

VINEEL PENTRALA

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Education

Stevens Institute of Technology

Hoboken, NJ

Master of Science in Financial Engineering

Expected Dec 2025

Courses: Pricing & Hedging, Market Microstructure & Trading Strategies, Stochastic Calculus, Computational Methods in Finance, Bloomberg Terminal, Portfolio Theory and Applications

Mahindra University

Hyderabad, India

Bachelor of Technology in Computer Science and Engineering

2020–2024

Courses: High Performance Computing, Data Structures, Design & Analysis of Algorithms, Machine Learning, Optimization for AI, Database Management Systems, Computability and Complexity Theory

Skills

Technical: C++, Python, R, Bloomberg Terminal, Oracle SQL, Bash, XML Publisher,

Languages Spoken: English, Telugu, Hindi, French (Conversational)

Experience

Summer Research Fellow – School of Business

Stevens Institute of Technology

Automated Market Makers in Decentralized Finance

May 2025–Present

- Awarded a funded Summer Research Fellowship to study Automated Market Makers (AMMs) in Decentralized Finance (DeFi)
- Working on the Stevens High-Frequency Trading Simulation System, fixing bugs and correcting the current FIX (QuickFIX) implementation to enable future system upgrades
- Exploring tokenization frameworks to assess the feasibility of representing illiquid traditional financial assets as blockchain-based tokens.

Cantor Fitzgerald

Hyderabad, India

Backend Development Intern

Jan 2024–Jul 2024

- Developed packages, functions and designed tables adhering to project specifications
- Automated backend tasks using bash scripts, and scheduling database maintenance jobs.
- Migrated PL/SQL reports to XML Publisher, streamlining reporting processes
- Performed schema-level and table-level backups to ensure data integrity.
- Upgraded scripts to accommodate growing data volumes, optimizing job execution times.

Projects and Activities

Empirical Analysis of TSLA Microstructure Data

Stevens Institute of Technology

- Collaborated on an analysis of Tesla (TSLA) tick-level data to study market microstructure, with a focus on liquidity, volatility, and informed trading.
- Analyzed intraday liquidity across pre-market, auction, and after-hours trading, utilizing metrics such as quoted, effective, and realized spreads.
- Conducted event-based liquidity analysis, identifying the impact of large trades and price jumps on bid-ask spreads, market depth, and order imbalance.
- Tools: R, Refinitiv Tick DB.

SMCI Option Pricing

Stevens Institute of Technology

- Collaborated on a pricing analysis of American options on SMCI stock using the binomial tree method and Black-Scholes model.
- Implemented Greeks calculations using the finite difference method, analyzing sensitivities of option prices to market parameters (Delta, Gamma, Vega, Theta, and Rho).
- Designed hedging strategies leveraging Greeks to minimize portfolio risk, incorporating real-world risk-free rates and volatility parameters.
- Tools: R, Bloomberg, Yahoo Finance API.

Hurricane Programming Club

Mahindra University

- Founded a club at the University level to promote and support other competitive programmers to find peers who code on CodeForces, AtCoder, etc.
- Led a team of 5 to conduct workshops, partner with other organizations to conduct contests among University students
- Made club activities as a part of certain class requirements and handled 100+ students in these classes.

- Collaborated with USACO guide, and then CodeChef to launch a University wide program to improve programming skills

Certifications and Awards

- Bloomberg Market Concepts (BMC) Certified (2024 December).
- Top 20% in CME Trading Challenge 2024; 1st among Stevens' graduate students.
- Consistently Ranked Top 5 in Mahindra University Competitive Programming Challenges.
- Top 10% in AWS DeepRacer July 2023 Student Qualifier, India.
- Flipkart GRiD 4.0 : Level 2 Qualifier (2022)