

Maxim Pylypiuk

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WORK EXPERIENCE

Celestica, Aerospace & Defense Division

Newmarket, ON, May 2026 – Aug 2027

Test Development Engineering Intern, Global Engineering & Product Development – 16 months

[celestica.com](https://www.celestica.com)

- Develop hardware and software test solutions in Python and NI LabVIEW/TestStand that validate products for aerospace and defense customer programs, writing automation, diagnostics, and operator user interfaces to control product hardware in functional and in-circuit test.
- Design test fixture mechanical structures in SolidWorks and interface and adapter PCBs in Altium, sourcing components against customer-specified test requirements.
- Author controlled work instructions and supplier-qualification documentation for board-level test programs in an AS9100, CGP/ITAR, and ISO 9001 regulated facility operating to ESD-safe standards.
- Build, wire, and bench-validate test fixtures and ATE hardware using oscilloscopes, logic analyzers, multimeters, programmable power supplies, and DAQ, applying hand soldering and mechanical assembly to bring testers from schematic to deployment-ready state for customer production use.
- Hand-soldered, crimped, and reworked 20+ test fixture PCBs and cable assemblies down to 0201 passives and fine-pitch TSSOP/QFP ICs, trained to IPC J-STD-001, IPC-A-610, IPC-7711/7721, and IPC/WHMA-A-620 workmanship standards.
- Assemble, integrate, and commission automated test equipment racks against defined acceptance criteria for deployment across multiple global production sites.
- Travelled to Celestica's Mexico site to commission and verify a tester I built, running acceptance tests to confirm functionality before handoff to production, then provided continued troubleshooting support for months after delivery.
- Support development of line-automation tools (robotics, vision systems, software controls) and provide input on development designs alongside a senior engineering team.

McMaster University, Canada Excellence Research Chair (CERC)

Hamilton, ON, Jan 2026 – April 2026

Research Assistant, McMaster Automotive Resource Centre (MARC) – 4 months

[electrification.mcmaster.ca](https://www.electrification.mcmaster.ca)

- Supported three PhD researchers in Dr. Ali Emadi's transportation electrification group across DC-DC converter, motor characterization, and dynamometer projects; named contributor on a resulting research publication.
- Built, programmed, and validated Arduino-controlled precharge circuits for two ~1.2 kV DC-DC converter test rigs, including an 11 kW three-port triple active bridge converter (300–700 V input, 890–1250 V HV and 36–48 V LV outputs) for 1.25 kV on-board charger and 48 V auxiliary power module applications; sequenced capacitor precharge, bus switchover, and emergency stop to prevent inrush-current damage.
- Designed and built a ground-bonded HV test enclosure for safe high-voltage testing under formal HV safety procedures.
- Helped commission a Chevrolet Bolt EV motor on a three-machine dynamometer: built three-phase HV motor cables, machined the motor mount, dogbone, and faceplate, wired sensor and control harnesses, and set up the oil system and dyno software.
- Designed a 2-layer CAN-to-Ethernet adapter PCB (Altium schematic and layout) to researcher requirements, plus six custom mechanical parts in CAD, including a carbon-fiber 3D-printed motor oil-pump relocation adapter and a dynamometer wheel-plate spacer.

Hamilton Health Sciences

Hamilton, ON

Operating Room Environmental Aide, Hamilton General Hospital

May 2024 - Present

- Turned over and prepared sterile operating rooms between surgical cases to strict technical and safety protocol.
- Coordinated with surgical and clinical teams under time pressure, balancing multiple priorities in a high-stakes environment.

McMaster University

Hamilton, ON

Research Assistant, Department of Engineering – 4 months

Feb 2022 – Jun 2022

- Developed Python software to automate analysis of nanoparticle-array experiments producing large datasets.
- Processed and modelled data to extract meaningful results, and presented findings.

EDUCATION

McMaster University

Hamilton, ON

Bachelor of Technology in Automation Systems Engineering (Level III) – Term GPA: 3.77

Expected Dec 2028

Mohawk College

Hamilton, ON

Chemical Engineering Advanced Diploma + Business Management Certification

Expected Dec 2028

Concurrent credentials earned through the McMaster-Mohawk College bridge program

Technical Lab Experience (320+ hrs)

Coursework: Systems Engineering Fundamentals, System Specification and Design, Object-Oriented Programming, CAD for Design.

