

AARISH KHAN

Quantitative Researcher | Systematic Trading & Applied ML

aarishkhan.in | GitHub | LinkedIn | aarishk140400@gmail.com | +91 9984738263

Profile

Quantitative Researcher with 2.5+ years building, backtesting, and evaluating systematic trading strategies across equities, futures, and options. Strong background in economics and applied machine learning, currently formalized through an MCA specializing in AI/ML. Proven track record in translating high-frequency data and strategy variations into risk-adjusted, deployable portfolio decisions. Expert in time-series forecasting, quantitative metrics, and options backtesting pipelines.

Technical Skills

Languages & Databases: Python, SQL (PostgreSQL, MySQL)

Quantitative Finance: Systematic Strategy Backtesting, Time Series Analysis, Risk Metrics (Sharpe, CAGR, Drawdown, Sortino)

Data Analytics: Pandas, NumPy, Matplotlib, Seaborn, SciPy, Statsmodels

Machine Learning & Deep Learning: Scikit-learn, PyTorch, TensorFlow (Clustering, Regression, Neural Networks)

Development & Automation: GitHub Actions, REST API integration, Git, Streamlit, Socket.IO

Work Experience

Jr. Quantitative Researcher

Pace Stock Broking Services Pvt. Ltd.

Mar 2023 – Present

New Delhi, India

- Researched, backtested, and validated systematic trading strategies across equities, futures, and options using historical market data, *covering 100+ strategies / 4 years of historical data*
- Built and maintained historical OHLCV datasets (*for all available F&O instruments*), ensuring data quality and efficient retrieval for large-scale quantitative research.
- Evaluated and optimized trading strategy using Sharpe ratio, CAGR, maximum drawdown, win rate, profit factor, and risk-adjusted return metrics, *improving Sharpe ratio by 7.8%*
- Built an ML-based strategy clustering and selection engine analyzing 10,000+ trading strategies variants to identify top-performing, low-correlated strategies by return, risk, and MTM behavior, *improving portfolio sharpe by 16.6%*
- Collaborated with quantitative developers to implement backtested strategies into production systems; generated research reports and analytics to support strategy selection

Equity and Derivatives Trader

Ebullient Securities Pvt. Ltd.

Nov 2022 – Mar 2023

Gurugram, India

- Executed trades manually on NEST with high speed and accuracy across equity and derivatives segments
- Maintained daily trading diaries and end-of-day net position reports to support risk and compliance tracking

Projects

Quant-AI Strategy Copilot — LLM/VLM Trading-Strategy Assistant

Python · PyTorch · LLMs · VLM · speech-to-text · GitHub

- Built a real-time desktop assistant that captures voice and system-audio input and transcribes natural-language strategy concepts into optimized, vectorized Python/PyTorch strategy code via LLMs
- Integrated a VLM component to parse on-screen charts and formulas as direct strategy input, and combined voice/text input modes for low-friction strategy prototyping, *achieving <2.5s latency and generating 50+ backtest-ready strategies*

Tick-Level Option Hedging Simulator

React · Vite · Node.js · Socket.IO · Quantitative Finance · GitHub

- Built a client-side options trading simulator streaming historical tick-by-tick (second-wise) bid/ask option-chain data for paper trading and dynamic portfolio hedging
- Implemented automated Delta Breach Auto-Pause triggers with real-time LTP, MTM PnL, net value, and portfolio Delta calculations, plus session-level trade logging, *supporting 20+ options contracts with 6 months of historical tick data*

ShoonyaOHLC AutoSync — Automated Nifty OHLC Data Pipeline

Python · API Integration · Automation · GitHub Actions · GitHub

- Auto-fetches daily OHLC data for Nifty Spot, Futures, and Options via the Shoonya API, on an end-to-end pipeline automated with GitHub Actions cron jobs
- Integrated Shoonya API with Google Drive API for reliable, cloud-based historical data storage, using a scalable folder/CSV structure for backtesting, *covering 150+ instruments with 4+ years of historical data synced*

Education

Master of Computer Applications (MCA), AI/ML Specialization — Sikkim Manipal University	2026 – Present
Bachelor of Arts, Economics — <i>Sharda Devi Degree College, Jhansi</i>	2020 – 2022
Bachelor of Laws (LL.B.) — <i>Bundelkhand University, Jhansi</i>	2023 – 2025
Diploma, Mechanical Engineering — <i>Govt. Polytechnic, Jhansi</i>	2017 – 2019