Abdulwahab Felemban

 KAUST, Saudi Arabia | ✉ Abdulwahab.Felemban@kaust.edu.sa | ☎ +966 569144133 | 06 January, 1997

Google Scholar ⎘ | LinkedIn ⎘ | GitHub ⎘

Fourth–year PhD candidate specializing in multimodal large language models, vision–language models, generative modeling, temporal modeling, motion understanding and generation, and large-scale data processing.

Internship Availability: Seeking a research internship in AI for motion perception or generation, with applications in autonomous driving or human motion, aiming to contribute to a top-tier conference publication. Available immediately.

RESEARCH INTERESTS

- Multimodal Large Language Models (MLLMs), Vision–Language Models (VLMs), and Vision–Language Action Models (VLAs) for perception and generation in dynamic scenes
- Motion perception and generation, and spatio-temporal deep learning
- Reasoning-centric multimodal LLM fine-tuning (SFT, DPO, GRPO)
- Large-scale dataset processing, analysis, visualization, and evaluation across domains including autonomous driving, action recognition, and reef ecology

SKILLS

Programming: Python, PyTorch, TensorFlow (basic), OpenCV, MATLAB, R, C++ (basic).
MLLMs: Qwen-VL, LLaVA, CLIP/SigLIP, instruction tuning (SFT/DPO/GRPO), vLLM inference.
Distributed Training & HPC: Multi-GPU training, Slurm job scheduling.
AD Tooling: Open/Closed-loop, BEV/trajectory representations, perception–prediction–planning, evaluation metrics.
Deep Learning: Vision Transformers, generative models, spatio-temporal models, end-to-end AD models, reasoning models, graph deep learning.
Data Engineering & Tools: Large-scale data preprocessing, dataset curation, annotation pipelines, metadata cleaning, parallel processing, Git.
Additional Skills: Digital Signal/image processing, seismic signal processing, indoor localization, wireless systems, entrepreneurship (business models & market analysis).

EDUCATION

PhD — **King Abdullah University of Science and Technology (KAUST)**, Electrical & Computer Engineering, Thuwal, Saudi Arabia — 01/2022 - 06/2027
- **Advisor:** Prof. Mohamed Elhoseiny (`mohamed.elhoseiny@kaust.edu.sa`)
- **Focus:** Deep Learning, Motion Forecasting, and Large Language Models.
- **Current Research:** Autonomous Driving with Reasoning; Coral Reef Identification Benchmark Dataset

MS — **King Abdullah University of Science and Technology (KAUST)**, Electrical & Computer Engineering, Thuwal, Saudi Arabia — 01/2020 - 01/2022
- **GPA:** 3.83/4.0
- **Advisor:** Prof. Tareq Al-Naffouri (`tareq.alnaffouri@kaust.edu.sa`)
- **Focus:** Deep Learning and Human Action Prediction

BS — **King Fahd University of Petroleum and Minerals (KFUPM)**, Electrical Engineering, Dhahran, Saudi Arabia — 08/2014 - 12/2019
- **GPA:** 3.43/4.0
- **Concentration:** Signal Processing and Wireless Communication
- **Senior Project:** Real-Time AI Surveillance System
- **Junior Project:** Heatstroke Flexible Sensors

- — **Georgia Institute of Technology**, Exchange Student, Atlanta, GA, USA — 08/2018 - 12/2018

OTHER ACADEMIC CONTRIBUTIONS

Reviewer: WACV 2026, ICCV2025 Workshop Proceedings, ICCV 2025 Workshop CV4E, ACML 2024, SIGGRAPH Asia 2024.
Workshop Organizer: CVPR 2024 – C3DV: 2nd Workshop on Compositional 3D Vision. — 06/2024
Contributed to the KFUPM DSP Lab Manual: OpenCV Face-Recognition Experiment. — 07/2021

AWARDS & FUNDING

CEMSE Dean's List Award Academic Year 21/22 (awarded to the top-20% students)

$1M in Research Funding: NEOM Ocean Science and Solutions (OSSARI) Research Fund ($600k, 2024); KAUST Translational Fund ($450k, 2022).

Projects Awards: Start Smart [↗] by Community Jameel Foundation and Bab Rizq Jameel (1st place, $9k, EcoStream Project, 2024), Digital Innovation Award [↗] by the Saudi Ministry of Communications and Information Technology (1st place Smart-Tap project, $21k, 2022), KFUPM Undergraduate Senior-Project Award (1st place, AI Surveillance Project, 2019), SSI Internship Poster Competition (2nd place, Indoor localization project, 2019).

