Missipsa GHERNAOUT

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Education

Computer Science, Master's Degree in Intelligent Computer Systems   **Sep 2025 – Jun 2027 (Expected)**
Mouloud Mammeri University   *Tizi-Ouzou, Algeria*
Coursework: Advanced Algorithms and Complexity, Intelligent Networks, Cybersecurity, Big Data, NLP, Advanced Databases, Systems Programming, Problem Solving, Deep Learning and Neural Networks, Data Mining.

Computer Science, Bachelor's Degree in Computer Systems   **Sep 2022 – Jun 2025**
Mouloud Mammeri University   *Tizi-Ouzou, Algeria*
Coursework: Algorithms and Data Structures, Artificial Intelligence, Discrete Math, Algebra, Statistics/Probability, Networks, Databases, Compiler Design, Operating Systems, Computer Security, Software Engineering.

Projects

Unitime | *Frontend Source Code* | *Backend Source Code*   **Flutter | Spring Boot | PostgreSQL**
- Architected a cross-platform solution using **Flutter (MVVM)** and **Spring Boot 3 (Clean Architecture)**, ensuring a strict separation of concerns and high system maintainability.
- Implemented advanced design patterns including **Command** for reactive state tracking, **Result Union** for type-safe error handling.
- Optimized data integrity and performance through **DTOs** and a **normalized PostgreSQL schema**, secured by **role-based JWT authentication** and platform-specific secure storage.

Handwritten Digit Recognition | *Source Code*   **Python | Scikit-learn | NumPy | Tkinter**
- Engineered an end-to-end ML pipeline using a **Support Vector Machine (SVM)** classifier and PIL/NumPy to process and recognize handwritten digits with **98%** accuracy.
- Developed an interactive Tkinter **GUI featuring real-time 8x8** pixel normalization and intelligent cropping, validating model robustness via macro-averaged performance metrics.

Lexical Analyzer (Compiler Design) | *Source Code*   **C**
- Engineered a low-level scanner in C based on **Deterministic Finite Automata (DFA)** to efficiently tokenize source code and validate language syntax.
- Optimized system performance through manual **memory management** and efficient buffer handling, ensuring high-speed string manipulation and robust syntax error detection.

YelpCamp Platform | *Source Code*   **Node.js | Express.js | MongoDB**
- Engineered a **RESTful MVC platform** using Node.js and MongoDB, integrating **Cloudinary for cloud media storage** and **Passport.js** for secure, session-based authentication.
- Implemented middleware-level security and flexible NoSQL data modeling to manage complex campground CRUD operations and user authorizations.

Skills

AI & Data Science: Python, Pandas, NumPy, Scikit-learn, Matplotlib, Spark, Hadoop, HBase.
Software Development: Flutter (Dart), JavaScript, Java, Spring Boot, C, Node.js, Express.js, PostgreSQL, MySQL, MongoDB.
OS & Tools: Linux, Windows, Git, Postman.

Languages

- **French:** C2 (TCF SO) ▪ **English:** C1 (EnglishScore) ▪ **Arabic:** Native ▪ **Tamazight:** Native ▪ **Italian:** Beginner