Aya Nabil *AI Engineer*

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SUMMARY

AI Engineer with production experience across LLM agents, ML services and AI safety. At Pixonal, I own the ML layer of an enterprise analytics platform for UAE government clients, from model serving and time-series forecasting (about 20% lower error than baseline) to LangGraph agents for geospatial analysis. I specialize in making LLM systems reliable and safe in English and Arabic, from prompt-injection defense to cross-lingual evaluation. Open to AI Engineer roles, remote or with relocation.

EXPERIENCE

AI Engineer — Dec 2025 – Present
Pixonal — Giza, Egypt

- Own the ML inference service (Python, FastAPI): model upload and prediction, Snowflake and Databricks serving endpoints, and safe ONNX conversion of uploaded models in a sandboxed process.
- Built time-series forecasting: Chronos-2 zero-shot cut error by about 20% against a seasonal baseline on 180 backtests of real traffic data (MASE 0.56 vs 0.70).
- Built GIS analysis agents on LangGraph (correlation and catchment: travel time, access, road closures), backed by spatial statistics such as Moran's I, LISA and Getis-Ord.
- Built and shipped a confidential-data guardrail: a Presidio + GLiNER pipeline replaced a small-LLM PII detector (F1 0.58 → 0.91; Arabic 1.00).

AI Engineer — Jul 2025 – Dec 2025
MAG GROWTH — Remote (Saudi Arabia)

- Rebuilt Maya, a **WhatsApp AI** marketing agent, from JavaScript to Python (FastAPI, LangChain, PostgreSQL), cutting response latency by 25%.
- Built 11 agent tools: lead capture and 0–100 scoring, meeting booking, CRM sync with GoHighLevel through HMAC-verified webhooks, and hand-off to a human.
- Designed three-tier memory (recent messages, rolling summary, lead profile); summaries cut prompt tokens by about 70%. Handled 100+ conversations a week.

AI Instructor — Jul 2025 – Oct 2025
Arabian Academy — Alexandria, Egypt

- Designed and taught a 100-hour applied AI program for 80+ Pharos University students, with hands-on notebooks and projects.

AI Intern — Sep 2023 – Feb 2024
SureStart — Remote (Canada)

- Developed an NLP-based moderation bot for Discord, detecting and filtering abusive or toxic language in real time.

Machine Learning Engineer — Jul 2023 – Sep 2023
Omdena — Remote (Myanmar)

- Built CNN models in TensorFlow and Keras to detect tuberculosis and COVID-19 in chest X-rays, with an international team on Omdena's open-source project for regions short of radiologists.
- Raised model performance by 25% through image preprocessing (OpenCV resizing, normalization, augmentation, class balancing) and tuning, and shipped the model in a Streamlit app for X-ray upload and diagnosis.

Machine Learning Intern — Jun 2022 – Sep 2023
Egyptian Space Agency (*EGSA*) — Alexandria, Egypt

- Analyzed satellite imagery with machine learning for remote-sensing predictions, raising model accuracy by 15%.

PROJECTS

Afandem: Arabic Agent Reliability Benchmark — Nov 2026 – Present
Tools: *Python*, *LLM tool calling*, *open Arabic models* (*Jais*, *ALLaM*, *Qwen*)

- Building an open benchmark that tests whether LLM agents still act correctly when the same request is written in Egyptian Arabic, Arabizi or code-switched Arabic instead of MSA or English: the right tool, the right arguments, and refusing what they should.
- Native-speaker paired scenarios (not machine-translated) run in deterministic tool sandboxes (clinic booking, banking, telecom, delivery), scored on task success, tool and argument accuracy, unsafe actions and refusal parity, with paired statistics. It extends Swan's finding that refusals matched across English and Arabic only 78% of the time.

Cygne: Autonomous Sales Agent with Human Approval Aug 2026

Tools: *Python, FastAPI, PostgreSQL, Docker, Qwen*

- Telegram agent that runs a lead from first message to booked call: learns the prospect's needs, scores fit with an explainable breakdown, and drafts a proposal that a person approves before it is sent.
- Designed against hallucination: a lead fact is saved only when the agent quotes the prospect's exact words and the quote matches the value. Built for the Qwen Cloud Global AI Hackathon .

Swan: Production LLM Service in English & Arabic Oct 2025

Tools: *FastAPI, React, Gemini, Docker, Prometheus*

- Turned a Gemini app into a production-grade LLM service: prompt-injection guardrails that see through Arabizi, Egyptian Arabic and hidden-character tricks, output validation, fallback models with per-model circuit breakers, and Prometheus metrics on every request.
- Built a 63-case evaluation suite that caught 3 production bugs and exposed a cross-lingual safety gap: the model's refusals matched between English and Arabic only 78% of the time.

AWARDS

2nd on the quality leaderboard Sep 2026

AlphaNova quant signal

time-series trading signals scored on a hidden test set.

TECHNICAL SKILLS

- **LLMs & agents:** LangGraph, LangChain, Presidio, GLiNER, OpenAI / Anthropic / Gemini APIs, LLM evaluation, guardrails
- **ML & forecasting:** PyTorch, scikit-learn, ONNX, TensorFlow/Keras, OpenCV, Chronos-2, MSTL
- **Backend & frontend:** Python, FastAPI, Go, TypeScript, Next.js, React
- **Data:** SQL, PostgreSQL (Supabase), Neo4j, Redis, Snowflake, Databricks
- **Infra:** Docker, Kubernetes, Helm, GitHub Actions, Prometheus, Azure
- **Geospatial:** spatial statistics (Moran's I, LISA, Getis-Ord), catchment and siting analysis

EDUCATION

Bachelor of Computing and Data Science Oct 2021 – Jun 2025

Alexandria University Alexandria, Egypt

CGPA: 3.45 / 4.0 (top 20%) **Equivalent Grade:** Very Good

Graduation Project : Real-time Facial Recognition System with Adaptive Security and Emergency Response

CERTIFICATES

AI Engineer for Developers Associate
DataCamp

Machine Learning Specialization
DeepLearning.AI

Applied Data Science
IBM

Math for ML and Data Science.
DeepLearning.AI

LEADERSHIP ACTIVITIES

Microsoft Learn Student Ambassadors Jan 2024 – Jan 2025

Beta Student Ambassador Remote

Aseer Al-Kotob 2022 – 2025

Community Team Leader Alexandria, Egypt

Robotics Aug 2024 – Dec 2024

Machine Learning Instructor Alexandria, Egypt

LANGUAGES

Arabic
Native

English
Fluent