Adem Boukabes

Software Engineer

+213 562 23 87 29 · adamboukabes1@gmail.com · Algiers, Algeria

PROFILE

Third-year Artificial Intelligence student at USTHB with strong hands-on experience in backend development, system design, and AI tooling. Proficient in Python, TypeScript, and Go, with a focus on building scalable APIs, cloud infrastructure, and developer tools. Passionate about open-source and applying AI to real-world products. Currently serving as Dev Project Manager at Micro Club — USTHB's leading scientific club — and as a Software Engineering Instructor at Snai3i, where he teaches backend and software engineering fundamentals.

EDUCATION

B.Sc. Artificial Intelligence — USTHB *2023 – Present (Year 3)*

University of Science and Technology Houari Boumediene · Algiers, Algeria

- Relevant courses: OOP, Data Structures & Algorithms, Database Systems, Computer Networks, Operating Systems, Software Engineering

EXPERIENCE

Software Engineering Instructor *2026 – Present*

Snai3i

- Teach software engineering and backend development fundamentals to students
- Design course content and hands-on exercises covering programming, system design, and best practices

Dev Project Manager *2025 – Present*

Micro Club — Scientific Club, USTHB

- Lead and coordinate software development projects within Algeria's most active university tech club
- Manage cross-functional teams of student developers, define roadmaps, and oversee deliverables
- Mentor junior members on backend architecture, clean code, and Git workflows

Networking Intern *3 months*

TTA-Sonatrach

- Completed a 3-month internship focused on enterprise networking
- Worked hands-on with network infrastructure, configuration, and troubleshooting in an industrial environment

Backend Developer (Personal Projects) *2023 – Present*

Independent

- Built large-scale backend systems with FastAPI and NestJS covering auth, database design, and clean architecture
- Developed Aura ODM — an async Python ODM for Redis using Pydantic v2 and RedisStack, published with full documentation
- Created Python automation scripts for networking, system admin, and developer productivity

PROJECTS

MultAI — AI Event Photo Search Platform (Python)

- AI-powered platform that lets event participants automatically find photos of themselves among thousands of event photos
- Uses face detection, embeddings, and similarity search (InsightFace) to match a submitted selfie against the uploaded photo set
- Combines AI, backend, cloud, and distributed systems: FastAPI + PostgreSQL backend, Redis and NATS JetStream for async processing, S3/MinIO for storage, JWT auth, deployed on Azure VM with Docker

Stack: Python 3.12 · FastAPI · Pydantic · PostgreSQL · InsightFace · Redis · NATS JetStream · Docker · Azure · Next.js

nats-outbox — Transactional Outbox Pattern (Python)

- Open-source Python library published to PyPI implementing the Transactional Outbox Pattern for PostgreSQL + NATS JetStream
- Guarantees atomic "save to DB + publish event" semantics via a staged outbox table and an at-least-once background relay
- Ships a CLI, async SQLAlchemy integration, and a full MkDocs documentation site

Stack: Python · PostgreSQL · SQLAlchemy (async) · NATS JetStream

Aura ODM — Async Redis ODM (Python)

- Async Python Object-Document Mapper for Redis built on Pydantic v2 and RedisStack

- Key differentiator: CachedRepository pattern enabling Redis as primary DB with SQL fallback
- Published with full docs, packaging, and an audit framework

Stack: Python · Pydantic v2 · RedisStack · asyncio

Enterprise Network Design

- Designed and configured enterprise topologies including VLANs, inter-VLAN routing, DHCP, NAT, trunking, and network security

Tools: Cisco Packet Tracer · CCNA-level knowledge

TECHNICAL SKILLS

- Languages: Python, TypeScript, JavaScript, Go, C
- Backend: FastAPI, NestJS, Express.js, REST APIs, WebSockets
- Databases: Redis, MySQL, SQL — schema design & query optimization
- Cloud: cloud computing fundamentals, cloud architecture & deployment
- Monitoring: Grafana, Prometheus, logging & observability fundamentals
- DevOps: Linux, Docker, Git, GitHub Actions, CI/CD fundamentals
- Networking: TCP/IP, VLANs, Routing, DHCP, NAT — CCNA-level
- AI / ML Tools: LLM API integration, prompt engineering, Pydantic AI
- Tools: VS Code, Postman, Cisco Packet Tracer

LANGUAGES

- Arabic — Native
- English — Professional working proficiency
- French — Professional working proficiency

INTERESTS

Backend Architecture · AI/ML Engineering · Cloud & DevOps · Open-Source Development · Cybersecurity · Developer Tooling · Entrepreneurship