

Haider Masood

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EDUCATION

Master of Science (Artificial Intelligence)	2022 – Present
National University of Science and Technology	
Bachelor of Computer Engineering	2018 – 2022
National University of Science and Technology	

WORK EXPERIENCE

AI Engineer

June 2023 – April 2024

Loopdeck

Rawalpindi, Pakistan (On-site)

- Worked with Health Services Academy (HSA, Islamabad) team for collecting sample dataset for initial exploratory analysis and defined pre-processing and data-cleaning and pre-processing pipelines
- Led the end-to-end deployment of a highly accurate AI-powered malaria detection model on the AWS cloud platform
 - Ensuring optimal performance and scalability.
 - Our AI solution is capable to handle 30,000 patients per day with an average per patient cost of less than 0.08 USD (~20 PKR)
- Developed a custom AI solution for auto-focusing the camera of our hardware device on stained blood smears

Python Developer

December 2023 – February 2024

Tap-smart

Hong Kong (Project Contract)

- Developed a custom QR Code generator for tap-smart for one of their products.
- Worked with their main development team to make the product robust and implemented relevant preprocessing steps to ensure smooth generation of QR Codes using the feedback from our initial trials of the module.

AI Engineer

June 2022 – January 2023

Health Hub

Seoul, South Korea (Remote)

- Developed and implemented algorithms for the preprocessing of DICOM (Digital Imaging and Communications in Medicine) medical imaging files, including file format conversion, image normalization, and data augmentation techniques.
- Designed and trained a deep learning model using the U-Net architecture for the segmentation of liver tumors in CT scans
- Developed a RESTful API to expose the liver tumor segmentation model, enabling seamless integration with clinical workflows and easy access to the model's predictions
- Deployed the deep learning model on Amazon EC2 instances, leveraging the scalability and flexibility of the cloud infrastructure, and utilized Amazon S3 buckets for efficient storage and management of the .dcm and .nii medical imaging files

AI Intern

July 2021 – October 2021

National Engineering and Scientific Commission (NESCOM)

Rawalpindi, Pakistan (On-site)

- Explored and implemented classical computer vision algorithms, such as Kalman filtering and mean-shift tracking, for the detection and tracking of flying objects
- Designed and developed a flying object tracker using the Niryo One robotic arm, integrating the classical algorithms to enable the robotic arm to accurately follow and capture the motion of the flying object
- Designed and built a motion capturing unit using Arduino, MPU 6050/9050 inertial measurement units, and Blender for 3D visualization and analysis of the captured data
- Investigated deep learning-based object detection and tracking approaches, using YOLO, and compared its performance to the classical methods

PUBLICATIONS

- Masood, Haider, et al. "Osteo-Doc: KL-grading of osteoarthritis using deep-learning." *2022 2nd International Conference on Digital Futures and Transformative Technologies (ICoDT2)*. IEEE, 2022.
 - <https://ieeexplore.ieee.org/abstract/document/9787470>

PROJECTS

- Final Year Project** An AI-Based Osteoarthritis Grading and Exercise Management System with a Flutter app that grades X-ray images according to the tri-weightage classification model consisting of a deep learning model (EfficientNet) for the classification of X-rays, KOOS Questionnaire for catering to the symptoms, and goniometric reading to measure joint flexibility. The final output was a knee health report for the patients.
- Construction Site Safety Monitoring System** It was a Freelance project for a client in the Middle east which implemented object Detection & Tracking using Computer Vision. The final solution had the ability to detect violations of Helmet, Goggles, Shoes and safety Jackets using YOLO-v5
- Interview Analysis tool using GPT-4o** The project gathers video responses to a set of questions, transcribes the video using Whisper AI, and converts the videos into frames. These frames, along with the final audio, were then pushed to the backend to analyze the candidate according to given criteria.
- Blog generation using LLMs** Generative AI project that uses AWS services like API Gateway, S3, Lambda and AWS Bedrock to generate blogs for a given query. Several LLMs were finetuned, and their alignment was achieved using direct preference optimization (DPO), which is more stable than RLHF-based methods like PPO.

AWARDS

- Finalist of Finding Innovative and Creative Solutions (FICS) 2022 in the Health and Well-being sector
- Won best project in software solution category at the Computer Project Exhibition Competition (COMPPEC) 2022
- Won best paper of the session award in 2nd International Conference on Digital Futures and Transformative Technologies (ICoDT2) 2022
- National Winner of Startup World cup 2022

SKILLS

Technical Skills:

Python, C++, SQL, Javascript, Docker, DVC, MLFlow, Weights and Biases, AWS (S3, Bedrock, Lambda, EC2, Sage Maker), Google Cloud Spark, Hadoop, NLTK, Spacy, TensorFlow, Pytorch, Scikit, Lang chain, Open-CV, Tableau, Excel, Vector Databases, QDRANT, OPENAI API.

Interpersonal Skill:

Team Building, Team Work, Communication and Public Speaking, Technical Report Writing and Presentation, Leadership and Management