Wael Hammali

Software Engineering Student – AI, Cybersecurity & Computer Vision

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SUMMARY

Final-year software engineering student and research-master student at ENIT, working where artificial intelligence meets cybersecurity and computer vision. Builds multi-agent LLM penetration-testing pipelines (LangGraph, RAG), fine-tuned YOLOv8 vision models and AWS infrastructure automation with Terraform and Ansible. Co-author of a paper accepted at IEEE AIDIST 2026 and holder of the hands-on CAPT penetration-testing certification. Seeking a PFE internship for 2027 or a research role in AI security, computer vision or applied machine learning.

EDUCATION

National Engineering School of Tunis (ENIT) Sep 2024 – Expected 2027
Engineering Degree in Software Engineering (Diplôme National d'Ingénieur, 5-year program, Master's level)

National Engineering School of Tunis (ENIT) 2026 – Present
Research Master in Communication Systems (SYSCOM) · AI/ML for communications, networks, signal processing, IoT

Preparatory Institute for Engineering Studies of Monastir (IPEIM) Sep 2021 – Jul 2023
Preparatory Cycle in Physics & Technology for the national engineering entrance exams · High Honors · Rank 78

EXPERIENCE

AI & Cybersecurity Engineering Intern Jun 2026 – Jul 2026
Keystone Groupe, Tunis, Tunisia

- Architected **DarkIntel**, a three-stage AI penetration-testing pipeline that injects reconnaissance findings into the validation engine's RAG memory, so validation starts without re-running discovery.
- Built **IntelForge**, combining passive OSINT (FinalRecon: Whois, DNS, SSL, Shodan, Wayback Machine) with active reconnaissance (Nmap TCP/UDP, directory and vhost fuzzing) and a 4-stage LLM pipeline (Groq, DeepSeek R1) that turns raw scan output into structured exploit-intelligence reports.
- Extended the open-source Watchtower framework into **VoidHawk**: 6 specialized agents (Planner, Worker, Cleaner, Analyst, Logic Analysis, Validator) orchestrated by a LangGraph state machine, driving 23 security tools, with persistent RAG memory (ChromaDB, Sentence-Transformers) and CVSS 3.1-scored PDF, HTML and Markdown reports.
- Added an evidence-grounded reporting stage (Anthropic Claude API) that writes the exploitation narrative only from confirmed findings and commands actually executed; covered the pipeline with pytest tests using mocked LLMs.

Environment: Python, LangGraph, LangChain, Ollama, Groq, Anthropic Claude API, ChromaDB, SQLite, Nmap, pytest

Computer Vision Researcher Jun 2026 – Aug 2026
SympactAI Research Program (2nd Edition), TAIS NextGen, Tunisia

- Led the jersey-number recognition module of an augmented-reality soccer-analytics system that identifies players automatically in live and recorded broadcast footage.
- Added Real-ESRGAN super-resolution ahead of pose-guided cropping (ViTPose) and scene-text recognition (PARSeq) to recover jersey numbers on low-resolution, motion-blurred frames.
- Worked in a multidisciplinary research team, integrating the module into the wider sports-analytics pipeline.

Environment: PyTorch, OpenCV, Real-ESRGAN, ViTPose, PARSeq · github.com/WaelHammali/Jersey-number-pipeline-extension

Network & Security Infrastructure Intern Jul 2025 – Aug 2025
TAV Airports, Enfidha-Hammamet International Airport, Tunisia

- Audited parking-camera and network infrastructure (cabling, switches, firewalls, servers) for security and reliability.
- Contributed to a workaround that kept the camera system operating during a fiber-optic outage.
- Delivered an infrastructure report recommending hardware upgrades, IoT sensors and computer-vision use cases (license-plate recognition, anomaly detection) and strict data-access policies covering internal staff.

PUBLICATIONS

From Network Diagrams to Deployable Cloud Infrastructure: A Multimodal AI-Based Approach Oct 2026
Co-authored with Dhiaeddine Barhoumi; supervised by Wafa Mefteh, RISC Laboratory, ICT Department, ENIT. Accepted at **IEEE AIDIST 2026** (5th FCIERI Forum), Tunis, Tunisia, 29–31 Oct 2026. Based on the Net2Cloud project below.

PROJECTS

Net2Cloud – Network Diagram to Deployable AWS Infrastructure 2025
ENIT Year-2 Project (PFA 2), published at IEEE AIDIST 2026 · Report: wael-hammali.vercel.app/rapports/pfa2.pdf

- Co-built a full-stack tool that turns a Cisco Packet Tracer screenshot or a text prompt into deployable AWS infrastructure; a fine-tuned YOLOv8 model detects 6 device classes (mAP@0.5 of 0.989, recall 0.994 on 1,200 images), PaddleOCR reads labels and OpenCV traces cables.
- The image pipeline inferred links correctly in 94.6% of cases; users review an editable topology graph with AI fixes.

