MUHAMMAD BIN ASLAM

CONTACT

GitHub: *https://github.com/muhammad2702*

e-mail: **muhammad270202@gmail.com**
phone #: **+92-323-4516350**
+92-333-1635563

SUMMARY

Experienced software developer with a strong background in financial markets and trading with hands-on experience in developing and implementing high-frequency trading (HFT) algorithms. Eager to leverage my skills in market making, quantitative analysis, and algorithmic trading to contribute to markets.

SKILLS

Programming/Scripting Languages: (Proficient) *C++, Python, Java, SQL* ; (Familiar) *bash,*

Programming: Proficient in C++, Python, and Java for financial and trading applications
Algorithmic Trading: Expertise in high-frequency trading (HFT), low-latency systems, order book dynamics, market making strategies, technical analysis, and backtesting
Order Management Systems (OMS): Experienced with dynamic programming and data structures used in OMS
Low-Level Systems Programming: Highly skilled in low-level programming, including socket programming, to develop efficient and robust network applications
Machine Learning Proficiency: Experienced in diverse ML techniques, including supervised, unsupervised, and reinforcement learning, to drive data-driven solutions and insights
Quantitative Finance: Experienced with probability theory, time series analysis, statistical modeling, and risk management
Risk Assessment: Knowledgeable in risk analysis, leveraging econometrics and volatility modeling techniques

EDUCATION

Bachelor of Software Engineering
FAST NUCES

PROFESSIONAL EXPERIENCE

Quantitative Developer / Analyst
Freelance   *(2022 - Present)*

High Frequency Market Making System

- Engineered a low-latency, high-throughput market making system for exchanges.
- Implemented real-time order book management with sub-millisecond updates using WebSocket protocols.
- Optimized low level *C++* to achieve *30%* faster execution as compared to standard practices.
- Developed market making strategies incorporating dynamic bid-ask spread adjustment and inventory management.
- Achieved consistent profitability by optimizing order placement and execution, considering fees and market microstructure.
- Implemented advanced risk management features, including real-time position monitoring.
- Demonstrated practical application of stochastic processes and time series analysis in live trading scenarios.

Custom Liquidity Indicator for Markets

- Developed a custom liquidity indicator for cryptocurrency markets, specifically for Coinbase, using the Bookmap Layer 1 API.
- Implemented the indicator to analyze tick-by-tick data of bid-ask spreads, providing real-time insights into market depth and liquidity conditions.
- Utilized *Java* to build the indicator within the Bookmap API framework, demonstrating proficiency in financial software development and API integration.
- Leveraged high-frequency trading (HFT) data processing techniques to handle and analyze large volumes of tick data efficiently.
- Enhanced market analysis capabilities by visualizing liquidity metrics directly on the Bookmap interface, allowing for more informed trading decisions.
- Gained hands-on experience with order book dynamics, market microstructure, and liquidity analysis in markets.

Automated Trading System

◦   Built and deployed an automated trading system in *Python*, integrating with *70+* exchanges via the ccxt library.
◦   Processed real-time candlestick data from multiple market APIs, enabling data-driven trading decisions.
◦   Implemented *100+* technical analysis indicators using ta-lib, resulting in better understanding of the market.

Market Sentiment Analyzer

◦   Developed a custom web scraper using tools like *Selenium* to gather real-time market data from sources like Twitter and other news outlets.
◦   Successfully classified financial sentiment from the dataset, using NLP models.
◦   Leveraged contextual embeddings to analyze sentiment, revealing nuanced insights into market trends and potential investment risks and opportunities.
◦   Presented actionable recommendations based on the combined analysis, leading to potential identification of undervalued assets.

RESEARCH INTERESTS

Game theory for artificial agents; statistics and other applications of algebraic geometry to machine learning; statistical modeling; combinatorics; chaos theory; human cognition and de-biasing; causal inference; hidden Markov models; martingales

TECHNICAL PROFICIENCIES

Trading & Quantitative Skills:
◦   Advanced Technical Analysis
◦   Fundamental Analysis
◦   Econometric Modeling
◦   Statistical Arbitrage & Pairs Trading
◦   Options Pricing & Volatility Modeling

Risk Management & Analytics:
◦   Monte Carlo Simulations for Risk Assessment
◦   Portfolio Optimization & Risk-Adjusted Returns

Machine Learning & Data Science:
◦   Supervised & Unsupervised Learning Algorithms
◦   Natural Language Processing for News Analysis
◦   Reinforcement Learning for Trading Strategies