Karthik Arun R

Data Scientist – Machine Learning – NLP – Generative AI

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Data Scientist and **AWS Certified Machine Learning Engineer** with **2.5+ years** of experience specializing in NLP, Generative AI, and MLOps, leveraging cloud platforms like AWS, Azure ML, and GCP to build scalable AI solutions.

Skills

Machine Learning	Python, PyTorch, Scikit-learn, Keras, Pandas, PySpark	
Natural Language Processing and Generative AI	**Tools:** Transformers, HuggingFace, NLTK, SpaCy, LangChain, LlamaIndex, AWS Bedrock	**Concepts:** Retrieval Augmented Generation (RAG), LLM Agents, Fine-tuning with LoRA, NER, Sentiment Analysis
Databases	MongoDB, GCP BigQuery, AWS DynamoDB, DocumentDB, Vector DBs (Qdrant, Pinecone, Milvus)	
Cloud Technologies and MLOps	AWS SageMaker, Azure ML, Vertex AI, Docker, Jenkins, GitHub Actions, MLflow, Apache Airflow, ELK Stack	
Infrastructure as Code (IaC)	AWS CDK, CloudFormation and YAML based setups	
Visualization and Serving	REST APIs, FastAPI, Flask, Streamlit, PowerBI, Seaborn, Plotly, Matplotlib	
Version Control	Git – BitBucket and GitHub	

Professional Experience

Data Scientist – Generative AI – Intern, Singapore Airlines | March 2024 – August 2024

Engineer Assist – Conversational chatbot for aircraft engineers

- Deployed **AWS Bedrock-based RAG system** with custom LLM quantization, achieving 30% faster document retrieval and 40% shorter defect resolution via asynchronous workflows with **domain-specific reranking**.
- Implemented advanced **prompt engineering techniques** such as **Reflexion** and **ReAct** to improve technical document QA and response accuracy
- **Built and deployed low-latency FastAPI endpoints** (50ms average latency), ensuring seamless chatbot integration.
- Scaled **multimodal-LLM as OCR** testing (GPT-3.5/Claude Haiku) via Bedrock**,** cutting OCR/Textract costs 20%.
- **Monitored retriever and generation APIs with Datadog**, ensuring high reliability, scalability and optimal performance for internal deployment.

Analyst, Deloitte Consulting US-India Offices | Jul 2021–Jul 2023

Salesforce DevOps Responsibilities

- **Modernized CI/CD with BitBucket Pipelines/SFDX**, slashing deployment time from hours → minutes via **Git-based version control**.
- **Developed automation workflows** using **Bash scripting**, streamlining deployment processes and improving operational efficiency.

Data Science Responsibilities

- **Engineered scalable data pipelines** using **AWS Glue,** processing over 1TB of Salesforce transactional data to ensure high-quality inputs for predictive models.
- Boosted **retention** rates by 15% (72%→87%) via **AWS SageMaker churn models (XGBoost/Random Forests)** for **Salesforce**
- Reduced stockouts 20% using **ARIMA/regression-based inventory forecasting** models**.**
- Designed and deployed a **personalized recommendation system** on Salesforce Einstein AI, leveraging its no-code capabilities to deliver tailored customer experiences that increased upsell rates by 15%.

Leadership & Support

- Mentored new hires as part of the **Deloitte Buddy Program,** conducting **code reviews** and training on **Git best practices.**

Education

- **M.Tech - Enterprise Business Analytics,** National University of Singapore. GPA – 4.75/5.0. **IBM Medal for Best Outgoing Student**. **2023-2024**
- **B.Tech - Information & Communication Technology,** SASTRA Deemed University. GPA- 8.1/10. **2017–2021**

Certifications

- [AWS Certified Machine Learning Engineer – Associate](#)
- [Data Science Orientation - IBM](#)
- [Salesforce Certified AI Associate](#)

Projects and Publications

- **[QuizMasterAI](#)** - An LLM and RAG-based question generator and evaluator system with auto-grading capabilities.
- **[BullyGuard](#)** – A Discord moderation bot built for cyberbullying detection
- **[TurboPredict](#)** – An aircraft engine RUL prediction system with end-to-end MLOps implementation
- **[Hawkeye](#)** - A portfolio chatbot powered by an agentic RAG system to answer questions about personal and professional details.
- [Published 4 papers as co-author and lead developer in Fuzzy Logic domain (COPRAS, supplier selection, cloud vendor frameworks) with 100+ citations](#)