

Mo Minoneshan [US Citizen]

sm5943@columbia.edu | [linkedin.com/minoneshan](https://www.linkedin.com/minoneshan) | github.com/Minoneshan | [Website](#)

Education

Columbia University

M.S. Financial Engineering

New York, NY

Expected Dec 2026

Coursework: Optimization Models & Methods, Stochastic Models, Statistical Analysis & Time Series, Deep Learning for FE, Algorithmic Trading, Monte Carlo Simulation Methods, FE Continuous Time Models, Computational Methods in Finance

The University of Texas

B.S. Mathematics - GPA 3.65

Austin, TX

May 2025

Minors: Economics, Entrepreneurship, Scientific Computation and Data Sciences, Elements of Computing

Professional Experience

USAA

San Antonio, TX

Product Management Analyst Intern

May 2024 - Aug 2024

- Implemented a logistic regression and segmentation model for a 2M auto policy portfolio, identifying high-loss groups and projecting a 4% loss ratio reduction.
 - Developed a predictive risk model in Python for teen drivers by analyzing claim frequency-severity and elasticity curves, informing a tier restructuring strategy that drove a 2% improvement in new business acquisition.
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Academic and Research Projects

RBC Capital Markets - Columbia Industry Project

New York, NY

Quantitative Risk Modeling

Jun 2026 - Present

- Build a conditional stress-scenario generation engine for the Market & Counterparty Credit Risk team to produce coherent multi-factor stress narratives across OTC and exchange-traded derivative portfolios.
- Develop a copula-based pipeline from marginal fitting and probability integral transforms to conditional sampling, capturing cross-asset dependence across rates, FX, equities, and commodities.

AI-Based Investment Strategies - Lockwood Analytics / Columbia Industry Project

Jun 2026 - Present

- Develop AI-based quantitative investment strategies using deep learning forecasting models, including LSTM, CNN, Transformer, and ensemble approaches for return/risk prediction.
- Construct and backtest portfolio allocation strategies using mean-variance optimization, risk parity, and Bayesian allocation methods, and evaluate Sharpe ratio, drawdown, turnover, and regime behavior.

AlphaAgents Multi-Agent Equity Research System - Columbia University/EIB

Sep 2025 - Present

- Built a 3-agent equity research pipeline (Python, LlamaIndex/Ollama) that indexed 5,000+ SEC/news/price inputs and generated daily Buy/Hold/Sell signals with logged rationales.
- Engineered backtesting/risk stack with state-machine positions, slippage/fees, stop-losses, and leakage checks; achieved 7.1% annualized vs. -4.7% buy-and-hold, Sharpe 0.61 vs. -0.41.

CPI-Transformer Risk Dashboard

Aug 2025 - Sep 2025

- Developed PyTorch Transformer model on 600+ monthly CPI observations, achieving 12% lower RMSE vs. ARIMA; built SHAP dashboard to identify top 5 inflation drivers.

“Modern Mercantilism” Macro Signals - Bridgewater Challenge

Jul 2025 - Aug 2025

- Developed a structural macro-regime model using VAR and 25 geopolitical proxies to forecast reserve currency shifts over 10–30 year cycles.

Copula-Tail VaR Engine

Jul 2025

- Built a multi-asset tail risk engine (EVT/POT + t-copula) and, in rolling backtests, produced more stable 99% ES estimates (lower variance across rolling windows) than historical simulation.

Monte Carlo Option Pricer

Jun 2025

- Built a parallelized C++17 Monte Carlo pricer for European options using OpenMP and antithetic variates, achieving 5-7x speedup vs. serial implementation across 1-10M paths.
 - Validated against Black-Scholes across parameter grids; confirmed the closed-form price fell within the MC 95% confidence interval for the majority of cases; logged SE and runtime per run.
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Skills

Programming & DB: Python (PyTorch, TensorFlow, Pandas, NumPy), C++17, SQL (Snowflake), AWS/GCP, MATLAB

Quant & ML: Time Series, Statistical Modeling, EVT/Copulas, Monte Carlo Simulation, Backtesting, PCA, Deep Learning

Markets & Trading: Fixed Income/Rates, Yield Curves, Duration/Convexity, MBS, Futures, VaR/ES, Portfolio Analytics, VaR/ES, Stress Testing, Portfolio Analytics, Options