

# ANDI ZHOU

Canadian Citizen

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## Education

**University of Michigan Ann Arbor**

*Bachelor of Science in Engineering*

**Major: Aerospace Engineering**

**Ann Arbor, MI**

Graduating May 2022

**GPA 3.66/4.00**

**Clubs/Programs** – Michigan Aeronautical and Science Association (MASA), Sigma Gamma Tau, Michigan Active Aeroelasticity and Research Laboratory, AIAA

## Skills

**Engineering Skills:** CAD, CFD, FEA, Thermodynamics, CFD-FEA Coupled Analysis, CFD-Thermal Coupled Analysis

**CAE Software:** CATIA, ANSA, Solidworks, ANSYS, STAR CCM+, NASTRAN, Linux

**Coding Language:** MATLAB, C++

**Awards:** **Dean's Honor List (2018 – 2021) | Sigma Gamma Tau** – National Aerospace Honor Society

## Work Experience

**Volvo Group Truck Technology**

Greensboro, NC

*CFD Engineer Intern*

*January 2022 – Present*

- Clean simulation geometries and prepare meshes using ANSA and PowerDELTA on Volvo truck grilles
- Review past simulation and experimental results; provide design revisions on latest truck designs
- Conduct multiphase flow simulation on engine air intake to optimize water draining during events of heavy rain

## Project Team Experience

**MASA (University Rocketry Team)**

Ann Arbor, MI

*Aerostructure Design Lead (Team of 12)*

*September 2019 – Present*

- Led a team of 12 in designing, simulating, and manufacturing rocket fins able to take on supersonic flight loads
- Organized design reviews, conducted engineering work sessions, led to team to eventually optimizing the apogee of our rocket by 30%
- Designed the structure to a SF of 1.5 with a loading condition of 2-degree AoA at Mach 2.77, reducing the weight of the overall rocket by 10% while maintaining the same performance at identical loading conditions
- Contacted out-of-house manufacturers; fabricated a 4-ft tall, 3-ft wide rocket fin assembly leveraging advanced sheet metal manufacturing techniques such as bump bending and brake pressing

*Test Engineer Lead (Team of 6)*

*September 2021 – December 2021*

- Led a team of 6 in testing the largest fin assembly (3-ft wide, 4-ft tall) that MASA has ever built
- Investigated dynamic roll behaviors using a 5' by 7' wind tunnel; quantified moment and angular acceleration due to aerodynamic effects and explored the possibility of inertial roll coupling
- Conducted static testing of the fin surface, analyzed data and compared with those given in Finite Element Analysis; confirming that the error range stayed within 20%
- Optimized team design cycles; accelerated design duration by 70%

## Research Experience

**Active Aeroelasticity and Research Laboratory**

Ann Arbor, MI

*Undergraduate Research Assistant*

*September 2020 – May 2021*

- Evaluated BWB type aircraft with NASTRAN using SOL 101, 103, 144, 145 and 400 to study its structural, modal and aeroelastic behaviors under subsonic speed with varying angle of attack and compressibility factor
- Wrote finite element codes with MATLAB, allowing for NASTRAN to iteratively solve for varying loading conditions and automatically provide the most optimized structure for the load case given

## Personal Projects

**Custom CFD Solver**

Ann Arbor, MI

*Programmer*

*January 2021 – September 2021*

- Single-handedly coded a custom CFD solver utilizing the method of fractional velocity to solve the steady incompressible Navier-Stokes equations
- Verified the above CFD code using the classic lid-driven cavity test case up to a Reynolds number of 5000
- Using the shallow water equation, programmed a transient solver investigating tank sloshing
- Programmed a Finite Volume Solver to investigate the spread of COVID-19 within a classroom leveraging concepts of potential flow
- Optimized channel flows using Finite Element Methods and principles of unstructured mesh