Mahen Mughal

AI / Machine Learning Engineer

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SUMMARY

AI and machine learning engineer with **over 5 years** of freelance delivery (since July 2021) for clients in Germany, Switzerland and China. Builds RAG systems, LLM data pipelines and reinforcement learning agents in Python, measures them against evaluation sets and keeps them running in production.

EXPERIENCE

Freelance Engineer - Machine Learning, Reinforcement Learning and LLM Applications July 2021 - Present
Private clients, Upwork and Fiverr Germany, Switzerland, China, Pakistan

- RAG application for a legal startup in Pakistan (paid production users): retrieval over legal documents with embeddings and vector representations, PII redaction with regular expressions and NER models so client names never reached the OpenAI API, LangSmith tracing, and access control for paid users. On call for the live system.
- Raised a Swiss farm's profits by 30% with a reinforcement learning policy trained in a custom simulation.
- Built a multimodal AI system that produces a product's title, description and price prediction from its images alone.
- Predicted machine failures from a client's raw machine logs through feature engineering and statistical modelling.
- Data science for clients: COVID modelling with ARIMA, dating-app match prediction, email-marketing and voice AI automations.
- Deployed models with Docker and Flask, pytest, CI/CD and code reviews in Agile teams; mentored around 50 junior engineers.

Teaching Assistant - Reinforcement Learning September 2025 - January 2026
Information Technology University Lahore, Pakistan

- Designed programming assignments on tabular and deep RL and ran code reviews and debugging sessions for students.

Research Assistant and Teaching Assistant - Reinforcement Learning July 2023 - January 2024
Lahore University of Management Sciences Lahore, Pakistan

- Six months of reinforcement learning research, and teaching assistant for the RL course (September - December 2023).

PROJECTS

BJJ AI - RAG and AI agent over my instructional video library October 2026
Python, Claude API, Whisper, embeddings, SQLite, RunPod GPUs (built with AI-assisted programming)

- Whisper transcription pipeline on rented GPUs (about $33); hybrid search (keywords plus local embeddings, rank fusion, LLM re-ranking); answers cite the exact video moment, about 1 cent per question.
- Measured every change on an evaluation set: right chapter in the top 8 rose from 59.7% to 89.3%, MRR from 0.32 to 0.75. Agentic coach with 8 tools, bias-checked LLM judge, self-hosted LLM tracing; 173 tests.

Uruj (uruj.app) - live past-paper practice app for O and A Level students October - November 2026
Python, Claude API and vision, React, TypeScript, Supabase, PostgreSQL, Cloudflare Workers (built with AI-assisted programming)

- Claude pipeline turned past-paper PDFs into about 9,560 tagged questions across 10 subjects, a second model checking each item; about $76 total Claude spend; about 1,250 tests.

Linkage - AI tutor and 3D mechanisms for a robotics textbook November 2026
JavaScript, Node.js, Three.js, Claude API (built with AI-assisted programming)

- Answers cite the book's printed pages; figures become movable 3D models with kinematics written from scratch; 284 tests, built in two days.

SKILLS

AI and LLMs: RAG, embeddings, hybrid search, retrieval evaluation, LLM-as-judge, agents and tool use, LangSmith, Claude and OpenAI APIs, Whisper
Machine learning: PyTorch, TensorFlow, scikit-learn, XGBoost, Stable Baselines, reinforcement learning
Data science: pandas, NumPy, Power BI, hypothesis testing, A/B testing, causal inference, ARIMA
Engineering: Python, TypeScript, JavaScript, C/C++, SQL, React, Flask, Docker, Azure, CI/CD, pytest, Git, Linux
Spoken languages: English (C1), Urdu, Punjabi, Hindi; Portuguese (A1)

EDUCATION

Bachelor in Computer Science 2023
Lahore University of Management Sciences Lahore, Pakistan