Levi Gregorash

Master of Engineering, Aerospace - CGPA: 4.33/4.33

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Professional Summary

Master of Engineering (Aerospace) and Test Automation Engineer at MDA Space with a unique combination of first-principles GNC controller design and practical, hands-on Hardware-in-the-Loop (HIL) validation. Proven capability managing complex hardware-software integration for next-generation space robotics (Canadarm3, Artemis) and autonomous UAV platforms. Proficient in Python, MATLAB, and LabVIEW, with a demonstrated ability to lead cross-functional training and optimize system reliability under strict international standards.

Employment

TEST AUTOMATION ENGINEER | MDA Space

2025-Present | Brampton, Canada

- Contributed to mission-critical space robotics programs including Canadarm3, the Artemis lunar gateway, and Axiom Space station modules, supporting design validation and test automation for flight-ready robotic systems.
- Developed custom data acquisition systems and automation scripts in MATLAB, LabVIEW, and Python to facilitate sensor fusion and testing of complex space robotic systems.
- Designed and assembled high-fidelity HIL test rigs, wiring sensing and actuation hardware to test carts to ensure accurate instrumentation for mission-critical design validation.
- Built graphical user interfaces for test campaigns and led cross-functional training sessions on tool execution, post-processing, and data analysis.
- Developed state-space models of the Universal Load Application Fixture (ULAF) dynamics to support controller design and validate that the Unit Under Test (UUT) is loaded correctly to system requirements.
- Implemented model predictive control (MPC) frameworks for automated test sequencing, enabling constraint-aware actuation of the ULAF to ensure accurate and repeatable loading of the UUT during complex test campaigns.

RESEARCH ASSOCIATE | Applied Aerodynamics Laboratory of Flight

2022-2024 | Toronto, Canada

- Designed and developed the CREATeV solar-electric UAV achieving a record 32.5-hour continuous autonomous flight in compliance with Transport Canada regulations.
- Tuned an Extended Kalman Filter (EKF) to improve state estimation accuracy for onboard navigation, enhancing precision under varying wind and solar conditions.
- Developed and validated model predictive control (MPC) algorithms for real-time daytime flight path planning, optimising energy management and maximising operational range.
- Operated ArduPilot / MissionPlanner ground station system, monitoring live telemetry and logging raw flight data for continuous GNC performance improvement.

GRADUATE TEACHING ASSISTANT | Toronto Metropolitan University

2 Years | 2022-2024 | Toronto, Canada

- Delivered labs and tutorials for AER723 Introduction to Space Systems Design, including hands-on sessions with 9-DOF IMU sensor integration, STK satellite constellation analysis, and spacecraft thermal modelling.
- Led instruction for AER615 Aircraft Performance; hosted midterm/final review sessions and managed three major design projects per semester.

RESEARCHER | Facility for Research on Aerospace Materials and Engineered Structures

3 Years | 2019–2022 | Toronto, Canada

- Retrofitted an industrial robot arm into a 5-axis continuous carbon fibre 3D printer; designed and scripted PLC controls for heating, cutting, and pneumatic tool-changing.
- Automated in-situ defect detection using Keyence laser scanners in closed-loop control systems, improving production quality and repeatability.

Skillset

TECHNICAL SKILLS

Proficient:
MATLAB, LabVIEW, Python, C++, Raspberry Pi, Arduino, Fortran, CATIA V5, G-code, MS Office, SOLIDWORKS

Experienced:
Siemens NX, AutoCAD, Simulink, RobotStudio, Fusion 360, Ansys, STK

LEADERSHIP

Aerospace Department
Former Council Associate Chair at Ryerson University
Aerospace Course Union
Professional event planning and student representation
Manitoba Family Volunteer
Recognized by the Premier for impact and excellence in public volunteer services.

LANGUAGES

English
Native Language
Spanish
Working Proficiency
Portuguese
Working Proficiency

Education

Master's of Engineering, Aerospace
Toronto Metropolitan University
2022-2024 | Toronto, Canada

Bachelor's of Engineering, Aerospace (Space Stream)
Ryerson Univeristy
2017-2022 | Toronto, Canada

Rotary International Exchange
Year Long Youth Exchange
2015-2016 | São Paulo, Brazil

Core Courses

Avionics & Navigation

Random Processes

Spacecraft Dynamics & Control

Aircraft Safety & Reliability