

# NEIL MASCARENHAS

## Applying to Financial Engineering Programs for Fall 2025

I am well versed in statistics, financial mathematics, and machine learning. I am applying to a master's in financial engineering program for Fall 2025 with the intention of doing research in quantitative finance. I will be applying for a PhD program in the future.



## EDUCATION

2020  
|  
2024

**University of Michigan**  
LSA and Ross School of Business

📍 Ann Arbor

- B.S. in Mathematics of Finance and Risk Management
- B.A. in Data Science
- B.B.A. with specialization in Finance



## PROFESSIONAL EXPERIENCE

2023

**Quantitative Analyst, Intern**

LifeSync Inc.

📍 Coral Springs, FL

- Automated 15 reports paramount to the finance and accounting departments' monthly breakdown of accounts and sales using PowerBI.
- Generated multiple crucial tables that corrected old reports' mistakes and exposed various flaws in the data collection/entry using SQL and PowerBI.
- Learned modern accounting/finance practices and database management through cross-departmental collaboration to improve their current database structure.

2022

**Quantitative Analyst, Intern**

Yousif Capital Management

📍 Bloomfield Hills, Michigan

- Implemented a machine learning model trained on over 1.5 million transactions to detect anomalies in real-time transactions and provide immediate feedback on potential typing/calculation errors using scikit-learn and Isolated Random Forest.
- Planned and implemented a large-scale web scraping algorithm to automate searching over 5000 keywords and rank new business opportunities with scrapy, ScraperAPI, and pandas.

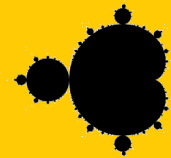
2021

**Quantitative Developer, Intern**

Greenstone Farm Credit Services

📍 East Lansing, Michigan

- Created a web scraping algorithm with Selenium to prepare and quality assure tax forms for 5000 clients, replacing the manual process while saving over 4,800 man-hours and approximately \$100,000.
- Cleaned data using Regex and a plethora of creative solutions for address parsing, fuzzy matching, and zip code recognition for mapping to region/state/branches in Michigan.
- Created multiple workflows, Rmarkdown websites, and Shiny apps for reporting and automation. The resulting workflows and reports have greatly reduced labor while increasing reproducibility.
- Exceeded deadline expectations and produced creative solutions to automate common procedures.
- Acquired skills in R Tidyverse, Python, and SQL through online modules complemented with implementation in my daily workflow.
- Restructured existing code with continual debugging for increased readability and faster debugging in the future for the analytics department.
- Organized datasets and documents in a reproducible manner that can be utilized as a template for similar data/business intelligence projects.



## CONTACT INFO

✉ [neilma@umich.edu](mailto:neilma@umich.edu)

🐙 [github.com/neilma123](https://github.com/neilma123)

📞 +1 248-464-1432

## SKILLS

Experienced in statistical analysis, machine learning, and financial mathematics.

Highly skilled in R, Python, *L<sup>A</sup>T<sub>E</sub>X*, and SQL.

Proficient in C++, Javascript, HTML, and Swift.

## CLASSES

Mathematics of Finance, Applied Regression, Bayesian Data Analysis, Probability Theory, Data Mining, Data Structures and Algorithms, Honors Linear Algebra, Big Data in Finance, Discrete Math, Multivariable and Vector Calculus, Honors Differential Equations



## LEADERSHIP EXPERIENCE

2021  
|  
2024

### Quantitative Consulting and Finance Group

President, Founder, Project Lead

📍 University of Michigan

- Implementing the SABR pricing model in C++ to construct a trading strategy based on mispricing of options in real-time.
- Implemented the Nelder-Mead algorithm for local constrained linear optimization necessary to minimize mean-squared error.
- Developing a forecasting model in Python for options based on the SABR pricing model and Monte Carlo simulations for underlying assets.
- Recruited and led over 30 members for 2 years, providing guidance for project teams and leading two project teams each semester.
- Developed a real-time commodity price viewer using JavaScript and HTML and real-time news scraper using Python for a local startup.
- Built an app using Swift to assist a startup and assisted with market surveys and end-user driven development.
- Developed trading strategy using network theory to draw industry lines with lead-lag relationships as a proxy with numpy, numba, and Wharton Research Data Services.

2020  
|  
2022

### Theta Capital

Social Chair, Member

📍 University of Michigan

- Developed stock pitches and options plays through detailed fundamental and technical analysis followed by modeling various combinations of options to optimize returns.
- Taught in-depth technical analysis and basics of financial derivatives to new members.