

CHATHURANGA SUDUSINGHE, MBCS

AI/ML Engineer | Applied AI Systems | Generative AI, RAG, Agentic AI & MLOps

Nugegoda, Sri Lanka | +94 77 905 9315 | chathuranga.cont@gmail.com | [LinkedIn](#) | [GitHub](#) | [Portfolio](#) | [Kaggle](#)

PROFESSIONAL SUMMARY

AI/ML Engineer and Professional Member of BCS, The Chartered Institute for IT (MBCS), focused on building production-oriented machine learning, Generative AI, Retrieval-Augmented Generation, Agentic AI, and MLOps systems. Hands-on work includes end-to-end model development, FastAPI inference, LangGraph workflows, RAG pipelines, automated testing, Docker, CI/CD, monitoring, model versioning, rollback planning, and AWS deployment. Brings five years of earlier experience in data analytics, forecasting, KPI reporting, and business intelligence.

CORE TECHNICAL SKILLS

Programming and Backend: Python, SQL, FastAPI, Pydantic, REST APIs, OpenAPI/Swagger

Machine Learning: scikit-learn, XGBoost, LightGBM, CatBoost, TensorFlow, Keras, PyTorch

Generative and Agentic AI: LangGraph, LangChain, RAG, LLM APIs, vector retrieval, tool calling, persistent memory, human approval

MLOps and Deployment: Docker, Docker Compose, Pytest, GitHub Actions, CI/CD, model versioning, monitoring, rollback

AWS Cloud: EC2, ECR, ECS Fargate, S3, IAM, CloudWatch, SNS

Data and Evaluation: pandas, NumPy, PostgreSQL, data validation, leakage prevention, model comparison, explainability, reproducibility

NLP and Multimodal AI: TF-IDF, sentiment analysis, tokenization, CLIP embeddings, text-image similarity

Engineering Tools: Git, GitHub, Linux/Ubuntu, WSL2, VS Code, Prometheus, Grafana, Terraform, Kubernetes, Kafka, Airflow

PROFESSIONAL EXPERIENCE

AI/ML Engineer — Independent Applied Engineering

Independent Applied AI/ML Engineering & Part-Time Freelance Support | Remote | Jul 2025–Present

- Design and develop production-oriented machine learning, RAG, Generative AI, and Agentic AI systems using Python.
- Build FastAPI inference services, validated REST APIs, structured outputs, and backend integrations for AI applications.
- Implement LangGraph workflows with typed state, conditional routing, persistent memory, checkpoints, tool execution, and human approval.
- Develop end-to-end machine learning pipelines covering data validation, feature engineering, model comparison, evaluation, explainability, and inference packaging.
- Create Docker-based environments, automated tests, CI/CD workflows, monitoring, model versioning, rollback strategies, and technical documentation.
- Deploy and validate containerized AI applications using AWS EC2, ECR, ECS Fargate, S3, IAM, CloudWatch, and SNS.

Earlier Experience

Data Analyst progression at LEOS Holdings (Pvt) Ltd., from Associate Data Analyst to Data Analyst, Feb 2020–May 2025, covering reporting, KPI analysis, forecasting, Python, SQL, Power BI, R, and Excel. Earlier experience as a Chemistry Instructor at Rotary Institute of Graduate Studies, Feb 2015–Dec 2019, strengthened technical communication, structured problem-solving, and analytical thinking.

SELECTED AI/ML PROJECTS

Enterprise Fraud Detection ML System

- Built a production-oriented fraud detection platform with LightGBM and CatBoost inference paths, FastAPI, versioned feature contracts, batch scoring, monitoring, Docker, CI, Kafka, Airflow, and AWS infrastructure scaffolding.
- Verified evidence: LightGBM validation ROC-AUC approximately 0.93; CatBoost public ROC-AUC 0.906500 and private ROC-AUC 0.879907; 176 tests passed.

Technologies: Python, LightGBM, CatBoost, FastAPI, Kafka, Airflow, Docker, Prometheus, Grafana, GitHub Actions, Terraform, AWS

Enterprise Decision Intelligence Platform

- Designed a five-stage LangGraph workflow for retrieval, reasoning, analytics, and execution across forecasting, stockout-risk analysis, and replenishment decisions.
- Implemented RAG ingestion, metadata-driven retrieval, Pinecone vector search, structured business workflows, FastAPI services, testing, and deployment assets.

Technologies: Python, LangGraph, LangChain, OpenAI API, Pinecone, FastAPI, XGBoost, Docker, Kubernetes, Terraform

Enterprise Multimodal E-Commerce Recommender

- Developed event-weighted popularity, TF-IDF text, RGB histogram image, and CLIP text-image similarity pipelines with controlled recommendation agents.
- Verified evidence: evaluation across 275,826 visitors; CLIP proxy Precision@5 of 0.80 and proxy NDCG@5 of 0.7606.

Technologies: Python, pandas, scikit-learn, PyTorch, Hugging Face Transformers, CLIP, TF-IDF, Agentic AI

Review Sentiment Classifier API

- Built a leakage-safe IMDb NLP pipeline with balanced 7,000/1,500/1,500 train, validation, and untouched test subsets; removed duplicates and cross-split overlap.

- Compared TF-IDF with Logistic Regression against a CNN and promoted the stronger model to a tested FastAPI service; accuracy 0.8747 versus 0.7867.

Technologies: Python, NLP, TF-IDF, Logistic Regression, TensorFlow/Keras, FastAPI, Pytest, Docker, GitHub Actions

EDUCATION

Master of Science (MSc), Data Science and Its Applications

University of Greenwich | Feb 2026–Jan 2027 (Expected)

Master of Business Administration (MBA)

IPAC | Jul 2025–Jun 2026

Bachelor of Science (BSc), Computer Science, Chemistry and Zoology

University of Colombo | Aug 2011–Jun 2014

PROFESSIONAL MEMBERSHIP

BCS, The Chartered Institute for IT — Professional Member (MBCS)

Jul 2026–Present | Entitled to use the MBCS post-nominal; committed to the BCS Code of Conduct, ethical practice, professional standards, and continuing professional development.

SELECTED CERTIFICATIONS

- IBM RAG and Agentic AI Professional Certificate — May 2026
- IBM Generative AI Engineering Professional Certificate — May 2026
- IBM AI Engineering Professional Certificate — Apr 2026
- IBM Deep Learning with PyTorch, Keras and TensorFlow Professional Certificate — May 2026
- IBM Data Science Professional Certificate — Jan 2026