EXPERIENCE

KAUST Academy 1-Week AI specialization Instructor: Taught undergraduate students fundamentals of AI (ML, CV, neural networks, Python).
01/2025

KAUST Saudi Summer Internship (SSI): Worked on improving ultrasonic indoor localization by filtering out non-line-of-sight signals with machine learning.
05/2019 - 08/2019

KFUPM IEEE Student Branch Publicity Chair: Organized various events and seminars, and promoted IEEE branch activities to KFUPM students.
01/2018 - 01/2019

PUBLICATIONS

- **Felemban, A.**, Hroub, N., Ding, J., Bakr, E.M., Shen, X., Mohamed, A., Elhoseiny, M. *iMotion-LLM: Motion Prediction Instruction Tuning* [WACV 2026, Accepted [↗]]

- Battach, Y.*, **Felemban, A.*** **(Equal contribution)**, Khan, F. F., Radwan, Y. A., Li, X., Marchese, F., Beery, S., Jones, B. H., Benzoni, F., Elhoseiny, M.. *ReefNet: A Large-Scale, Taxonomically Enriched Dataset and Benchmark for Hard Coral Classification* [ArXiv:2510.16822, 2025 [↗]]

- Khan, F. F., Radwan, Y., Bakr, E.M., **Felemban, A.**, Mir, A., Michiels, N. K., Temple, A. J., Berumen, M. L., Elhoseiny, M.. *FishNet++: Analyzing the capabilities of Multimodal Large Language Models in marine biology* [ArXiv:2509.25564, 2025 [↗]]

- Gou, C., **Felemban, A.**, Khan, F.F., Zhu, D., Cai, J., Rezatofighi, H., Elhoseiny, M.. *How Well Can Vision Language Models See Image Details?* [ArXiv:2408.03940, 2024 [↗]]

- Al-Naffouri, T.Y., Masood, M., **Felemban, A.**, Aljoud, M.F., Bader, A., Alkhodary, M.T., Ahmed, T.B.K.. *Real-Time Control of Mechanical Valves Using Computer Vision and Machine Learning* [US Patent App. 18/021,241, 2023 [↗]]

- **Felemban, A.**. *Deep Learning Action Anticipation for Real-Time Control of Water Valves: Wudu Use Case* [MS Thesis, 2021]

- AlSharif, M.H., Ahmed, M., **Felemban, A.**, Zayat, A., Muqaibel, A., Masood, M., Al-Naffouri, T.Y.. *Robust 2D Indoor Positioning Algorithm in the Presence of Non-Line-of-Sight Signals* [EUSIPCO 2020 [↗]]

SELECTED PROJECTS

iMotion-VLM: End-to-End Vision-Language Autonomous Driving System
- Built a reasoning-centric end-to-end planning system using multimodal LLMs for AD.
- Designed a multi-step reasoning and high-level plan data generation pipeline on nuScenes.

iMotion-LLM, InstructNuPlan / InstructWaymo Datasets
- Developed a safety- and feasibility-aligned data generation pipeline for instruction-following in trajectory prediction, using vectorized BEV representations with both simple direction-based instructions (InstructWaymo Dataset) and complex open-vocabulary instructions (InstructNuPlan Dataset).
- Trained and evaluated instruction adherence and safety alignment by coupling LLMs with traditional trajectory prediction modules.

ReefNet (925K Annotations): Large-Scale Dataset and Benchmark
- Built a 925K-annotation benchmark for hard coral identification in collaboration with marine ecologists.
- Benchmarked ViT/BEiT/BioCLIP/CLIP/SigLIP and designed a rigorous data verification and quality-control pipeline.

Smart-Tap: Fully Integrated AI System for Water Valve Control
- Built a proof-of-concept prototype with real-time inference for future action anticipation
- Collected and annotated data with pose estimation, and trained spatio-temporal graph convolutional networks

OTHER EXPERIENCE

Chef Assistant & Cashier, Zaad Asia Family Business Restaurant
06/2016 - 09/2019
- Assisted with restaurant operations, and social media exposure.

Fun fact: Accent color inspired by "MDR Blue" from Severance (S02E04), symbolizing calmness and order.