Ahmed Aly

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Master's student in computer vision focused on AI for healthcare. Research focuses on echocardiography foundation models and neuroimaging graph networks; experienced building end-to-end imaging pipelines across ultrasound and MRI. Experience includes building systems for player tracking, pose estimation, and event understanding from match videos.

EDUCATION

Master of Science in Computer Vision 2024 – 2026*
Mohamed Bin Zayed University of Artificial Intelligence, Abu Dhabi, UAE *GPA: 3.75*

Thesis: Test time prompt tuning of echocardiography foundation models.

- Organized the MICCAI HECKTOR 2025 Challenge on Head and Neck Tumor Segmentation, coordinating dataset preparation, evaluation protocols, and collaboration with international research teams.
- Managed and processed large-scale medical imaging datasets (36 TB), optimizing preprocessing andtraining pipelines to enable scalable foundation model development.
- Performed spatiotemporal analysis of BOLD fMRI time series, building graph neural networks that model regional connectivity and temporal dynamics.

Bachelor of Science in Applied Mathematics and Statistics 2016 – 2020
Khalifa University, Abu Dhabi, UAE GPA: 3.6

Thesis: Optimization of global minima in nonlinear physical systems using metaheuristic statistical models.

PROFESSIONAL EXPERIENCE

Machine Learning Engineer, Intern 2025 – 2025
Labib AI, Abu Dhabi, United Arab Emirates

Project: Real-time surgical room understanding

- Developed the core pipeline integrating pose estimation and speech recognition to reduce wrong-site surgeries.
- Optimized performance to reduce latency and enable smooth multimodal analysis
- Designed and delivered an interactive demo to medical professionals, showcasing applications for surgical workflow understanding.

Computer Vision Engineer 2023 – 2024
Koralyze AI, Abu Dhabi, UAE

- Co-founded a football analytics company specializing in the generation of tracking and event datadirectly extracted from football broadcast footage.
- Developed machine learning pipelines to generate and analyze football tracking and event data.
- Analyzed event sequences and player trajectories over time, building sequence-level features for downstream soccer analytics.
- Coordinated and presented at a booth during GITEX Expand North Star 2023.

Mathematics Teacher 2020 – 2024
Ministry of Education, Sharjah, UAE

- Instructed high school students in AP Calculus AB and BC.
- Demonstrated the ability to communicate complex mathematical ideas clearly and concisely, both orally and in writing, to technical and non-technical audiences.

SKILLS

- **Machine Learning frameworks**: PyTorch, OpenCV, scikit-learn, Pytorch Geometric.
- **Video analytics**: Player detection, multi-object tracking, re-identification, pose estimation, event understanding.
- **Data & experimentation:** NumPy, pandas, Weights & Biases
- **Communication skills**: English (IELTS 8.0) Arabic (Native speaker).
- **GRE**: 169 Quantitative reasoning, 156 Verbal reasoning.

PROJECTS

SynSpineMS

Multiple Sclerosis Spinal Cord Lesion Detection from MultiSequence MRIs

- Led and coordinated our team's participation in the MICCAI MS-Multi-Spine challenge, managing data prep, experiment schedules, and submission packaging; finished 2nd overall.

NeuroGNN

Diagnosing Autism Spectrum Disorder using Multimodal Brain Connectivity Network

- Developed a graph-based fMRI analysis pipeline for autism classification using Graph Attention Networks(GATs), modeling brain functional connectivity across seven subnetworks.
- Integrated region-level contrastive loss and super node-level KNN graph construction to improverepresentation learning in brain MRI GNN pipelines.

Perception challenge for Bin-Picking

Developed robust pose estimation solutions for the most challenging industrial parts

- Developed a computer vision pipeline for bin-picking automation, integrating object detection, pose estimation, and grasping strategies

PUBLICATIONS

CardioBench: Do Echocardiography Foundation Models Generalize Beyond the Lab? [link]

- Designed a benchmark protocol to test out-of-distribution generalization of echocardiography foundation models across views and acquisition settings.

Language and Planning in Robotic Navigation: A Multilingual Evaluation of State-of-the-Art Models, LM4Plan, AAAI 2025 [link]

- Developed and evaluated a Vision-Language Navigation framework for indoor robotics capable of understanding both Arabic and English instructions.

AWARDS

- Won First place in *UAE IoT & AI Challenge* startup category (2023).
- Won Second place in *Arab IoT & AI Challenge* startup category among 100 contenders from 13 Arab countries (2023).
- Recieved Golden Key Honors award from Khalifa University(2020)

REFRENCES

Available upon request