

# Zain Glover

zainglover15@gmail.com | [zainglover.ca](https://zainglover.ca) | [linkedin.com/in/zain-glover](https://linkedin.com/in/zain-glover)

## Education

**University of Toronto** – BAsC in Mechanical Engineering - GPA: 3.64/4.0

Expected June 2028

## Work Experience

**Research Assistant (NDA)**, TMU Aerospace Engineering Centre & Bombardier - Toronto, ON Sept 2024 - Present

- Designed and fabricated biomechanical systems to improve the comfort of commercial aircraft cabins for a Bombardier Research and Development project partnered with Toronto Metropolitan University
- Developed computer-aided designs (CAD) in SolidWorks of textile sensing mechanisms involving controlled metallic bending, roller guides, springs, and various fasteners for finite element analyses (FEA) and modeling purposes
- Selected shapes and thicknesses of sheet metal components based on spring constant and deflection values by creating FEA simulations in Ansys Mechanical, accounting for design for manufacturability (DFM) principles

## Projects

**University of Toronto Supermileage Team - Aerostructural Member** [zainglover.ca/super-mileage-vehicle](https://zainglover.ca/super-mileage-vehicle)

- Designed, developed, and manufactured the aerobody for the University of Toronto Supermileage Team's Prototype vehicle in preparation for the 2025 Shell Eco Marathon
- Created and updated computer-aided design (CAD) for the vehicle's wheel brake, inner shelves, and aerobody by taking physical measurements and using Geometric Dimensioning and Tolerancing (GD&T) principles in SolidWorks
- Improved the vehicle's movement and fuel efficiency by identifying aerodynamically-flawed components of the vehicle's aerobody by creating a fluid dynamics simulation (CFD) in Ansys Fluent
- Determined the maximum weight of inner-body components without causing the aerobody to plastically deform by creating a static simulation in Ansys Structural
- Fabricated the vehicle's foam plug by using a CNC mill and HSMWorks Ultimate for the vehicle's monocoque build

**CNC Router Project - Team Leader** [zainglover.ca/cnc-router](https://zainglover.ca/cnc-router)

- Lead a group of 4 Mechanical Engineering students over 13 weeks to create a conceptual design of a CNC Router targeted towards home hobbyists
- Developed a fully functional SolidWorks assembly, engineering report, and 20+ technical drawings to effectively model the proposed design
- Selected, designed, and modelled 70+ CNC parts to create a spindle mechanism, 3-axis movement system, and custom router frame while adhering to a \$4,200 budget

**Arduino Kinematics Analysis** [zainglover.ca/kinematics-car](https://zainglover.ca/kinematics-car)

- Created a 4 wheel bluetooth-controlled Arduino car that analyzes its own displacement, velocity, and acceleration using Arduino programming, battery power management, wire soldering, and a GPS
- Facilitated the car's movement by programming wheel motors to different touch-controls on an arduino app with C++
- Created real-time kinematic graphs by reading and plotting Arduino GPS data with the Python library Matplotlib

**Hart House Theatre Accessibility** [zainglover.ca/hart-house-accessibility](https://zainglover.ca/hart-house-accessibility)

- Managed a team of 6 first-year engineering students over 12 weeks to create a proposal for the redesign of the inaccessible wheelchair seating, steep back aisles, and stage access of the University of Toronto's Hart House Theater
- Selected 3 complete solutions for each theater issue from an initial 57 generated ideas, by developing decision matrices and computer-aided designs which effectively modeled a total of 9 unique theater solutions
- Created a Gantt chart, task lists, and documents in Microsoft Excel and Word to promote an organized and communicative working group, leading to a 90% on the project's conceptual design specification (CDS) document

## Skills

**Languages and Frameworks:** Ansys, SolidWorks, Autodesk Fusion, TinkerCAD, Microsoft Office, C, C++, Python, MATLAB