

# William McCallion

✉ (647) 012-3456 | 📩 mccallw23@mcmaster.ca | 💬 linkedin.com/mccallion\_will | 🏠 Newmarket, ON

## Highlight of Qualifications

- Enrolled in level 3 of McMaster University's Mechatronics Engineering Co-op Program, seeking 4-, 8- or 12-month co-op positions starting September 2027
- Strong experience in software-intensive robotic systems, specifically integration and optimization of computer-vision ML models, as shown in industry projects and extracurricular activities
- Proficiency in RTL and hardware design and verification using **Verilog**
- Proven teamwork ability and strong communication skills in work experience and large team projects

## Education

### Bachelor of Engineering Co-op (BEng) | Mechatronics Engineering

2024 – 2029

McMaster University

Relevant Coursework:

- Software Development:** Design processes, module specification and interfaces, software inspection
- Embedded Systems Design:** RTL abstraction, verification and simulation, Verilog, synchronous circuits
- Operating Systems:** Processes, threads, scheduling, memory management, synchronization and communication, file systems, resource protection, structure of operating systems

## Work Experience

### Software Development Co-op | Amazon Robotics, Toronto ON

May – Aug 2027

- Improved robotic path planning efficiency by 23% by developing and optimizing **C++** algorithms for autonomous mobile robots, reducing fulfillment center latency
- Decreased system downtime by 15% through implementation of robust diagnostics and monitoring tools using **Python** and **AWS CloudWatch**
- Enhanced simulation accuracy by 30% by integrating real-time sensor data into testing pipelines, accelerating development cycles by 2 weeks per release
- Collaborated with different departments on projectwork, demonstrating teamwork and communication skills in professional environments

### Hardware Design Verification Engineer Intern | AMD, Markham ON

May – Aug 2026

- Improved simulation efficiency by 18% by automating test regression flows using **Python** and **Perl**, reducing manual debugging time across verification cycles
- Contributed to verification of high-performance computing IP blocks by writing and executing **SystemVerilog** testbenches, identifying and resolving 12+ functional bugs
- Supported system-level validation on **Linux**-based platforms, integrating **Verilog** models with production firmware and performing hardware bring-up tasks
- Collaborated with cross-functional teams to validate hardware/software integration, exemplifying teamwork and communication skills in design process

**Store Associate | Walmart, Newmarket ON**

Sept 2023 – Jun 2024

- Assessed client needs and recommended appropriate items, highlighting communication and critical-thinking skills in fast-paced environments
- Exceeded daily sales targets by an average of 30%, contributing to store having highest sales in March
- Managed 20 hours of work alongside full time academics and extracurricular activities in high school

## Projects

---

**Customized Drone | Personal Project**

Sept 2026 – Feb 2027

- Designed and built a quadcopter drone from scratch, integrating mechanical, electrical, and software systems using **Arduino, Fusion 360, and MATLAB**
- Modeled and 3D-printed a lightweight drone frame; selected and assembled brushless motors, ESCs, and LiPo power system
- Programmed flight control firmware in **C++** using **Arduino IDE**; implemented PID control for stable flight using MPU6050 IMU data
- Recruited peers from mechatronics, mechanical and electrical engineering to assist on this project, highlighting leadership ability to direct cross-function teams and project management experience

## Extracurricular Activities

---

**Computer Vision Team Member | McMaster RoboMaster Robotics Team**

Sept 2026 – Present

- Developed object detection and tracking pipelines in **Python** using **OpenCV** to identify enemy armor plates in real-time video streams
- Assisted in integrating vision algorithms with robot control systems written in **C++**, enabling semi-autonomous targeting during matches
- Tuned HSV filtering and contour detection parameters to improve detection accuracy by 20% under varying lighting conditions
- Collaborated with a team of 5+ to test and iterate on vision modules, highlighting teamwork and communication ability to work on long-term group programming projects

**McMaster Engineering Welcome Week Representative | McMaster University**

Sept 2025 – Present

- Represented McMaster University's Engineering Faculty throughout welcome week activities and initiatives, highlighting communication skills among first year students
- Collaborated with 50+ representatives to plan and execute multi-day events, showing strong project management and teamwork skills in fast-paced settings
- Facilitated live events for 900+ new students to foster strong community within the student body

## Skills

---

**Software:** AutoCAD, Autodesk Inventor, SolidWorks, Fusion 360, Python, ROS, OpenCV, NumPy, pandas, C/C++, Java, Verilog/SystemVerilog, PHP, Shell, AWS, MATLAB, Simulink, Excel, MS Office, GSuite

**Lab Skills:** 3D printing, Machining (Lathe, Mill, Waterjet), laser cutting, tensile test

**Certifications:** CPR & Standard First-Aid Certification, Completed WHMIS training, G-class driver's license