

SOUHAIB MOUSTAJIB

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OBJECTIVE

Software engineering student currently enrolled in a Bachelor's-level Computer Science program, seeking software engineering roles. Experienced in object-oriented design, data structure implementation, and algorithm development across Python, C, and TypeScript, with hands-on work building and deploying multi-tiered applications backed by relational databases, including a live production e-commerce platform. Trained in a project-based, lecture-free curriculum that required independently researching unfamiliar tools and source code to reach working, tested, specification-compliant solutions — the same ownership and problem-solving mindset I'd bring to a production engineering team.

TECHNICAL SKILLS

Programming Languages: Python (strong — object-oriented design, algorithms), C (systems-level, strong), TypeScript/JavaScript, SQL, Bash

Web & Cloud: React, Hono, REST API development, Cloudflare Pages/Workers, D1 (SQLite), R2 object storage

Data Structures & Algorithms: Object-oriented design, data structure implementation, BFS/DFS graph algorithms, finite-state machines, memory management, multithreading & synchronization, algorithmic optimization under hard constraints

Systems & Databases: Multi-tiered application design, relational databases (SQLite/SQL, schema migrations), information retrieval (BM25/TF-IDF), distributed/concurrent systems design

Tools & Practices: Git (version control), Linux/Unix, Valgrind, GDB, AI-assisted development tooling, code review, debugging & log analysis, agile/SDLC practices

Competitive Programming: CodinGame — Level 15, ranked ~5,000th globally (top 0.6%); LeetCode — nearing 100 problems solved

Languages: Arabic (Native), English (Fluent)

PROJECTS

[aminefragrance.ma](#) — Production E-Commerce Platform

React, TypeScript, Hono, Cloudflare

- Designed, built, and shipped a live e-commerce store end-to-end: a React SPA (catalog, cart state, admin dashboard) backed by a Hono REST API mounted as a catch-all Cloudflare Pages Function, running on the edge.
- Modeled the relational schema on Cloudflare D1 with versioned SQL migrations, and served product images from R2 object storage through a dedicated asset route — storage, database, and compute wired together via Wrangler bindings.
- Built an authenticated admin panel plus supporting tooling: a sharp-based image optimization pipeline, D1 seed-data generation, and admin credential setup scripts.

RAG-against-the-machine — Retrieval-Augmented QA System

Python

- Built a retrieval-augmented QA system over the vLLM codebase, combining BM25/TF-IDF lexical retrieval with a local LLM to answer questions grounded in real source code — applying AI tools to a real engineering problem end-to-end.

a_maze_ing — Maze Generator & Solver

Python

- Designed the object-oriented architecture and implemented core BFS/DFS graph algorithms for procedural maze generation and shortest-path solving, plus the parsing layer behind an animated visualization.

codexion — Multithreaded Concurrency Simulation

C

- Built a concurrent simulation engine modeling resource contention among up to 200 actors, with synchronization designed from scratch using mutexes and semaphores — verified deadlock-free and data-race-free at full scale.

call_me_maybe — Constrained Decoding for LLM Function Calling

Python

- Built a finite-state machine that masks invalid tokens during LLM generation to guarantee schema-valid output, plus a BPE tokenizer implemented from scratch — applied use of AI tooling and algorithm design together.

libft — Custom C Standard Library

C

- Reimplemented core C data structures and standard library functions from scratch — string/memory functions, linked lists, dynamic memory allocation — as the foundation for later systems projects.

push_swap — Constrained Sorting Algorithm

C

- Designed a sorting algorithm using two stacks and a restricted instruction set, optimizing for minimal operations under a hard resource budget.

EDUCATION

1337 (42 Network) — UM6P, Rabat, Morocco

Oct 2025 – Expected Oct 2028

- Software Engineering — currently enrolled; project-based, peer-driven curriculum with no lectures. Every project required independently researching unfamiliar tools, source code, and documentation to reach a working, specification-compliant solution, following SDLC-style iteration (design, build, test, debug).
- Additional: attended leadership and problem-solving programs, including a summit on design thinking and social impact.