Youssef Adel

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PROFESSIONAL SUMMARY

Computer Science student at MSA University (GPA 3.44/4.0) specializing in Data Engineering, AI, and Automation. Proven expertise architecting scalable data pipelines with PySpark and Neo4j, and building end-to-end machine learning systems and accessible full-stack applications. A results-oriented leader experienced in managing cross-functional teams for national initiatives and high-impact social projects.

EDUCATION

October University for Modern Sciences and Arts (MSA University) — Cairo, Egypt
Bachelor of Science (B.Sc.), Computer Science | GPA: 3.44/4.0 | Expected July 2027

Relevant Coursework: Data Structures & Algorithms, Database Systems, Machine Learning, Big Data Systems, Operating Systems, Computer Networks

SELECTED PROJECTS

InfoDemics — *Misinformation Spread Analytics Pipeline* | Python, PySpark, Plotly, Matplotlib | 2025
GitHub: github.com/Youssef-Adel91/InfoDemics

- Built an end-to-end PySpark pipeline simulating misinformation diffusion via an SIR epidemiological model on social graphs, enabling distributed parallel processing infeasible on single-node execution
- Produced interactive Plotly/Matplotlib dashboards visualizing SIR simulation results, translating diffusion dynamics into accessible insights for non-technical stakeholders

Data Dose — *Clinical Decision Support System (CDSS)* | Next.js 15, FastAPI, Neo4j, Tailwind CSS, React Flow | 2026
GitHub: github.com/Youssef-Adel91/DataDose

- Architected a microservice CDSS separating a React Flow/Next.js 15 frontend from a Python FastAPI engine; implemented an N-Degree Polypharmacy Scanner with deterministic $O(N^2)$ runtime evaluating high-risk drug combinations in milliseconds via Neo4j graph traversal
- Built a constraint-based traversal engine on Neo4j to recommend safe drug alternatives and render reactive visual prescription maps, enabling real-time clinical interaction analysis at scale

AnomalyLens — *Surveillance Video Anomaly Detection* | Python, PyTorch, FastAPI, Next.js, MongoDB, OpenCV | 2026
GitHub: github.com/Youssef-Adel91/Surveillance-Anomaly-Detection

- Designed an unsupervised video anomaly detection system using a Dual-Memory Autoencoder (MNAD v3) trained on the CUHK Avenue dataset, achieving ~81–85% frame-level AUC through reconstruction-error scoring across two memory modules (128-dim and 256-dim, 100 slots each)
- Built a full-stack microservice architecture (FastAPI + PyTorch inference backend, Next.js/TypeScript frontend, MongoDB Atlas via the async Motor driver) delivering an end-to-end video pipeline: optical-flow extraction with OpenCV, inference, annotation, and encoding with real-time upload progress tracking

InnoAccess — *Accessible Job Portal & LMS* | Next.js, TypeScript, MongoDB | 2025
GitHub: github.com/Youssef-Adel91/InnoAccess1

- Engineered a full-stack accessible job portal and LMS for visually impaired users with full WCAG 2.1 compliance, including screen-reader-optimized navigation and keyboard-accessible components across all flows
- Architected the MongoDB data layer for the job portal and LMS; optimized indexing reduced query response time by ~40% across a unified platform supporting job discovery, application tracking, and course enrollment

BrailleLens — *AI-Powered Braille Translation* | Python, YOLO11, Computer Vision, LLMs (Groq Llama-3.3-70B), Mobile Development | 2026
GitHub: github.com/Youssef-Adel91/BRAILLELENS

- Developed BrailleLens, an accessibility-first mobile application using a two-stage AI pipeline: a fine-tuned YOLO11 model for real-time Braille cell detection and classification, paired with Groq's Llama-3.3-70B LLM for symbol decoding and translation
- Engineered an end-to-end computer vision pipeline converting smartphone camera or gallery images into instant Braille translations across Arabic, English, and Russian, extending digital accessibility for visually impaired users, caregivers, and educators

AI Automation Workflow — *Multi-Platform Agent* | n8n, Make, GPT-4, Telegram, Gmail, Google Calendar | 2026

- Built a GPT-4 automation workflow across Telegram, Gmail, and Google Calendar, eliminating ~3 hrs/week of manual coordination through intent-based task routing and autonomous scheduling
- Configured conditional logic and error-handling nodes within n8n and Make pipelines, ensuring reliable message routing and graceful failure recovery across all integrated services

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

Team Leader — Maharat Misr National Initiative Oct 2024
Ministry of Youth & Sports / GIZ — Cairo, Egypt

- Spearheaded a cross-functional team to research, design, and prototype an assistive technology solution; presented the final solution directly to representatives from Egypt's Ministry of Youth & Sports and GIZ
- Led a team of 6 through the full initiative lifecycle, delivering all milestones on schedule and securing a live demo presentation to ministry-level stakeholders

Team Leader — Lebaladna Initiative Mar 2025 – Apr 2025
Cairo, Egypt

- Directed end-to-end logistics, volunteer coordination, and cross-stakeholder communication for multiple concurrent charity drives, ensuring on-time delivery for all events

CERTIFICATIONS & TRAINING

- Generative AI (LLMs, RAG, Prompt Engineering) — NVIDIA & ITI, 2026
- HCIA-AI (Huawei Certified ICT Associate – Artificial Intelligence) — Huawei ICT Academy, 2025
- IBM Data Science Professional Certificate — Coursera, 2025
- IBM Introduction to Data Engineering — Coursera, 2025

TECHNICAL SKILLS

Languages: Python, SQL, C++, TypeScript, JavaScript

AI, ML & Big Data: PySpark, Hadoop, XGBoost, Deep Learning fundamentals, LLMs, RAG, Vector Embeddings, scikit-learn, Pandas, Matplotlib, Plotly, Seaborn

Databases & Engineering: PostgreSQL, MySQL, MongoDB, Neo4j (Graph), Apache Airflow, dbt

Tools & Frameworks: Docker, Git, Linux CLI, REST APIs, Next.js, n8n, Make, draw.io

Architecture & Design: OOP, Data Structures & Algorithms, System Design, ERD Modeling, Microservices patterns