

# M. ADNAN ARSHAD

Senior AI/ML Engineer | Generative AI | Computer Vision | LLM & RAG Systems

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## PROFESSIONAL SUMMARY

Senior AI/ML Engineer with 5+ years of experience delivering end-to-end machine learning and generative AI solutions across computer vision, NLP, and conversational AI. Track record of leading model development for 20+ client engagements, spanning object detection, image captioning, and custom diffusion models. Skilled in building and deploying LLM-powered chatbots and RAG pipelines, training and optimizing deep learning models (CNNs, transformers, YOLO, UNet), and shipping production systems on AWS, Azure, and Google Cloud. Comfortable owning a problem from data collection and annotation through model training, evaluation, and deployment, and uses AI-assisted "vibe coding" workflows (Claude, Cursor, GitHub Copilot) to prototype and iterate faster without sacrificing code quality.

## TECHNICAL SKILLS

<b>Languages</b>	Python, SQL, Bash
<b>ML / DL Frameworks</b>	TensorFlow, Keras, PyTorch, Scikit-learn, OpenCV (CV2)
<b>Generative AI / LLM</b>	LLM Fine-Tuning, Prompt Engineering, RAG Pipelines, LangChain, Vector Databases, Diffusion Models, Conversational AI / Chatbots
<b>Computer Vision</b>	YOLO (v4-v8), UNet, ResNet50, MTCNN, OCR / Document Intelligence, Object Detection & Segmentation, Image Annotation (Roboflow, VGG Annotator)
<b>Cloud / MLOps</b>	AWS (S3, EC2, SageMaker), Azure ML, Google Cloud AI, Docker, Model Deployment, CI/CD Pipelines
<b>Data &amp; Databases</b>	SQL, NoSQL, Pandas, NumPy, Feature Engineering, Data Augmentation, EDA
<b>Methodologies</b>	Agile, Model Evaluation & Hyperparameter Tuning, A/B Testing, Statistical Analysis, Transfer Learning

## PROFESSIONAL EXPERIENCE

**Senior AI/ML Engineer** | **MetaLabs Tech** | Dec 2025 – Present · Dubai, UAE (Remote)

- Model Development:** Design and deliver advanced AI solutions spanning Generative AI, Large Language Models (LLMs), intelligent agents, and computer vision.
- LLM & Agentic Systems:** Build and deploy LLM-powered conversational agents and RAG pipelines using vector databases to power context-aware chatbots and internal tools.
- Cloud Deployment:** Deploy and monitor ML models in production using Python-based AI frameworks (PyTorch, TensorFlow), ensuring scalability and reliability.
- Technical Leadership:** Guide model architecture and data pipeline decisions and collaborate cross-functionally to translate business requirements into shippable AI features.
- Rapid Prototyping:** Use AI-assisted development workflows (Claude, Cursor, GitHub Copilot) to accelerate prototyping and reduce time from idea to working model.

**AI Engineer** | **Hazen Technologies Inc** | Jun 2024 – Feb 2026 · Lahore, Pakistan (On-site)

- Legal AI Automation:** Built an OCR-based AI pipeline to process confidential client and insurance documents, automatically extracting and surfacing information relevant to lawsuits filed by lawyers against insurance companies.
- Impact:** Cut document review time from roughly 40 minutes to about 1 minute per case, significantly reducing lawyer hours, human error, and turnaround time for legal teams.
- Secure Document Processing:** Designed the pipeline to handle sensitive, confidential client data securely throughout OCR extraction and information retrieval.
- End-to-End Ownership:** Worked across the ML lifecycle from data preparation through model training, evaluation, and deployment.

