

SKILLS

Software: C++, Python, JavaScript with AJAX, SQL, HTML/CSS, PHP, C, Matlab, Linux, Git, Unity for Game Development and AR

Machine Learning: Conda, TensorFlow, MuJoCo for Reinforcement Learning using 3D Models, CNN for Computer Vision, Transformers

Mechanical: SolidWorks (DFMA, PDM, FEA Simulation), 3D Printing (FDM), AutoCAD

Electrical: Altium Designer

PROFESSIONAL EXPERIENCE

ML Research Assistant | Hamburg University of Technology, Hamburg, Germany Sep. 2025 - Dec. 2025

- Utilized machine learning techniques like Transformers and LSTMs to predict soil parameters to replace time-consuming laboratory tests.
- Created a SmartBrick prototype with a Django server capable of measuring water pressure and tilt using Python and an ESP32.

Project Engineering (A&C) Co-op | MMR Consulting @ Thermo Fisher Scientific, Whitby, ON Jan. 2024 - Apr. 2024

- Worked with contractors to install and validate QEMS, giving managers and operators quick access to key parameters.
- Troubleshooting various Coating Pans, Shell Blenders, and more systems by analyzing PLC code, built-in filters, and mechanical parts.

Operational Excellence Intern | Thermo Fisher Scientific, Mississauga, ON Jun. 2024 - Aug. 2024

- Utilized VBA to convert PDF forms into Excel sheets, saving the process team up to 2 hours per week on calculations.
- Implemented Power Automate and Smartsheet workflows, reducing manual tasks and improving efficiency by 5 hours per week.

Mechanical Designer | Linear Transfer Automation, Barrie, ON Sep. 2023 - Dec. 2023

- Modelled various assemblies and parts, designed for manufacturing, of subcomponents for automation machines, including lubrication system, tooling design, nest, guides, adjustable lift, etc.
- Detailed hundreds of parts and assemblies with GD&T standards, allowing major projects to be released to customers faster.

IT Programmer Co-op | Linear Transfer Automation, Barrie, ON Jan. 2023 - Apr. 2023

- Revamped the company's QMS System from Excel forms to dynamic webpages, improving accessibility for managers.
- The new QMS System utilizes object-oriented PHP, MySQL, HTML, CSS, and JavaScript with AJAX.
- Used C#, Visual Basic and MySQL to update the company's mobile app, allowing employees in the USA to utilize it.

Software Engineering Intern | Goji Tech, Toronto, ON Jan. 2022 - Apr. 2022

- Created a dynamic and modern website for Goji Tech at gojitech.co, making it more professional.
- Researched and developed a phrase recognition system using JavaScript, HTML and Edge Impulse to create an alternative solution.
- Created a filtering algorithm for medical terms for processing the data, saving hours per sample.

Software Engineering Intern | Kaidu, Toronto, ON Jan. 2022 - Apr. 2022

- Created an SMS Messenger bot that receives and stores data in a pgAdmin database to automate manual tasks for onsite testing.
- Performed daily tests on the company's product, reporting issues to Jira and Bitbucket, facilitating rapid prototyping.

STUDENT DESIGN TEAMS

Lead of EMG Fabric Subteam | Biomechanics Design Team, Waterloo, ON Jan. 2024 - Dec. 2024

- R&D for an armband that uses reusable electrodes to control an exoskeleton and future medical technologies.
- Work alongside software and hardware leads to manage the project, allocate funding, and mentor new members.

Mechanical Member of Vroom Subteam | Electrium Design Team, Waterloo, ON Sep. 2023 - Apr. 2024

- Researched, conceptualized, and parametrically modelled an electric motorcycle using SolidWorks.
- Ran FEA simulations on the motorcycle frame using force calculations and material selection, iterating the design based on the results.
- Manufacturing the motorcycle frame, battery pack and brackets in the university machine shop.

PROJECTS

Developing a Transradial Prosthetic Arm with High DOF using SMA Actuators Jan. 2025 - Current

- Analyzed dozens of research papers to design and model a prosthetic hand using SolidWorks and train the hand using MuJoCo and RL.
- Developed a custom actuator PCB for SMA control integrating PWM ICs, MOSFETs and other components using Altium Designer.
- Researching CNN and Reinforcement Learning Techniques to make the prosthetic hand as autonomous as possible.
- Developing custom EEG Headset using ADS1299 to act as the primary control for the prosthetic.

Innovation in Sensorimotor Skills Evaluation for Child Development Workshop | iSPARK, Waterloo, ON Jan. 2024

- Interdisciplinary event where engineers, clinicians, and industry stakeholders innovate new designs for children with disabilities.
- Conducted a case study for a child with Muscular Dystrophy and prototyped an exoskeleton to support his dominant arm with his torso, winning the People's Choice Award.

EDUCATION

Honours B.ASc Candidate in Mechatronics Engineering, Option in Biomechanics | University of Waterloo Sep. 2022 - Current