Khawaja Azfar Asif

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Education

Lahore Garrison University — February 2020 – March 2024
Bachelor's of Science in Software Engineering — Lahore, Pakistan

Core Courses: Software requirements, Software Construction and Development, Software Project Management, Artificial Intelligence, Machine Learning, Deep Learning, Linear Algebra, Statistics.

Work Experience

Machine Learning Engineer — September 2024 - September 2025
Dubizzle Labs — Lahore, Pakistan

- Architected a scalable ML pipeline for real-time data analysis, leveraging **GPT-4, FastAPI, Docker, and PostgreSQL** to produce structured JSON and dynamically generated prompts.
- **Reduced compute costs by 30%** by developing a TypeScript **load balancer** with **RabbitMQ** for queue management.
- Designed a **modular, maintainable** architecture for containerized **ML workflows.**

Machine Learning Intern — February 2024 - May 2024
InvoZone — Lahore, Pakistan

- Fine-tuned **transformer-based NLP models** (BERT, RoBERTa) using PyTorch, TensorFlow to enhance the accuracy of the inference.
- Developed **API-integrated ML pipelines** to improve the accuracy of inference and accelerate AI prototyping.

Software Engineering Intern — July 2023 – September 2023
DevSinc — Lahore, Pakistan

- Developed and deployed responsive web pages using **HTML, CSS,** and **Bootstrap**.
- **Backend development** by implementing **Django essentials** (MVT, ORM), building **RESTful APIs** using **Django REST Framework**.

Research Assitant — August 2022 – February 2023
AI Labs(LGU) — Lahore, Pakistan

- Work on **Deep learning** framework for **SMS phishing detection** and **Weapon detection** .
- **A**chieving **98.57% accuracy** on the **UCI spam dataset** and **98.29%** on the **British dataset** for SMS phishing detection.

Projects

AirWatch

- Next.js web application with a responsive and modern UI using **Ant Design** for front-end.
- Integrated **Mapbox** for interactive visualization of air quality and data mapping.
- For **model prediction** using a **spatial multi-output regression** approach to fuse satellite **(NASA TEMPO)** and ground-based **(AirNow, OpenAQ)** data, improving predictive accuracy across a broad geographic area.
- Implemented a high performance **front-end in Vercel** and a performant prediction API with **FastAPI** and deployed the **back-end service in Render**.

DENTAX

- Designed **object detection and instance segmentation system** for **dental enumeration** and **diagnosis of diseases** on **panoramic X-rays.**
- Achieved **96% accuracy of teeth detection** and **60% accuracy of teeth diseases detection** using **YOLOv8 deep learning** for model training.
- Utilized **FastAPI** to construct an optimized prediction API, which was then successfully deployed **back-end service in Render**.

Pneumonia X-Ray Classifier

- Developed **deep learning** system for the **classification** of pneumonia from chest **X-ray images**.
- Leveraged **Convolutional Neural Networks** built with TensorFlow for robust model training, achieving **95% diagnostic accuracy.**
- Deployed the interactive diagnostic application on **Streamlit**.

Human Emotion Detection

- Developed and optimized deep learning models for a 3-class **human emotion classification task**, prioritizing speed and deployment efficiency.
- Implemented and compared **CNNs (LeNet, ResNet34)** and **Vision Transformers (ViT)**.
- **Image augmentation** (rotation, flip, contrast) for high-performance training. And integrate **WandB** for comprehensive experiment tracking (metrics, confusion matrices).

Leadership Activities

ESSE, Lahore Garrison University – President

September 2023 – March 2024

- Organized university **first Job Fair**, Onboard **20+ companies** and **single-handed manages** them throughout the event.
- Arrange **multiple Industrial visits** for student so they can know about latest trends and technology of industry.

DevSinc – Ambassador

April 2023 – February 2024

- **Leading Ambassador** of DevSinc, representing the company at my university.
- **Organized** and **conducted** various events to promote Advance Technology on campus.
- **Developed** and **nurtured** relationships with **students, faculty,** and **staff**.

International Hackathon

AirWatch (NASA Space Apps Challenge 2025) October 2025

- Create AirWatch Engineered a **Spatial Multi-Output Regression** model to fuse satellite **(NASA TEMPO)** and ground-based **(AirNow, OpenAQ)** data for improved predictive accuracy.
- Developed a responsive web app with **Next.js** and **Ant Design**, integrating **Mapbox** for interactive data visualization and deploying on **Vercel.**
- Built and deployed a high-performance prediction API using **FastAPI** on **Render** to serve model inferences to the frontend.

Claim Tracker Bot (Qloo LLM Hackathon) August 2025

- Automated insurance claim processing (as Backend Developer) by building an AI and NLP-powered chatbot.
- Utilized Groq API and Hugging Face to provide real-time claim evaluation, feedback, and valid/invalid claim decisions with detailed summaries.
- Engineered the bot to serve as an educational resource by referencing the policy handbook.

Virtual Crop Advisor (NASA Space Apps Challenge 2024) October 2024

- Led development of a tool providing real-time insights to smallholder farmers using **NASA's Earth observation data**.
- Leveraged data to assist in informed decision-making about crop rotation, planting dates, and best crop varieties for sustainable agriculture.
- Utilized **NASA APIs**, an **AI/ML API**, and **Gradio**to rapidly build and deploy the solution.

Certifications

- Machine Learning A-Z: AI, Python & R(Udemy).
- Open-source LLMs: Uncensored & secure AI locally with RAG.
- Ultimate AWS Certified Cloud Practitioner CLF-C02 2025.
- Explainable Al (XAI) with Python.

Skills

Languages	Python, C++, ROR
Technologies	SQL, Git/GitHub, Docker, AWS, GCP, RAG, YOLO, Streamlit, Render
Libraries & Frameworks	FastAPI, Django, Transformers.

Last updated: October 20, 2025