Abhishek Paul

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Summary

Machine Learning Engineer with 5+ years of experience designing and deploying large-scale ML solutions in production. Proficient in Python, Go, and C++, with expertise in building scalable ML pipelines on AWS and Azure. Skilled in developing and maintaining end-to-end ML pipelines, including forecasting models, search ranking, and Generative AI solutions such as Retrieval-Augmented Generation (RAG) pipelines and transformer models. Adept at collaborating with cross-functional teams to develop scalable systems that solve complex problems.

Skills

- **Programming**: Python | GO | C++ | Java | JavaScript | React | Django | SciKit
- **Machine Learning:** PyTorch | MLFlow | RAG Pipelines | Hugging face | Generative AI | ML Deployment | Recommender Systems
- **Data**: Postgres | Databricks | Azure | Snowflake | MySQL | Pandas
- **MLOps & Deployment:** Docker | Kubernetes | CI/CD | API Deployment

Experience

Senior Data Scientist — **Rogers Communications** — *Toronto, ON, Canada* — **06/2022 - Current**

- Joined the data analytics and insights team, where I worked with external and internal stakeholders to build tools that leverage our different data sources to solve business problems and make data-driven decisions.
- Spearheaded the end to end development and deployment of J.A.R.V.I.S, a Retrieval Augmented Generation (**RAG**) pipeline using **Databricks** with Llama 3.2 as the LLM model, enabling non-technical teams to query network KPIs.
- Created a forecasting model that leverages Meta's Prophet to predict network traffic growth. Takes into consideration seasonality and the influence of public events on abnormal network traffic.
- Developed a real-time network disruption identification tool. Collaborated with network engineering teams to identify problematic network patterns and then trained a **Support Vector Machine (SVM)** model to identify these patterns in live data. Enabled preemptive issue resolution and **reduced response time by 40%**, ensuring uninterrupted service.
- Utilized customer connectivity data to provide customer journey analytics and station congestion dashboards to the TTC. Part of an initiative to leverage customer connectivity data to collaborate with municipalities to improve services.
- Leveraged crowd-sourced customer usage data, network KPIs, and geospatial data to train an ML-based (**Random Forest**) tower coverage model. Utilized by national planning to evaluate locations for new towers. Automated and optimized many network planning aspects, **reducing Capex by over $400 million**.

Data Scientist — **Rogers Communications** — *Toronto, ON, Canada* — **05/2020 - 06/2022**

- Directed a team of three in migrating on-premises processes to the Azure cloud, enabling scalable deployment of workflows and models across the national network
- Proactively refactored and enhanced ETL pipelines' performance by implementing intelligent partitioning and indexing. Achieved a **64% reduction in run time**.

Software Developer Intern — **AMD** — *Markham, ON, Canada* — **05/2018 - 05/2019**

- Designed a test execution framework that creates a test build with the user's changes and verifies that the build has no errors before allowing the changes to be implemented in the master build.
- Participated in SoC Full-Chip Timing for 7nm dGPUs including resolving setup and hold time constraints

Projects

Music Generation using Machine Learning — **05/2018 - 05/2019**

- Developed and trained **RNN LSTM-based models** using **TensorFlow** for monophonic and polyphonic music generation, achieving realistic melody outputs.
- Designed the model to **extend user-input piano melodies** or generate new melodies without input.

Education

MS in Computer Science (GPA: 3.93) — **University of Texas at Austin** — **01/2023 - 04/2025**

BASc in Computer Engineering — **University of Toronto** — **08/2015 - 04/2020**