

Geetha Bommareddy

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SUMMARY

AI / ML Engineer with 4+ years of experience building and deploying production-grade machine learning systems in financial services. Proficient in feature engineering, model optimization, ensemble learning, PyTorch, TensorFlow, Keras, Scikit-learn, XGBoost, Pandas, and PySpark. Reduced the model inference delay from nine seconds to less than three seconds, processed more than 100,000 transactions every day, and detected more than 8,200 unusual financial occurrences every quarter. Proficient with scalable data and machine learning pipelines using SQL, AWS (S3, Glue, Redshift), Docker, Kubernetes, Airflow, MLflow, and Databricks. Familiar with LLMs such as GPT, BERT, Hugging Face, RAG, FAISS, and Pinecone for embedding-based search, summarization, and knowledge retrieval.

SKILLS

Machine Learning & Predictive Analytics: Linear Regression, Logistic Regression, Random Forest, XGBoost, LightGBM, CatBoost, Gradient Boosting, Decision Trees, SVM, KNN, Time Series Forecasting (Prophet, ARIMA)

Deep Learning & AI Modeling: PyTorch Lightning, TensorFlow, CNNs, RNNs, LSTMs, Transformer Architectures

Generative AI & LLM: LangChain, RAG (Retrieval-Augmented Generation), GPT, Hugging Face Transformers, BERT Engineering, Vector Databases (Pinecone, FAISS, Weaviate), Named Entity Recognition (NER), Text Summarization

Programming & Development: Python, Pandas, NumPy, JupyterLab, Scikit-learn, PyTorch, TensorFlow, FastAPI, Flask, Git, GitHub MLOps: MLflow, Docker, Kubernetes, CI/CD (GitHub Actions, Jenkins), Model Deployment & Monitoring

Cloud Platforms & DataOps: AWS (SageMaker, Lambda, EC2, S3, Glue), Azure Machine Learning, Databricks, Snowflake

Data Engineering & Data Management: ETL & ELT Pipeline, Airflow, SQL (MySQL, PostgreSQL), NoSQL (MongoDB, DynamoDB)

Data Visualization & Reporting: Tableau, Power BI, Plotly, Matplotlib, Seaborn, Dash, Advanced Excel

Certifications: [AWS Certified Data Engineer - Associate](#)

EXPERIENCE

JP Morgan Chase & Co. | AI/ML Engineer

Jan 2024 – Present | USA

- Built and deployed machine learning risk scoring models using Python, Pandas, NumPy, and XGBoost to analyze transaction behavior and account activity across retail and commercial portfolios, reducing inference latency to under 3 seconds for real-time decisioning
- Developed real-time fraud detection pipelines using PySpark, Kafka, and streaming feature engineering, processing 100,000+ financial transactions per day and generating prioritized alerts consumed by 24x7 fraud operations teams.
- Designed LLM-powered knowledge assistants using GPT models, Hugging Face Transformers, and retrieval-augmented generation (RAG) to summarize policy, investigation notes, and regulatory updates, shortening analyst research cycles to same-day turnaround.
- Implemented customer and account segmentation models using PyTorch, autoencoders, and density-based clustering, analyzing behavioral sequences and transaction histories across 300,000+ accounts to support risk thresholds and personalized engagement strategies.
- Architected data engineering pipelines using AWS S3, Glue, Redshift, and Airflow, enabling ingestion, validation, and transformation of structured and semi-structured financial data with hourly refresh cycles instead of overnight batch jobs.
- Built feature stores and model-ready datasets using SQL, PySpark, and data versioning practices, supporting consistent training and inference for 15+ downstream ML use cases across fraud, credit, and operational risk.
- Deployed and monitored production ML services using Docker, Kubernetes (EKS), and SageMaker, managing multiple model versions, rollback strategies, and real-time monitoring of latency and prediction health in regulated environments.
- Collaborated with product, compliance, and engineering stakeholders to apply model explainability and governance controls using SHAP, feature attribution, and validation documentation, supporting internal reviews and model risk management approvals.

LТИMindtree | Data Engineer (ML & Analytics)

May 2020 – Jul 2022 | India

- Programmed a fraud-detection system using PyTorch, Autoencoders, and Isolation Forest, identifying 8,200+ anomalous financial events per quarter, reducing false negatives and strengthening AML and transaction-monitoring compliance.
- Formed NLP pipelines with Hugging Face Transformers and spaCy to classify and summarize customer complaints across banking channels, cutting manual triage from 4 hours to 30 minutes per batch and improving regulatory reporting accuracy (FFIEC, CFPB).
- Architected time-series forecasting pipelines using LSTM, ARIMA, and Prophet to predict daily cashflows across 120+ corporate accounts, reducing forecast error by 12 basis points and improving liquidity risk planning.
- Automated feature engineering and portfolio-risk analytics using Databricks, SQL, and MLflow, reducing data preparation time by 100+ hours per month while enhancing monitoring of delinquencies, charge-offs, and exposure-at-default (EAD).
- Orchestrated MLOps workflows with Docker, Kubernetes, GitHub Actions, and AWS SageMaker, introducing blue-green deployments, model versioning, and drift detection to support scalable, compliant financial ML pipelines.
- Engineered and optimized ETL pipelines using Apache Spark and AWS Glue, processing 200K+ daily transactional records and ensuring clean, structured datasets for downstream AI/ML models.
- Managed PostgreSQL and MongoDB data warehouses, implementing indexing, partitioning, and caching strategies that reduced query response times from 120 ms to 40 ms for high-frequency financial reporting dashboards.
- Constructed automated data quality checks and anomaly detection scripts using Python and SQL, ensuring dataset integrity and alerting on missing or inconsistent data before model training and reporting.

PROJECTS

Fraud Detection in Financial Transactions using AI/ML

- Formulated and implemented machine learning models using Python, PyTorch, and XGBoost to detect fraudulent transactions across 1M+ records, improving detection efficiency for high-risk activities.
- Devised feature engineering pipelines leveraging behavioral patterns, transaction sequences, and network-based features, enabling models to capture subtle anomalies in customer activity.

EDUCATION

Master of Science in Information Systems | Trine University, Angola-IN

Dec 2023