

# ANDI ZHOU

Canadian Citizen

1929 Plymouth Road Apt#4012, Ann Arbor, MI 48105

andi.zhou1324@gmail.com

(734)-881-4192

## 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

*Rocket Fin Lead*

*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

*CFD Engineer*

*January 2021 – Present*

- Performed high-fidelity 3D full body CFD for a 27-ft rocket traveling at Mach 4.49 and converged the simulation to the 5<sup>th</sup> order of accuracy
- Conducted aero-thermal-structure interaction studies and optimized thermal-structural SF to 2
- Analyzed both steady and transient rocket aerothermodynamic behavior at Mach 4.49 by performing high-fidelity fluid simulation leveraging K-Omega and K-Epsilon turbulence models using ANSYS Fluent and STAR-CCM+
- Spent 100s of hours after school to generate fine and efficient meshes with Y+ values below 5 and is the first on the team to successfully converge the simulation using the U of M Great Lakes HPC Cluster

## Research Experience

**Berlin Institute of Technology**

Berlin, Germany

*International Research Intern*

*April 2019 – July 2019*

- Verified drag coefficients and forces of experimental vehicles using wind tunnels measurements and compared with ANSYS Fluent results
- Optimized vehicle aerodynamic based on geometry changes guided by wind tunnel experiments and decreased the overall drag coefficient by 0.02

## 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