

YASSIEN TAWFIK

BIOMEDICAL ENGINEER

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ABOUT ME

Biomedical engineer with a strong orientation toward AI, medical imaging, and digital diagnostics. Experienced in developing end-to-end software solutions using machine learning, computer vision, and biomedical signal processing.

EDUCATION

B.Sc. in Biomedical Engineering

Cairo University (2021 - Present) - GPA: 3.62

TECHNICAL SKILLS

- **AI & Deep Learning:** Neural networks, CNNs classification, model evaluation
- **Computer Vision:** Image segmentation, feature extraction, PCA, edge detection
- **ML Tools:** Scikit-learn, SHAP, TensorFlow, Keras, OpenCV, Pandas, Seaborn, SciPy
- **Programming:** Python, C++, C, Java
- **Data Handling:** Preprocessing, feature engineering, statistical evaluation
- **Digital Signal Processing:** Biomedical signal filtering, ECG processing
- **Embedded Systems:** MCU interfacing, STM32 driver development
- **Web Development:** HTML, CSS, JavaScript
- **Bioinformatics:** Microbiome profiling, genomic data processing

RESEARCH INTERESTS

- Deep learning for biomedical imaging and signal interpretation
- Explainable ML for clinical transparency and trust
- AI-based medical diagnostics and DSS

CERTIFICATES

- Frontend Web Development - HTML, CSS, JS
 - CT Essentials – Siemens Healthineers
- [Click Here](#) to see all the Certificates

PROJECTS

- **Real-Time ECG Arrhythmia Detection System**
Deep Learning powered arrhythmia detection with smart alerts and noise-resistant display. [[GitHub Link](#)]
- **Oral Cancer Prediction**
RF classifier on microbiome data achieved 92.89% accuracy, SHAP insights. [[GitHub Link](#)]
- **Explainable Breast Cancer Classifier**
ML model for tumor detection with SHAP-based interpretability & visualizations. [[GitHub Link](#)]
- **Healthcare Patient Segmentation Tool**
K-Means clustering with PCA to segment patients into risk groups. [[GitHub Link](#)]
- **Automated Defibrillator System**
Real-time detection of cardiac events. [[GitHub Link](#)]
- **Beamforming Simulator Application**
Simulation for telecom and medical use [[GitHub Link](#)]
- **CTG Heart Failure Monitoring System**
Monitors and analyzes HRV and FHR signals to detect health abnormalities. [[GitHub Link](#)]
- **Autonomous Traffic Sign Recognition**
Custom CNN achieving 96.23% accuracy for classifying 43 types of traffic signs for ADAS. [[GitHub Link](#)]
- **Advanced CV & Image Processing Toolkit**
Detection, segmentation and matching Toolkit. [[GitHub Link](#)]
- **STM32 Smart Embedded Interfaces**
Modular embedded systems with simulation. [[GitHub Link](#)]

INTERNSHIPS

- **Optoscient BME Intern | 2025 (Upcoming)**
Internship on digital pathology systems and technical support.
- **Elevvo AI Internship | 2025**
Project-based Intern ML, DL, and CV to real-world problems
- **Baheya BME Trainee | 2024 (90 Hours)**
Clinical engineering and device training across hospital units.