

# Zain Glover

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## Education

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

Expected June 2027

## Work Experience

**Research Assistant - NDA Project**, 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 an FEA simulation in Ansys Mechanical

**Mathematics and Physics Tutor**, Tutorax - Toronto, ON

May 2024 – Sept 2024

- Tutored Calculus and Physics to college students granting them a deeper understanding of course material in preparation for evaluations and exams through prepared lessons and homework assignments

## Projects

**University of Toronto Supermileage Team - Aerostructural Member**

June 2024 - Present

- 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 CNC software (HSMWorks Ultimate) in preparation for the vehicle's monocoque fabrication
- Manufactured the vehicle's monocoque by creating fiberglass molds then implementing carbon fiber layups, resulting in a strong and lightweight aerobody

**Hart House Theatre Accessibility**

Sept 2023 - Dec 2023

- Managed a team of 5 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

**Arduino Kinematics Analysis**

Feb 2022 - June 2022

- 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

## Skills

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