Charles Muehlberger

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EDUCATION

Princeton University, 2028

B.S.E. in Financial Engineering (OFRE) GPA: 3.7

~ Minors in **Pure Math** and **Statistics** and **Machine Learning**

- Relevant Coursework: **Multivariable Calculus** (Park), **Computer Science** (Wayne), **Modular Programming** (Li and Moretti), **Honors Linear Algebra** (Witaszek), **Fundamentals of Statistics** (Rigobon)

Reagan HS, 2024

- President of Debate, President of Physics club, Vice President of Computer Science Club, Officer Robotics

TECHNICAL SKILLS

Programming:

- Python (Pandas, NumPy, SciPy, Scikit-learn), C++, R, SQL, Bash

Data Analysis:

- TensorFlow, Convex Optimization, Time-series modeling, Bayesian inference, Monte Carlo Simulations, NLP, Neural Networks (LTST & GAN)

PROFESSIONAL EXPERIENCE

Quantitative Research Intern | QuantCap LLC | December 2024 – February 2025

- Constructing machine learning statistical arbitrage models using regressions, random forests / other tree-based models, and Neural Networks (e.g. DNNs, RNNs, CNNs) to come up with 2.95x returns over a year.
- Using SQL, Python (Tensor Flow, Pandas, Pytorch) and C++ to scrape and clean data to manipulate it for use in Machine Learning models
- Back tested strategies on 10M+ data points and 6 separate datasets, with a Sharpe ratio: ~3 and Sortino ratio: ~2.

Financial Modelling Intern | Notre Dame | June 2024 - August 2024

- Collaborated alongside colleagues to build a quantitative financial model for bitcoin with a win rate of 72%
- Engineered price forecasting using Adam optimization, Monte Carlo simulations, and real time market data.

Algorithmic Trading & Market Making bot | Built on Tron Blockchain | 2024

- Integrated real-time data processing with Solidity & Python, back testing 1M+ trades with historical market data.
- Detected market inefficiencies sub-100ms latency and developed market-making algorithms, optimizing bid-ask spreads for minimizing risk.

Researcher | Perceptual Consequences on Capital Growth and Consumerism | December 2023 – May 2024

- Conducted and compiled forecast simulation based on investment data and speculation; model depicted levels of correlation between private investment, capital expenditures, business performance, and perception

LEADERSHIP EXPERIENCE

VP & Cofounder | Princeton Quantitative Traders

- Established Princeton' first quantitative trading club; projects include arbitrage detection, market making, and predictive forecasting.
- Organized and taught curriculum to 50+ Princeton students; organized lectures, competitive teams, and games.

Army ROTC Cadet

- U.S. Lv.1 Security Clearence
- Participated in regular weekly training, field operations, military operations, and special objectives.

ADDITONAL SKILLS AND INTERESTS

- Interests: Data Science, Game Theory, Market Making, Crypto, Derivatives Trading, Hackathons, Chess
- Debate: Ranked #27 U.S. | 2x national champion
- Collegiate Poker: Placed 4^{th}, 4^{th}, and 6^{th} in 3/3 collegiate poker tournaments (individual rankings)