



Mohamed Amine Ben Charrada

Phd Student in intelligence artificielle

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My Portfolio

Tunisia, Monastir

ABOUT ME

I am a PhD candidate in Artificial Intelligence at the Faculty of Economics and Management of Sfax (FSEG Sfax). I hold an engineering degree in Computer Science (AI Data Science) from École Polytechnique Sousse and a Research Master's in Software Engineering Information Systems from the Higher Institute of Computer Science and Mathematics of Monastir (ISIMM), where I carried out my thesis at the RedCAD Lab. I also taught as a part-time lecturer (vacataire) at ISIMM during the last semester of 2025, which has strengthened my commitment to academic life and student training. I also bring solid engineering experience from internships and industry projects, which helps me turn research prototypes into working systems. I am currently looking for a doctoral research visit in an international lab, to work alongside a team whose research matches mine and to build long-term academic collaborations.

EDUCATION

- PhD in Artificial Intelligence 2025 - 2029
FSEG | Faculty of Economics and Management of Sfax
- Engineering Cycle in Computer Science: AI & Data Science 2024 - 2026
École Polytechnique Sousse
- Research Master's in Computer Science: Software Engineering and Information Systems 2023 - 2025
ISIMM | Higher Institute of Computer Science and Mathematics of Monastir
- Bachelor's Degree in Computer Science: Software Engineering and Information Systems 2020 - 2023
ISIMM | Higher Institute of Computer Science and Mathematics of Monastir
- Technical Sciences Baccalaureate 2019
Lycée Jammel

PROFESSIONAL EXPERIENCE

- Higher Institute of Computer Science and Mathematics of Monastir (ISIMM) February 2026 – Mai 2026, Monastir
Adjunct Lecturer (Enseignant Vacataire)
 - Taught practical sessions in Information Indexing Techniques and Multimedia for undergraduate Computer Science students.
 - Prepared laboratory exercises and supervised practical assignments.
 - Evaluated coursework, assessed students' practical work, and provided academic guidance throughout the semester.
- MediKair February 2026 - June 2026, Kairouan
Full-Stack & AI Engineer | AI-Driven B2B Dental E-commerce Platform
 - Designed and developed an AI-driven B2B e-commerce platform for dental practices, integrating intelligent product recommendations and proactive supply management.
 - Architected and implemented the full-stack e-commerce platform, including the storefront, administration panel, product catalogue, cart, checkout, and B2B ordering workflows.
 - Developed a hybrid recommendation system combining content-based filtering and collaborative filtering for personalized cross-selling and up-selling.
 - Implemented K-Means customer segmentation based on real purchase behavior and time-series forecasting to predict consumable stock-out dates and trigger reorder alerts.
 - Built an NLP assistant grounded in product documentation, supported by an MLOps pipeline for ETL, periodic model retraining, and REST-based model serving.
 - Technologies: React, Next.js, Node.js, FastAPI, Python, scikit-learn, PyTorch, MongoDB, PostgreSQL, Redis, Docker, Kubernetes

•Anypli

August 2025 - August 2025, Monastir

Flutter Developer | Fraud Detection System

- Designed and implemented a fraud detection system for banking transactions.
- Integrated the machine learning model into a Flutter mobile application with a Firebase backend.
- Applied Random Forest algorithms for anomaly detection in financial data.
- Developed a real-time database and implemented secure authentication using Firebase.
- Enhanced the UI/UX for fraud alerts and transaction visualization.
- Technologies: Flutter, Firebase, Machine Learning, REST API, Git/GitHub

•ENOVAROBOTICS

June 2024 - August 2024, Sousse

Full-Stack Developer | Enterprise Project Management Platform

- Developed a Full-Stack enterprise project management platform to centralize planning, pole organization, and performance tracking.
- Backend (Java/Spring Boot): Designed and implemented the RESTful API for complete Project, Pole, and Task lifecycle management. Built a KPI Service for automatic calculation of schedule variance and daily productivity.
- Frontend (Angular): Created interactive dashboards (Projects, Poles, Personnel). Integrated a DHTMLX Gantt Chart for detailed planning and an analytics dashboard (Chart.js) for KPI visualization and project health monitoring.
- Technologies: Java, Spring Boot (JPA/Hibernate), Angular, RESTful API Design, MySQL, Data Visualization (KPI), Project Management Tools

•Dot It

February 2023 - May 2023, Sousse

Full-Stack Developer | White-Label E-commerce Project (Final Year Project)

