

# Matthew Pihowich

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## Education

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### University of Toronto

(Sep 2022 - Present)

Bachelor of Applied Science in Robotics Engineering, Engineering Science

3.98 GPA, Dean's List.

- Notable courses include Structures and Materials, Vector Calculus and Fluid Dynamics, Molecules and Materials, Thermodynamics, Digital and Computer Systems, and Praxis Engineering Design courses.
- Domestic Engineering and Harvey Aggett Memorial Scholarships, Rowe Award Finalist.
- Principal Cellist in Iron Strings Quartet and Skule Orchestra with several school-affiliated performances.

## Experience

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### Blue Sky Solar Racing Design Team, UofT

(Sep 2022 - Aug 2023)

- Designed, manufactured, and documented front Daytime Running Lights and Indicators using Catia v6 in compliance with World Solar Challenge Regulations (UNECE regulations).
- Formulated and executed procedure for Flow Visualization with tufts through research and physical testing in collaboration with Aero subteam that cut application time to 4 man-hours while increasing quality from previous iterations.
- Organized and led work sessions for top aero body array installation and sandwich panel layups.
- Fabricated numerous composite parts in a team including vacuum infusion for the top aero body, wet layups for wheel covers, and a kevlar-carbon battery box with the design of battery-box latching.
- Operated and debugged telemetry and state of charge simulations over 1000 km of on-road testing, while communicating information and strategy recommendations to the driver.

## Skills

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- CAD/Design: Catia V6, Onshape, Solidworks.
- FEA Structural Simulation: Ansys and Onshape.
- Manufacturing: Composites, Mold Making, Soldering, 3D Printing, Dremeling, Sanding.
- Programming: Python, C, Matlab, HTML, CSS, RISC-V, Verilog and FPGA.
- Strong listening and collaborative skills.
- Stakeholder-centric engineering design.

## Projects

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### Custom Rollator Design

- Designed a rollator for a stakeholder with a disability that increased ergonomic comfort and stability during motion. Additionally implemented features to help with transitioning between sitting and standing more effectively.
- Modeled and simulated multiple iterations of rollators in Onshape to determine structural strength-to-weight ratios and ensure adherence to strict ISO safety standards for rollators.

### Beam Bridge Design

- Designed a simulation with Matlab in collaboration with a team of 4 for loads on a mat board box girder bridge, while also predicting the failure load and method depending on the bridge's cross-section.
- Optimized bridge to a 3-section design with an experimental failure load of 70 kg.
- Formulated design documents to communicate key design decisions and mathematical documentation.