Aya Squalli Houssaini

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Summary

Cybersecurity-focused CS student and competitive CTF player with hands-on experience in offensive problem solving (web/crypto/osint) and defensive engineering (detection + applied ML). Built and shipped AI web apps end-to-end and developed security/ML prototypes (log anomaly detection, federated IDS). Strong in Python with solid SWE fundamentals. Seeking cybersecurity R&D or secure software engineering roles.

Experience

Headstarter, NY, USA **Jul 2024 – Sep 2024**

Software Engineering Fellow

- Shipped **5 AI web apps in 5 weeks** (Next.js, Firebase, Clerk) with CI/CD and sprint delivery.
- Built a **chatbot** (Gemini API) and a **Stripe SaaS** feature set (subscriptions + rate-limits).
- Implemented **RAG Q&A** (Pinecone + OpenAI) and improved retrieval with chunking/metadata.

3DSmart Factory, Morocco **Jul 2025 – Sep 2025**

Summer Intern — Federated Learning Research

- Prototyped **FL-IDS for IoT** with secure aggregation and encrypted transport; **>95%** on N-BaIoT (internal).
- Benchmarked against classical baselines (e.g., Random Forest, XGBoost) and documented a reproducible pipeline.

Education

College of Computing, Université Mohammed VI Polytechnique (UM6P) **Expected Graduation 2029**

State Engineer in Computer Science — Cybersecurity Minor (BAC+5), Master's Equivalent

- ACM Chapter (Membership Chair): contributed to events/workshops.

Baccalaureate (High School) Diploma **2023**

Mathematical Sciences – 4.0 GPA, Groupe Scolaire La Résidence (Fès)

Projects

Automated YARA Rule Generation using LLMs **Jan 2026 – Present**

Malware Analysis

- Pipeline to extract PE/static+dynamic features and generate/test YARA rules (`pefile`, `LIEF`, `yara-python`).

Statistical Analysis of HDFS Logs for Anomaly Detection **Dec 2025**

Applied Statistics (HDFS_v1)

- Analyzed **575k** labeled system log records, engineered simple behavior metrics, and built a baseline anomaly detector achieving **89.7%** accuracy (**0.924** AUC).

CHIP-8 Emulator (Python) **January 2024**

Interpreter / Virtual Machine

- Built a CHIP-8 emulator in Python with a fetch–decode–execute loop, opcode dispatch via bit-masking, 4KB memory + registers/stack/timers, and `pyglet`-based 64×32 XOR-sprite rendering with collision flag (VF) and 16-key input; validated using ROMs.

Technical Skills

Languages: Python, C/C++, JavaScript

Web: React, Next.js, Nuxt.js, HTML/CSS, Firebase, Vercel

Databases: PostgreSQL, MongoDB, MySQL

DevOps: Docker, Git, CI/CD

Security: Web Exploitation, Cryptography, Penetration Testing, Red Team Operations

ML/AI: PyTorch, TensorFlow, Federated Learning, RAG, Pinecone

CTF & Competitions

- MCSC v13 Finals-ENSIAS: 1st prize
- ASIS Finals 2025: 1st Morocco, 2nd MENA, 34/476 global.
- UofTCTF 2026 (Open): 24/1550 global.
- HackTheBox Global Meetup Ambassadors: 1st prize worldwide.
- HackTheBox Multi-campus Meetup (1337 + 42 Berlin/Wolffsburg/Heilbronn): 5th place (6/7 solves, team of 3).
- Kaspersky CTF: 38/450 regional (Middle East, Türkiye, Africa).
- Nullhat Morocco 2025 (with HackerOne): 6/40 national.
- IDEH (INPT) 7th edition: 4th place nationally.
- HackDay 2026 - Qualified to finals.
- Midnight CTF 2026 - Qualified to finals.
- Organized local CTFs: authored challenges and managed infrastructure/logistics.

Certifications

- CS50x (Harvard/edX) — Jul 2024
- HackTheBox: Master I (Level 63)
- TryHackMe: self-study