YASSIEN TAWFIK

BIOMEDICAL ENGINEER

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PROFILE

Biomedical Engineering student at Cairo University, engaged in hands-on projects on medical device calibration and digital health applications. Committed to leveraging technology for healthcare advancements. Seeking internship opportunities to apply my technical knowledge in practical, innovative healthcare settings.

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 Link
- **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
- **Automated Defibrillator System**
  - ECG system detection of cardiac event GitHub Link
- **CTG Heart Failure Monitoring System**
  - Monitors and analyzes HRV and FHR signals to detect health abnormalities. 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
- **STM32 Smart Embedded Interfaces**
  - Embedded suite for display, motor, and sensor control with modular drivers and simulation. GitHub Link

CERTIFICATIONS

- Biomedical Training - Baheya Foundation
- Medical Devices Calibration
- CT Essentials – Siemens Healthineers
- Frontend Web Development - HTML, CSS, JS

Click Here to see the Certificates

EDUCATION

CAIRO UNIVERSITY

B.Sc. in Biomedical Engineering
2021 - Present

PROFESSIONAL EXPERIENCE

Biomedical Engineering Trainee

Baheya Foundation | 2024 - 90 Hours

- Gained comprehensive insights into clinical engineering and medical planning.
- Worked with medical devices across multiple departments, including pathology, sterilization, therapy, physiotherapy, and diagnostics. Developed skills in the hardware and electronic components of medical devices, focusing on their maintenance and calibration to ensure optimal performance.
- Attended sessions covering hospital systems beyond tumor-focused care, broadening my understanding of various healthcare environments.

TECHNICAL SKILLS

- **Programming:** C, C++, Java, Python
- **Data Structures:** Understanding of structures and their app
- **Embedded Systems:** Microcontroller interfacing and low-level driver development
- **Biomedical Expertise:** Biomedical device calibration
- **Digital Signal Processing:** Manipulating signals by digital techniques
- **Computer Vision:** Segmentation, feature extraction, and image enhance
- **Machine Learning:** Predictive modeling, neural networks, and classification techniques
- **Data Analysis:** Preprocessing, feature engineering, and statistical evaluation
- **Bioinformatics:** Microbiome profiling from sequencing data
- **Web Development:** HTML, CSS, JavaScript

COMMUNITY ACTIVITIES & INTERESTS

Program Ambassador	British Council “Taqaddam” | 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