Malek Mabrouk

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I'm a Computer Science graduate currently pursuing a Master's in Data Science. I enjoy building software and solving challenging problems, creating solutions that are both effective and impactful. I am fluent in Arabic and have strong English communication skills, and I have delivered multiple presentations in both English and French during my university studies. I am also exploring machine learning and its practical applications, eager to apply my skills to exciting projects in the tech world.

Professional experience

Academic projects

- **Location-Based Business Recommendation System – Lyon, France** Oct 2026
  - Built a platform where users pick a location on an interactive map (OpenStreetMap) of Lyon, France and get ranked business ideas, each with an explanation.
  - Modeled competitors, proximity and accessibility with Graph Neural Networks (GNN) and identified local needs from online discussions and reviews.
- **Named Entity Recognition (NER) – NLP Mini-Project** Sep 2026
  - Extracted persons, organizations, locations, dates and other entities from text using spaCy / Transformer-based NER models.
  - Trained and evaluated the models using Precision, Recall and F1-score per entity type.
- **Ktaby: Personalized Online Bookstore** May 2026
  - Built an online bookstore with a recommendation engine suggesting books from user preferences, ratings and browsing history.
- **Real-Time Meeting Platform** Feb 2026
  - Developed a meeting platform with WebRTC video calls and live speech-to-text transcription.
  - Implemented multi-threaded transcript processing for real-time captions.
- **Real-Time E-Commerce Analytics Platform**
  - Built an end-to-end big data pipeline with Kafka and Spark to process e-commerce transactions in real time.
  - Stored data with Apache Cassandra and DuckDB for fast analytical queries, with a live Streamlit dashboard.

Internships

- **DEMCO JEANSWEAR: Automation of Fabric Shade Sorting and Validation using AI** Feb 2025
  - Built a web platform using the Flask framework to sort and validate fabric shades after wash tests.
  - Applied hierarchical clustering with Weibull-based estimation to group similar fabric shades.
  - Integrated a textile colorization algorithm for accurate shade analysis, and ranked shade groups by similarity to client preferences.
- **LEONI Messadine** Aug 2024
  - Gained hands-on experience with wired systems, server management, and administration systems.
  - Explored information storage methods and the integration of hardware components in laptops.
  - Observed and learned about the organization and branching of hardware systems within the company infrastructure.

Personal projects

- **Money Management Web App** May 2026
  - Developed a money management web application with an intuitive interface for easy navigation and interaction.
  - Integrated an AI chatbot for user assistance and queries, and AI-powered insights on spending and finances.
- **Bookstore Website** Sep 2024
  - Developed a web-based bookstore in PHP with a payment API for secure transactions, a shopping cart and order management.

Education

- **Master's in Data Science** *In progress*
  Faculty of Sciences Monastir
- **Bachelor's in Computer Sciences** Jun 2025
  Faculty of Sciences Monastir
  - Graduated in Software Engineering and Information Systems specialization
- **Tunisian Baccalaureate** Jun 2022
  Khniss High School – Experimental Sciences Stream

Skills

Programming Languages: Python, SQL, Java
Frameworks & Libraries: Flask, Django, TensorFlow, PyTorch, NumPy, Pandas, spaCy, Streamlit, React, Tailwind CSS, Bootstrap
Data & AI: NLP, Deep Learning, Computer Vision, GNN, Recommendation Systems
Databases: MySQL, MongoDB, Oracle, Apache Cassandra, DuckDB
Tools & Technologies: Git, GitHub, Docker, Kafka, Spark, Power BI
Operating Systems: Windows, Ubuntu
APIs: REST

Languages

English: B2
French: B2
Arabic: Native