Aparna Ambarapu

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EDUCATION

The University of Chicago — **Chicago, IL**
Master of Science in Financial Mathematics — **Expected December 2025**
- **Courses:** Portfolio Theory & Risk Management, Python, Option Pricing, Probability & Stochastic Processes
- Recipient of merit-based FinMath Maroon scholarship

Indian Institute of Technology Hyderabad (IIT Hyderabad) — **Hyderabad, India**
Bachelor of Technology in Mechanical Engineering with Minor in Economics — **May 2021**
- **Courses:** Data Structures, Econometrics and Forecasting, Macroeconomics, Financial Institutions & Markets, Matrix Theory, Convex Optimization, Probabilistic Graphical Models, Representation Learning

SKILLS

Computing: Python, SQL, R, MATLAB, C++*(basic),* Databricks*,* Jupyter, Unix/Linux, MS Office
Knowledge: Machine Learning, Financial Markets, Statistical Modeling, Data Analytics, Deep Learning
Trading Products: Futures, Equities, Commodities, Fixed Income, Options
Frameworks: PySpark, PyTorch, TensorFlow, Git
Certifications: CFA L1 cleared, Deep Learning & Discrete Mathematics Specializations - Coursera

EXPERIENCE

Goldman Sachs — **Bengaluru, India**
Associate, Data Scientist, Fraud Strats, Consumer Banking (Marcus) — **December 2023 - Present**
- Building scalable ML-based early warning systems for timely detection of fraud in payments and transactions, and enhancing customer experience for Apple and GM credit cards
- Collaborated in team of 40 across division on critical 'OTB initiative' under 'Path to Profitability' goal of Marcus
- Implemented real-time Open-to-Buy model-based strategy for credit-line release post-bill payment, achieving $10M incremental annual fraud savings and $3M annual OpEx savings driven by reduced contact rates
- Developed cryptography module for encrypting and decrypting PII payment data in real-time flow
- Establishing automated Data Quality alerts for model features and scores; Dashboard to display top five reasons affecting data point's score using SHAP

Analyst, Data Scientist — **July 2021 - December 2023**
- Developed enhanced Payment Risk model (PRM), multi-class XGBoost, trained on imbalanced dataset with < 2% event rate; Implemented end-to-end in batch process using Airflow; Ensured adherence to Legal & Compliance
- Engineered 200+ features from 100GB of credit card user data to capture comprehensive user behavior
- Implemented PRM-based rules mitigated >$6M in annual fraud loss; reduced step-up queue volumes by >30%
- Developed Account Take Over (ATO) transaction label by analyzing digital & virtual card tokenization, utilized by business strategy to quantify ATO fraud losses; Built LightGBM model as first PoC by defining 50+ features

PROJECTS

VIGIL Lab, IIT Hyderabad — **Hyderabad, India**
- Developed fine-grain image classifier using Graph Convolutional Neural Networks in PyTorch with CUDA acceleration, based on cutting-edge research papers

Department of Mathematics, IIT Hyderabad — **Hyderabad, India**
- Evaluated performance of diverse traditional survival analysis models (time-to-event). Developed Mixture model with customized likelihood function and applied to PBC dataset from Kaggle
- Mastered basics of Monte Carlo simulation and employed it to identify optimal investment portfolios and forecast completion dates for software projects using Kaggle datasets

ADDITIONAL INFORMATION

Volunteer, Yuva Unstoppable NGO — **Bengaluru, India**
- Engaged in government school events; talks with philanthropists; mentored aspiring STEM students
- Recipient of full undergraduate tuition scholarship sponsored by VVS Laxman

Analyst Impact Fund competition, Goldman Sachs — **Bengaluru, India**
- Collaborated in team of five on proposal with WOTR (non-profit) to win $250k grant for establishing soil conservation and sustainable water harvesting practices in three Indian villages *(adopted by NGO after)*

Interests: Dance, abstract painting, yoga & fitness, strategic card and board gaming