## Associate Data Scientist | **Machine Learning 1 Limited** | Aug 2022 – Jun 2024 · On-site

- **Client Delivery:** Led and executed data analysis and machine learning projects for 20+ clients, from scoping through deployment.
- **Computer Vision:** Specialized in object detection and classification using YOLO, with data augmentation and annotation via Roboflow and VGG Annotator.
- **Generative AI:** Built generative AI and diffusion models from scratch, and developed custom chatbots on client datasets.
- **Cloud & MLOps:** Deployed trained models to Azure, AWS, and Google Cloud for production use.
- **Core ML:** Implemented and optimized regression, classification, and clustering algorithms, and managed data pipelines using SQL and NoSQL databases.

## Machine Learning Engineer | **Upwork (Freelance)** | Jul 2020 – Jun 2022

- **Freelance ML Delivery:** Delivered machine learning engineering projects for international clients on a freelance basis, covering data preprocessing, model training, and deployment.
- **Client Management:** Managed multiple concurrent freelance engagements end-to-end, from requirements gathering to final delivery.

## Artificial Intelligence Bootcamp | **Machine Learning 1 Limited** | Jul 2020 – Oct 2020 · Pakistan (On-site)

- Completed an intensive bootcamp focused on computer vision and Generative AI, building foundational skills that led directly into a full-time Associate Data Scientist role.

## EDUCATION

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### Bachelor of Science, Computer Science

COMSATS University (Sahiwal Campus) — 2019

## CERTIFICATIONS

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- Deep Learning Specialization – DeepLearning.AI
- Machine Learning – Andrew Ng, Coursera
- Introduction to Computer Vision – Udacity
- Generative AI – DeepMind, Coursera
- LLM Custom Model Training – DeepLearning.AI

## SELECTED PROJECTS

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### AI Calling Agent (MetaLabs Tech)

- Built a voice-based AI calling agent combining an LLM with speech-to-text and text-to-speech pipelines to handle inbound and outbound calls for hospitality use cases (hotels, restaurants, front desks), covering reservations, FAQs, and reception triage with escalation to a human when needed.

### GedLawyers Case Intelligence Model (Hazen Technologies Inc)

- Built an AI model with the GedLawyers team that reads client PDF documents and analyzes them to identify grounds for legal action against health insurance companies engaging in misconduct toward clients, cutting document review time from roughly 40 minutes to about 1 minute per case.

### Shufti Pro – Identity Verification Platform (Machine Learning 1 Limited)

- Contributed AI/computer vision work to Shufti Pro, an identity verification (KYC/AML) platform, supporting document authentication and biometric verification workflows for global clients.

### Caption IT – Image Captioning System

- Built an image captioning pipeline on the Flickr8k dataset (8,000 images, 5 captions each), combining ResNet50 feature extraction with a Transformer decoder to generate coherent captions, and shipped it via a public API.

### Weld Seam Detection (Team Project)

- Built a UNet-based computer vision model to detect weld seams in client video, extracting frames at 30fps and handling annotation and augmentation; achieved 95% accuracy in a deployed application.

### Face Recognition & Eye-Distance Similarity Tool

- Used MTCNN for face detection and a face-recognition library for identity verification, with a standardized-scale eye-distance calculation used as an additional facial similarity signal.

## Garbage Detection App (AI Applications Competition)

- Collected and labeled a custom garbage-image dataset and trained YOLOv4 for real-time garbage detection, then scoped real-world deployment use cases with the team.

## PROJECTS IN PROGRESS / PLANNED (NOT YET COMPLETED)

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*Ideas to build out and move into "Selected Projects" once complete — do not present these as finished work until built and tested:*

- **RAG-Based Knowledge Assistant:** A retrieval-augmented chatbot over a custom document set using LangChain and a vector database (e.g., Pinecone or FAISS), with source citations in responses.
- **LLM Evaluation & Fine-Tuning Pipeline:** A small pipeline to fine-tune an open-source LLM on a niche dataset and evaluate it against baseline prompting, with tracked metrics for accuracy, latency, and cost.

## AFFILIATIONS & VOLUNTEER WORK

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### President, AI Society – COMSATS University

- Delivered lectures and hands-on lab sessions on AI applications, guiding students through coding exercises and applied ML projects.