- **Electronics & Digital Logic Labs — 120+ hrs;** built and debugged analog, mixed-signal, and gate-level digital circuits (decoders, 7-segment drivers); validated designs with oscilloscopes, function generators, spectrum and logic analyzers, and multimeters against LTspice/Multisim simulation.
- **Control Systems Labs — 45+ hrs;** designed and tuned PID speed and position loops for DC motors and Arduino-driven servomechanisms using model-based design in MATLAB/Simulink, verifying transient response and stability against modeled dynamics.
- **Motion Control & Robotics Labs — 35+ hrs;** programmed and tuned AC/DC variable-speed drives; commissioned servo and stepper actuators with position and speed feedback; programmed industrial robot pick-and-place sequences with machine-vision inspection.
- **Industrial Controls & Automation Labs — 120+ hrs;** programmed ladder logic and structured text for batch sequencing and process automation with closed-loop PID/PWM control and real-time sensor calibration; configured analog and remote I/O over DH+, ControlNet, and DeviceNet (CAN-based) networks (MSG/DHRIO); built HMI/SCADA monitoring in Rockwell Studio 5000 and Siemens TIA Portal.

PROJECTS

Autonomous Interactive Robot (NVIDIA Jetson Orin Nano) — *In progress*

- Built autonomous indoor and outdoor navigation with ROS 2 waypoint routing and localization, integrating Nav2 path planning with skip/retry recovery and Isaac ROS Visual SLAM for robust mobility.
- Fused LiDAR and camera data through DeepStream and TensorRT for real-time YOLO object detection and tracking on an embedded GPU.
- Implemented an interactive LLM personality with an on-screen audio visualizer for natural instruction-following dialogue.
- Optimized deployment on embedded Linux (Jetson Orin Nano) using CUDA, GStreamer, Docker, and real-time systems, developing in Python and C++.

McMaster EcoCAR Challenge – Propulsion Controls and Modeling Member

www.macecocar.ca

- Ran drive-cycle simulations and edited existing MATLAB/Simulink powertrain models (motor control, battery management, regenerative braking) using model-based design.
- Took part in MIL and HIL test sessions on a Speedgoat real-time target; logged and decoded CAN traffic with Vector CANalyzer to check control-signal integrity, and contributed to controls requirements and documentation.

McMaster Engineering Competition – 1st Place, Senior Design (20 Teams) — *OEC Provincial Qualifier*

- Designed, built, and validated a battery-collecting robot in a four-person team to operate on an unstable self-balancing platform (board pivoting on a hemisphere), solving a previously undisclosed problem within a 12-hour limit and a \$50 material budget.
- Co-developed the remote-controlled motor-control system in C++ on ESP32/Arduino driving the drivetrain and collection mechanism; implemented a software speed-control method that halved motor speed for finer control, letting the robot stay balanced and place batteries where faster-running competitors overshot and lost the platform.
- Defended the design and results to a panel of industry judges, placing 1st of 20 teams and qualifying to represent McMaster at the Ontario Engineering Competition (OEC).

SKILLS & CERTIFICATIONS

Skills:

- **Languages:** Python, C/C++, MATLAB, Structured Text, Ladder Logic
- **Test & Validation:** NI LabVIEW, NI TestStand, Python test automation, functional & in-circuit test, ATE commissioning, HIL (Speedgoat)
- **Controls & Modeling:** MATLAB/Simulink, model-based design, Arduino/STM32, PID & closed-loop control, motion control (servo/VFD)
- **EE / Hardware:** Oscilloscope, logic analyzer, spectrum analyzer, DAQ, IPC-standard hand soldering & rework (SMT/through-hole, 0201, fine-pitch), SPICE (LTspice/Multisim), schematic capture & PCB layout (Altium, KiCad)
- **Robotics & Autonomy:** ROS 2, Nav2, Isaac ROS (Visual SLAM), YOLO, TensorRT, CUDA, Docker, GStreamer
- **Industrial Automation:** Rockwell Studio 5000, Siemens TIA Portal, HMI/SCADA, DeviceNet/ControlNet
- **Comms / Tools:** CAN bus (Vector CANalyzer), Linux, AutoCAD Electrical, SolidWorks

Certifications & Training:

- Machine Learning Specialization – DeepLearning.AI & Stanford Online (Coursera)
- Python for Data Science, AI & Development – IBM