

ANDI ZHOU

Canadian Citizen

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Education

University of Michigan Ann Arbor

Master of Science in Engineering

Major: Aerospace Engineering

Bachelor of Science in Engineering

Major: Aerospace Engineering

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

Ann Arbor, MI

Graduating May 2023

GPA N/A

Graduated May 2022

GPA 3.7/4.00

Skills

Engineering Skills: Numerical Methods, Compressible Flow, Multi-Phase Flow, Thermodynamics, Heat Transfer

CAE Software: PowerFLOW, ANSA, Star CCM+, Solidworks, ANSYS, NASTRAN, Linux OS

Coding Language: MATLAB, Python, C++, Simulink

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

Work Experience

Volvo Group Truck Technology

Greensboro, NC

Powertrain Simulation Intern

January 2022 – May 2022

- Designed, investigated, and optimized 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 Systèmes, 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
- Gained extensive experience working in an Agile team and a large company of 100,000 people

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

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 5th 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