- Designed and implemented a complete white-label e-commerce solution, divided into three applications: Backend API, Admin Panel, and Storefront, enabling rapid deployment for multiple clients.
- Backend & API: Architected a central RESTful API for business data management (products, inventory, orders) using Node.js/Express and MongoDB.
- Frontend: Developed dynamic user interfaces for both the Admin Dashboard (catalog/order management) and the Storefront (cart, checkout) using React.js and Flutter.
- Integrated Firebase for authentication, JWT and Bcrypt.js for secure access control, and Cloudinary for image hosting.
- Implemented Stripe for payment processing and Formspree for feedback form handling.
- Technologies: React.js, Flutter, Node.js, Express.js, MongoDB, Firebase, JWT, Bcrypt.js, Cloudinary, Stripe, Formspree

RESEARCH THEME

•Master Research Thesis

February 2025 – December 2025, Sousse

Adaptive Multi-Agent Architecture for Medical Diagnosis

- Designed and implemented an Adaptive Multi-Agent Architecture for intelligent medical diagnosis workflows using CrewAI, focusing on continuous learning, NLP, and explainability.
- Developed a Monomodal NLP-based approach leveraging ClinicalBERT, fine-tuned for clinical text classification with a test accuracy of 98.66%, addressing stagnation in traditional LLMs.
- Established a Reinforcement Learning with Human Feedback (RLHF) loop that integrates clinician feedback into the retraining process, enabling a self-improving diagnostic system.
- Integrated a Retrieval-Augmented Generation (RAG) mechanism in the Treatment Agent to ground clinical recommendations in verified medical literature, reducing hallucinations and improving factual reliability.
- Designed a Diagnostic Confidence Scoring System to quantify model reliability and enhance explainability and transparency for clinical decision-making.
- Technologies: NLP, Python, PyTorch, ClinicalBERT, CrewAI, RAG, RLHF/RLAIF, TensorFlow, REST APIs

FREELANCE PROJECTS

•Darista (Home Products E-commerce)

Freelance Full-Stack Developer (MERN)  Live Demo

2026 – Present, Remote

- Designed and deployed a production-ready MERN e-commerce platform for a home-products retailer, consisting of a customer storefront and a dedicated administration dashboard.
- Architected a shared Node.js/Express REST API with MongoDB for product catalogue, inventory, orders, and business data management.

- Developed both **React.js frontends**: the customer storefront for browsing and ordering, and the admin panel for catalogue, stock, and order management.
- Configured and deployed the platform on a **self-managed Hetzner server**, including domain configuration and production infrastructure setup.
- **Technologies**: React.js, Node.js, Express.js, MongoDB, REST APIs, Hetzner, Docker

•Art & Bois (Furniture E-commerce)

Freelance Full-Stack Engineer [ Live Demo]

January 2026 – Present, Remote

- Launched a production-ready **MERN Stack E-commerce platform** (artbois.tn), successfully deploying the white-label solution to a real-world client environment.
- Architected a robust **CI/CD pipeline** using **GitHub Actions**, automating build and deployment workflows for the Frontend on **Vercel** and the Backend on **Azure Container Apps**.
- Engineered secure cloud infrastructure by configuring **SSL/TLS encryption** and strict **CORS policies**, resolving complex **Mixed Content** issues to ensure full compatibility with mobile in-app browsers.
- Optimized media delivery and performance using **Cloudinary** image transformations and lazy loading, significantly improving **Core Web Vitals**.
- **Technologies**: React.js, Node.js, Express.js, MongoDB, Azure, Vercel, GitHub Actions, Docker, REST APIs.

PERSONAL PROJECTS

–Tennis Analysis using Deep Learning and Machine Learning

2025

- * Developed an **integrated AI system** for automated tennis and padel match analysis using deep learning, computer vision, and data science pipelines.
- * **Achievements**: Built **U-Net-based CNN** (**BallTrackerNet/TrackNet**) for ball detection (**95%+ accuracy**); re-designed **CourtKeypointNet** for court keypoint estimation (**+8% accuracy**); applied **Faster R-CNN** (**ResNet50-FPN**) for player detection; implemented **CatBoostRegressor** for bounce detection and shot classification; computed advanced match analytics (heatmaps, positional density, player movement stats).
- * Trained all models in **Python (PyTorch)** on **CUDA-enabled GPUs**; used **OpenCV** for frame processing and **Albumentations** for dataset augmentation.
- * Developing a mobile application for real-time on-court analytics.
- * Published and awarded **Best Project of the Semester**.
- * **Technologies**: Python, PyTorch, OpenCV, NumPy, Pandas, Albumentations, CatBoost, scikit-learn, CUDA

SOFT SKILLS

Proactive & Self-Motivated · Technical Analysis & Collaboration · High Attention to Detail · Passion for R&D · Agile Methodologies · Quality-Driven Delivery · Collaborative Problem-Solving & Teamwork

LEADERSHIP ROLES

–Position, ATAST-CLUB-ISIMM

Active member of ATAST CLUB ISIMM

–Position, TUNISIAN SCOUTS

Team leader

LANGUAGES

English

● ● ● ● ●

French

● ● ● ● ●

Arabic

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German

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