

# Triveni Masimukku

## AI/ML Engineer

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### SUMMARY

**AI/ML Engineer with 4+ years of experience** in building and deploying end-to-end **machine learning solutions** across **NLP, computer vision, and predictive analytics**. Proficient in **Python, TensorFlow, PyTorch, Scikit-learn**, and transformer models (**BERT, GPT**). Skilled in **generative AI (GANs, Stable Diffusion, DALL-E)**, **RAG systems** using **LangChain**, and deploying models on **AWS SageMaker, Azure ML, GCP, and Databricks**. Experienced in **MLOps** with **MLflow, Airflow, Docker, Kubernetes**, and **CI/CD**. Strong in **data engineering** with **PySpark, SQL, NoSQL**, and **API integration**. Knowledgeable in **Explainable AI (XAI)**, **AutoML**, and **reinforcement learning**.

### WORK EXPERIENCE

#### Citigroup, USA | AI/ML Engineer

Oct 2024 - Current

- Designed and implemented **AI-powered virtual assistants** leveraging **Generative AI** and fine-tuned **Large Language Models (LLMs)** to support **multi-modal user interactions**, including **natural language processing, speech recognition, and computer vision**, resulting in enhanced user engagement and accessibility across diverse platforms.
- Developed scalable **Retrieval-Augmented Generation (RAG)** pipelines by integrating **vector databases, topic modeling** and **LangChain** framework, significantly improving contextual relevance and accuracy in areas such as **customer support, document compliance, and dynamic response generation**.
- Built interpretable **machine learning** and **NLP-based classification models** using **LightGBM, XGBoost, and Logistic Regression** to predict **customer churn**, identify **cross-sell and upsell opportunities**, and automate classification of **financial and regulatory documents** with high precision.
- Engineered robust **time-series forecasting** solutions using **ARIMA, Facebook Prophet, and XGBoost Regressor** to analyze **financial trends**, optimize planning, and drive strategic decision-making within **banking, insurance, and investment platforms**.
- Designed and orchestrated end-to-end **ETL and data processing pipelines** using **Apache Airflow, AWS S3, and Athena** to automate large-scale data workflows, reduce latency, and enable **real-time analytics** for **enterprise reporting systems**.
- Applied advanced **deep learning** and **reinforcement learning** techniques using **Hugging Face Transformers** to optimize **AI agent interactions** through continuous learning, leveraging **user feedback** to refine conversation strategies and improve overall **engagement metrics**.
- Integrated **speech recognition (speech-to-text)**, **text-to-speech synthesis**, and **computer vision (via OpenCV)** into unified **multi-modal AI systems**, allowing virtual agents to interpret **voice commands, visual inputs, and contextual cues** for enriched **human-computer interactions**.
- Containerized and deployed machine learning and AI applications using **Docker** and **Kubernetes** on **AWS and Azure** environments, ensuring seamless **scalability**, automated **CI/CD workflows**, and compliance with industry standards such as **HIPAA** and **SOC 2**.

#### Nevina Infotech Pvt Ltd, India | AI/ML Engineer

Jan 2020 - July 2023

- Developed and deployed **machine learning classification models** to identify **churn risk** using **structured data**, enhancing **customer retention strategies** through **predictive analytics** and actionable insights.
- Performed advanced **feature engineering** including **encoding, binning, feature interaction, and selection techniques** to improve **model accuracy**, reduce variance, and prevent **overfitting**.
- Built and automated **end-to-end data pipelines** using **SQL, Pandas, and Apache Airflow** for efficient **data extraction, transformation, and loading (ETL)**, ensuring consistent and high-quality data inputs for modeling.
- Improved **model interpretability** and transparency using **SHAP** and **LIME** to explain model decisions to business stakeholders, facilitating trust in **AI-driven outcomes** and supporting **business alignment**.
- Executed **hyperparameter tuning** and **model optimization strategies** using **Optuna** and **GridSearchCV**, increasing **predictive performance** and **generalizability** on complex datasets.
- Packaged, containerized, and deployed **machine learning models** using **Docker** and cloud-native services such as **AWS SageMaker**, enabling scalable and low-latency predictions in **production environments**.
- Established robust **MLOps pipelines** by integrating **MLflow** for **experiment tracking, model versioning, and performance monitoring**, ensuring consistent deployment and **reproducibility** across the **ML lifecycle**.
- Collaborated with **business analysts, CRM teams, and data stakeholders** to align **predictive outputs** with strategic objectives like **customer segmentation, personalized campaigns, and retention initiatives**.
- Applied **time-series forecasting** and **customer value modeling** techniques to support **churn prioritization** and target **high-value customer retention**, while maintaining **data privacy** and **regulatory compliance** through **anonymization of PII**.

### TECHNICAL SKILLS

- Methodologies:** SDLC, Agile, Waterfall
- Languages:** Python, C++, Scala, GoLang.
- AI/ML Domain:** Natural Language Processing, Computer Vision, Image Processing, Deep Learning, Machine Learning, Reinforcement Learning, Expert Systems.
- AI/ML Technologies:** Large language models (LLMs), Retrieval Augmented Generation (RAG), Generative AI, Pytorch, TensorFlow, Keras, OpenNN, TorchVision, OpenCV, NLTK, SpaCy, Hugging Face, LangChain, Model Interpretability, Explainable AI, scikit-learn, Tensorboard, OpenAI Gym, Pandas, Matplotlib, Statistical Analysis, ChatGPT, BERT, Fine Tuning, Prompt Engineering, Conversational AI, Ranking, query classification, Named Entity Recognition (NER), Gradient Boosting Trees, PCA, Information Retrieval, Seq2Seq, Knowledge Graph, Linear Regression, Logistic Regression, Random Forest, Association Rules, Support Vector Machine, ggplot2, Pandas.
- Software Technologies:** SQL, MySQL, MongoDB, RESTful API, Scala Play, FastAPI, Swagger, Flask, AWS, Sage Maker, ElasticSearch, Agile, CI/CD, Design Patterns, Concurrency, Git, GitLab, Linux, Windows, A/B Testing.
- Operating System:** Windows, Linux

### EDUCATION

**Master's in Information Systems and Technology** | University of North Texas, Denton, TX

**Bachelor's in Computer Science Engineering** | Marri Laxman Reddy Institute of Technology and Management, India