Michael Zeliznak

Mechatronics Engineering – 3A

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Skills

Programs: SolidWorks, Autodesk Inventor, Onshape, AutoCAD, Ignition, MS Excel, MS Word, MS Teams
Programming Languages: C/C++, Python, MATLAB, SQL, HTML, JavaScript, Tailwind CSS, Node.js, Vue.js, Next.js, React
Awards & Certifications: Certified SolidWorks Associate, Dean's List (1A, 1B, 2A, 2B), First-in-Class Scholarship (1A, 1B)
Additional Skills and Assets: FDM and SLA printing, Linux (Ubuntu), ROS 2, Gazebo, Git, Docker, Azure Dev Ops

Job Experience

Actemium – MES Specialist in Training January 2026 – April 2026

- Contributed to an internal Ignition platform by implementing new features, including Statistical Process Control tools and interface enhancements using Python and SQL
- Utilized Docker, Git, and Azure DevOps for version control, deployment workflows, and collaborative software development
- Created a Linux-based Bash script to renew SSL certificates for an Ignition Perspective application

ATS Life Sciences – Automation Designer May 2025 – August 2025

- Designed and simulated robots, conveyors, and plants to determine design feasibility and suggest improvements for multi-million-dollar automation equipment
- Planned and conducted tests to determine root causes of errors on medical device production lines
- Wrote multiple reports highlighting key findings from production line testing for a multidisciplinary team of 10+ members

Triton Genomics – Biomedical Engineering Intern September 2024 – December 2024

- Designed sheet metal and CNC machinable parts in Autodesk Inventor to improve device functionality and manufacturability
- Applied rapid prototyping methods, including FDM and resin printing, to test designs and analyze device usability
- Redesigned, tested, and printed gasket molds, reducing processing time and material waste by up to 50%

Extracurricular Experience

Waterloo Microfluidics and Soft Robotics Lab Volunteer
May 2024 – April 2025

- Assisted a master's student in designing 3D printable fixtures for assembling and testing pneumatically actuated muscles
- Developed a PyQt desktop application using Python to interface with an air pump, Mark-10 test frame, and digital multimeter for automated data collection
- Designed and prototyped a resin-printed container in SolidWorks for housing a PCB and battery that is mountable to an arm

Canadian Engineering Competition
March 2025

- Placed 3rd nationally, 2nd provincially, and 1st regionally, in the Junior Design category
- Collaborated with three teammates to design, prototype, and present a water dispersal system to a panel of judges, defending engineering choices and processes

Projects

Quadruped Robot

- Designed and built a 12-DOF quadruped robot using a Raspberry Pi 4B, PCA9685 PWM controller, and 30kg hobby servos
- Developed ROS 2 Jazzy control software inside a Docker environment for gait generation and hardware integration
- Implemented phase-based gait control and Bézier-curve foot trajectory generation for quadruped locomotion
- Integrated IMU feedback and PID-based stabilization methods to improve robot balance and motion control

Education

University of Waterloo – Mechatronics Engineering
September 2023 – April 2028