- Hybrid retrieval (dense + BM25 + cross-encoder reranking) cut hallucinations from 9.5% to 5.0% versus dense-only and raised the pass rate from 85.0% to 92.5% on a 40-prompt benchmark.
- Generated Terraform and Ansible code passed terraform validate in 92.5% of 40 cases; 90% completed deployment.

Environment: Python, YOLOv8, PaddleOCR, OpenCV, FAISS, FastAPI, Next.js, Terraform, Ansible, AWS · github.com/WaelHammali/Advanced-RAG-For-Net_To_Cloud-Translation

EEG Absence-Seizure Detector – Data Mining Project

- Built an event-level detector on 8.7 hours of 19-channel EEG (21 recordings, 93 annotated seizures) with zero-phase bandpass filtering, 320 time- and frequency-domain features and patient-wise 5-fold cross-validation.
- Compared 32 classical models and 2 CNNs; the best (SVM with channel-dropout augmentation) detected 88 of 93 seizures on unseen patients (event F1 of 0.901), beating EEGNet and ShallowConvNet.

Environment: Python, SciPy, scikit-learn, EEGNet, Dash · github.com/WaelHammali/EGG-Absence-Detector

Aerial Object Detection – Computer Vision Project 2025

- Designed a dual-model YOLOv8 pipeline to handle severe class imbalance in aerial imagery, with one model dedicated to trees and a second to cars and buildings, served through a Gradio web interface.

Environment: Python, YOLOv8, OpenCV, Roboflow, Gradio · github.com/WaelHammali/Aerial-object-detection

Recruitment Management Platform – Full-Stack Web Application

- Developed a platform combining candidate profiles, CV uploads and candidate–job matching scores in one workflow.

Environment: Node.js, MySQL, Tailwind CSS · github.com/WaelHammali/Recruitment-Management-Platform

Data Analysis Techniques in Data Lakes 2024

ENIT Year-1 Project (PFA 1) · Report: wael-hammali.vercel.app/rapports/Projet_PFA1.pdf

- Studied data-lake architectures for structured, semi-structured and unstructured data, covering preprocessing, modeling, visualization and governance, and compared Hadoop, Spark, Databricks, Kafka and Tableau.

Other Projects

ENIT event platform (Node.js, MySQL) · Document search engine with indexing and relevance ranking (Java) · Dental clinic management app (Java, MySQL) · Restaurant ordering mobile app (Flutter) · School administration system (C) · 2D platform game (C#, .NET) · All at github.com/WaelHammali

TECHNICAL SKILLS

Programming: Python, Bash, SQL, Java, C, C#, JavaScript, TypeScript, Dart

AI & Machine Learning: PyTorch, scikit-learn, Large Language Models (LLMs), Retrieval-Augmented Generation (RAG), LangGraph, LangChain, multi-agent systems, ChromaDB, FAISS, Ollama, Groq, prompt engineering

Computer Vision: YOLOv8, OpenCV, PaddleOCR, Real-ESRGAN, ViTPose, PARSeq, Roboflow, Gradio

Cybersecurity: Penetration testing, OSINT, web exploitation, Nmap, Burp Suite, Metasploit, Wireshark, CVSS 3.1, CTF

Cloud, Networks & DevOps: Amazon Web Services (AWS), Terraform, Ansible, IaC, Linux, Git, Cisco routing/switching

Web & Data: FastAPI, Node.js, Next.js, Tailwind CSS, Flutter, MySQL, MongoDB, SQLite

SOFT SKILLS

Problem solving under pressure – Passed the 24-hour hands-on CAPT exam; among CyberHorizon's winning teams.

Analytical rigor – Measures before claiming: benchmarked 3 retrieval methods; DarkIntel cites only verified evidence.

Collaboration & communication – Co-authored an IEEE paper; multidisciplinary research team; authored the TAV audit.

Leadership & ownership – Organized League of Coders (national coding event) and Aero-Fab; G2FOSS Golden Member.

Time management – Delivered an engineering internship and a research program in the same summer (2026).

Adaptability & fast learning – From physics prep to AI, security and cloud; 14 projects across 6 programming languages.

Integrity & privacy mindset – Proposed TAV data-access policies that restrict camera footage even from internal staff.

CERTIFICATIONS

Certified Associate Penetration Tester (CAPT) – Hackviser, Dec 2025: 24-hour hands-on exam on live targets with a graded professional penetration-test report · Verify: lnkd.in/ddUVy22U

Cisco NetAcad CCNA courses – Introduction to Networks (Jan 2026) · Switching, Routing & Wireless Essentials (2026)

LEADERSHIP & ACTIVITIES

CyberHorizon Hackathon (5G Edition), Securinets FST – Ranked among the winning teams 2025

G2FOSS ENIT – Golden Member; organized League of Coders, a national competitive-programming event 2024 – Present

Securinets ENIT – Active member: CTF competitions, technical workshops and security events 2024 – Present

FabLab ENIT – Organizing member of Aero-Fab, a line-follower and all-terrain robotics competition 2024 – Present

Injaz El Arab Competition, ENIT – Sustainable project: thermal insulation panels from natural materials 2025

LANGUAGES

Arabic (native) · French (B2) · English (B2)