

TAREK MOHAMED

Software Engineering Student

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🌐 /tarekmohamed909

EDUCATION

Systems and Biomedical Engineering Department

Cairo University , GPA : 4.0

📅 September 2018 – July 2023

INTERSHIPS AND ACTIVITIES

- Computer vision internship at MedSoft company (current) August 2022
- Clinical engineering internship at 57375 hospital July 2021 - September 2021
- IEEE Student Activity Cairo University branch July 2021 - July 2021
Best Fundraising committee member of the season
- College Class Representative 2020 - 2023

PROJECTS

Segmentation of Liver and its Lesions by Using Deep Learning
Python, Pytorch, U-Net, 3D-UNet, MONAI Transforms, OOP

- In Progress [Graduation Project]. Developing a general imaging modality tool to Automatically segment the liver and its vessels, lobes and lesions and quantify the liver volume and PDF value

Autonomous Driving Car Detection 🔄

Python, Tensorflow, YOLO Algorithm, Transfer Learning

- Extracting boundary boxes of cars and identifying their positions

Image Processing in Frequency and Spatial domains 🔄

Python, PyQt, QtDesigner, OpenCV, FFT, Matplotlib

- Application to apply filters on images in spatial and frequency domains

Automatic Images Segmentation 🔄

Python, Tensorflow, U-Net, ResNet, Transfer Learning

- By Implementing U-Net Encoder and Decoder and using skip connections between them to segment the image to classes

Music Equalizer and Virtual Instruments 🔄

Python, PyQt, Fourier Transform , Matplotlib ,SoundDevices

- Applying FFT to songs and suppressing certain instruments frequencies

Image Processing and Computer Vision Algorithms

Python, OpenCV, Numpy, Matplotlib

- Histogram Equalization, Canny Edge, Hough transform, Otsu, Winnemoller and Meanshift Algorithms manual implementation

Relation between Covid-19 and Omicron Variant 🔄

Python, Bio-Informatics, Bio-Statistics, Pyhlogenetic Tree

- Analyzing the DNA sequence of covid-19 and omicron variant and statistically representing the relation between them

Machine Learning Algorithms Manual Implementation

Python, Tensorflow, Scikit-Learn, Numpy

- Gradient descent , Linear Regression, Logistic Regression, SVM, KNN, K-Means, PCA, and CLIQUE algorithms manual implementation

SKILLS

- Tools:
Python,Pytorch , Tensorflow , C/C++, Java, mySQL, HTML , CSS , PyQt
- Skills:
Deep Learning , Machine Learning , Computer Vision , Image processing, ARM , STM32 , GIT , Problem Solving

ACCOMPLISHMENTS

- Machine Learning Specialization - Stanford University
- Deep Learning Specialization - Stanford University
- IELTS Score : 7.5

Diabetic Retinopathy Detection

Python, Pytorch, Torch Vision Transforms, CNN

- In Progress

Face Shape Classification 🔄

Python, Pytorch, Swin-Transformer, Hugging-Face, PyQt

- Desktop application to classify human face shape based on a Swin vision transformer model

Hand Sign Recognition 🔄

Python, Tensorflow, ResNet

- Creating a ResNet CNN to recognize Hand Signs

Face Recognition 🔄

Python, Tensorflow, FaceNet, Triplet Loss

- Decoding face image by FaceNet and compare similarity with the decoded data in the database

LSTM Music Generator 🔄

Python, Tensorflow, RNN, LSTM,

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

Alpaca Image Classifier 🔄

Python, Tensorflow, MobileNet

- Lightweight model to classify alpaca images

DICOM Online Image Viewer 🔄

Web, Javascript, VTK, React, HTML, CSS

- Website to read 3D Dicom images and apply different widgets to them

Real-Time Digital Filter Design 🔄

Web, Javasvript, Flask, HTML, CSS

Microcontroller Interface with LM-35 🔄

Embedded, C, STM-32, ADC Driver, Proteus