

Estelle Sun

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EDUCATION

Bachelor of Engineering, Mechatronic

09/2023-05/2027

McMaster University – Hamilton, ON

- Dean honor list, Engineering 1 Entrance scholarship
- Major courses: Data Structures for Mechatronics, Electromagnetics 1&2, Mechanical Engineering Measurements, embedded system programming, Engineering Mathematics IV, data statistics, etc.
- Collaborative team player with experience in both academic and industrial projects, specializing in innovative problem-solving and system integration.

WORK EXPERIENCE

McMaster Smart Home for Aging-in-Place – Research Assistant; Hamilton, Canada

04/2025-Present

- Worked in a team of 10+ researchers on Smart Home project in Dr. Fang's lab at McMaster University
- Engineered a **webcam video processing pipeline** to convert human motion into stick-figure models with **Python**, enabling visual motion tracking and performance analysis.
- **Developed a smartwatch-based sensing module** for activity monitoring and integration into the IPS system.

PROJECT

K+ wearable devices

09/2024-03/2025

- Focus on efficient **data handling in TensorFlow** with Dr. Switchuk
- Programmed TensorFlow to train an AI model for analyzing potassium data
- Detect potassium ions in real time and require advanced sensor design using electrochemistry and reliable data transmission using novel calibration curves

Real-time Locating Ankle Bracelet

10/2023-03/2024

- Collaborated with a MedT club of 6 members to **develop an embedded real-time tracking system** using Arduino
- **Integrating GPS and IMU sensors** for precise movement detection and low-latency data acquisition.
- Implemented **Python-based heat mapping** for movement pattern visualization and cloud-based monitoring.

HIGHLIGHT AND LEADERSHIP

Project Manager, McMaster, Hamilton, ON

09/2024 – 12/2024

- Lead a team with 6+ members to cobuild and design the wheelchair for clients with specific needs
- Make the prototype of wheelchair out, **winning A+ mark** on this design

Leader & Co-founder, CCVI debate club, Guelph, ON

06/2021 – 06/2023

- Cofound and lead highschool debate club, received with over 50 members
- Hold multiple school debate competitions, keeping up with society events including Roe VS Wade

SKILL

- **Award:** CEMC Euclid mathematics competition Top 25
- **Language:** English(IELTS 7.0), Chinese(Proficient)
- **Programming:** Python, C++, Java, C, MATLAB
- **AI & Machine Learning:** TensorFlow
- **Embedded Systems & Hardware:** Embedded control development, STM32, Raspberry Pi, Arduino, NI Multisim,
- **Test Tools:** Oscilloscope, Waveform Generator, Multimeter and other test equipment.
- **Software & Development Tools:** AutoCAD, MATLAB,
- **Office Tool:** Office 365, Google Suite.
- **Web Development:** HTML, CSS, JavaScript
- **Mathematical & Simulation Tools:** Maple, FlexPDE.