MUJEEB KHAN

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EDUCATION

FORDHAM UNIVERSITY, GABELLI SCHOOL OF BUSINESS New York, NY

MS, Quantitative Finance August 2023-May 2025

- Relevant Coursework: Stochastic Calculus, Quantitative Asset Management, Time Series Econometrics, Algorithmic Trading

AMITY UNIVERSITY DUBAI Dubai, U.A.E

Bachelor of Technology, Computer Science & Engineering September 2018-November 2022

- Relevant Coursework: Artificial Intelligence, Numerical Methods & Optimization, Design of Algorithms, Big Data Analysis

EXPERIENCE

BLOCKHOUSE CAPITAL New York, NY

Quantitative Trading Intern August 2024-Present

- Researched and contributed to the development of a reinforcement learning model for optimizing trade executions, resulting in significant improvements over simpler forms of optimization
- Backtested an adjusted VWAP model to benchmark its effectiveness, providing insights for informed product development
- Collaborated with development team to enhance the transaction cost analysis (TCA) platform, insights supported both execution cost analysis and product marketing efforts

BETA IT Dubai, UAE

Research Intern June 2021-November 2021

- Conducted sequential analysis on traffic data as part of a research exercise modeled after Alibaba's City Brain project, utilizing Hadoop and MapReduce for parallel processing
- Created a Python tool for insurance mortality risk, using age and health data with basic actuarial techniques
- Implemented RandomForestClassifier for regression tasks, cross_val_score for model evaluation

PROJECTS

MORTGAGE-BACKED-SECURITY-ANALYSIS (FG B32512) 2024

- Conducted valuation of Freddie Mac MBS (FG B32512), guaranteed by the U.S. government
- Simulated interest rate paths leveraging the Vasicek model to capture mean-reverting nature of rates
- Modeled prepayment behaviors with an adjusted PSA model using CPR data from Bloomberg
- Derived value by averaging present values of anticipated cash flows across all simulated interest rate paths, discount factors were calculated using respective path's rates
- Identified overvaluation of security in market (Calculated: $654,907.87 vs. Market: $832,988.32)

FORECASTING U.S. DELINQUENCY RATES USING ECONOMIC DATA 2024

- Forecasted loan delinquency rates using economic indicators, from FRED and WRDS databases
- Implemented linear regression models, Lasso and Ridge, for variable selection and multicollinearity
- Developed a model capable of forecasting delinquency rates, Lasso Regression provided a relatively better fit for predicting consumer loans delinquency

ALGORITHMIC TRADING SYSTEM 2024

- Developed an algorithmic trading system in MATLAB, implementing a mean reversion strategy for high-cap stocks (Mag 7), leveraging MACD and RSI indicators to generate trade signals
- Built an interactive GUI with real-time P&L tracking for both individual securities and overall portfolio, featuring intuitive controls for data loading, trade execution, and backtesting

3D GAME WITH CRYPTO WALLET AUTHENTICATION 2022

- Developed and designed a 3D game with unique platform access, requiring crypto wallet signatures for user authentication, featuring real-time interaction, exploration, and native Ethereum transfers as core gameplay features

BEP-20 TOKEN 2021

- Implemented a smart contract to create a BEP-20 token on Binance Smart Chain with Solidity. The smart contract allows seamless transfers between wallets

ADDITIONAL

- Skills & Tools: Python, MATLAB, kdb+, qSQL, R, Microsoft Office Suite