KAUSHIK ARCOT

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EDUCATION

Georgia Institute of Technology, Atlanta *August 2023 - May 2025*
Master of Science
Computer Science

Indian Institute of Technology, Madras *August 2017 - June 2021*
Bachelor of Technology Overall CGPA: 8.68/10
Computer Science and Engineering

WORK EXPERIENCE

JP Morgan Chase & Co Mumbai, India
Market Risk QR, Quantitative Analyst *July 2021-July 2023*

- **Distributed Compute:** Worked on Optimizing a load balancing distribution of Market Risk Calculation Framework for Unified Flow of Sensitivity and Full Revaluation Calculations, using apriori knowledge of task compute estimate. Also abstracted the complexity calculator for future enhancement using Machine Learning
- **Cross LoB Functionality:** Worked on end to end Onboarding of an LoB's market risk calculation onto the unified python platform. This involved migration of components like Discount Market Model and Inflation Market Model Strategies for that LoB and relevant preprocessing modules for risk factors not in the LoB
- **Failure Reporting Framework:** Created an end-to-end calculation framework failure reporting framework so that product specialists are notified regarding the errors produced during daily VaR and Expected Shortfall Calculations. It has been further extended for all Market Risk Calculation Failures for JPMorgan.

JP Morgan Chase & Co Mumbai,India
Data Science, Intern *Summer 2020*

- Developed a project providing classification as an end to end service, as a generalized tool for varied use cases, deployed the tool with pre-processing of data, Feature Selection and Handling for imbalanced datasets
- Tested Project on a Use Case of Purpose Code Due Diligence for Trade Data with **94%** Precision and **92%** recall.
- Configured Project to be customizable with Numerical, text and categorical data, with training on Tree Based, Logistic and Nearest Neighbour Based Models.

PROJECTS

Strategy Learning for Trading Decisions Georgia Tech
Prof. David Joyner *Jul - Nov 2023*

- Applied machine learning techniques to analyze stock price data, incorporating financial indicators such as Bollinger Bands, Moving Averages, and Stochastic Indicators to inform trading decisions.
- Developed and implemented a Random Forest Classifier to predict optimal points of entry and exit for stock trading, contributing to enhanced decision-making in dynamic market conditions.
- Performed 23% better than benchmark buy and hold strategy on JPY in out of sample period.

Predicting Gun Violence Death Rates Georgia Tech
Prof. Gamze Tokol-Goldsman *Jul - Nov 2023*

· Conducted extensive Exploratory Data Analysis (EDA) on predictors such as State Politics, Median Income, Mental Health Issues, and Registered Firearms to understand their correlation with gun violence death rates.
· Developed robust predictive models using Linear Regression and Poisson Regression techniques, achieving an impressive R^2 (coefficient of determination) of 0.76. Utilized forward stepwise linear regression to assess the significance of various predictors and identify key drivers of gun violence.
· Also conducted goodness of fit tests for both Linear Regression and Poisson Regression

Incremental Dynamic Programming IIT Madras
Prof. Jayalal Sarma *Feb - Jun 2021*

· Focused on research in Incremental Branching Programs, lower bounds for common problems in computer science (TSP, Shortest Path, Knapsack) using Dynamic Programs (Incremental vs. Non-Incremental)
· Abstraction of Dynamic Programming to a formal Mathematical Model (Tropical Circuits) and use the strengths and limitations of the model to further analyze complexity of Dynamic Programming algorithms.
· Study on power of (Min,+) circuits, polynomials generated and calculation of Max using (Min,+) circuits, bounds on (Min,+) Tropical Circuits using Graph Entropy and Transformation to Monotone Boolean Circuits.

ACADEMIC ACHIEVEMENTS AND OTHER EXPERIENCE

- One of 1000 students selected across India for National Talent Search Examination**(NTSE)** Scholarship in the year 2015
- Attended Orientation-Cum-Selection-Camp **(OCSC)** for International Chemistry Olympiad **(IChO)** 2017 after qualification through Indian National Chemistry Olympiad **(INChO)**
- **Saathi (Student Wellness Cell)Mentor (2019-2021)** Guiding new-joining junior students through challenges in academic curriculum, opportunities in extra-curricular activities, and general well-being
- Mentor for the Mumbai Schools Challenge, guiding students from socio-economically disadvantaged backgrounds to come up with creative and sustainable solutions to real-world problems of their city.

RELEVANT COURSES

1. Graduate Courses
Algorithms; Data Visualization; Machine Learning for Trading; Statistical Modeling and Regression Analysis ;
2. Core Courses
Graph Theory ; Design and Analysis of Algorithsm; Languages, Machines and Computation; Computer Organization and Architecture ; Operating Systems; Database Systems; Artificial Intelligence : Knowledge Representation, Reasoning and Problem Solving;

SKILLS

Languages: C/C++,Python, R, Java, SQL, Prolog
Developer Tools : Git, Docker, VS Code, LaTex, Visual Studio, Eclipse
Libraries : pandas, NumPy, Matplotlib, scikit-learn