# Matthew Pihowich

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## Education

**University of Toronto** (Sep 2022 - May 2026)

Bachelor of Applied Science in Aerospace Engineering, Robotics Engineering Minor

3.91 GPA, Dean's List.

- Notable courses include Structures and Materials, Thermodynamics and Heat Transfer, Fundamentals of Electric Circuits, Digital and Computer Systems, and Praxis Engineering Design courses.

## Experience

**Blue Sky Solar Racing, Structural/Mechanical Engineer** (Sep 2022 - Present)

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

**UTAT Rocketry, Avionics Team** (Jan 2024 - Present)

- Researched LiPo battery discharge characteristics for several different cell chemistries such as LCO and NCM.

## Skills

- CAD/Design: Catia V6 (Generative Shape Design, Part Design, Assembly Design), Onshape, Solidworks, Fusion 360.
- FEA Structural Simulation: Ansys and Onshape.
- Hands-on Manufacturing: Composites, Mold Making, Soldering, 3D Printing, Dremeling, and Sanding.
- Programming: Python, C, Matlab, HTML, CSS, RISC-V, Verilog and FPGA.
- Proficient in Engineering Design with Requirements Models.
- Strong Analytical Problem-Solving and Technical Communication Skills.

## Projects

**GaitKeeper Assistive Walking Device** (Spring 2023)

- Designed a rollator for a stakeholder with a disability that increased ergonomic comfort and stability during motion.
- Modeled, selected material, and simulated multiple iterations of rollators in Onshape to determine structural strength-to-weight ratios and ensure adherence to ISO safety standards for rollators.

**Beam Bridge Design** (Fall 2022)

- Programmed a simulation with Matlab in a team of 4 for analysis of loads on a mat board box girder bridge, predicting the failure load and method dependent on cross-section and verifying with hand calculations.
- Optimized bridge to a 3-section design with an experimental failure load of 70 kg.
- Created design documents to communicate key design decisions and mathematical documentation.

## Awards/Achievements

- Top 5 Finisher for 2024 Clarke Prize Environmental Design Challenge.
- Praxis II Rowe Award Finalist.
- Domestic Engineering Scholarship and Harvey Aggett Memorial Scholarships.

## Activities

- Principal Cellist in Iron Strings Quartet and Skule Orchestra with several school-affiliated performances.