YASIEN GHALWASH

@ yasien.essam10@gmail.com 📞 +20 1114382832 in https://www.linkedin.com/in/yasien-essam99/ ⚙ https://github.com/Yasien99
🔗 https://yasienessam.netlify.app/ 📍 Cairo, Egypt

EDUCATION

Bachelors in Biomedical Engineering

Cairo University · Faculty of Engineering

📅 2018 – 2023(**3.5 GPA**)

- **Undergraduate Courses**: Machine Learning, Computer Vision, Computer Graphics, Probability, Statistics, Calculus, linear algebra, Digital Signal Processing, Data Structures, Algorithms, Databases, Embedded Systems.

PROJECT

Computer-Aided System for Breast Cancer Lesion Segmentation and Classification Using Ultrasound Images

[PACS, DICOM viewer, CAD system, FastApi, Docker, TensorFlow, Azure] ⚯

- Developed an end-to-end PACS-integrated system for the automatic segmentation and classification of breast cancer ultrasound images using state-of-the-art deep-learning techniques
- Integrating the system with a DICOM medical viewer that includes various image processing tools to assist physicians in analyzing malignancy scores

GI-Tract-Image-Segmentation [Tensorflow, Unet] ⚯

- Used UNet to segment the stomach and intestines in MRI scans effectively to improve cancer treatment to avoid high doses of radiation to healthy tissues.

Face Recognition[Tensorflow, VAE] ⚯

- Facial detection model that learns the latent variables underlying face image datasets and uses this to adaptively re-sample the training data.

Autonomous Driving Car Detectionn[Tensorflow, YOLO Algorithm] ⚯

- Extracting boundary boxes of cars and identifying their positions .

LSTM Music Generator [Tensorflow, RNN, LSTM] ⚯

- Training a model based on LSTM to predict the next character of songs and generate new songs

Computer Vision studio [PyQt5, Opencv] ⚯

- Illustrates various computer vision algorithms such as contour detection hough transform, and segmentation algorithms

Bounding-box for Brain Cancer MRI [Opencv, Scikit-Image] ⚯

- Versatile image processing methodology to auto-detect coverage bounding boxes on brain MRI images based on stated anatomic landmarks.

Medical volume rendering web-app based [vtk-js, volume, rendering] ⚯

- Developed a 3D medical viewer using vtk.js, enabling volume rendering with multiple presets marching cubes

Music-Equalizer and virtual instruments [pyqtgraph, PyQt5, fft, scipy] ⚯

- Applying DSP concepts for spectrum analysis and instrument manipulations within songs with dynamic visualization

Embedded-Systems-Principles [STM32F401,GPIO Peripheral, SPI, I2C, UART, Keypad, C] ⚯

- Implementation of ARM architecture, C programming, functions, interrupts, arrays, and serial protocol interfacing.

Smart Home [Arduino,Bluetooth-Module,Relay Module, Some basic sensors]

- Consist of a home lighting system, temperature system, fire system and motion detection system, is managed by Arduino and Android phone

Smart Parking System [NodeMCU, Blynk, Relay Module,Some basic sensors]

- Gate and Slots control system, is managed by NodeMCU and Mobile App

PUBLICATIONS

- Saied Salem*, Ahmed Mostafa*, Yasien E. Ghalwsh*, Manar N. Mahmoud, Ahmed F. Elnokrashy and Ahmed M. Mahmoud. **"Computer-Aided System for Breast Cancer Lesion Segmentation and Classification Using Ultrasound Images"** ⚯ Presented at the IEEE International Conference on e-Health and Bioengineering EHB 2023 - 11th Edition, Bucharest, Romania, 9-10 November 2023. **[Accepted]**

  ***First three authors have contributed equally to this work**

EXPERIENCE

AI Engineer @Inspire for Solutions Development

November 2023 - Present

- Fine-tuning Large Language Models (LLMs) for peak performance, employing advanced natural language processing techniques to translate from the Saudi dialect to standard Arabic.
- Developed and implemented model compression techniques (e.g., quantization, pruning) to optimize language models for resource-constrained environments.

R&D Engineer @Astute imaging

July 2022 – August 2023

- Working on CAD system's architecture and workflow, integrating it with PACs to automate AI decision-making for new instances from the modality using Orthanc and Fastapi.
- Optimized AI models for both CPU and GPU platforms to enhance performance and maximize computational resources, successfully reducing the model inference time from 3 minutes to around 30 seconds
- Implemented Docker containers to encapsulate the various components of the system,
- Utilized Azure Virtual Machines (VM) to host and run the containerized system.
- Used powerful Deep Neural Networks like Unet, attention Unet, and Efficient Net.
  Tools: Fast API, Open-cv, PyTorch, TensorFlow, Orthanc, Docker, Azure

SKILLS

languages : C/C++ Python Javascript

Software development : OOP design patterns Fastapi SQL Vtk.js Orthanc Docker Git PyQt

Machine learning: Scikit-learn Pandas Pytorch Tensorflow OpenCV MONAI WandB

Internet of Things: Stm32 ESP8266 Arduino

ACCOMPLISHMENTS

- **IELTS Score : 7.0**
- **Deep Learning Specialization Stanford University**

VOLUNTEERING

Internet of Things Instructor @STP

Sep 2020 · Jul 2021
- Designed and prepared the academic material with the rest of the team.
- Made Interviews with the participants to choose the perfect ones.
- Designed and prepared small projects for workshops.
- Prepared non-technical skills to be delivered.
- Made more than 10 small projects with participants.
- Design and lead competition for the final smart parking system project.

Team Lead @Resala Charity Organization

Jul 2016 · Aug 2022
- My main work was to lead my team to help build and renovate mosques and schools. in addition to, all the extra activities such as fundraising, PR, and content creation.

Open Source Volunteer @Neuromatch

Mar 2022 · May 2022
- Help with flagging copy-right violations in the Deep Learning course content.

CONFERENCES AND SEMINARS

International Conference on e-Health and Bioengineering "EHB 2023"

Nov 2023
- Presented a research paper titled "Computer-Aided System for Breast Cancer Lesion Segmentation and Classification Using Ultrasound Images" during dedicated conference sessions. ⬀