Dharama Teja Samudrala

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Summary

Data Scientist with 3+ years of experience developing end-to-end **AI/ML solutions** for **healthcare** and financial services. Skilled in **machine learning, NLP, deep learning** and leveraging **large language models (LLMs)** to drive revenue growth and operational efficiency. Proficient in **Python, SQL, R,** and **data engineering** best practices. Proven ability to lead impactful projects from ideation to production deployment.

Experience

Citi NewYork,USA

Data Scientist - AI/ML Solutions March 2025 – Present

- Developed a **natural language processing (NLP)** model using **PyTorch** and fine-tuned **BERT** to classify customer service inquiries, reducing manual triage time by 30% for a team of 12 analysts.
- Built an **AI-powered chatbot** leveraging **GPT-3** and a knowledge base of 25K+ articles, handling 40% of tier-1 support requests and improving customer satisfaction by 18%.
- Engineered data pipelines using **PySpark** and **AWS Glue** to process 10 TB of unstructured data, enabling real-time insights and reducing ETL runtime by 45%.
- Conducted **predictive analytics** using **XGBoost** and customer data to forecast churn risk, resulting in proactive retention strategies that reduced attrition by 12% and increased CLV by $1.5M.

Fidelity Investments Raleigh, NC, USA

Data engineer Jun 2024 – Aug 2024

- Optimized existing **PySpark** financial processing workflows on **AWS EMR** by refactoring data structures and implementing DataFrame optimizations, reducing execution time by 60% while maintaining data integrity.
- Evaluated **AWS Neptune Graph Database** feasibility against existing relational implementations, analyzing performance for team workflow data models.
- Implemented **serverless APIs** using **AWS API Gateway** and **Lambda** functions, while conducting comprehensive load testing for 25+ internal APIs using performance testing tools to validate scalability.
- Developed and maintained data pipelines using **Apache Airflow**, creating DAGs with proper task dependencies.

MetLife India

AWS Data Engineer Dec 2021 – Jul 2023

- Configured and maintained **Amazon S3** buckets storing 2.5 TB of structured and semi-structured data; implemented partitioning by date and region, improving query time by 25% in **Athena**.
- Built and maintained **MySQL, PostgreSQL, and MongoDB** databases supporting daily analytics for 120K customer and policy records.
- Wrote and optimized **SQL queries** for extraction, aggregation, and reporting, cutting manual reporting time by 40%.
- Developed **PySpark ETL pipelines** to transform and enrich 3 GB of transactional and log data daily from multiple AWS sources.

Catalog India

Machine Learning Intern Jan 2021 – Jun 2021

- Conducted distributed data analysis using **PySpark** to experiment with model scalability and performance on 15 GB of blockchain data.
- Developed supporting **Python + SQL ETL pipelines** to preprocess raw data for ML workflows and effective model training.
- Automated end-to-end training and evaluation pipelines with 8 **Airflow DAGs** and deployed scalable **FastAPI microservices** to serve ML models.

Technical Skills

Languages & Libraries:	Python, SQL, R, PySpark, Pandas, NumPy, scikit-learn, PyTorch
AI/ML:	Supervised/Unsupervised Learning, NLP, LLMs (GPT, BERT), Generative AI, MLOps
Data Engineering:	AWS (S3, EMR, Glue, Lambda), Apache Airflow, Snowflake, Docker
Databases:	MySQL, PostgreSQL, MongoDB, Cassandra, AWS Neptune Graph Database
Tools & Methods:	Git, CI/CD, API Development, Load Testing, Agile/Scrum

Projects

Medical Named Entity Recognition (NER) with BiLSTM-CRF | PyTorch, spaCy, AWS

- Developed a **deep learning model** using **PyTorch** and a **BiLSTM-CRF** architecture to extract medical entities (drugs, diseases, symptoms) from 500K unstructured clinical notes.
- Preprocessed and annotated data using **spaCy**, handled class imbalance with stratified sampling, and trained model on **AWS SageMaker**, achieving 91% F1 score.
- Deployed model as a **serverless API** using **AWS Lambda** and **API Gateway**, enabling real-time NER for downstream applications, handling 100 requests per second.

Customer Churn Prediction with Ensemble Learning | Python, XGBoost, Docker

- Built an **ensemble model** combining **XGBoost**, **Random Forest**, and **Logistic Regression** to predict customer churn risk for a telecom client with 250K subscribers.
- Engineered features from transaction, usage, and customer data using **Pandas**, handled missing values and outliers, and tuned hyperparameters with **Bayesian Optimization**.
- Containerized model training pipeline using **Docker** and deployed model in production on **AWS ECS**, enabling automated retraining and inference, reducing churn by 18%.

Fraud Detection with Graph Neural Networks | Python, DGL, Neo4j

- Developed a **Graph Neural Network (GNN)** model using **Deep Graph Library (DGL)** to detect fraudulent transactions in a graph of 10M nodes and 50M edges.
- Constructed transaction graph from **Neo4j** database, engineered node and edge features, and trained GNN model on **AWS EC2** instances with **GPU** acceleration.
- Evaluated model on holdout test set, achieving 95% **AUROC**, and integrated model into real-time fraud detection pipeline, saving $500K in potential losses per month.

Education

Rochester Institute Of Technology — Rochester, NY, USA
Master of Science in Computer Science — Aug 2023 – Aug 2025