# Aziz Hidri

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## Education

**BEng** **Polytechnique Montréal**, Software Engineering 2022 - 2026

## Technical Skills

**Programming Languages:** Proficient in **C++**, **JavaScript**, **Typescript** and **Python**, Familiar with **Java**, **C**, **Assembly**, **R** and **SQL**.

**Mathematics:** Discrete mathematics, Calculus, Probability and Statistics, Linear Algebra, **Machine Learning (Regression, Optimization, Regularization, Model Selection, Classification, Neural Networks)**.

**Other Skills :** Data analysis, Source Control via Git, MVC Architecture, Agile development, Software Design, Operating Systems Kernels, Computer Networking, Data Structures and Algorithms.

## Soft Skills

**Teamwork and Collaboration:** Worked effectively in Agile teams to deliver high-quality software products.

**Time Management:** Skilled in managing multiple priorities and meeting deadlines under pressure.

**Communication skills:** Good communication skills, with experience using tools like PowerPoint to create clear and engaging presentations.

## Projects

**Tactical RPG Platform:** Tactical-RPG-Platform

- Developed a minimalistic tactical RPG platform where players engage in grid-based gameplay featuring various terrains, obstacles and turn-based combat. The project involved the following technologies :
- **Frontend:** Used **Angular** with **TypeScript** to build a dynamic and responsive user interface.
- **Backend:** Implemented server-side logic with **Nest.js** and to manage game mechanics and player interactions.
- **Database:** Integrated **MongoDB** to handle data storage for player stats, maps and game states.
- **Features:** Included map navigation, turn-based combat, interactive elements, a game editor for creating new games and scenarios, a chat feature for player communication, activity logging for game events, and the possibility to compete against virtual players.
- **Testing:** Conducted client-side testing using **Jasmine** to ensure component functionality, and performed server-side testing with Jest to validate API endpoints and core game logic.

**Melanoma Classification and Detection** Melanoma Classification

- Developed a deep learning-based image classification pipeline for detecting melanoma in skin lesions. The project involved the following technologies:
- **Model Architecture:** Designed a **CNN** with **TensorFlow/Keras**, using batch **normalization**, max pooling, and dropout for robust and accurate classification.
- **Data Preprocessing:** Implemented automated data augmentation and preprocessing techniques, such as random flips, rotations, and zooms, to improve model generalization.

- **Visualization:** Plotted **confusion matrices** (raw, normalized by row and column) and classification metrics for detailed performance analysis.
- **Evaluation:** Achieved high classification accuracy on test data with metrics like precision, recall, and **F1-score** validated through a classification report.
- **Technologies used: Python, TensorFlow/Keras, Matplotlib, Scikit-learn**.

**Chess Game in C++:** C++ Chess Game

- Developed a chess game in C++ as part of a final project for a C++ course.
- **Gameplay:** Designed a turn-based chess system where players alternate turns between white and black pieces.
- **User Interface:** Built using the **Qt framework**, featuring an interactive chessboard and a start button to initiate a new game.
- **Game Logic:** Implemented functionality to determine the winner and display the result at the end of the match.
- **Key Features:** Included local two-player mode, graphical interface with a clean and intuitive layout and robust handling of game flow from start to finish.
- **Technologies used: C++, Qt**.

**Personal Portfolio Website** azizhidri.com

- Designed and developed a personal portfolio website to showcase projects and skills in web development and programming. The project involved the following technologies and features:
- **Frontend:** Built with **React** and **Vite** for a fast and modern development experience, using **JSX** for dynamic and reusable components. Used **Tailwind CSS** to create a responsive, clean, and visually appealing design.
- **Deployment:** Hosted on **GitHub Pages**, ensuring high availability and fast loading times.
- **Custom Domain:** Configured a custom domain by setting up DNS records, including CNAME and A records, to map the domain to the deployed site.
- **Technologies used: React, Vite, Tailwind CSS, GitHub Pages.**

## Extra-Curricular Activities

**PolyOrbite - Web Developer (September 2024 – February 2025):**

- Contributed as a web developer to PolyOrbite, a technical society at Polytechnique Montréal focused on the development of rovers and satellites.
- Developed and maintained the organization's website using **TSX (React with TypeScript)**, **Next.js**, and **Tailwind CSS**, creating a modern, responsive interface.
- Worked specifically on the Rover and Education pages, implementing interactive features and ensuring a seamless user experience.
- Helped showcase PolyOrbite's projects and achievements while aligning with the society's mission and technical accomplishments.

**Esteban - Software Team Member (January 2025 – Present):**

- Member of the software team at Esteban, a student-led technical project at Polytechnique Montréal focused on designing and developing solar-powered vehicles.
- Collaborating on software development tasks to support the team's engineering efforts, ensuring efficiency and reliability in vehicle control systems and data management.
- Engaging in cross-functional teamwork with electrical and mechanical teams to integrate software solutions into the vehicle's architecture.