Mark Samuel

Website – LinkedIn – Github – Personal AI Podcast

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EDUCATION

- **University of Science and Technology at Zewail City** — 6th of October City, Egypt
  Bachelor of Computer Science Majoring in Data Science and AI — *October 2022 – June 2026*

EXPERIENCE

- **ISchool** — Remote
  Coding Instructor — *June 2024 – August 2024*
  - **Programming**: Taught 6th grades basic programming and basic concepts.
  - **Python**: Taught 6th grades python.
  - **AI and ML**: Taught 6th grades basics of AI and ML.
- **Steigenberger AL DAU Beach Hotel** — Hurghada, EG
  IT Trainee — *June 2023 – August 2023*
  - **Hotel Infrastructure**: Understood hotel's infrastructure.
  - **PC Maintainance**: Maintained the PCs and other devices.
  - **Network devices**: Maintained network devices and cables.

PROJECTS

- **Explainable AI for Skin Cancer Detection (Github)**: Developed an XAI-based diagnostic system achieving 72% avarage accuracy on the HAM10000 dataset using PyTorch. Implemented CNN architectures (ResNet50, Inception, CNN networks) and integrated explainability methods (LIME, SHAP, Grad-CAM, Grad-CAM++) resulting in interpretability by dermatologists.
- **RAG implementation from scratch (Notebook)**: Implemented and evaluated RAG from scratch. Managed to reduce LLM hallcinations.
- **Deep Fake Image Detector (Github)**: Engineered a CNN-based detection system achieving 99% accuracy on a custom dataset of 50,000 images. Implemented ensemble learning with Inception-v3 and ResNet-50, reducing false positives by 30% compared to single-model approaches.
- **Adagrad TensorFlow Implementation (Github)**: An implementation of the Adagrad optimization algorithm from scratch as a TensorFlow optimizer, showcasing a deep understanding of optimization techniques. as a project for Linear and non linear programming course
- **Activity Detection Using MHealth (Github)**: A machine learning project for classifying user activities based on accelerometer and gyroscope data. Includes EDA for the sensor data using Pandas and Matplotlib. Utilizes algorithms such as KNN, SVM, and Logistic Regression using Scikit-Learn and Neural Networks using TensorFlow.
- **YouAttend, Face Attendance Application (Github)**: A cross-platform, local-first React Native app for face recognition-based attendance tracking. Powered by Facenet with TFLite and ONNX frameworks (Java implementation), and stores attendance data in a vector database that is based on SQLite.
- **YoloEye, Blind Guidance apps (Github)**: Developed a real-time Android application for door and obstacle detection using TensorFlow Lite and YOLOv11. Integrated hardware acceleration (CPU/GPU/NNAPI) and audio feedback for accessibility. Enabled configurable detection parameters, optimizing the app for visually impaired users and navigation assistance.
- **My Gym Dashboard (Linkedin)**: Designed and developed an interactive Tableau dashboard to track personal fitness data, including weight progression, top lifts, reps by weight, cardio distance, and workout frequency. Enabled performance analysis and trend visualization to support goal setting and consistency in training.
- **Company Dashboard (Github)**: A data visualization dashboard for analyzing company performance trends over time. Built with Python, Flask, and AmCharts to deliver interactive and insightful visualizations.
- **Cakery (Github)**: A full-stack software engineering project featuring Python and flask for the server, PostgreSQL, Firebase push notifications, Next.js, Docker, and CI/CD pipelines to deliver robust and scalable solutions.

SKILLS

- **AI**: Scikit-Learn, PyTorch, TensorFlow, XAI, NLP, Computer Vision   **Data Science**: Pandas, NumPy, Matplotlib, Seaborn, SQL, Data Preprocessing, Tableau

- **Programming**: Python, C++, JavaScript, Java, Kotlin   **Tools & Platforms**: Git, Docker, Linux, Azure, Flask, React, React Native, Expo, Express