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Ahmed Baghouli

Computer Science student · Full-stack & AI developer · Applying for a Master's in AI

Portfolio: ahmedbaghouli.world

PROFILE

Third-year Computer Science student at Université Sesame, Tunisia, following two years of an integrated MPI preparatory engineering cycle. I design, build and deploy complete AI-integrated systems on my own. Examples include an Arabic-first assistive vision app covering a use case no existing tool handles, and a radar tracker validated over 100 Monte Carlo runs. I am seeking a **Master's in Artificial Intelligence focused on natural language processing and computer vision**, with the intention of continuing to doctoral research. Case studies, demo films and verifiable credentials are on my trilingual (EN · FR · AR) portfolio at ahmedbaghouli.world.

EDUCATION

Université Sesame | Ariana, Tunisia — 2024 – Jun 2027 (expected)

Licence in Computer Science & Multimedia (L3), in progress · preceded by the Integrated Preparatory Cycle MPI (Mathematics, Physics, Computer Science), Sep 2024 – Jun 2026

- Annual average rose from 11.06/20 to 13.19/20, **ranked 22nd of 72**. Semester progression: 10.30 → 11.81 → 12.30 → 14.08/20.
- Selected results: Web Technologies 2 **18.20/20 (2nd)** · Python Programming **17.16/20** · Data Structures & Algorithms 2 15.86/20 · Numerical Analysis 15.29/20 (8th) · Mechanics 2, signals and Fourier analysis 14.38/20 (7th).

Baccalauréat, Computer Science stream | Tunisia — 2024

RESEARCH-ORIENTED PROJECTS

AI Eyes: Assistive Vision System for Arabic-Speaking Blind Users

Feb – Jun 2026

*End-of-year project (PFA), solo · defended before a jury: project 14.70/20, defence **17.00/20 (ranked 3rd)***

Case study & film · Live dashboard · github.com/Zemoo8/AIEyes · aieyes-backend

- Built and deployed an Android assistant solo over eight sprints. It fills a gap left by Seeing AI, Google Lookout and Envision AI, none of which support Arabic natively or recognise Tunisian banknotes.
- Six operating modes on a **YOLOv8n** detection service (FastAPI, Dockerised on Railway) and Groq-hosted Llama vision and language models: continuous scene narration, **OCR of mixed Arabic/French/English text**, scene description, object search, banknote recognition and a conversational assistant.
- Fully hands-free: a double shake activates the app and **Whisper** handles voice commands. An emergency sequence sends a GPS-linked Telegram alert and logs position every 30 s for 5 min. The alert goes out in under 5 s.
- Built a companion Next.js dashboard (Supabase Auth, Leaflet) for family monitoring. 3,000+ lines in the main module, six database tables, seven external APIs.

Stack: React Native, Expo, FastAPI, YOLOv8n, Whisper, Groq (Llama), Supabase/PostgreSQL, Next.js, Tailwind, Docker

Radar Target Tracking & Missile Interception under Uncertainty

2026

Differential Equations coursework, extended independently · solo

Case study & demo · github.com/Zemoo8/radar-target-tracking-and-missile-interception

- Implemented a constant-velocity **Kalman filter** and a three-mode **Interacting Multiple Model (IMM)** estimator that re-weights itself during target manoeuvres.
- Evaluated over **100 Monte Carlo runs** with NEES/NIS filter-consistency checks and sensor-noise and tuning sweeps. The IMM cut position error by **45.6%** against raw radar (RMSE 79.4 m → 66.9 m with a tuned Kalman filter → 43.2 m with the IMM).
- Built an interactive Three.js 3D demo that shows the equation behind each step, with written theory documentation. A Monte Carlo regression test runs in GitHub Actions CI.

Stack: Python, NumPy, SciPy, Matplotlib, Three.js, pytest, GitHub Actions

Sandy AI Lab: Multi-Agent Laboratory Assistant

2026

*Code It Up 6.0 overnight hackathon · **top 5***

Case study · github.com/Zemoo8/CodeItUp0.6

- Three-agent pipeline: an inventory agent (minimum stock), a research agent (blocked or delayed projects) and a **planner** that turns anomalies into a prioritised action list. Answers come from Groq-hosted Llama 3.3 70B, restricted to the supplied context to limit hallucination.
- Three-tier data fallback (REST API → local PostgreSQL → static structure) kept the demo answering when upstream services failed. Streaming chat UI with voice input and spoken replies (Web Speech API).

