ALEXANDER MCMILLAN

Durham, NC | amm265@duke.edu | +1.305.979.0359 | **LinkedIn Profile**

EDUCATION

Duke University, Durham, NC **Expected May 2025**
B.S. in Mathematics and Computer Science, Minor in Statistical Science **GPA:** 3.6/4.0

- **Relevant Coursework:** Advanced Linear Algebra, Design and Analysis of Algorithms, Advanced Probability, Neural Networks and Deep Learning, Math of Machine Learning, Database Systems, Differential Equations, *Bayesian and Modern Statistics, *Statistical Learning and Inference (* Fall 2024)
- **Involvements:** Ethical Tech, Catalyst Tech Society

RELEVANT EXPERIENCE

Amundi US, Agency Mortgages – Quantitative Investment Management Intern **Aug 2024 - Current**

- Focusing on investment research and tool building, particularly in assisting the portfolio management team with mortgage prepayment analysis and modeling, as well as refining and systematizing their security selection processes.
- Building models and tools with Python and SQL.

JPMorgan Chase, Treasury and Chief Investment Office Intern **Jun 2024 – Aug 2024**

- JPMC Global Hackathon 2nd Place for "SmartNDA: Automated NDA Review and Enhancement Tool" leveraging LLM technologies.
- Analyzed and modeled firmwide Asset and Liability Management with a focus on capital.
- Built and developed AI solutions including Retrieval-Augmented Generation (RAG) using LLMs to expedite regulatory analysis and modeling.
- Analyzed portfolio management decisions and the Fed's economic responses (QT and QE) to propose strategies for the Chief Investment Office's portfolio.

Pentris Deep Q-Learning Reinforcement Model, Researcher **Aug 2023 - Dec 2023**

- Built a Deep Q-Learning Model in Pytorch to play a more difficult version of Tetris with an increase in piece variations from six to twenty.
- Project is now presented in the Reinforcement Learning Lecture for ZZEN9444 (Neural Networks and Deep Learning) at the University of New South Wales.

Duke Brain Tools Laboratory, Undergraduate Researcher **May 2023 - Aug 2023**

- Developed normalization and standardization methods for spectroscopy data to optimize a Support Vector Machine and Neural Network focused on real time brain tumor classification from tissue autofluorescence.

Stanford Inspirit AI, Instructor **Jun 2022 - Jul 2022**

- Taught a course covering Python, AI/ML ethics, computer vision, recommendation algorithms, and web app creation leveraging Google Colab to 12 students, five days per week.

PROJECTS, LEADERSHIP EXPERIENCE, & AWARDS

Duke BlackRock Asset Allocation Competition – Finalist **Fall 2022**

- Developed a portfolio that modified one of BlackRock's LifePath Index Funds.

Duke Sanford-Unit 42 Cyber Cup – 1st Place **Fall 2022**

- Created actionable solutions to a national security cyber-related simulation.
- Sponsored by Unit 42 by Palo Alto Networks**.**

Valedictorian of Miami Country Day School **Fall 2017 - Spring 2021**
Captain of Miami Beach Rowing Club Men's Varsity Team **Fall 2020 - Spring 2021**

- Received Division I offers. Team Captain my senior year. Competed at state and regional levels.

TECHNICAL SKILLS, LANGUAGES, AND INTERESTS

Programming Languages and Libraries: Python, SQL, R, PlpgSQL, Pyscopg2, NumPy, Pandas, Pytorch, Cvxpy Langchain, Scikit-Learn
Languages: English (native proficiency) | Spanish (advanced high proficiency) | Portuguese (conversational proficiency)