

MOHAMED ABDELBASIT

AI ENGINEER

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[LinkedIn](#) | [GitHub](#) | [Portfolio](#)

SUMMARY

Driven and detail-oriented AI Engineer with hands-on experience building and deploying production AI systems for enterprise clients across Saudi Arabia and the Gulf. Proficient in Python and key libraries including NumPy, Pandas, Scikit-learn, PyTorch, and TensorFlow for machine learning, computer vision, and NLP. Experienced in training deep learning models, developing APIs with FastAPI, and deploying to cloud and edge hardware. Strong analytical and problem-solving skills, with proven leadership as team leader on four AI projects. Recognized for clear communication and the ability to explain technical concepts effectively. Committed to continuous learning, innovation, and contributing to impactful AI-driven solutions.

EDUCATION

Bachelor's Degree in Artificial Intelligence — Menoufia University Oct 2022 – Jul 2026

Faculty of Artificial Intelligence, Egypt • CGPA: 3.0 / 4.0 • Graduation Project: Grade A+

AI & Machine Learning Diploma — AMIT Learning Academy Aug 2024 – Jan 2025

PROFESSIONAL EXPERIENCE

AI Engineer — Thakaa Flow Apr 2026 – Present

Saudi-based technology company • Remote (Full-time)

- Design and deliver production AI systems for large Saudi and Gulf enterprise clients, owning the full lifecycle from problem framing and data pipelines through model training, API development, and deployment.
- Build conversational and voice-driven AI agents in Arabic, integrating large language models with speech pipelines and business logic to automate customer-facing workflows.
- Lead an edge-AI wearable product for blind and visually impaired users, delivering scene description, text reading (OCR), currency recognition, and real-time obstacle alerts on NVIDIA Jetson Orin Nano — combining custom-trained models with Gemma vision-language models.
- Develop and deploy an internal enterprise project management platform end to end (Next.js 15, Supabase, Vercel), including Arabic NLP features for document understanding and natural-language querying.

Machine Learning Engineer Intern — Digital Egypt Pioneers Initiative (DEPI) Dec 2025 – Jun 2026

Microsoft Machine Learning Engineer Track • Part-time

- Designed and implemented end-to-end machine learning pipelines, working with production data through training, evaluation, and deployment.
- Collaborated with engineers on real-world AI solutions, applying industry practices for model development and delivery.
- Led Raqib, the capstone project — a national road-hazard monitoring platform combining computer vision, LLM-based report generation, and a web interface (detailed under Projects).

AI Instructor — Skills Area Aug 2025 – Feb 2026

Part-time

- Taught AI and Data Science courses to 150+ students, covering Python, data analysis, supervised and unsupervised learning, and model evaluation.
- Delivered numerous hands-on workshops and technical sessions on applied machine learning.
- Mentored students through end-to-end projects, guiding data preparation, model selection, and result interpretation.

PROJECTS

Basir — AI Management System for Textile Factories — Graduation Project • Team Leader

Dec 2025 – Jul 2026 • Team of 7 • Graded A+

- Led a 7-member team building a multi-model factory monitoring platform: fabric defect detection, PPE safety compliance, and facial-recognition attendance, unified in a central dashboard.
- Owned system integration — connected all AI models to the dashboard through REST APIs, defining the service contracts and data flow across modules.
- Built the safety monitoring module using YOLOv8 for PPE detection, reaching 93% mAP@0.5 on real factory imagery.
- Delivered fabric defect detection with an STPM anomaly-detection model (90% AUROC) and facial-recognition attendance at 96% accuracy.
- Integrated the defect detection model with an Arduino-controlled alert system over serial communication (pyserial) for on-floor hardware alerting.

Tech: Python, PyTorch, YOLOv8, STPM, OpenCV, FastAPI, Arduino, pyserial

SANAD — AI-Powered Elderly Care Platform — Team Leader • 3rd Place, Data Pill Hackathon 2026

- Led the team and personally developed all computer vision models for a remote elderly-care platform combining real-time safety monitoring, health risk scoring, and an Arabic voice companion.

- Trained a YOLO fire and smoke detection model achieving 91.5% mAP@0.5 (87.8% precision, 87.0% recall) across 373 images and 457 instances.
- Built a YOLO fall detection model reaching 90.2% mAP@0.5 (85.4% precision, 86.1% recall) for real-time emergency alerting.
- Developed a 6-class facial emotion recognition model at 87.3% mAP@0.5 across 1,562 images and 4,408 instances, powering sustained mood-risk alerts.
- Delivered an XGBoost health risk scoring model (99% accuracy) over structured lifestyle and medical-history features, mapped to three actionable risk bands.

