Suvigya Vijay

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EDUCATION

University at Buffalo, The State University of New York — Buffalo, NY
M.S.(Hons) in Computer Science and Engineering; GPA: 4.0 — *Aug 2023 – Dec 2024*

Birla Institute of Technology and Science(BITS), Pilani — Pilani, India
B.E.(Hons) in Electronics and Instrumentation & M.Sc.(Hons) in Economics — *Aug 2015 – Jul 2020*

EXPERIENCE

Data Scientist/Machine Learning Engineer, Flipkart — *Jul 2020 – Jun 2023*

- **Molecule**: Engineered an auto-scaling machine learning platform with multi-language support, UI, caching, and debugging features using Python, ZeroMQ, MongoDB, Flask, and Kubernetes. Boosted team efficiency by 200% by standardizing workflows, enhancing collaboration, and facilitating rapid experimentation, leading to over 30,000 experiments and 50+ models in production. Filed for a patent and submitted a paper for review.
- **14A Model**: Delivered a solution for low-lead demand predictions. Utilized Apache Azkaban, PySpark, and R to build data pipelines feeding into auto-tuned models with ARIMA, ETS, hierarchical forecasting, N-BEATS, and Temporal Fusion Transformers. Achieved a 17% wMAPE improvement and saved $85 million annually by forecasting demand for millions of products weekly.
- **Auto-forecasting**: Designed a novel reinforcement learning system using TensorFlow and Python to generate initial demand prediction models for new business domains. Integrated primitives defined by data scientists into an optimal DAG, enabling rapid, human-free model generation and experimentation for categories such as Grocery and Dark Stores, decreasing basic model deployment time by 4x.
- **Cloud Infrastructure**: Managed infrastructure on Flipkart's internal cloud and GCP, ensuring availability and reliability of compute and storage platforms. Maintained data pipelines and distributed ML models with Apache Spark and multi-GPU deep learning deployments, and simplified platform usability for data scientists.

Data Science Intern, Flipkart — *May 2019 – Jun 2020*

- **New Product Initiative**: Developed an intervention-based model for new product launches by analyzing technical attributes, pricing, brand value, marketing, seasonality, and consumer trends. Utilized historical data for quantitative forecasts, achieving a 15% reduction in wMAPE and 30% faster time-to-market. Built a UI-based platform with Pandas, PySpark, FastAPI, and Bootstrap to facilitate forecasts.

Google Summer Of Code (GSoC), Performance Co-Pilot — *May 2017 – Aug 2017*

- **Vector**: Enhanced Netflix OSS's Vector by adding custom widget features in AngularJS, allowing developers to create and visualize custom charts similar to Grafana for better system performance monitoring and analysis.

PROJECTS

Juicer (2024). Implemented a transaction reordering technique using natural consistency in the RPC layer, reducing aborts and lowering latency by 1.2x in geo-replicated databases.

TacoDB (2024). Developed a single-threaded relational database in C++ with Clock Buffer Pool, B+ Trees, and various query processing operators such as Merge Join and Index Nested Loop Join.

RL for Dangerous Dave (2024). Applied advanced reinforcement learning algorithms to train an agent in game.

Parallel and Distributed Processing (2023). Optimized 2D filtering with OpenMP and wrote CUDA-based Gaussian KDE for performance improvements on large datasets.

Raft Key-Value Store (2023). Created a robust key-value store in Go with Chandy-Lamport and Raft consensus algorithms for consistency and fault tolerance.

Deep Recommender using Autoencoders (2018). Built collaborative filtering models with matrix factorization and autoencoders, tested on Netflix Prize and Zomato data, achieving a 0.9 RMSE score.

Incentive-driven Waste Management App (2018). Constructed an app with Ionic and Flask, featuring user authentication, waste credit trading, and object detection, theoretically saving 80% in logistics costs.

Latch: The Location Chat (2017). Designed a hybrid chat app with public rooms, SOS alerts, end-to-end encryption, and push notifications using Ionic and Django.

TECHNICAL SKILLS

Programming Languages: Python, R, Go, Java, C++, JavaScript, Swift, Dart **; Full Stack:** Front-end, Back-end, HTML, CSS, React, Node.js **; Machine Learning & Data Science:** PyTorch, TensorFlow, Keras, Numpy, Pandas, Tidyverse, Plotly **; Database Technologies:** Databricks, SQL, Hadoop, Redis, Snowflake, BigQuery **; DevOps & Infrastructure:** Apache Airflow, Spark, Azkaban, Zookeeper, Kafka, Kubernetes, RabbitMQ/ZMQ, GCP Suite, AWS (EC2, Lambda), Docker **; Development Tools:** Git, Bash/Shell, VS Code, Jupyter Lab, Postman **; Other Skills:** RESTful APIs, JWT Tokens, Tableau, PowerBI, Data Visualization, Real-time Dashboards, Data Scraping, JIRA, SCRUM