ALI ASGHAR

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in linkedin.com/in/iamaliasgharkhan | ⌂ github.com/iamAliAsgharKhan ⊕ Portfolio

Machine Learning Engineer and Full-Stack Developer with a specialized focus on Computer Vision, RAG Systems, and AI Agent workflows. Proven track record of pivoting from web engineering to building production-grade AI systems for international clients in Italy, Australia, and the US. Expert in deploying scalable ML models using modern backend architectures.

EXPERIENCE

Consulting Machine Learning Engineer
Various International Clients (Remote)
Feb 2024 – Present
Italy / Australia / Global

Intelligent Surveillance System (Confidential, Italy): Architecting a real-time anomaly and intruder detection pipeline. Integrating state-of-the-art Vision-Language Models (VLMs) alongside custom-trained PyTorch classifiers for robust object recognition. Implementing a multimodal retrieval engine using text embeddings, enabling high-speed natural language querying and semantic search across video feeds.

AI Agent Automation (Confidential, Australia): Designing autonomous workflow agents for a major construction consultancy using Relevance AI. Automating complex data retrieval and report generation tasks, significantly reducing manual administrative overhead.

Pic2Product (E-Commerce API): Engineered an image search enhancement engine. Developed algorithms to match user-uploaded images to product catalogs with high accuracy, serving as a core API product for e-commerce platforms.

IoT Signal Optimization (Research): Replaced legacy brute-force algorithmic matching with Deep Learning models. Successfully modeled noise interference patterns in IoT device connections, resulting in faster and more accurate device pairing.

Senior Full Stack Developer
Ah Game Studio
Dec 2021 – Feb 2024
Rawalpindi

Led the development of scalable monolith applications using Laravel and Django. Transitioned backend systems to support higher data loads, optimized database queries (SQL), and implemented RESTful APIs that served mobile and web frontends. Built internal automation tools using Python.

Full Stack Developer
DexterCode LLC
Nov 2020 – Jan 2021
Islamabad

Developed high-traffic commercial applications including music streaming platforms and e-commerce solutions using Laravel and VueJS. Managed deployment pipelines and server configurations.

Full Stack Developer
Creative Technology Ltd
Aug 2020 – Nov 2020
Islamabad

Maintained legacy web applications and implemented new modules based on changing client requirements. Ensured cross-browser compatibility and optimized frontend performance.

KEY MACHINE LEARNING PROJECTS

Cognita - Hybrid RAG System | *FastAPI, Groq (Llama 3), ChromaDB, RRF*
Built a production-ready RAG application that chats with local files. Implemented **Reciprocal Rank Fusion (RRF)** to combine semantic vector search with keyword search (BM25), achieving higher retrieval accuracy than standard RAG pipelines.

HyperQuery - NL2SQL Interface | *Python, Llama 3, Pydantic, SQLite*
Developed an AI system that converts Natural Language to SQL. Utilized Pydantic for structural validation to ensure type-safe SQL generation and implemented read-only execution safeguards.

Medical VQA (Fine-Tuned BLIP) | *PyTorch, Transformers, Computer Vision*
Fine-tuned the BLIP transformer model on medical imagery (Radiology/Pathology). Successfully detected specific bone fractures where generic models failed, bridging the generalization gap through optimized training epochs.

EDUCATION

COMSATS University
Bachelor's Degree (Hons), Computer Science
Islamabad