

Aiden Robinson

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EDUCATION

- McMaster University** Hamilton, ON
 - Mechatronics Engineering and Management III ; GPA: 3.8/4* 2021 - 2026
 - Courses: Data Structures and Algorithms, Operating Systems, Embedded Systems, Control Systems, Analog and Digital Circuits*

SKILLS SUMMARY

- Languages:** Python, C/C++, Go, Java, SQL, Appscript, R, MATLAB, Simulink
- Frameworks:** TensorFlow, PyTorch, OpenCV, OpenAI Gym, LangChain, FastAPI, React.js, Flask, GraphQL
- Tools:** Docker, Kubernetes, PostgreSQL, Git, NumPy, Pandas, BeautifulSoup
- Platforms:** Google Cloud Platform, Windows, Linux, Arduino, STM32
- Soft Skills:** Bilingual (French), Project Management, Team Leadership, Public Speaking, Time Management

EXPERIENCE

- TELUS** Toronto, ON
 - Software Engineer Intern- Automations* May 2024 - September 2024
 - Kubernetes Migration:** Created an API endpoint to enable real-time internet responses for a chatbot. Implemented a CI/CD pipeline to deploy the solution on Google Kubernetes Engine, migrating team away from Appian's low code environment. Tech: **Docker, Kubernetes, Python, Flask**
 - Workflow Automation:** Scripted generative AI to extract key information from order forms in teams email box and log it in Google Sheets, incorporating robust error handling mechanisms. Saving 3 hours/week. Tech: **Appscript, GSuite**
 - Chatbot RAG Optimization:** Designed new architecture for a multimodal chatbot to enhance Retrieval-Augmented Generation (RAG) processes and improve response times by 20%. Tech: **Google Cloud, Python, Appscript**
 - Network Asset Image Recognition Model:** Led development for an image recognition model detecting network equipment to automate email personnel monitoring ladder truck requests by 60%. Tech: **Vertex AI, Google Cloud**
- TELUS** Toronto, ON
 - Software Engineer Intern- Energy Management* May 2023 - May 2024
 - Data Center Energy Optimization RL Model:** Implemented a reinforcement learning model for the HVAC on a modular central office, projected to reduce annual energy consumption by 13%. Tech: **GCP, Python, OpenAI Gym**
 - Network Equipment Predictive Maintenance :** Designed and tested system for IoT data on chillers to be pulled into the cloud and run a classification model to identify inefficient equipment, projected to save \$50,000/year. Tech: **Google Cloud, Python, TensorFlow, SNMP, MQTT, IoT**
 - Unsupervised Learning Analysis:** Applied unsupervised learning techniques on large battery health dataset. Found \$170k/year in savings by reducing maintenance plan scheduling. Tech: **BigQuery, Python**
- McMaster Artificial Intelligence Society** Hamilton, ON
 - Vice President of Technical/Project Lead* Oct 2023 - Present
 - VP Duties:** Overseeing 50+ students across 5 technical teams, and the educational workshop division
 - AI Data Management:** Led a team of 6 students to create an NLP based AI assistant to help students manage personal and school information. Reducing token cost by 45%. Tech: **LangChain, Pinecone, React.js, Flask, OpenAI**
- McMaster Formula SAE Electric Racecar** Hamilton, ON
 - Firmware and Electric Subteam Member* November 2021- Present
 - Wireless CAN Update:** Designing system to remotely CAN flash firmware from RPi to ECU's. Skills: **STM32**
 - High Voltage Controller Respin:** Redesigned the high voltage safety system and PCB for the car. Responsible for schematic design, part sourcing, PCB routing, manufacturing, and testing. Skills: **Altium Designer, Soldering**
 - Relay Economizer Board:** Designed an energy saving board that reduces the hold phase current for relay contacts across the car. Skills: **Altium Designer, Soldering**

PROJECTS

- Embedded Pacemaker:** Created a HIL and SIL pacemaker with interactive frontend to represent dynamic pacing modes of a pacemaker using accelerometer data. Tech: **STM32, Simulink, Python** (Nov '24)
- Spincard (Co-Founded Startup):** Deployed mobile app that can spin up virtual credit cards for small groups and evenly split costs accordingly. Tech: **Go, GraphQL, PostgreSQL, Clerk, GCP, React Native** (July '24)
- IoT Locker Service (Deltahacks 2024 Winner):** Mobile app can lock/open a locker for food delivery. IoT data is passed to Raspberry Pi through a real time database to control servo motor. Tech: **Firestore, Python, C++, Flutter** (Jan '24)
- Augmented Reality Arcade (Hack Western 2023 Winner):** Computer vision detected user movements to control embedded online games through an arcade UI in an interactive way: **Python, OpenCV, React.js, Figma** (Nov '23)
- Computer Vision Touchless Keyboard:** 5 note touch-less keyboard using computer vision to detect finger strokes. Hand tracking model can detect 21 landmarks and an Arduino receives information through the serial port to activate buzzer frequencies. Tech: **Python, C++, Arduino, OpenCV, Google Mediapipe Framework** (Aug '22)
- Segment Display Recognition Neural Network:** Feed forward neural network trained with back propagation from scratch. Recognizes 7 inputs of segment brightness and outputs 10 possible digits. Accounts for varying brightness and missing segments. Trained with 10 ideal output, ran with 3000 epochs and has a training error of 0.003. Tech: **C++** (July '22)