

# Umair Yousaf

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## EDUCATION

**Lahore University of Management Sciences (LUMS)**

*BS Computer Science – CGPA 3.6*

Class of 2023

*Lahore*

## EXPERIENCE

### Systems Limited

July. 2023 – Present

*Associate Consultant MTO - AI Department*

*Lahore*

- Created a suite of **Generative AI** solutions for the insurance industry, streamlining operations at every phase of the insurance process. Developed the frontend in **React**, backend in **Flask**, and all **ML & AI pipelines**.
- Used **multimodal LLMs** for **VQA** and image-based information extraction, surpassing in-house OCR methods.
- Developed multiple end-to-end **RAG** pipelines using LangChain and LangGraph.
- Developed a reverse image search module for clothing articles using **Siamese Networks** and contrastive loss.
- Conducted research on SOA methods, hardware/software debugging and created local LLM inference pipelines

### Teaching Assistant (LUMS)

Jan. 2023 – May 2023

*TA for the course Data Structures*

*LUMS*

- Held office hours, created and checked assignments and quizzes

### Aletheia-AI

Jun. 2022 – Aug. 2022

*ML and SE Intern*

*Lahore*

- Multi-class vehicle detection, number plate detection, person detection and FR using **YOLOv5**
- Dataset creation, validation, experimentation and model deployment
- Created a dashboard using **React.js** and **Material UI** for real-time monitoring

### Wateen Telecom

Jun. 2021 – Jul. 2021

*SE Intern*

*Islamabad*

- Developed a python-based desktop application for calculating cost of deployment of fiber optic cables

## PROJECTS

### Early Warning Detection System for Forest Fires | *Final Year Project*

- Employed K-Shot learning on **Siamese Networks** to classify images into 2 categories. Achieved best accuracy of 83% and F1 score of 0.827
- Generated synthetic dataset using video games and **Unreal Engine 4** for use in training other models
- Experimented using a variety of state of the art models such as **Deformable DETR**, **YOLO** etc.
- Submitted a paper to the **ICASSP Conference**

### Sentiment Classification using BERT on GoEmotions | *NLP Project*

- Multi-label sentiment classification on GoEmotions dataset using HuggingFace framework

### Lane Change Warning System | *Computer Vision/Machine Learning Project*

- Developed a pipeline to read a dashcam video's frames, detect vehicles using **YOLOv7** and lanes using **LaneNet**
- Employed **auto dynamic homography** to generate a top down view and detect any vehicles changing lanes

## TECHNICAL SKILLS

**Languages:** Python, JavaScript, C++, C, Solidity, SQL, Haskell

**Python Libraries:** LangChain, LangGraph, PyTorch, TF, HuggingFace, Scikit-Learn, OpenCV, Pandas, NumPy

**Software Engineering Frameworks:** MERN Stack, MySQL, Flask

## COURSES TAKEN AT LUMS

Deep Learning | Machine Learning | Computer Vision | Natural Language Processing | Data Mining | Data Science | Statistics and Data Analysis | Applied Probability | Human Computer Interaction

## HONORS & AWARDS

**Dean's Honor List** in Freshman, Sophomore and Junior year on maintaining a CGPA above 3.6

100% Merit scholarship in A Levels (both years)