# Isaac Doyle

647-657-0017 | ipdoyle6@gmail.com | linkedin.com/in/isaacdoyle | github.com/Isaac-Doyle

## Education

**McMaster University** Hamilton, ON

*Bachelor of Engineering in Software Engineering* *Expected Grad: 2028*

- Data Structures and Algorithms, Embedded Systems, Digital Logic Design, Object-Oriented Programming, Systems Programming (C)

## Experience

**Thornhill Robotics Club** June 2022 – June 2024

*Thornhill, ON*

- Programmed autonomous routines in C++/Python, converting vision sensor data into real-time decision making.
- Developed PID control algorithms for precise actuation and stability under dynamic conditions. Improved motor response time by **20%**
- Built and executed testing frameworks, validating sensor/motor accuracy with **>90%** consistency across trials.

**Thornhill Computer Club** June 2022 - June 2024

*Thornhill, ON*

- Solved 100+ algorithm and data structure-related problems in various languages (C, C#, Java, Python, JavaScript), building proficiency and problem-solving skills.

## Projects

**Leaf-Watch** | *React, JavaScript, Leaflet, Python, scikit-learn, Pandas, NumPy* November 2025

- Developed a full-stack web application that visualizes global deforestation trends using an interactive Leaflet map and real-time environmental data.
- Implemented machine learning models in Python (scikit-learn) to predict future deforestation risk areas based on historical land-use and climate data.
- Integrated the ML backend with the frontend via REST APIs, enabling real-time visualization of prediction results and environmental impact metrics.

**ATMS** | *C++, Python, Arduino, PlatformIO, Linux, NumPy, Matplotlib* July 2025

- Built a real-time automated thermal control system using PID algorithms in C++ to stabilize CPU/GPU temperatures.
- Utilized Arduino and PlatformIO to collect temperature data via thermistors and control fan PWM outputs.
- Automated data logging and analysis in Python using NumPy and Matplotlib for visualization.
- Optimized cooling efficiency, reducing thermal variance by **22%**

**RF** | *C, C++, Arduino, PlatformIO* May 2025

- Designed and programmed an RF device using an ESP32 and NRF24L01+PA+LNA Module to analyze 2.4GHz signals under stress.
- Prototyped a custom wireless diagnostics tool to visualize signal strength, packet errors, and frequency interference patterns in real time.

**EchoSense** | *C++, Python, Arduino, PlatformIO, Linux, Numpy, Matplotlib* April 2025

- Developed a wearable assistive device using an ESP32 and ultrasonic sensors to detect obstacles for visually impaired users.
- Handled distance measurement in real time, and used PWM (Pulse Width Modulation) to generate audio feedback when needed.
- Analyzed sensor data and plotted detection accuracy using NumPy and Matplotlib.

## Technical Skills

**Languages**: Python, Java, C, C++, Bash, JavaScript
**Frameworks**: Arduino, PlatformIO
**Developer Tools**: Linux, Git, GitHub
**Libraries**: Pandas, NumPy, Matplotlib, React, Sickit-learn
**Hardware/Embedded**: ESP32, NRF24L01, Ultrasonic Sensors, Thermistors