Harsh Chavan

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Professional Summary

Mathematics and Computing undergraduate (GPA: 9.11/10) with expertise in quantitative analysis, algorithmic trading systems, and machine learning. Developed a high-frequency trading simulator processing 120,000+ orders/second with ML-based strategies achieving 68% directional accuracy. Strong foundation in probability, statistics, stochastic processes, and market microstructure. Seeking internship opportunities in quantitative finance, software development, or research.

Education

Birla Institute of Technology and Science (BITS Pilani), Dubai Campus **2024 – 2028**
Bachelor of Technology (B.Tech) in Mathematics and Computing **GPA: 9.11 / 10.00**

Relevant Coursework: Probability and Statistics, Linear Algebra, Discrete Mathematics, Real Analysis, Calculus, Optimization, Numerical Methods.

High School: 95% (Grade 10), 93% (Grade 12)
JEE: Top 2.7 percentile among 1.4 million candidates – demonstrated exceptional problem-solving in mathematics and physics.

Projects

High-Frequency Trading Simulator with ML Strategy Backtesting *Python, NumPy, Pandas, PyTorch*

- Architected a comprehensive HFT simulation platform modeling market microstructure with high-performance order book processing 120,000+ orders/second at 99.9th percentile latency under 450 microseconds.
- Designed and implemented ML models achieving 68.3% directional accuracy on 1-minute price forecasts with Mean Absolute Error of 0.42% on normalized BTC-USD data.
- Developed trading strategies combining statistical arbitrage signals with ML predictions, achieving simulated Sharpe ratios of 2.8–3.2 and maximum drawdowns of 4.2–6.7% across 12-month backtests.
- Built risk management module reducing simulated Value-at-Risk (95% confidence) by 37% through dynamic position limits and circuit breakers triggered at 2.5 standard deviation volatility thresholds.
- Created analytics dashboard calculating 40+ performance metrics; optimized market-making strategy achieving 15.2% annualized returns with bid-ask spread capture efficiency of 84%.

Swirl – AI-Personalized Fashion Discovery Platform *Flutter, Dart, Python*

- Architected cross-platform mobile application with swipe-based interface, achieving 2-second average feed load time and supporting 500+ concurrent user sessions.
- Implemented collaborative filtering recommendation engine improving user engagement by 42% and driving 28% higher 30-day retention through personalized content curation.
- Engineered real-time product aggregation from 4+ retailers with intelligent caching, reducing API latency by 71% and achieving 99.2% uptime over 3-month deployment.

Technical Skills

- **Quantitative Analysis:** Probability Theory, Statistical Inference, Linear Algebra, Calculus, Stochastic Processes, Optimization, Market Microstructure, Risk Modeling.
- **Programming:** Python (NumPy, Pandas, PyTorch, scikit-learn), C/C++, SQL, Dart/Flutter, JavaScript, Git, Data Structures and Algorithms.
- **Trading Systems:** Algorithmic Trading Strategies, Order Book Modeling, Backtesting Frameworks, Risk Management (VaR, CVaR), Financial Metrics (Sharpe, Sortino, Omega).
- **Professional Skills:** Quantitative Research, Data-Driven Decision Making, Technical Communication, Statistical Analysis, Problem Solving.

Certifications & Achievements

- **JPMorgan Chase & Co. – Software Engineering Job Simulation** (Forage): Optimized front-end trading interface, reducing latency by 40% in simulated environment.
- **JPMorgan Chase – Investment Banking Job Simulation** (Forage): Built DCF valuation model with WACC sensitivity analysis achieving 94% accuracy vs. benchmark.
- **Certified Ethical Hacker (CEH)** – Cisco: Network security and penetration testing fundamentals.

Available for internships starting immediately. Open to on-site and remote opportunities worldwide.