Tech: Python, PyTorch, YOLO, XGBoost, FastAPI, OpenCV, Node.js, Express, Prisma, WebSocket

Raqib — National Road-Hazard Monitoring Platform — Capstone Project, DEPI · Team Leader

- Led the project and distributed technical roles across the team for an AI platform that detects road hazards and auto-generates formal Arabic incident reports routed to the responsible authority.
- Designed and built a two-stage traffic sign inspection pipeline: a YOLO detector locates signs, then a MobileNet CNN classifies each cropped sign as damaged or healthy — separating detection from condition assessment so each model can be retrained independently.
- Built the full automation layer in n8n: detection ingestion webhook, normalization and severity mapping, LLM-based Arabic report generation via Google Gemini, storage, and API endpoints, with template fallback ensuring a report is always produced.
- Developed the front end — an Arabic-first RTL interface with an authority dashboard (search, filtering, status control, replies) and a citizen tracking portal with live status timelines.

Tech: Python, YOLO, MobileNet, TensorFlow, n8n, Google Gemini, React, Vite, Vercel

Faculty of Exoplanets — AI-Driven Discovery Platform — Team Leader · 1st Place, NASA Space Apps Challenge 2025 | [GitHub](#)

- Led the team and built the machine learning pipeline classifying whether an observed candidate is a confirmed exoplanet, reaching 88% accuracy on NASA open datasets.
- Developed a second-stage habitability prediction model at 94% accuracy, applied to candidates confirmed by the first model.
- Built and deployed the FastAPI services exposing both models, plus interactive dashboards for scientific exploration.

Tech: Python, Scikit-learn, XGBoost, LightGBM, KNN, FastAPI, React.js, Streamlit

Arabic Compliance Gap Detection (ECC 2:2024) — NLP · Multi-Label Classification

- Fine-tuned XLM-RoBERTa for multi-label compliance gap detection across 32 binary control labels on Arabic regulatory text.
- Diagnosed and resolved severe data leakage caused by 4x record duplication, then rebuilt the training pipeline to achieve 0.946 Micro-F1 and 92.8% exact-match accuracy.

Tech: Python, PyTorch, Hugging Face Transformers, XLM-RoBERTa

TECHNICAL SKILLS

Programming Languages: Python, C++, SQL, JavaScript, MATLAB, Prolog

Machine Learning & Deep Learning: PyTorch, TensorFlow, Keras, Scikit-learn · Deep Learning, CNNs, Transfer Learning, Gradient Boosting, Anomaly Detection, Model Evaluation, Hyperparameter Tuning

Computer Vision: OpenCV, Object Detection, Image Classification, Facial Recognition, OCR, Real-Time Video Inference

NLP & Generative AI: Hugging Face Transformers, Transformer Fine-Tuning, Large Language Models, Arabic NLP, Prompt Engineering, AI Agents, Text-to-Speech, RAG Fundamentals

Backend & Deployment: FastAPI, Flask, REST APIs, Streamlit, Node.js, Microservices, WebSocket, Docker Fundamentals, NVIDIA Jetson (Edge Deployment)

Data & Tools: Pandas, NumPy, Matplotlib, Seaborn, EDA, Feature Engineering, Model Evaluation, Git, GitHub, n8n, Supabase, Next.js, Vercel

CERTIFICATIONS & AWARDS

- 1st Place and Global Nominee — NASA Space Apps Challenge 2025 (Local Event, Shebeen El-Koom)
- 3rd Place — Data Pill Hackathon 2026
- Machine Learning Specialization — Stanford University (Coursera)
- AI & Machine Learning Training (72 hours) — Information Technology Institute (ITI)
- Problem Solving — ICPC

Languages: Arabic — Native | English — Professional Working Proficiency (C1)

VOLUNTARY WORK

AI Mentor — Shabab Betesaed Shabab: Mentored students through AI and machine learning fundamentals, reviewing projects and guiding real-world applications.

Team Leader, Joker Team — Shabab Betesaed Shabab: Led and organized large-scale youth events, mentoring participants in programming and design.

Development Team Member — Compiler Community: Contributed to community technical initiatives and cross-functional collaboration.