

Adam Bouafia

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Education

Vrije Universiteit Amsterdam

Master's in Global Software Engineering (GSEEM) in Computer Science

Sept 2024 – Dec 2025

- Specialization: Software Engineering & Green IT
- Thesis: Towards Greener Clouds: Evaluating Hybrid Log Management System

Università degli Studi dell'Aquila

Master's in Global Software Engineering in Computer Science

Sept 2023 – June 2024

Higher Institute of Computer Science of Mahdia

Bachelor's in Computer Science in Software Engineering & Information System

Sept 2019 – June 2022

- Final Grade: 15.2/20
- Thesis: Flutter Mobile Security App 'M3ak'

Experience

Master's Thesis Researcher

Vrije Universiteit Amsterdam

Amsterdam, Netherlands

Mar 2025 – Dec 2025

- Designed and evaluated a hybrid log management system combining ClickHouse (hot storage) and MinIO (cold storage) with blockchain-based audit trails for improved integrity, performance, and energy efficiency in cloud computing.
- Developed an ML-based semantic routing system using XGBoost with 778-dimensional features (768-dim DistilBERT embeddings and temporal/contextual features), achieving 99.93% routing accuracy with sub-10ms latency.
- Implemented asynchronous blockchain integration (Polygon L2) for tamper-proof audit trails of sensitive logs without compromising routing performance, validating security-performance compatibility.
- Delivered a reproducible, containerized pipeline with comprehensive evaluation framework, demonstrating 30-50% energy savings and 40-60% cost reduction compared to baseline approaches.

Researcher

Vivieb

Pescara, Italy

Nov 2023 – Feb 2024

- Optimized energy efficiency in Kubernetes clusters
- Visualized metrics using Grafana, utilized Kubegreen

Software Developer

Euromed Organization

Paris, France

July 2022 – Dec 2022

- Developed Dhayen, a mobile security app for a national campaign
- Contributed to the Algerian national awareness campaign: 'Dhayen, Yakfi, Stop!'

Projects

LCT - LLM Comparative Tool with Energy Profiling

Oct 2025

- Developed open-source framework for evaluating 500,000+ HuggingFace LLMs across 17 research-backed algorithms (BLEU, ROUGE, BERTScore, G-Eval, HumanEval, GSM8K) with 15+ integrated datasets, featuring real-time energy profiling via CodeCarbon and hardware-level RAPL counters.

- Architected multi-evaluation system combining traditional NLP metrics, semantic embeddings (Sentence-BERT), LLM-as-judge approaches, and task-specific benchmarks (code generation, mathematical reasoning, safety alignment) with full environmental impact tracking across 35+ global regions.
- Built containerized deployment with Docker (CPU/GPU variants) and automated CI/CD pipeline using GitHub Actions for multi-version testing (Python 3.9-3.12), Docker builds, and continuous deployment to Docker Hub, supporting reproducible experiments with CSV exports and carbon footprint analytics (tokens/joule, kg CO₂).

CO2 Consumption Monitor (GNOME Shell Extension)

2025-9

- Developed an open source GNOME Shell extension available on Gnome Store to estimate real-time CO₂ emissions based on system usage, using pure JavaScript/GJS.
- Integrated various online carbon intensity providers (ElectricityMaps, Smart Auto) and built features for auto country detection and live data updates.
- Implemented advanced UX features like per-application CO₂ tracking, historical data export, and intuitive preferences for end-users.

Think Before You Save (Green Waves Hackathon Winner at TU Delft)

2025-1

- Developed a Chrome extension to calculate and display CO₂ emissions from cloud file storage, promoting sustainable digital practices.
- Awarded winner at the Green Waves Hackathon at TU Delft University for innovative approach to environmental impact awareness.
- Implemented features including file emissions estimation, history tracking, interactive eco-tips, and user notifications using JavaScript, Chrome Extensions API, and @tgwf/co2.

Smart Fan and Gas Monitoring system

Sept 2024

- Controlled environmental conditions in real-time
- Used MQTT, Node-RED, InfluxDB, Grafana for data processing
- Integrated Telegram notifications for safety alerts

Certifications

JNCIA-DevOps (Juniper Networks Certified Associate - DevOps)

Nov 2024

IELTS Academic - English B2

May 2023

Skills

Programming Languages: Python, Java, JavaScript, C++, Dart

Containerization and Orchestration: Kubernetes, Knative, Docker, Terraform

Serverless and Cloud Technologies: Serverless architecture, AWS Lambda, Knative

Benchmarking and Performance Evaluation: Experiment Runner, DeepEval, latency, throughput analysis

Data Monitoring and Visualization: InfluxDB, Grafana, Node-RED

Tools & Technologies: API Development, NLP, IoT, ML frameworks, CI/CD pipelines (Jenkins/GitLab CI)

Languages

English: Fluent

Arabic: Native

French: Proficient

Italian: Proficient