ANDI ZHOU

Canadian Citizen
1929 Plymouth Road Apt#5017, Ann Arbor, MI 48105 andi.zhou1324@gmail.com (734)-881-4192

Education

University of Michigan Ann Arbor **Ann Arbor, MI**
Master of Science in Engineering Expected Graduation November 2023
Major: Aerospace Engineering (Computational Aerodynamics) **GPA N/A**
Bachelor of Science in Engineering Graduated *Magna Cum Laude* May 2022
Major: Aerospace Engineering **GPA 3.7/4.00**
Awards: **Dean's Honor List & University Honors (2018 – 2022)** | **Sigma Gamma Tau –** National Aerospace Honor Society

Skills

Engineering Skills: Compressible Flow, Multi-Phase Flow, Heat Transfer, Structure Analysis,
CAE Software: ANSYS Suite, CATIA v5, Solidworks, PowerFLOW, Star CCM+, ANSYS, NASTRAN, Linux OS, Linux HPC
Coding Language: MATLAB, Python, C++, Simulink

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
- Using PowerFLOW, assisted in electronic and HVAC thermal analysis and management

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

Aerothermodynamic 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

Test Engineer Lead (Team of 6) *September 2021 – December 2021*

- Led a team of 6, investigated rocket 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%

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