Ahmed Anwar Gad

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Ahmed Anwar Gad | ahmedanwar123

Education

Egypt Japan University for Science and Technology — Alexandria, Egypt
BSc in Computer Science and Engineering — *2021 - Present*

Publications

DeepCat: A Deep Learning Approach to Understand Your Cat's Body Language | **IEEE Xplore**

- Proposed architecture for analyzing cat emotions using Python, OpenCV, YOLOv8, and a Voting classifier.
- Collaborated in a team of 3 students and 2 professors.
- Specialized in image processing and pattern recognition, achieving an accuracy of **97%** for eyes, **82%** to **84%** for mouth labels, and **85%** for tail.

Experience

Graduation Project Mentee — Oct. 2024 – Present
Microsoft Egypt Development Center — *Cairo, Egypt*

- Working with five team members and two senior applied scientists from Microsoft EDC to improve cultural awareness in Vision-Language Models (VLMs).
- Performed many trials comparing 8 VLMs utilizing culture-related datasets, assessing semantic performance using cosine similarity embeddings and metrics like BLEU, ROUGE, METEOR, SPICE, and BERTScore

Projects

Workout Form Assessment | *Python, GRU, Flutter, Dart, NodeJS* | **AI Repo** | **Flutter Repo**

- Engineered GRU models for assessing workout forms, achieving accuracy between **92%** and **95%**.
- Utilized OpenCV with Mediapipe for real-time video processing and pose estimation with **88%** accuracy.
- Designed an 8-page user interface using Flutter and Dart, integrated with a Node.js backend server.

LipReader | *Python, Tensorflow, OpenCV, Deep Learning, Pytorch* | **GitHub**

- Developed a Lip Reading model tested on 130 videos, trained on a dataset of **1100 videos**.
- Enhanced lip reading accuracy to **92%** using LSTM-based deep learning techniques.

Minesweeper Robot | *ROS, Python, YOLOv8, IMU, Odometry, Kalman Filter* | **GitHub**

- Adapted and trained a YOLOv8 model for mine detection, achieving **90%** accuracy.
- Programmed joystick-based movement control, enhancing robot usability.
- Calibrated the IMU using the Madgwick Filter, improving orientation accuracy by **30%**.
- Integrated a Kalman Filter, boosting mapping accuracy by **20%**.
- Enabled real-time streaming, which reduced data latency by **15%**.

Extended Kalman Filter for Pose Estimation | *ROS, Python, IMU, Odometry* | **GitHub**

- Enhanced pose accuracy in minesweeper robot by **15%** through sensor fusion (IMU + encoders).
- Minimized localization error by **20%** by leveraging live covariance updates for state prediction.
- Optimized filter response time by **25%** through improved sensor data management.

Technical Skills

Languages: Python, C / C++, Embedded C, Dart, Java
Developer Tools: Git, Flutter, Linux, PyTorch, TensorFlow , ROS, Arduino, ESP32, STM32
Libraries: NumPy, Pandas, Matplotlib

Achievements

Mathworks MiniDrone Competition Top 9 EMEA | 2020 | **GitHub**

- Ranked among the **top 9 teams** in the competition for Europe, Africa, and the Middle East.
- Leveraged MATLAB, Simulink, and StateFlow for model-based design, developing a line-following drone.
- Refined the image processing and control systems, enhancing drone performance.

Open-CV Competition 3rd Prize | 2023 | **GitHub**

- Secured 3rd prize in the Open-CV competition.
- Developed a cat emotional analysis application, published in JAC-ECC's 11th edition.
- Qualified for the global competition and achieved 3rd place.