

KOUMUDI MANTHA
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EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge, MA

Candidate for Financial Mathematics, December 2024, GPA: 4.9 (of 5 scale)

2023 - Present

- Recipient of merit-based Dean's scholarship
- Coursework: Advanced Analytics of Finance, Machine Learning, Hands on Deep Learning, Financial Engineering, Financial Data Science, Futures & Options, Fixed Income & Derivatives

INDIAN INSTITUTE OF TECHNOLOGY

IIT Kharagpur, India

M-Tech, Financial Engineering, GPA: 3.87 (of 4 scale)

2020 - 2021

- Relevant Coursework: Probability & Statistics, Corporate Finance, Financial Institutions & Markets, Stochastic Processes in Finance, Derivatives and Risk Management, Econometrics, Optimization Methods in Finance

INDIAN INSTITUTE OF TECHNOLOGY

IIT Kharagpur, India

B-Tech (Honors), Mechanical Engineering, GPA: 3.68 (of 4 scale)

2016 - 2020

WORK EXPERIENCE

QMS CAPITAL MANAGEMENT LP

North Carolina, US

Quantitative Researcher - Summer Inter / Alpha Research team

Summer 2024

- Developed a carry-neutral FX forwards trading strategy by designing a ranking system for emerging markets based on social, governance, economic, and financial risk factors, incorporating changes in carry by forward return decomposition
- Conducted an in-depth study on the impact of correlation shrinkage in portfolio construction for emerging market FX futures, resulting in a 20% improvement in Sharpe Ratio during backtests
- Built a Regime Learning model leveraging unsupervised ML techniques like Gaussian Mixture Model and Hidden Markov Model to identify market cycles from stylized factors, enabling development of multi-asset trading strategies

GOLDMAN SACHS, ASSET MANAGEMENT DIVISION

Bangalore, India

Quantitative Strat - Associate / External Investing Group

2021 - 2023

- Collaborated in building a hedge-fund replicator model using a combination of macroeconomic and custom factors. Facilitated the estimation of factor loadings and built analytics based on hypothetical portfolios
- Developed an in-house infrastructure to estimate capital statements for Private Equity clients in collaboration with three cross-functional teams, saving up to 150 hours of manual labor per client and reducing human errors
- Analyzed exit multiples of secondary deals in private equity, employing strategic shocks to assess systematic risk. Mentored an intern to extend the capability for shocking several multiples at once, enhancing risk evaluation capabilities

RESEARCH EXPERIENCE

INVESTOR SENTIMENT ANALYSIS

IIT Kharagpur, India

Goal: To construct an investor sentiment index to quantify the behavioral aspects of Indian Stock Market

M-Tech Project / Financial Engineering

2020 - 2021

- Constructed a sentiment index by regressing five sentiment proxies against four macroeconomic variables, then applying Principal Component Analysis (PCA) to capture common sentiment trends
- Investigated causality and relationships between the sentiment index and stock market indices using Granger Causality tests and ARDL models, integrating the index into CAPM and Fama-French models to study its impact on asset pricing

FINE-TUNING LLM CHATBOT FOR RECIPE CREATION

MIT, Cambridge, US

Course Project / Hands on Deep Learning

Spring 2024

- Fine-tuned a 350M parameter OPT model using a dataset of 5000 diverse recipes, optimizing max_steps and learning rate parameters with contextual embeddings and iterative validation to generate coherent and accurate recipes

ALGORITHMIC TRADING STRATEGY SIMULATION

MIT, Cambridge, US

Course Project / Financial Data Science

Fall 2023

- Developed and backtested a market-neutral trading strategy leveraging historical CRSP data to exploit mean reversion in stock returns. Analyzed strategy comprehensively for consistency, stationarity, market neutrality, and transaction costs

ADDITIONAL INFORMATION

Skills and Certifications: CFA Level I, Python, SQL, Statistical Analysis, Time Series Analysis, Portfolio Optimization

Interests: Volleyball, Badminton, Cooking (Secured 2 Gold medals in inter-hostel Volleyball Championships)

Leadership: Led a team of 70+ members with 1000+ attendees as official Licence Holder for TEDxIITKharagpur 2019