ARIF MEHMOOD

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AI & Cloud Engineer | Full-Stack Development | Applied ML, RAG Systems & Generative AI

Full-stack AI & Cloud Engineer with over 6 years' experience delivering scalable, secure platforms across industry and academia. Specialised in applied machine learning, Retrieval-Augmented Generation (RAG), and Generative AI tools. Proven success leading cross-disciplinary projects that translate academic innovation into production-ready digital tools—spanning NLP research, insurance lead scoring, and healthcare data platforms. Comfortable engaging technical and non-technical stakeholders, with a strong focus on ethical AI, data privacy (GDPR), and user-centred design.

Key Skills:
- Python, Java, FastAPI, Django, Spring Boot, ReactJS, Node.js, React Native, Flutter
- Machine Learning (Scikit-learn, XGBoost, RAG, LLMs, Prompt Engineering)
- Cloud Platforms: AWS (Lambda, Amplify, Cognito, API Gateway, S3, EC2)
- Databases: PostgreSQL, DynamoDB, Elasticsearch/OpenSearch
- DevOps & Practices: GitHub Actions, CI/CD, TDD, SOLID, OWASP, Agile/Scrum
- Compliance: GDPR, NHS DTAC (familiar), Secure Design Principles
- UI/UX & Deployment: SaaS, Web/Mobile Apps, React Native, User-Centred Design

EXPERIENCE

AI Research Software Engineer   **December 2023 - Present**
Cardiff University   *Cardiff, UK*
- Delivered AI and data science solutions across domains including NLP, cybersecurity, transport, and healthcare — translating academic research into **secure, production-grade software platforms**.
- Led **development** of **MetaphorShare**, a research tool for NLP labs using LLaMA 2, Retrieval-Augmented Generation (RAG), and prompt engineering to streamline dataset annotation.
- **Architected** SevRes, an AWS-based, event-driven ETL and analytics platform enabling cross-university data sharing and resource provisioning. Designed secure role-based access and Kibana dashboards using Elasticseach, Lambda, Cognito, and DynamoDB. Data is collected using react native flutter mobile apps and web application.
- Built **AI Assistant**, a generative AI web app for a marketing client. Delivered a dynamic RAG pipeline using FastAPI, React, and local LLMs (Ollama) with OpenAI fallback. Included chunking, vector store indexing, and OnDemand document ingestion.
- Delivered **Generative AI** training programmes via Cardiff University's CPD unit, reaching internal university staff and external stakeholders, including SMEs and public sector professionals.
- MSc research internship with ActiveQuote (insurance sector): Designed a lead scoring solution using three **machine learning models** (GLM, XGBoost, Random Forest) and one ensemble model to rank sales leads by predicted revenue potential. The system integrated stochastic optimisation techniques to prioritise high-value conversions.

Tools & Technologies: Python, Java 17, ReactJS, FastAPI, Django, Spring Boot, Node.js, PostgreSQL, DynamoDB, Elasticsearch/OpenSearch, AWS (Lambda, API Gateway, Amplify, Cognito, S3), Docker, Nginx, GitHub/GitLab CI/CD, Agile/Scrum, TDD, SOLID, Kafka (hands-on labs).

Senior Software Engineer - Microservices for FinTech SaaS   **March 2021 – September 2022**
Confiz Pvt Ltd   *Lahore, PK*
- Led the migration of monolithic applications to Spring Cloud-based microservices, delivering modular APIs for eKYC, authentication, and telecom integrations. Full stack development using java spring boot and react js.
- Rebuilt the customer Backoffice Portal using ReactJS, improving engagement by 60% and earning 87% positive feedback.
- Automated quality gates by integrating SonarQube with GitHub Actions, reducing deployment failures by 60% and improving maintainability scores.
- Enforced OWASP security practices and SOLID principles, achieving 99.99% uptime while halving incidents.
- Championed TDD and CI/CD adoption, mentored junior developers, and supported sprint planning, reviews, and retrospectives.

Tools & Technologies: Java 17, Spring Boot, SaaS deployment, Spring Cloud (Microservices), ReactJS, PostgreSQL, NoSQL, AWS EC2, ELK Stack, SonarQube, Docker, GitHub Actions CI/CD, Agile/Scrum, REST/JSON, Distributed Systems.

Software Engineer – Automation for AI Model Testing — April 2020 – March 2021
Afiniti — *Lahore, PK*

- Built test automation pipelines in Python and JavaScript for AI analytics systems, increasing test coverage by 25%.
- Created synthetic datasets and automated deployment verification workflows, reducing false positives and release errors.
- Led data cleaning, manipulation, and reproducibility workflows for robust validation of AI predictions.

Tools & Technologies: Python, JavaScript, PostgreSQL, Docker, Linux, CI/CD Pipelines, Agile/Scrum, Unit Testing, Performance Testing, Functional & Non-functional Testing.

Junior Software Engineer – POS & Retail Systems — June 2019 – April 2020
UWorx Services Pvt Ltd – Flooid — *Lahore, PK*

- Enhanced Java 8/Spring Core & Spring Boot POS and inventory management features for high-volume retail clients, delivering backlog stories on time within Scrum sprints.
- Built RESTful APIs to integrate with existing service architecture, contributing to system scalability and maintainability.
- Strengthened software quality by implementing unit and integration tests with JUnit, Mockito, and Selenium, expanding regression coverage and reducing defect leakage before UAT.
- Removed SonarQube-reported code smells and vulnerabilities, improving maintainability ratings and reducing production risks.
- Maintained CI/CD pipelines by scripting builds in ANT/Maven, managing version control with Mercurial, and monitoring Jenkins jobs for successful deployments.
- Actively participated in Agile ceremonies and occasionally served as stand-in Scrum Master to facilitate team progress.

Tools & Technologies: Java 8, Spring Boot, Spring Core, JUnit, Mockito, Selenium, Mercurial, ANT, Maven, IBMDB, SQL, MongoDB, Jenkins, SonarQube, Agile/Scrum.

Associate Software Engineer – Reporting & Backend Services — September 2018 – June 2019
Grid Systems - Global Rescue LLC — *Lahore, PK*

- Developed Java EE modules for reporting systems and optimised MySQL queries for performance.
- Delivered RESTful services using Hibernate, EJB, and JSF; collaborated with QA to ensure robust delivery.

Tools & Technologies: Java EE, EJB, Hibernate, JSF, RichFaces, MySQL, Maven, Regex, XPath, Google Maps API, HTML/CSS.

EDUCATION

Cardiff University — September 2022 - September 2023
Master's in Data Science and Analytics (Distinction)

- Python: Statistical Analysis, ML estimation, Data wrangling and cleaning, Text data processing, Databases, Data Visualisation.
- Machine Learning: EDA, Supervised models, Neural Networks, Model validation, Tableau.

National University of Sciences and Technology — September 2014 – June 2018
Bachelor's in Computer Engineering

- Courses: Object Oriented Programming, Data Structures, Databases, Digital Image Processing, Software Engineering, Operating Systems, Computer System Architecture, Algorithm and Programming.

CERTIFICATIONS

AWS Certified Cloud Practitioner (30 June 2022) - **Spring Boot Microservices and Spring Cloud** (Udemy) - **Java Multithreading, Concurrency & Performance Optimization** (Udemy) - **Deep Learning** A-Z (Udemy)