Mohamed AboMandour

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About Me

Biomedical Engineering student with strong expertise in deep learning, especially in computer vision and natural language processing. Skilled in machine learning, digital signal processing, and data visualization, with hands-on experience applying AI to solve diverse challenges.

Education

Cairo University   GPA: 3.5

Bachelor of Systems and Biomedical Engineering   *Sep. 2020 – Present*

Technical Skills

Languages: Python, C/C++, SQL, Java   **Version Control**: Git, GitHub
Data Analysis: Polars, NumPy, Pandas, Matplotlib, Seaborn   **Desktop App Development**: Qt5, PyQt6
Machine Learning: Scikit-learn, Keras, PyTorch, OpenCV, SciPy   **Containerization**: Docker, Kubernetes

Projects

AI-Driven Appointment Scheduler | *Machine Learning, Data Preprocessing, Gen-AI* ⭘
- Created a scheduler system for Fanous Clinic, USA, using AI to optimize appointments based on disease reports.
- Utilized patient data to provide real-time, data-driven recommendations, reducing decision-making time by 90%.

VisionaryID | *Image Processing, OpenCV, Python, EigenFaces* ⭘
- Utilized OpenCV for offline and real-time face detection and recognition using Eigenfaces, with 98% accuracy.
- Developed online camera integration and good visual representation of detection and recognition results.

ImageAlchemy | *Computer Vision, OpenCV, Python, PyQt6* ⭘
- Developed a comprehensive toolkit for various image processing and Computer Vision tasks with an intuitive GUI.
- Included algorithms: Active Contours, SIFT detector, segmentation, clustering techniques, and filters.

Security Voice-code Access | *Speech recognition, Shazam Algorithm, pyAudioAnalysis* ⭘
- Utilized speech-to-text conversion, spectrogram, and voice fingerprinting technology to authenticate users.
- Added real-time spectrogram display, matching score tables for passcodes and individuals, and access indicators.

ICU Monitor Viewer | *DSP, Graph Manipulation, PyQt6, Python* ⭘
- Designed intuitive UI with dual graph display, cine mode, and signal manipulation features.
- Developed signal file browsing, export to PDF reports, and seamless integration for optimal user experience.

DICOM Viewer with Volume Rendering | *VTK, Computer Graphics, PyQt6* ⭘
- Utilized vtk and DICOMImageReader for loading DICOM series data by selecting a folder through a file dialog.
- Implemented both Surface and RayCast rendering with controls to adjust surface appearance.

Extracurricular Activities

Top 10 Presentations, ITCS Track Finalist   Jul. 2023
Nile University 16th UGRF 2023 Competition
- Developed a Mobile app to input personal information and lifestyle habits to get the type of obesity.
- Added Suggestions for meals and exercises tailored to recommended calorie intake Using deployed ML model.

Data Analysis Instructor   Sep. 2023 – Aug. 2024
IEEE EMBS
- Developed guides on advanced data analysis methodologies, statistical techniques, and industry-standard tools.
- Designed and implemented effective data visualization strategies, translating intricate data patterns.

Training

Clincal Engineer   Aug. 2024 – Sep. 2024
Cleopatra Hospitals Group CHG
- Gained experience in the management of medical devices, performing routine maintenance tasks, and understanding hardware suppliers and agents.
- Observed the layout of hospital departments, gained knowledge of accreditation certificates, ensured compliance with standards, and monitored device calibration processes.

Field Service Engineer   Aug. 2024
Siemens Healthineers
- Gained hands-on training and practical experience with MRI, CT, X-ray systems, and laboratory equipment.
- Acquired deeper knowledge of MRI device principles, sequences, and its various components and models.

Field Service Engineer   Jul. 2023
EGMED
- Troubleshooted hardware errors and problems with medical devices and applied clinical engineering principles.
- Developed valuable soft skills through interaction with hospital staff and engineers.

Certifications

Neural Networks and Deep Learning   Jun. 2024
Coursera, offered by Andrew Ng and Deeplearning.ai

Clean Code and Code Refactoring   Oct. 2023
Ezz Medical Industry

Supervised Machine Learning   Sep. 2023
Coursera, offered by Andrew Ng and Deeplearning.ai

Languages

- **English:** Advanced (IELTS Band 7)