Available starting **May 2023**, looking for both **internship** and **full-time**

ANDI ZHOU

Canadian Citizen

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Education

University of Michigan Ann Arbor **Ann Arbor, MI**
Master of Science in Engineering Expected Graduation May 2023
Major: Aerospace Engineering **GPA N/A**
Bachelor of Science in Engineering Graduated *Magna Cum Laude* May 2022
Major: Aerospace Engineering **GPA 3.7/4.00**
Clubs/Programs – Michigan Aeronautical and Science Association (MASA), Sigma Gamma Tau, Michigan Active Aeroelasticity and Research Laboratory, AIAA

Skills

Engineering Skills: Design, Compressible Flow, Structure Analysis, Multi-Phase Flow, Thermodynamics, Heat Transfer
CAE Software: CATIA v5, PowerFLOW, ANSA, Star CCM+, Solidworks, ANSYS, NASTRAN, Linux OS, Linux HPC
Coding Language: MATLAB, Python, C++, Simulink
Awards: **Dean's Honor List & University Honors (2018 – 2022) | Sigma Gamma Tau –** National Aerospace Honor Society

Work Experience

Volvo Group Truck Technology Greensboro, NC
Powertrain CFD Engineer Intern *January 2022 – May 2022*

- Designed, investigated, and optimized, using STAR CCM+ multi-phase flow, a swirl air-water separation tank which maintained a separation efficiency of 99% while decreased its mass from the original concept by 40%
- Collaborated with Dassault Systèms, optimized water draining in truck air intake using PowerFLOW multi-phase flow, ensuring the system is up to standards as per SAE J554
- Cleaned 100s of powertrain CAD models and generated for them fine and efficient meshes for thermal simulations using ANSA

Project Team Experience

MASA (University Rocketry Project Team) Ann Arbor, MI
Aerostructure Lead – Rocket Fins (Team of 12) *September 2019 – Present*

- Led a team of 12 in designing, simulating, and manufacturing the largest rocket fins that MASA has ever built (3-ft wide, 4-ft tall)
- 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
- Organized design reviews, conducted engineering work sessions, led to team to eventually optimizing the apogee of our rocket by 30%
- Coordinated with out-of-house manufacturers; in 3-months, fabricated the entire 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 and evaluating 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%

Aerodynamic 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^{th} order of accuracy
- Conducted transient 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+

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 flow test case up to a Reynolds number of 5000