

Technical Expertise

Core Languages	C++, Python, Java, C, ARM Assembly
Web & Front End	HTML5, CSS3, JavaScript (ES6+), Tailwind CSS, React (Learning)
Frameworks	Qt (GUI), FastAPI, JUnit, PyTest
Systems & Tools	Git/GitHub, Linux/Unix, TCP/IP Networking, Docker, CMake
Spoken Langs	French (Native), English (Native Level/Certified), Arabic (Professional)

Key Engineering Projects

- 2025 **Bank Account Management System, C++ & Qt Framework**
 - **System Architecture:** Architected a robust OOP system using *Abstract Base Classes* to differentiate logic for *Savings & Checking* accounts, flawlessly handling *100+ simulated transactions*.
 - **Qt GUI Implementation:** Developed a modern, intuitive graphical interface using Qt, featuring *dynamic forms* and *real-time displays*.
 - **Robustness & Validation:** Implemented custom *Exception Handling* and strict input validation to ensure *99.9% zero-crash reliability*.
 - **Data Persistence:** Engineered a secure *File I/O* system to manage transaction logs and client records.
- 2025 **NutriTrack – Gamified Nutrition Learning App, Hackathon Prototype**
 - **Full-Stack Architecture:** Developed a responsive web app using *FastAPI* (Backend) and *Vanilla JS/Tailwind* (Frontend), deploying a functional MVP in just *24 hours*.
 - **Gamification Engine:** Engineered interactive features including a "Kiwi Coach" and "Food Boss" battles, integrating *OpenFoodFacts API* to access *3,000+ product records*.
- 2025 **Python Custom Email Server & Client, Systems Programming**
 - Designed a multi-client server using *Python sockets* and the *TCP/IP* stack, handling *50+ concurrent connections* via *'select()'*.
 - Engineered a custom application-layer protocol with *JSON headers* and *SHA3-512* password hashing.
- 2024 **Quixo Game Engine, Python & REST API**
 - Built a strategic CLI game client that interacts with a remote game server via *Secure RESTful Calls*.
 - Developed an *Automated Test Suite* ('tests.py') achieving *90% code coverage* to validate game logic and move legality.

Professional Experience

- 2023–Present **Freelance Web Developer, Self-Employed, Quebec**
 - Design and develop custom websites for local small businesses to enhance their digital presence, improving page load speeds by *40%*.
- 2022–Present **Operations Manager, Lanterne Rouge, Quebec**
 - Rigorous transaction management and analytical operational problem solving, developing attention to detail essential for software quality.

Education

- Expected 2028 **Bachelor of Software Engineering, Université Laval, Quebec, GPA: 3.5/4.3**
2nd Year
- 2023 **English Language Exchange Certification, Brock University, Ontario**
Native-level English coursework during Summer Exchange.