (tPA) for treating Acute Ischemic Stroke (AIS) and to correlate this sentiment with emergency room usage rates and acceptance. By developing a BERT transformer-based machine learning model, we analyzed Twitter sentiments to assess the impact of public opinion on tPA application. Our findings revealed that positive tweets about tPA outnumber negative ones and have a greater impact on the community, potentially explaining the observed increase in tPA usage rates. View our results at <https://matthewmamelak.github.io/resume/tPA%20Sentiment%20Results.pdf>

INTERESTS

Hockey • Tennis • Board Games (CATAN) • Reading • Water Sports • Running • Travelling