MD AMIR KHAN

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GitHub — Live Portfolio — LinkedIn

EDUCATION

Stevens Institute of Technology, School of Business January 2024 – Dec. 2025
Master of Science in Financial Engineering & Analytics Hoboken, NJ
GPA: 3.91/4.00 (Top 3% of the class)
Courses: Stochastic Calculus for Financial Eng., Probability Theory, Statistical Methods in Finance, Advanced Financial Risk Analytics & Derivatives, Machine & Deep Learning in Finance, Foundation of Financial Data Science & Modeling, Computational Methods in Finance, Portfolio Theory & Applications, Algorithmic Trading Strategies, Optimization in Finance

North South University (NSU) January 2018 – December 2022
B.B.A (Major: Finance, Minor: Mathematics) Dhaka, Bangladesh

COMPUTATIONAL SKILLS

Programming & Analytics: Python (Pandas, NumPy, SciPy, Scikit-learn, Statsmodels, PyTorch), SQL, Advanced Excel
Data Visualization & BI: Tableau, Power BI, Matplotlib, Seaborn, Plotly
Big Data & Cloud: Databricks (PySpark, Delta Lake, SQL Warehouses), Azure (Data Factory, Synapse Analytics, ADLS)
Development & Workflow: Jupyter Notebook, VS Code, Git/GitHub, Streamlit, FastAPI, Docker
Data Science Skills: Data wrangling, Feature engineering, Predictive & risk modeling, Time series forecasting, Model validation, ETL design, Big data processing, Scalable Pipeline Design

EXPERIENCE

United Commercial Bank January 2022 – December 2023
Quantitative Data Researcher, Research Division Dhaka, Bangladesh

- Engineered automated SQL/Python pipelines for 1,400+ funds, streamlining data processing and reporting workflows
- Built Tableau/Power BI dashboards for $200M+ portfolios, enabling managers to monitor volatility and downside risk
- Designed predictive allocation models, boosting Sharpe ratio by 34% through EWMA and shrinkage covariance methods.
- Applied statistical attribution methods to 14 quarters of fund data, uncovering performance drivers and enhancing compliance
- Delivered business-facing insights by translating complex data outputs into clear, actionable recommendations for executives

Standard Chartered Bank January 2021 – December 2021
Quant Investment & Data Analyst Dhaka, Bangladesh

- Built scalable Python/SQL pipelines to process 50K+ daily transactions, improving data integrity and anomaly detection
- Analyzed and backtested equity portfolios using pandas, matplotlib & Plotly, delivering performance dashboards (return, drawdown, risk metrics) to portfolio managers to evaluate strategy effectiveness.
- Automated daily risk and performance reporting for equity strategies with $200M+ AUM, ensuring accuracy and timeliness
- Designed Tableau dashboards to visualize key portfolio metrics, enabling senior management to track risk and performance
- Collaborated with portfolio and risk managers on $100M+ portfolios, translating analytics into actionable insights improving investment decisions

PROJECTS

Optiver – Trading at the Close (Kaggle Competition) — Python September 2023 – March 2024

- Built predictive models for short-term auction price movements using high-frequency market data
- Developed ridge reg. & LightGBM models to predict 60s forward WAP returns using auction data from 200+ Nasdaq stocks
- Ridge regression outperformed LightGBM, highlighting the dominance of linear relationships in short-horizon auction
- Ranked in the top 10% on the private leaderboard by optimizing feature scaling, regularization, and ensemble methods
- Tools: Python (Pandas, NumPy, scikit-learn, LightGBM), Optiver API, Google Colab for data analysis

Market Risk Modeling (VaR, ES, Liquidity Risk & Denoising) — Python December 2024

- Computed **VaR** via parametric, historical, and Monte Carlo, quantifying 95% 1-day losses ($37K–$45K; MC ≈ $1.6M)
- Extended to **Expected Shortfall**, highlighting heavier tails (Parametric ≈ $55K vs. Historical –$65K to –$88K)
- Modeled **Liquidity-Adjusted ES** with bid–ask spread measures and PCA (2 PCs explained ∼ 90% variance), revealing 2–3× higher realized tail losses (≈ $150K)
- Applied **Marchenko–Pastur denoising** , stabilizing covariance structure and reducing inflated VaR by >80% [Code]

Multi-Asset Portfolio Optimizer: Risk-Aware Allocation — Python, Riskfolio-Lib August 2024

- Optimized & visualized 25-asset portfolio using Riskfolio-Lib and SLSQP, targeting Sharpe-maximizing allocation **(0.81)**
- Ran 10,000 Monte Carlo simulations with real-world constraints to evaluate portfolio efficiency
- Applied 13+ risk metrics, including CVaR, to stress-test portfolios and manage downside exposure
- Visualized allocation outputs and efficient frontiers using Matplotlib to support strategic decisions [Code]

ACTIVITIES & AWARDS

- Member, **CFA Society New York**; actively engaged in professional events and preparing for **FRM Part I Exam**
- Open-source contributing to **Riskfolio-Lib**, a leading Python library for portfolio optimization and risk management
- Competed in WorldQuant's 2023 Int'l Quant Championship, crafting & testing advanced trading strategies