MICHAEL C. MARTINEZ

+1 (703) · 559 · 9740 ◇ mcmartinez@wm.edu ◇ https://github.com/mikemartinez13

EDUCATION

William & Mary *May 2026*
B.S. in Mathematics
B.S. in Data Science (High Honors)
Overall GPA: 3.97/4.0

SELECTED COURSES

Data Structures, Algorithms, Computer Organization (planned Spring 2026), Databases, Probability, Statistics, Statistical Learning, Real Analysis, Partial Differential Equations, Stochastic Processes.

RESEARCH

William & Mary D3i Lab September 2025 - Present
Undergraduate Researcher *Williamsburg, VA*

- Investigating acceleration methods (speculative sampling, KV-cache frameworks) applied to diffusion LLMs, autoregressive models, and hybrid models.
- Building baseline evaluation frameworks for testing architectural changes in open-source diffusion LLMs and analyzing speed-quality tradeoffs.
- Presented a literature review of current advances in speculative sampling and diffusion LLMs to solidify research direction and gather insight from other lab members.

William & Mary AI-Phys Lab January 2024 - May 2025
Undergraduate Researcher *Williamsburg, VA*

- Developed diffusion models for fast simulation of Imaging Cherenkov Detectors (Jefferson Lab GlueX, BNL high-performance DIRC), contributing to deep learning models achieving 1000x speedup over traditional Monte Carlo methods.
- Led diffusion model experimentation and development, adapted models for unique data, trained models on high-performance computing (HPC) systems, and tested containerization methods. Co-authored published paper (2nd author).
- Engineered modules for inference, training, and visualization, helping prepare the codebase for open-source deployment to the physics community.
- Completed and orally defended project as honors thesis for a committee composed of Professors Justin Stevens and Haipeng Chen; thesis titled *Diffusion Models for Fast Simulation of Cherenkov Detectors*, available under restricted access in the William & Mary digital archive.

PUBLICATIONS

Giroux, J., Martinez, M., & Fanelli, C. (2025). Generative models for fast simulation of Cherenkov detectors at the electron–ion collider. Machine Learning: Science and Technology, 6(4), 040501. https://doi.org/10.1088/2632-2153/ae0f72

PROFESSIONAL EXPERIENCE

Lazard Asset Management June 2025 - August 2025
Quantitative Risk Intern *New York, NY*

- Developed new centralized risk management system using positions, trades, historical bond prices, and FX data from internal databases for daily monitoring and performance attribution.

- Implemented quantitative valuation of all securities traded, creating systems for automatic currency conversion, interest rate interpolation, and derivatives valuation.

Johns Hopkins Supply Chain June 2024 - August 2024
Data Engineering Intern *Baltimore, MD*

- Forecasted surgical supply demand for operating rooms at member hospitals using time-series models to reduce supply shortages and improve procurement planning. Presented findings to Johns Hopkins leadership.
- Built Python library to automatically upload financial data to Microsoft SQL database, with robust error detection tools to alert users of incorrect data.

AWARDS

Semester Research Grant, William & Mary Charles Center November 2025

- Awarded for support in advancing language model acceleration methods with the D3i Lab.

PROJECTS & COMPETITIONS

2nd Place, William & Mary AI Club Case-a-thon October 2025

- Built image classification and object detection pipelines for marine-species identification and integrated models into a real-time web interface with a team of three.

Honorable Mention, JPMorgan Data for Good October 2024

- Modeled U.S. demographic and labor datasets to propose strategic expansion strategies for nonprofit clients; presented insights and visualizations to JPMorgan judges.

1st Place (Finance Track), UVA HooHacks Spring 2024

- Built a Python-based options profit calculator that simulated future position outcomes; contributed to system visualization and led demo for judges.

TECHNICAL STRENGTHS

Computer Languages	Python, SQL, C++
Libraries & Frameworks	PyTorch, Pandas, NumPy, Hugging Face (Transformers)
Databases	Microsoft SQL, MySQL
System Tools	Git, HPC, Linux, Docker, Kubernetes, Weights and Biases