Malek Azemdroub

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Private repositories (academic integrity) — available upon request

Education

Université Laval Québec, QC
Bachelor's Degree in Computer Science 2023 – Expected Summer 2027

National Higher School of Artificial Intelligence Algeria
Engineering preparatory program 2021–2023

Technical Skills

Languages: Python, Java, C++, TypeScript, JavaScript, SQL, Bash, HTML/CSS

Frameworks & Libraries: React, Vue.js, Node.js, Express, Flask, .NET, Tailwind, Bootstrap 5, JUnit

Tools & Platforms: Git, Docker, AWS, Azure, PostgreSQL, MySQL, Prisma, Vite, Maven, CI/CD, REST APIs, Linux/Unix

Projects

UGram Winter 2026
React 18, TypeScript, Express 5, Prisma, PostgreSQL, Socket.IO, AWS, Docker

— Co-developed a full-stack Instagram-style social platform (team of 5): React 18 + TypeScript SPA (TanStack Query, react-hook-form/Zod, Tailwind) on a 47-endpoint Express 5 REST API with Prisma/PostgreSQL, documented via OpenAPI/Swagger.

— Implemented real-time messaging and notifications over JWT-authenticated Socket.IO channels with live typing indicators, plus a Sharp image pipeline producing three optimized variants stored on AWS S3.

— Configured and deployed AWS cloud infrastructure (Elastic Beanstalk, RDS, S3, CloudFront, CloudWatch) with Dockerized services and GitHub Actions CI; secured routes with Google OAuth 2.0, Helmet, rate limiting, and input validation.

HeatMyFloor Fall 2025
Java, Swing, Maven, UML, JUnit

— Co-architected a 3D CAD modeling desktop application, applying MVC, Observer, and Strategy design patterns for decoupled geometry computation and rendering.

— Optimized spatial indexing and geometric collision detection algorithms, reducing polygon rendering latency for complex room layouts.

— Built automated unit tests with JUnit, Maven-based builds, and formal UML class/sequence diagrams.

UFOOD Fall 2025
Vue.js 3, Bootstrap 5, Leaflet, Vite

— Engineered an interactive restaurant discovery platform leveraging Vue.js 3 Composition API, Pinia/Vuex state management, and Leaflet.js for geospatial map clustering.

— Integrated asynchronous REST APIs with custom caching, dynamic filtering, debounce search, and resilient client-side error handling.

— Optimized build configuration and module bundling with Vite, achieving sub-second hot module replacement (HMR) and a responsive mobile-first UI with Bootstrap 5.

USafeForum Winter 2025
Python, Flask, MySQL, Jinja2

— Developed a full-stack mental health support web service using Flask, enforcing BCNF database normalization, parameterized SQL queries, and salted password hashing to protect user data.

— Designed and implemented appointment booking workflows and community forum management using Jinja2 templates and relational MySQL schemas.

— Led backend and database development as Backend & Database Lead in a team of 4, standardizing API contracts, Git branching conventions, and schema migrations.

Extracurricular & Leadership

Artificial Intelligence Club of Université Laval (CIAUL) Sep 2025 – Present
Active Member

— Collaborate on machine learning workshops and technical projects focusing on computer vision and NLP pipelines.

Languages: English (Fluent), French (Native, DALF C2), Arabic (Native)