



# DAWOOD TAHIR

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## SUMMARY

AWS Certified Machine Learning Engineer with over 2 years of experience in computer vision and AI projects. Skilled in developing innovative solutions, such as real-time traffic analysis and sports analytics using YOLOv8, and enhancing AI systems with hierarchical clustering techniques. Proven track record of leveraging AWS technologies for deploying AI applications. Expertise in transforming complex datasets into actionable insights demonstrates a strong ability to deliver valuable contributions, ready to elevate efficiency and accuracy for any forward-thinking organisation.

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## WORK EXPERIENCE

### Data Scientist, Psi-Square, London, UK

04/2024 – 09/2025

- Engineered a comprehensive computer vision project that calculates the traffic dwell duration in zones for live video feeds. The key takeaway was the utilisation of system clocks for time-in and time-out instead of incorporating FPS for live streams, complemented by Roboflow's ByteTrack to track multiple vehicles in the zones without incurring latency.
- Investigated and conceived a project on football players and pitch detection, training a YOLOv8 model for the detection of players from both teams. Utilised UMAP for dimensionality reduction which enhanced accuracy. For ball tracking in 2D, applied transformations based on key point coordinates of the pitch, culminating in a game-like end product capable of detecting players and ball possession.
- Pioneered a Multi-Agent RAG leveraging langGraph for an academic research project. A WebResearch Agent, PaperScraper Agent, and Evaluator Agent were employed to address user-specified queries related to research papers. Should the Evaluator Agent deem results inadequate, the WebResearch Agent was triggered to locate more suitable answers.

## AI Engineer, OMNO AI, Lahore

05/2023 – 02/2024

- Developed a vehicle speed estimation project employing a single camera sensor for a specified highway. Live video was streamed through AWS Kinesis and AWS Lambda to skip frames and synchronise with the FPS of a custom car detection model.
- Applied transformation matrix techniques to convert 3D points into 2D, facilitating accurate speed calculation.
- Optimised RAG chunks by establishing hierarchical clusters that began from the base node and chunks, enabling the calculation of embeddings between simultaneous chunks while descending the tree structure. This significantly enhanced the relevance of the final customer bot's responses to queries.
- Achieved proficiency in deploying and scaling an AI ad creation application using AWS EC2 instances. Created a workflow for scraping brand websites to extract text and imagery details, which were processed by an LLM Agent tailored to extract brand call-to-action (CTA) button text, header text, and punchlines. Utilised generative AI to produce seamless ad banners in required sizes using the specified text types.
- Conceived a proof of concept for face authentication employing an NIR camera for depth imaging, conducting an extensive research study on the implementation of PointNet++. The primary objective was to replicate state-of-the-art smartphone unlocking techniques that utilise NIR images to accurately identify facial features and match them with an embedding vector containing user data.

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## EDUCATION

### MSc, Robotics, AI & Autonomous Systems, CITY, UNIVERSITY OF LONDON, UK

09/2024 – 10/2025

- Grades: 1st

### BSc, Mechatronics Eng., UET, LAHORE, Pakistan

10/2019 – 05/2023

- GPA: 3.116 / 4.0

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## SKILLS

- Python
- AWS SageMaker
- LangGraph
- Dockers
- AWS Lambda
- TerraForm
- LoRA
- Multi-UAV
- VLMs
- MCP Tools
- Project Management
- Teamwork
- Leadership
- Critical Thinking
- ML
- CI / CD
- AWS EC2
- Git
- Kubernetes
- AWS ETL Tools
- Computer Vision
- Drones SLAM
- Deep RL
- ML
- Public Relations
- Time Management
- Effective Communication
- SQL

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## REFERENCES

Dr. A.H Zenati

SST, City, University of London

Abdelhafid.Zenati@citystgeorges.ac.uk

Collaborated on GAT networks for drone swarms for Safer flight and communications by MARL

Dr. Ahsan Naeem

Mechatronics Department, UET Lahore

mahsan.naeem@gmail.com

Worked together on numerous projects within the Mechatronics curriculum, facilitating valuable exchanges of knowledge and insights.

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## PROFESSIONAL CERTIFICATIONS

AWS Certified ML Engineer - Associate

09/2025