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

CERTFICATES

- 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 (04 Weeks)***
  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.