YASSIEN TAWFIK

SOFTWARE ENGINEER

+201096835548
yassien.m.m.tawfik@gmail.com
linkedin.com/in/yassien-tawfik
github.com/YassienTawfikk

PROFILE

Software Engineer with a foundation in biomedical engineering, specializing in machine learning, computer vision, and signal processing. Passionate about building intelligent, research-driven applications with real-world impact. Seeking opportunities to contribute to innovative software projects at the intersection of data and technology.

PROJECTS

- **Oral Cancer Prediction**
  - Microbiome-based cancer classifier using Random Forest, featuring SHAP explainability and optimized feature selection from TCMA dataset. GitHub Link
- **Real-Time Patient Monitor**
  - Live ECG monitoring tool with deep learning-based arrhythmia classification, intelligent alarm logic, and noise-resilient visualization. GitHub Linkfd
- **Explainable Breast Cancer Classifier**
  - ML model for tumor detection with SHAP-based interpretability & visualizations. GitHub Link
- **Face Recognition with PCA**
  - Modular face detection and recognition system using Haar cascades and PCA-based embeddings, supporting RGB and grayscale datasets with ROC-based performance evaluation. GitHub Link
- **Advanced CV & Image Processing Toolkit**
  - Comprehensive suite of four standalone applications for edge detection, segmentation, image filtering, and feature matching—built with custom algorithm implementations. GitHub Link
- **Audio Fingerprinting & Recognition System**
  - Audio recognition and mixing app using spectrogram-based fingerprinting. GitHub Link
- **Interactive Audio Equalizer & Visualizer**
  - Equalizer for advanced frequency manipulation and real-time spectrogram analysis. GitHub Link
- **Digital Filter Designer**
  - using z-plane zero-pole placement with real-time frequency response visualization. GitHub Link
- **Beamforming Simulator**
  - Simulation for analysis in telecommunications and medical imaging. GitHub Link
- **Dynamic Multi-Channel Signal Viewer**
  - Desktop application for enhanced medical signal visualization and management. GitHub Link
- **STM32 Smart Embedded Interfaces**
  - Embedded suite for display, motor, and sensor control with modular drivers and simulation. GitHub Link
- **Hospital Management System**
  - Developed a secure and comprehensive hospital management system. GitHub Link

EDUCATION

CAIRO UNIVERSITY

B.Sc. in System & Biomedical Engineering
2021 - Present

TECHNICAL SKILLS

- **Programming:** Python, C++, C, Java, JavaScript, HTML, CSS
- **Machine Learning & Data Science:** Supervised learning, neural networks, feature engineering, model evaluation, SHAP analysis
- **Computer Vision & Imaging:** Segmentation, edge detection, object tracking, SIFT/Haar/Active Contour methods, spectrogram analysis
- **Signal Processing & DSP:** Digital filtering, Fourier & Z-domain analysis, signal reconstruction, real-time visualization
- **Data Analysis & Bioinformatics:** Microbiome profiling, data preprocessing, statistical analysis, TCMA/HOMD datasets
- **Embedded Systems (Basic):** Microcontroller interfacing, GPIO/EXTI driver development, STM32 bare-metal programming
- **Web Development:** Responsive UI design, DOM manipulation, project deployment (basic)
- **Software Design & Architecture:** Object-oriented programming (OOP), modular system design, MVC pattern
- **Databases:** SQL (basic), Firebase (project-based)
- **Tools & Frameworks:** OpenCV, scikit-learn, PyQt5, Jupyter, Git, Proteus, MATLAB

CERTIFICATIONS

- **Frontend Web Development** - HTML, CSS, JS
- **TCCD Research Day** – Presented research on Partial Differential Equations (PDE)

Click Here to see the Certificates

COMMUNITY ACTIVITIES & INTERESTS

Program Ambassador	British Council | 2018 - 2020
Swimming Coach	Swimming Star Academy | 2020 - 2021
Teaching Assistant	Mr. Omar Sherbiny | 2021 - 2022
Operation Room Member	Ministry of Youth and Sports (YLY)
Event Organizer	In The Zone | 2023 - 2024
Skydiving Instructor	Al Galaa Airborne | 2019 - 2022