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Ahmed Aly

AI Engineer

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Education

Bachelor of Science in Systems and Biomedical Engineering

Cairo University, Egypt Sep. 2019 - Jul. 2024

CGPA: 3.5/4.0

Master of Science in Biotechnologies and Applied Artificial Intelligence for Health

University of Pisa, Italy Sep. 2024 - Jul. 2026

Skills

Artificial Intelligence Frameworks	TensorFlow, PyTorch, Scikit-learn, Lightning AI
Programming Languages	Python, C, C++, C#, Java, Bash
Back-end Development	Java Script, Flask, NodeJs

Graduation Project

AI-Based Motion Artifact Correction and Active Learning Framework for Enhanced Brain Tumor Segmentation Demo **07/2023 — 07/2024**

Cairo University *Egypt, Cairo*

- Developed an AI framework for brain tumor segmentation, **addressing motion artifacts** and reducing annotation costs through **active learning**.
- Achieved state-of-the-art performance with a motion correction framework that improved **SSIM by 17% and PSNR by 7.8** on a new real-world dataset.
- Designed and implemented an **active learning pipeline** with uncertainty estimation, optimizing model performance with minimal annotations.
- Collaborated with a local hospital on pediatric glioblastoma multiforme (GBM) segmentation, integrating AI with a cloud-based medical platform.
- Utilized tools including TensorFlow, PyTorch, MONAI, FSL, CaPTk, 3D Slicer, FastAPI, and DICOM & NIfTI formats.
- Supervised by Dr. Meena Makary and Dr. Mohammed Al-Masni. Currently working on two manuscripts.

Experience

Algorithm Engineer Internship

BioBusiness Company *08/2023 — 10/2023*

- I worked for two months as an Algorithm Engineer at BioBusiness, an Egyptian company specializing in medical devices. During this time, I contributed to research and development efforts aimed at enhancing a key feature in one of the company's products.

Projects

Brain-Tumor-Detection-using-ML. **02/2023 — 05/2023**

- We utilized **simple machine learning techniques** (SVM, XGBoost, Random Forest, and KNN) to classify brain tumors into three types. This was accomplished after feature extraction using **computer vision algorithms**.

Image classification of stroke blood clot origin. **10/2023 — 01/2024**

- Participated in a medical image analysis challenge **STRIP-AI** to classify the origin of blood clots in ischemic stroke, aiding in optimizing patient care. Employed an ensemble model combining state-of-the-art deep learning models **ResNet50** and **SqueezeNet** to achieve accurate classification.

Computer Vision Toolkit. **01/2023 — 05/2023**

- Using this project you can see the effect of the most important Image processing techniques (filters, histogram equalization, edge detection, hough transform, snake contour, Harris corners, SIFT, Image segmentation, and local ,global thresholding)

ICU Website. **01/2022 — 10/2022**

- Web app using Nodejs and MongoDB in database Website of ICU Department saves (staff and patients)data and stores the last status of patients, sending messages between nurses and doctors. applying concepts of **Data Base**.