Venkata Pratyush Reddy (Pratyush) Kalli

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EDUCATION

The University of Chicago — **Chicago, IL**
Master of Science in Financial Mathematics (GPA: 3.8 / 4.0) — **Expected December 2025**

- Courses: Python, ML for Finance, Probability & Stochastic Processes, Stochastic Calculus, Option Pricing, Portfolio Theory & Risk Mgmt, Statistical Analysis, Fixed Income, Credit Markets, Numerical Methods

Indian Institute of Technology Kharagpur — **Kharagpur, India**
Bachelor of Technology in Electronics (GPA: 3.7 / 4.0) (JEE All India Rank 672) — **June 2020**
Minor in Computer Science and Entrepreneurship & Innovation

- Courses: Algorithms, Data Analytics, Operating System, Networks, Signal Processing, Calculus, Algebra

SKILLS

Computing: C++, Python, Java, R, SQL, Excel, MATLAB, Data Structures, Algorithms, OOP, System Design, Android Dev
Certifications: Samsung Level 3 Algorithmic optimization & efficiency (C++), Deep Learning, Machine Learning, SQL
Software Technology: Timeseries Database, PyTorch, REST, Multi-threading, Micro Services, Azure, MS Office, Git
Knowledge: Equities, Options, Futures, Fixed Income, Financial Markets, Settlements Technology & Operations

EXPERIENCE

Low Tide Capital Management — **Chicago, IL**
Quantitative Research Intern — **June 2025 - Present**

- Developed a Resilience Contribution Index (RCI) stress-testing engine integrating convexity-adjusted scores, Ulcer Index, and CVaR, providing customizable portfolio diagnostics and richer risk insights beyond Sharpe ratio
- Built automated systems to detect factor misalignments in gold's macro relationships using rolling statistics, EMAs, and the ruptures library for regime-change detection; complemented by PCA-based factor modeling forecasts with 0.7 R^2

Piper Sandler — **Chicago, IL**
Quantitative Researcher, University of Chicago Project Lab — **June 2025 - August 2025**

- Engineered Python pipelines to integrate macroeconomic indicators, market variables, and institutional data from S&P, aligning quarterly and annual features for scalable municipal bond spread modeling across issuers and maturities
- Implemented regression and tree-based methods (XGBoost) with SHAP interpretability, achieving R^2 0.85 in predicting credit spreads and extending the framework to rating estimation, enhancing credit risk assessment capabilities

Neuberger Berman — **Chicago, IL**
Quantitative Researcher, University of Chicago Project Lab — **March 2025 - May 2025**

- Automated end-to-end data pipelines in Python to ingest market data, adjust for corporate actions, and compute returns; integrated Brinson attribution with Frongello smoothing to separate allocation, selection effects for portfolio diagnostics

Morgan Stanley — **Bangalore, India**
Manager, Software Engineer 2 — **July 2022 - August 2024**

- Implemented CQRS based trade-settlement modules for Equities on Azure, modernizing a legacy mainframe system
- Automated DTC confirmation matching logic by integrating participant-level depository feeds with the firm's internal trade booking system, reducing manual reconciliation by 50% and accelerating trade affirmation
- Engineered Spring Boot APIs and AutoSys workflows to process CTS and misc. files for CNS eligible transactions from NSCC, ensuring seamless ingestion, validation, and settlement of thousands of CNS trades daily
- Devised & implemented an end-to-end Azure platform (UI, SQL, APIs) for real-time internal business error monitoring

Samsung R&D Institute — **Noida, India**
Engineer CL 2 — **September 2020 - July 2022**

- Directed architectural enhancements and improved Android 12 Maximum Power Saving by integrating UI, services, and database with multithreading, collaborating with cross-functional teams to cut activation latency by 20%
- Built a Random Forest proof-of-concept to flag unnecessary permissions across apps, achieving 80% accuracy
- Developed a mobile app using the EAST text detector and Tesseract OCR to convert lecture video frames into notes

PROJECTS

Algorithmic Trading System, University of Chicago — **October 2024 - December 2024**

- Built an algorithmic trading system using Alpaca API to retrieve intraday market data, generate momentum-driven trading signals, and execute automated trades in a paper-trading environment

Leaf Segmentation in Outdoor Field Images, Bachelor's Thesis — **January 2020 - March 2020**

- Implemented k-nearest neighbors (k-NN) algorithm and Fully Convolutional Network (FCN) model to segment leaves from background, achieved a mean Intersection over Union (IoU) of 0.82 during testing