Darshan Rahul Rajopadhye

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Available Full-time: June 2025.

Education

Northeastern University **Boston, MA**
Khoury College of Computer Sciences May 2025
Master of Science in Artificial Intelligence 3.96 GPA
Relevant Coursework : Machine Learning, Information Retrieval, Data Mining, Algorithms
Teaching Assistant : Machine Learning II (Prof. Chieh Wu)

Technical Skills

Languages & Frameworks	Python, Bash, Java, C++, SQL, FastAPI, Flask, Django, Pytest, Poetry, Streamlit, Pydantic, Jupyter
Infrastructure & DevOps	Kubernetes, OpenShift, Docker, GitHub Actions, Helm, Argo CD, GCP, AWS, CI/CD
AI & ML Tools	TensorFlow, PyTorch, Scikit-learn, MLflow, Airflow, DVC, LangChain, KServe, Hugging Face
Data & Databases	MySQL, PostgreSQL, MongoDB, BigQuery, Pinecone, Neo4j, Vector DBs (FAISS, Qdrant)
Streaming & Real-Time	Apache Kafka, Spark Streaming, Apache Flink, Celery, Pub/Sub, Redis Streams

Experience

Data Engineer Aug 2021 – Sept 2022
Larsen and Toubro Infotech Pune, IN

- Designed and optimized scalable ETL pipelines to process over 70GB of financial data daily, integrating structured and unstructured data to support advanced analytics and machine learning workflows.
- Developed automated data preprocessing and transformation pipelines using Python and Bash scripts, reducing manual intervention and enabling efficient feature extraction for downstream decision making.
- Designed high-performance storage solutions using AVRO and Parquet, enhancing data retrieval speeds.

Projects

Credit Risk Explainer with Real-Time Fairness & Interpretability | *Python, SHAP, LIME,oost, Link* May 2025 – Jun 2025

- Built an interactive, explainable AI dashboard for real-time credit risk prediction using **XGBoost**, **Random Forest**, and **Logistic Regression**, with full model evaluation and comparison.
- Implemented local interpretability with **SHAP** and **LIME** to provide per-user prediction insights, promoting **transparency and trust in AI-driven decision systems**.
- Designed fairness monitoring modules with **disparate impact** and **equal opportunity** metrics, supporting **responsible AI** and bias detection across user segments.
- Deployed a **Streamlit** dashboard on **Streamlit Cloud** with **real-time user input processing**, automated model retraining, and **CI/CD deployment** via GitHub Actions for continuous delivery.

E-commerce Churn Prediction with Real-Time Inference | *Python, FastAPI, MLflow, Docker, GitOps* Jan 2025 – Mar 2025

- Engineered a real-time ML pipeline with **MLflow** for experiment tracking, version control, and continuous integration, inspired by **GitOps** practices for production-ready deployment.
- Optimized **XGBoost** models via **Bayesian search**, achieving **92.85% accuracy** and **0.94 AUC-ROC**, while monitoring **model fairness**, bias drift, and demographic parity.
- Built a low-latency inference service using **FastAPI** with **Pydantic**-based schema validation, integrated content safety filters, and deployed as a containerized microservice on OpenShift.
- Architected a production-grade system using **Docker Compose**, with multi-container orchestration, **automated health checks**, and robust CI/CD triggers for real-time deployment.

Predictive Analytics for NBA Player Performance and Game Outcomes | *Python, scikit-learn, NBA-API* Nov 2024 – Dec 2024

- Designed an end-to-end **machine learning pipeline** for predicting NBA game outcomes using real-time and historical **player behavior data**, achieving **83% accuracy**.
- Engineered 30+ advanced features from **raw NBA API streams**, modeling **individual player dynamics**, fatigue, and team synergy for outcome forecasting.
- Evaluated and tuned models including **XGBoost**, **LSTM neural networks**, and ensemble methods to maximize **AUC-ROC**, with a **12% performance lift**.
- Applied **time-series analysis** to monitor player fatigue and injury risk signals, enhancing **model personalization and temporal prediction accuracy** by 7%.