Matt McManus

610-348-3500 · mattmcmanus41@gmail.com · linkedin.com/in/mattmcm · github.com/mmcmanus1 · New York, NY

EXPERIENCE

Bridgewater Associates — **New York, NY**

ML Engineer / Research Scientist - AIA Labs (Sept. 2024 - Present)

- Lead development of proprietary AI models for macro-investing using LLMs and reinforcement learning
- Build and scale quantitative research infrastructure for factor discovery and regime detection
- Research LLM-driven macro forecasting and scientific machine learning applications in finance
- Collaborate with senior researchers to deploy ML systems managing $150B+ AUM

Investment Engineer Intern (Jun. 2023 - Aug. 2023)

- Developed quantitative models for systematic investment strategies using machine learning
- Conducted research on alternative data sources and signal generation for portfolio optimization

Quantitative Research (Part-time) — **2023 – 2024**

Two Sigma — *New York, NY*

- Conducted fast-cycle experiments on factor discovery and regime detection for systematic trading
- Developed ML models for alternative data analysis and signal generation

Research Assistant — **2022 – 2024**

MIT Julia Lab — *Cambridge, MA*

- Developed physics-informed neural-ODE framework reducing navigation drift by 60% in GPS-denied environments

Quantitative Analyst — **May 2022 – Aug. 2022**

Delphi Digital — *New York, NY*

- Conducted quantitative analysis of cryptocurrency markets and DeFi protocols using Python and SQL
- Built automated trading strategies and backtesting frameworks for digital asset portfolios

EDUCATION

Massachusetts Institute of Technology — **Cambridge, MA**

Master of Engineering, Computer Science; GPA: 5.0/5.0 — *Aug. 2023 - Jun. 2024*

Thesis: "Inertial Navigation System Drift Reduction Using Scientific Machine Learning"

Massachusetts Institute of Technology — **Cambridge, MA**

Bachelor of Science, Mathematics & Computer Science — *Sep. 2019 - Feb. 2024*

Activities: Phi Kappa Theta, MIT Pokerbots President, MITHack

PROJECTS & RESEARCH

Physics-Informed Navigation System — **2024**

Neural-ODE framework achieving 60% reduction in navigation drift for GPS-denied environments using PyTorch and JAX

LLM-Driven Macro Forecasting — **2024**

Research on applying large language models to economic forecasting, achieving 25% improvement in prediction accuracy

Resy Bot - Restaurant Reservation Automation — **2023**

Automated reservation system using Python, Selenium, and AWS Lambda to secure restaurant bookings at scale

GPT-3 Cybersecurity Evaluation — **2023**

Single-authored research evaluating large language model performance in simulated cybersecurity scenarios

TECHNICAL SKILLS

Programming: Python, Julia, C++, SQL, JavaScript, Go, R, Scala, Java

ML/AI: PyTorch, TensorFlow, JAX, Transformers, Scientific ML, Reinforcement Learning, LLMs, Hugging Face, XGBoost, MLflow

Data & Analytics: Pandas, NumPy, Scikit-learn, MLflow, A/B Testing, Statistical Modeling

Infrastructure: AWS, GCP, Git, Docker, Kubernetes, Linux, CI/CD, Microservices

Finance: Quantitative Research, Factor Models, Backtesting, Regime Detection, Risk Management

LEADERSHIP & ACHIEVEMENTS

Leadership: MIT Pokerbots President (2023-2024), organized competition for 250+ students with industry partnerships

Athletics: MIT Varsity Squash Team member, competed in NESCAC and national tournaments

Publications: Evaluating GPT-3 Performance in Cybersecurity Scenarios - Computers & Security Journal

Honors: MIT Pokerbots Competition 1st Place, HackMIT Award Winner, Phi Kappa Theta member