Books Price Intelligence: End-to-End Data Pipeline 2026

Python Programming course project · solo

Case study · github.com/Zemoo8/scraping-book

- Polite scraper (requests, BeautifulSoup) → pandas cleaning → SQLite → Flask REST API with a live scrape trigger → React/TypeScript dashboard (Recharts). The scikit-learn regression on top comes with an explicit statement of what it cannot predict.

SubwayRunner: Procedural 3D Endless Runner 2026

3D Animation coursework · 13.09/20 · case study

- Unity 6 / C# (URP). A procedural spawner creates and culls 40-unit track segments around the player, so memory stays bounded however long the run lasts. Three-lane kinematic controller with speed ramping from 8 to 22 units/s.

Attendance Management Platform with RAG Chatbot

Web Technologies 2 project, with a teammate · 18.20/20, ranked 2nd · source

- Role-separated PHP MVC / MySQL platform, with a Flask retrieval chatbot behind an Apache reverse proxy and a server-side IP check that allows attendance entry from the campus network only.

EXPERIENCE

Freelance Web & AI Developer, Cheezy | Bizerte, Tunisia · hybrid Jun 2026 – present

Case study · cheezy.store · Mobile app demo

- Found the client through direct outreach and delivered a paid, production storefront: bilingual, multi-shop, with a full ordering flow (options, add-ons, pickup/delivery) handed off to WhatsApp and a staff admin panel.
- Built an **AI assistant grounded in the shop's own menu through retrieval (RAG)** on Groq and Gemini with Supabase-backed memory. Produced the brand's videos with Remotion (React video).
- Retained for ongoing maintenance and a follow-on Expo mobile app (ordering and loyalty). Also built marketing sites for a Bizerte coffee shop (Caffeine) and a bubble-tea shop (Bubbleberry Bliss).

Sotetel, Introductory Internship | Tunis, Tunisia Jun – Jul 2025

- One-month placement at a Tunisian telecommunications operator, working with Flask and Cisco Packet Tracer.

CERTIFICATIONS · 18 in total, with verification links on the portfolio

- **Fundamentals of Deep Learning**, NVIDIA DLI, Feb 2026
- **IT Specialist: Artificial Intelligence**, Certiport / Pearson VUE, Jan 2026
- **AI Engineer for Data Scientists Associate**, DataCamp, Jul 2026
- **Python Data Associate**, DataCamp, Feb 2026
- **Generative AI: Prompt Engineering Basics**, IBM / Coursera, Jul 2026
- **EU AI Act Literacy**, DataCamp, Jun 2026
- **Open Science Essentials**, NASA, Jul 2026
- **CCNA: Introduction to Networks**, Cisco Networking Academy, Jun 2026
- **Python Essentials 1 & 2**, Cisco / OpenEDG, Jun 2026 · **C Essentials 1**, Jun 2025
- **Aspire Leaders Program**, Aspire Institute, Sep 2026
- **Online Dialogue Facilitation**, Soliya, Sep 2026

TECHNICAL SKILLS

Programming: Python, TypeScript, JavaScript, C++, C, C#, PHP, SQL

AI & ML: YOLOv8 object detection, OCR, Whisper speech recognition, RAG, intent classification, LLM APIs (Groq/Llama, Gemini), multi-agent orchestration

Estimation & data: Kalman / IMM filtering, Monte Carlo evaluation, NumPy, SciPy, pandas, scikit-learn, Matplotlib, MATLAB

Engineering: React, React Native, Expo, Next.js, FastAPI, Flask, Node.js, Tailwind · PostgreSQL, Supabase, MySQL, SQLite · Docker, Git, GitHub Actions, Vercel, Railway

3D & media: Unity 6 (C#, URP), Three.js, Remotion

LANGUAGES & INTERESTS

Arabic: native · **French:** TCF B2, 408 (Oct 2026), language of instruction in the preparatory cycle · **English:** Cambridge B2 First, 176, Grade B (Aug 2026), **Listening 190**

Competitive chess since 2018 (club player, ~1600) · Shotokan karate, six years to advanced belt · Code It Up 5.0 hackathon (IEEE ISET Bizerte)