Vineel Pentrala

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Education

Stevens Institute of Technology, M.S. in Financial Engineering - *GPA: 3.58* Dec 2025

- **Coursework:** Pricing & Hedging, Market Microstructure & Trading Strategies, Stochastic Calculus, Computational Methods in Finance, Portfolio Theory, Optimization Models in Quant Finance

Mahindra University, B.Tech. in Computer Science and Engineering Jul 2024

- **Coursework:** High Performance Computing, Algorithms, Machine Learning, Databases, Optimization

Skills & Certificates

Technical: C++, Python, R, Oracle SQL, Bash, Git, Bloomberg Terminal
Certificates: Bloomberg Market Concepts, CME: Intro to Futures, CME: Intro to SOFR, CFA AmplifyMe Challenge
Languages: English, Telugu, Hindi, French (conversational)

Experience

Research Fellow, Stevens Institute of Technology Apr 2025 - Aug 2025

- Received a funded fellowship to pursue research on automated market makers (AMMs) under Professors Ionut Florescu and Zachary Feinstein.
- AMMs / Tokenization: Designed a feasibility and risk framework for tokenizing illiquid TradFi assets, mapping custody flows, market design constraints, oracle/latency failure modes, and regulatory touchpoints.
- SHIFT HFT Simulation: Debugged and upgraded FIX/QuickFIX connectivity for an in-house HFT simulator, unblocking version upgrades and improving stability; authored official technical documentation for future devs.

Software Engineer Intern, Cantor Fitzgerald – Hyderabad, India Jan 2024 – Jul 2024

- Built PL/SQL packages, functions, and database tables and automated recurring back-office tasks with Bash, reducing manual report handling and operational errors.
- Migrated 25+ PL/SQL reports to XML Publisher and upgraded/tested 110+ reports, streamlining regulatory and management reporting workflows.
- Optimized reporting scripts and backup routines to handle growing data volumes, improving reliability and reducing run-time for key reports.

Projects

Quantitative Wealth and Investment Management - Bank of America

- Researching market-regime detection using LLMs and Topological Data Analysis; implementing Persistent Homology Turbulence Index (PHTI) in Python/R and benchmarking against the classic Turbulence Index.
- Building an R Shiny dashboard and unified API that ingest market data, compute features, and run multiple regime-switching and forecasting models for live monitoring and comparison.

Empirical Analysis of TSLA Microstructure Data

- Modeled nanosecond tick-level data in Python to estimate liquidity, volatility, and PIN; profiled session effects (pre-market, auction, after-hours) via quoted/effective/realized spreads.
- Ran event studies on block trades and price jumps, measuring impacts on spreads, depth, and order-imbalance dynamics.

Activities

- 1st among Stevens graduate students in CME Trading Challenge 2024.
- Standardized test scores: GRE Quant 170/170; JEE-Main 95th percentile.
- Founder of Hurricane Programming Club at Mahindra University - Managed a group of 6 students to conduct activities for 200+ of students. Formed an official partnership with CodeChef and USACO.
- **Interests:** 8th grade plectrum guitar (Trinity), WRC Generations (Top 100 worldwide), Pool