Waleed Khalid Alzamil

Deep Learning Engineer

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Skills

Deep Learning | **Optimization** | **Writing Mathematics** — LaTeX | **Pytorch** | **Tensorflow** | **Scikit-learn** | **OpenAI-gym** | **MuJoCo** | **Open-CV** | **Sci-py** | **Numpy** | **Pandas** | **Matplotlib** | **Kaggle** | **Huggingface** | **PostgreSQL** | **MongoDB** | **Git** | **ROS** | **Linux** | **FastAPI** | **Flask** | **Docker** | **Azure** | **AWS** | **GCP**

Papers and Reports

Crown-Generation part 01: 3D Teeth Segmentation 01/2025

Teeth Bleaching and Hollywood Smile 12/2024
Proof of Concept Report

RAG system for test case generation 02/2024

Computational Intelligence 05/2023
- Comparison of Optimization Algorithms
- Deep Convolution Neural Networks for Image Classification

Professional Experience

AI Engineer 07/2023 – 06/2024
Tanweer (Part time) cairo, Egypt
- Notice some improvement in fine-tuned LLMs such as RWKV-4-World LLM for English-to-Arabic and Arabic-to-English translation.
- Leveraged ChatGPT to translate entire episodes, dramatically improving efficiency. This process reduced translation time **from 8 hours to just 30 seconds** and eliminated traditional translation costs. This System has been deployed on GCP for the company.

NLP Engineer 09/2023 – 01/2024
Siemens (Internship) cairo, Egypt
- Code Coverage Enhancement: Explored the enhancement of code coverage by integrating Large Language Models (LLMs) into test case generation.
- Coverage Metrics: Utilized GCOV to compute code coverage, creating a curated database of codes, test cases, and coverage metrics.

Projects

DeepLense GSoC 2025 – Foundation Model 03/2025
Aims to develop a vision foundation model for strong gravitational lensing data
- Implemented **Masked Autoencoder (MAE)** to learn meaningful feature representations.
- Fine-tuned the pre-trained model for **multi-class classification** (No Substructure, Cold Dark Matter, Axion-like Particle).
- Developed a **Super-Resolution model** to upscale low-resolution images using high-resolution ground truths.
- Achieved **99.67% AUC Score** in classification and **29.62 db PSNR, 0.919 SSIM** in super-resolution.

AI-Automated Dental Crown Generation 09/2024 – present
Graduation Project
- Leading the development of 3D teeth segmentation and crown generation models.
- Implemented and experimented with various architectures, including FoldingNet, DGCNN and Transformer-based models.
- Docker-hub segmentation model Deployment Repo Development Repo Report

3D Interactive Virtual Estate (3DIVE) 11/2023 – 06/2024
Aims to enhance user engagement through immersive property exploration
- Created a full AI pipeline for extracting **frames from videos**, estimating **camera poses with COLMAP**, and reconstructing **3D models** using advanced algorithms (**Gaussian Splatting** and SuGaR).

Othello Game 04/2024 – 06/2024
- Implemented the rules and heuristics of the Othello game and developed a user-friendly GUI.
- Implemented Minimax and Alpha-Beta Minimax algorithms.
- Developed **reinforcement learning algorithms** to compete against the Minimax algorithms.
- Enabled computer vs. computer gameplay (RL vs. Minimax).

Synergy EMGs Proportional Control 07/2023 – 08/2023
Using Electromyography data for non-invasive naturally controlled robotic hand prostheses
- Collected data using EMG sensors and Qualisys software.

- Configured cameras and sensors, and prepared the environment for data collection, including calibration.
- Trained different architectures under different assumptions using the Ninapro dataset for proportional control to predict the angles of defined joints.

Real-Time Violence Detection 11/2022 – 12/2022
- Implemented a CNN-BiLSTM architecture to predict violence in the videos.

Volunteering

Ain Shams University Racing Team (ASURT) 05/2023 – present
Deep Learning Team Lead cairo, Egypt
- **Collaborative Research Project** : Partnered with a dental PhD student to develop deep-learning models for classifying variational dental cases, enhancing diagnostic accuracy and improving patient outcomes.
- **Perception Module Development**: Led the development of the perception module for Formula Student.
- **RAG Test Cases Generator:** Designed and implemented a RAG test case generator to enhance the AI model.
- **Training and Mentorship**: Created educational content and provided mentorship on advanced deep learning topics, supervising new team members and organizing hands-on sessions to reinforce theoretical knowledge with practical experience.

Ain Shams University Racing Team (ASURT) 08/2022 – 05/2023
Formula 10th Team Member cairo, Egypt
- **Autonomous Stack Workshop**: Completed a 2-month intensive workshop covering essential topics in the autonomous stack, including ROS, LIDAR perception, localization, path planning, and navigation control.
- **Algorithm Development**: Implemented global and local planning algorithms for an autonomous racing vehicle.
- **Team Collaboration**: Collaborated with team members to integrate various components of the autonomous system.

ASURT with collaboration STP 11/2022 – 02/2023
Technical Team Member Macathon 4.0 cairo, Egypt
- **Competition Organization and Participation**: Played a key role in organizing Machathon 4.0, focusing on building and racing autonomous cars. Contributed to the design, development, and testing of autonomous vehicles.
- **Algorithm Development**: Developed robotics algorithms in Python and C++ for tasks including perception, decision-making, and control of autonomous cars.

Education

Bachelors of Engineering 09/2020 – present
Ain Shams University cairo, Egypt
- Department: Computer and Systems Engineering
- Level: Senior-2
- CGPA: 3