MAHMOUD SAYED YOUSSEF

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Portfolio: mahmoudalyosifysite.github.io

PROFESSIONAL SUMMARY

Machine Learning Engineer with hands-on experience in developing ML models, pipelines, and APIs. Skilled in Python, TensorFlow, OpenCV, Scikit-learn, and cloud integration. Delivered AI-powered applications and competed in national and international ML challenges. Strong software engineering background with full-stack development experience. Taught 10,000+ students online. Passionate about automation, data science, and building real-world AI E2E solutions as a final product.

TECHNICAL SKILLS

Programming: Python, C++, C#, R, JavaScript, Go
ML/DL Frameworks: TensorFlow, PyTorch, Scikit-learn, OpenCV, NLTK
Data Analysis: Pandas, NumPy, Matplotlib, Feature Engineering
Web Development: HTML, CSS, JavaScript, Angular, Flask, Django
Cloud & DevOps: GCP, AWS, Docker, Git, GitHub
Database: SQL Server, MongoDB, Entity Framework
Concepts: OOP, RESTful APIs, Data Pipelines, Adversarial ML, NLP
Tools: Jupyter, VS Code, OpenRefine, Hadoop

WORK EXPERIENCE

Systems Engineer (Military Service)
The National Company for Roads Building and Development
Feb 2024 – Mar 2025 | Nasr City, Cairo, Egypt

- Maintained mission-critical backend systems for Egyptian toll stations

- Worked with C#, .NET, SQL Server, and Crystal Reports

- Co-developed a desktop system to manage data across multiple departments

- Debugged, optimized, and supported real-time transportation software

Instructor
Udemy (Remote)

- Delivered Arabic-language courses to 8,000+ students in Discrete Math, Algorithms,Graph Data Mining, and Probability

- Created video content reaching over 500,000+ views at my YouTube channel

- Structured curriculum and provided continuous learner support

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PROJECTS

Customer Support Ticket Classifier (NLP + API + Cloud)
Tools: Python, Scikit-learn, FastAPI, Docker, GCP/AWS
Built an end-to-end ML pipeline to classify customer support tickets (billing, tech, feedback). Trained NLP models using TF-IDF and logistic regression. Deployed using FastAPI and Docker on GCP Cloud Run. Logged predictions and monitored API latency using Prometheus.

AudioShield: Deepfake Audio Detection System
Tools: Python, TensorFlow, Librosa, Streamlit, CNN
Developed an AI-powered system to detect deepfake audio using mel-spectrograms and a CNN model. Integrated real-time prediction and user feedback via Streamlit with automated PDF report generation. Targeted applications include fraud detection, digital forensics, and media authentication.

Sales Forecasting Dashboard (ML + Data Visualization)
Tools: Python, Pandas, XGBoost, Power BI
Created a forecasting model to predict monthly product sales using historical sales data. Applied feature engineering and XGBoost regression. Visualized trends and model results in Power BI for business decision-making.

Real-time Anomaly Detection in Web Traffic (Streaming + ML)
Tools: Python, Scikit-learn, Kafka, Flask, AWS Lambda
Designed a real-time anomaly detection system for identifying unusual web traffic. Processed streaming logs with Kafka. Trained isolation forest model and deployed scoring service using Flask + AWS Lambda. Achieved 95% precision on simulated attacks.

E-Commerce Recommendation System
Tools: Python, Pandas, Surprise Library, Streamlit
Built a hybrid recommendation engine combining collaborative and content-based filtering. Applied matrix factorization with Surprise and TF-IDF for product descriptions. Deployed as a Streamlit web app with interactive filtering.

Inventory Management System
Tools: C#, ASP.NET Core, SQL Server
Developed a CRUD-based desktop system with barcode scanning and alert notifications

E-Commerce Web Application
Tools: Angular, Bootstrap, Stripe API, JWT
Created a frontend shopping experience with secure payment and login system

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EDUCATION

B.Sc. in Computer and Information Science (Bioinformatics)
Assiut University – Egypt
Graduated July 2023
GPA: 3.53 / 4.00

- Graduation Project: **Vitalism Solution** – AI system for Contactless Estimation of Vital Signs Using Video for (Grade: A+)
  Developed an AI-powered system to estimate vital signs in real time using video-based analysis. Applied rPPG and wavelet filtering techniques for extracting physiological signals without physical contact.

CERTIFICATIONS

- AI in Cybersecurity – NTI (420 hours)
- Machine Learning Internship – ITIDA (200 hours)
- Full Stack Development Diploma – Route Academy (.NET & Angular)
- Data Analysis in R – Children's Cancer Hospital Foundation 57357
- .NET Web Development – ITI
- MEARN Stack, UI/UX, Android Development – ITI

ACHIEVEMENTS

- First Place – Smart Cities Hackathon 2022
- Finalist – ISEIC 2023 (International AI Research Competition)
- Ideal Student Award – Faculty of Computers & Information 2022–2023
- Winner – College-level Hacking and Innovation Competitions

LANGUAGES

- Arabic: Native
- English: Very Good
- French: Basic