

Akif Hameed

AI and DevOps Engineer

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Profile

DevOps and Applied AI Engineer with 4+ years of experience across systems administration, cloud infrastructure and CI/CD, complemented by production-focused AI projects and MSc research. Builds RAG systems and machine-learning applications using Python, FastAPI, PyTorch and TensorFlow. Project work spans legal AI, property valuation and hyperparameter-tuned autoencoders for anomaly detection in human-robot collaboration. MSc Computer Science graduate from London South Bank University.

Technical Skills

Cloud, DevOps and MLOps: Linux (Ubuntu), AWS EC2 (hands-on), and certification-backed knowledge of Amazon S3, AWS IAM, Amazon VPC, AWS Lambda, Amazon CloudWatch, Amazon Bedrock and Amazon SageMaker AI; GCP; Docker and Docker Compose; Kubernetes and Minikube; Jenkins and GitHub Actions; Terraform, Helm, Argo CD and Ansible; Nginx; MLflow, Prometheus, Grafana and OpenTelemetry

Applied AI and LLM Systems: LLM APIs (OpenAI, OpenRouter, Gemini and Anthropic Claude), prompt engineering, agentic workflows, Pydantic validation, LLM reranking, citation validation, safe refusal handling, tool/function calling and MCP servers

RAG and Retrieval: ChromaDB, dense vector retrieval, dual-query retrieval, exact-match metadata filtering, grounded generation, inline citations, document parsing, retrieval evaluation and answer-quality evaluation

Machine Learning and Anomaly Detection: Python, PyTorch, TensorFlow/Keras, scikit-learn, LightGBM, SVM, Logistic Regression, MLPs, shallow, deep, denoising and variational autoencoders, feature engineering, feature selection, hyperparameter tuning, ablation studies, ROC-AUC, PR-AUC, precision, recall, F1-score and confusion matrices

Software Engineering and Data: Django, FastAPI, Pydantic, React, Next.js, JavaScript, TypeScript, REST API design, PostgreSQL, MongoDB and Supabase

Deployment Platforms: AWS, Hugging Face Spaces, Render and Vercel

Experience

DevOps Engineer | Tycoon Soft

Apr 2023 - Aug 2025

Lahore, Pakistan | On-site

Built and maintained cloud-based deployment environments on AWS and containerised applications using Docker. Supported CI/CD pipelines, managed Linux servers and automated build and deployment processes to improve delivery reliability. Monitored system performance, troubleshooted infrastructure and application issues, and collaborated with development teams to maintain secure, scalable and dependable services.

Junior DevOps Engineer | Nexus Limited

Mar 2022 - Mar 2023

Lahore, Pakistan | On-site

Supported software delivery by maintaining CI/CD workflows, assisting with application deployments and monitoring development and production environments. Worked with Linux systems, version control and automation tools while troubleshooting build, configuration and deployment issues. Collaborated with developers to improve deployment reliability and maintained technical documentation for recurring processes.

System Administrator | Nexus Limited

Feb 2021 - Feb 2022

Lahore, Pakistan | On-site

Administered Ubuntu Linux systems, managed user accounts and access permissions, and installed, configured and updated operating systems and software. Monitored system performance, services, storage and logs while troubleshooting hardware, software and network connectivity issues. Supported security patching, system backups and technical documentation.

Selected Projects

AWS Kubernetes CI/CD Pipeline | [GitHub](#)

- Architected a two-instance AWS EC2 delivery environment, hosting Jenkins on one instance and a Minikube-based Kubernetes cluster on the other; Jenkins performed remote deployments over SSH through private VPC connectivity.
- Built a GitHub webhook-triggered four-stage Jenkins pipeline that checked out code, built Nginx/Alpine Docker images, published build-numbered tags to Docker Hub, launched a local container and executed Kubernetes rolling updates.
- Defined a two-replica Kubernetes deployment with a RollingUpdate strategy, resource requests and limits and NodePort exposure; verified releases with kubectl rollout status.

UR5e Robotics Anomaly Detection for Human-Robot Collaboration | [GitHub](#)

- Designed a normal-only anomaly detection framework in Python and PyTorch using more than 1.8 million 100 Hz observations from a six-axis UR5e collaborative robot, with 610 fault-free development runs and 80 labelled runs across eight anomaly types.
- Engineered 121 RTDE controller and robot-state channels into 94 model-ready features and ran controlled ablations across shallow, deep, denoising and variational autoencoders using run-level splits, training-only standardisation and five random seeds.
- Achieved mean ROC-AUC of 0.8984 and average precision of 0.6749 with a 79-feature configuration, showing that feature selection had greater impact than added model complexity.

LexUK Tenancy Chatbot | [Live](#) | [GitHub](#)

- Built and deployed a legal information assistant covering 12 UK residential tenancy statutes, transforming the legislation into 2,294 provision-level chunks.
- Implemented plain and agentic RAG pipelines using OpenAI embeddings, ChromaDB, dual-query retrieval, exact-provision matching, LLM reranking, grounded answers, inline citations and function-calling tools.
- Evaluated both architectures on a 10-question benchmark using retrieval, answer-quality, refusal and latency metrics. Plain RAG scored 4.88/5 for relevance, while Agentic RAG improved answer accuracy from 4.00 to 4.22 and refusal accuracy from 90% to 100%.

HousePredict AI: Full-Stack Property Valuation Platform | [Live](#) | [GitHub](#)

- Built an England property valuation platform with a 3,000-tree LightGBM model and 21 inputs, trained on 3,176,101 sales and evaluated on 953,886 unseen 2023-2024 sales, achieving 14.75% median absolute percentage error and 66.8% of estimates within 20%.
- Delivered with FastAPI, React and Supabase, featuring postcode-based predictions, feature-level explanations and authenticated prediction history, with deployments on Render and Vercel.

Volcanic Rock Age Classifier | [GitHub](#)

- Co-developed a three-class volcanic rock age classifier using 653 geochemical samples, creating separate pipelines for 10 EMPA oxide features and 42 laser-ablation trace-element features.
- Compared Logistic Regression, RBF SVM and TensorFlow MLP models using accuracy, precision, recall and F1; the laser-ablation MLP achieved 92.1% test accuracy and a 0.92 macro F1 score.

Education

MSc Computer Science | London South Bank University

Oct 2025 - Sep 2026

Machine Learning, Generative AI, Natural Language Processing, Cloud Computing, DevOps, MLOps, Software Engineering, Computer Architecture and Anomaly Detection in Human-Robot Collaboration.

Certifications

[AWS Certified Cloud Practitioner](#) | Amazon Web Services | Aug 2026

[AWS Certified AI Practitioner](#) | Amazon Web Services | Jul 2026

[Kubernetes for the Absolute Beginners](#) | KodeKloud | Jun 2026

[Docker Training Course for the Absolute Beginner](#) | KodeKloud | Feb 2026

Additional training: NFTP Technical Domain (2021); CS506 Web Design and Development, Virtual University of Pakistan (2015).