

Zohaib Arshid

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ABOUT ME

I am driven to tackle complex business challenges through innovative solutions. My expertise lies in developing robust algorithms, advanced predictive models, generative models, and Large Language Models (LLMs). I possess hands-on experience in machine learning, natural language processing (NLP), computer vision, web scraping, web automation, data exploration, and data analysis using Python and SQL. My goal is to leverage these skills to contribute meaningfully to the field of artificial intelligence, advancing cutting-edge technologies and applications.

WORK EXPERIENCE

Universiity of Sannio – Bevevento, Italy

Research Scholar

[01/09/2025 – Current]

InnoGuard MSCA Doctoral Network Project

Forbmax – Islamabad, Pakistan

Machine Learning Engineer

[20/09/2023 – 24/08/2025]

Developed a Smart Media Monitoring System featuring facial recognition, advanced data retrieval with RAG using LLama2 and VectorDB, and a conversational chatbot via NVIDIA Inference Microservice. Enhanced SQL query generation with Microsoft's Phi-2 model, implemented speech-to-text and logo detection, and integrated scene detection, OCR, and multi-language summary generation. Utilized advanced NLP techniques for comprehensive media analysis and monitoring.

2B Vision – Lahore, Pakistan

Artifical Intelligence Engineer

[01/04/2023 – 19/09/2023]

I was primarily engaged in diverse technical projects involving advanced technologies such as chatbots, natural language processing (NLP), and computer vision. This included developing task-specific chatbots utilizing tools like OpenAI and Hugging Face frameworks, implementing LLMs (Large Language Models) like Vicona and ChatGPT, and designing medication recommendation systems. Additionally, I contributed to projects focused on facial recognition and tracking using Python, Yolov5, and FastAPI, as well as automating MS Word editing tasks using ChatGPT API and LLMs. I also led an initiative to implement Advanced Retrieval Augmented Generation (RAG) on custom data using LLama2, Langchain, VectorDB, and NVIDIA Inference Microservice (NIM) for conversational chatbot applications.

Neurog – Islamabad, Pakistan

Machine Learning Engineer

[01/04/2022 – 03/03/2023]

I was primarily engaged in diverse technical tasks including Opensea API data scraping, subsequent data analysis, and map generation using the extracted Opensea data. This involved employing ETL (Extract, Transform, Load)

processes and managing MongoDB databases. Additionally, I conducted Twitter and website data scraping activities to gather specific datasets. I also contributed to image embedding tasks utilizing machine learning models such as Resnet50, Densenet, EfficientnetB5, and Vgg19. Furthermore, I played a pivotal role in website automation using tools like Selenium and Fastapi to enhance operational efficiency and streamline processes.

Aeyron Technologies – Islamabad, Pakistan

Junior Computer Vision Engineer

[01/12/2021 – 31/03/2022]

I specialized in a range of computer vision projects focused on anomaly detection and recognition tasks. This included developing models for human body pose estimation using technologies like Movenet and MediaPipe, along with leveraging CNN architectures such as EfficientNet and DenseNet. I also led projects in gesture, fight, and weapon detection, utilizing techniques like video scraping and Yolov5 for object recognition. Additionally, I contributed to projects involving cars' number plate recognition using Yolov5 and easyOCR, as well as water pipe leakage detection using similar technologies. Another key area of responsibility was in grocery product information detection and extraction, where I employed OCR, Yolov5, Regex, NLP, and integrated hardware such as Raspberry Pi and Canon cameras for data capture and analysis.

Comsats University Islamabad – Abbottabad, Pakistan

Research Assistant

[01/01/2020 – 31/01/2021]

I led various tasks related to advanced data augmentation techniques, including Word Embedding and BackTranslation, to enhance dataset diversity and improve model generalization. I actively engaged in parameter tuning to optimize model performance and efficiency. Additionally, I implemented cutting-edge semi-supervised learning strategies such as Active Learning and Self-training to leverage unlabeled data effectively. My responsibilities also involved applying Transfer Learning methodologies using models like BERT and RoBERTa to accelerate model training and achieve state-of-the-art results in Natural Language Processing tasks. Furthermore, I contributed to the development of key project documentation, including SRS, SDS, BRD, and FRD, ensuring clear communication and alignment with project objectives.

EDUCATION AND TRAINING

Master in Computer Science

Comsats islamabad, abbottabad campus [15/09/2019 – 15/09/2021]

City: Abbottabad | **Country:** Pakistan | **Website:** https://www.cuiatd.edu.pk/

Bachlore in Software Engineering

Comsats islamabad, abbottabad campus [07/09/2015 – 15/09/2019]

City: Abbottabad | **Country:** Pakistan | **Website:** https://www.cuiatd.edu.pk/

PROJECTS

RAG ON CUSTOM DATASET Implemented Advanced Retrieval Augmented Generation (RAG) model on custom data leveraging LLama2, vectorDB, and llama index for enhanced information retrieval and generation capabilities.

ANOMALY DETECTION Implemented an anomaly detection system using computer vision techniques. Developed human body pose estimation and gesture detection algorithms to analyze video data. Incorporated video scraping and data cleaning methods for fight and weapon detection, enhancing overall system accuracy. Demonstrated proficiency in computer vision technologies and data annotation.

GROCERY PRODUCT INFORMATION DETECTION SYSTEM Implemented an end-to-end solution for capturing and analyzing product labels in real time, enabling accurate recognition of key information. Improved inventory management and customer experience through automated data extraction and processing

DAILOG AGENT Developed a task-specific chatbot utilizing audio preprocessing, audio clustering, speech-to-text conversion, text preprocessing, semantic analysis using NLTK, natural language generation, and text-to-speech

capabilities. Leveraged cutting-edge technologies such as OpenAI's GPT-3 and Hugging Face's Whisper for enhanced performance.

SKILLS

Python / Large Language Model / NLP / Git / SQL / Data Science | Data Collection, Data Processing, Data Analysis, Data Visualisation / Machine Learning / Linux

LANGUAGE SKILLS

Mother tongue(s): Urdu

Other language(s): English