# Education

***McGill University*** *|* **BEng** in **Software Engineering Co-op** *|* Expected: 2026

# Technical Skills

**Programming Languages**: Python, Java, HTML, CSS, JavaScript, VHDL, KQL

**Relevant Courses:** Digital Logic, Discrete Structures, Data Structures and Algorithms, Object-Oriented-Design (OOD)

**Software:** PyCharm, Eclipse, Thonny, IntelliJ,LTspice, Quartus, Visual Studio Code, Git, ElasticSearch

**Spoken Languages:** English, French and Arabic

## Internships & Work Experience

**Ambient Intelligence Lab (AMI-Lab) | Université de Sherbrooke** **May 2023 – August 2023**

*Machine Learning & Data Analyst Intern*

* Advanced a 4-year medication deprescription research, culminating in a pivotal scholarly article.
* Analyzed 300M+ JSON and CSV datasets using Python's Pandas & NumPy alongside MATLAB, deriving crucial medication-activity metrics.
* Spearheaded data extraction from ElasticSearch, optimizing complex queries with Kibana Query Language (KQL).
* Engineered a real-time algorithm via signal processing to decode fiber-optic sensor bed mat data.
* Employed linear regression modeling in Python to analyze heart rate time-series data, visualizing trends and capturing key statistical parameters.
* Deployed LSTM-based predictive models within TensorFlow and Keras frameworks, streamlining physical activity pattern recognition via hyperparameter optimization.

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**McGill Rocket Team | McGill University September 2022 – Present**

*Software Development Team*

* Collaborated with colleagues to design and implement flight control software using **Python**, incorporating **PID controllers** and **sensor fusion algorithms** to ensure accurate and stable rocket guidance during the launch phase.

## Engineering Projects & Hackathons

**McHacks 2023 February 2023**

*“Jouan”* – Diet-Based Restaurant Locator Chabot

* Built an interactive chatbot to identify user dietary preferences and locate nearby suitable restaurants.
* Used **Python** and **Google Maps API** for backend development and restaurant data retrieval.
* Frontend constructed with **JavaScript**, **CSS**, and **HTML5** for a user-friendly interface, with **Tkinter** powering the GUI for smooth user-bot interactions.

**MAIS Hacks 2022 | Award Winner October 2022**

*“Shazoom”* – Song lyric recognition web app

* Designed a speech-recognition UI that identifies user-sung songs and retrieves top matches.
* Employed **Python** and **Flask** for backend development, **HTML5** for content structuring, and **JavaScript** for dynamic frontend interactions.
* Integrated several speech-recognition APIs to cross-verify lyrical inputs, boosting song identification accuracy.

**Highlander Engineering Project 2022 June 2022**

*“Cloudnerd”* *–* ML-based Weather Forecasting Application

* Crafted a **React** and **TypeScript** web app that interprets cloud patterns for weather forecasting.
* Integrated a **TensorFlow** machine learning model trained on extensive climatological data.
* Deployed **Firebase** for backend services, ensuring secure, real-time UI updates.
* Demonstrated strong performance, with an impressive **84% accuracy rate** in weather prediction, underscoring the model's proficiency in analyzing complex meteorological patterns.

**Block Game (Java) April 2023**

* Utilized Quad-Trees, ArrayList Data Structure, and Recursive Algorithms for efficient backend development of the Block Game.
* Applied Object-Oriented Design (OOD) principles and built a robust scoring system.
* Conducted Algorithm Complexity Analysis to ensure optimized game performance.

**Grayscale PGM Image Processor (Python) September 2022**

* Built a Python program to perform operations (flipping, cropping, inverting, compressing, decompressing) on PGM images.
* Leveraged File IO for efficient image reading and writing operations.