ANDI ZHOU

Canadian Citizen
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Education

University of Michigan Ann Arbor **Ann Arbor, MI**
Bachelor of Science in Engineering Graduating May 2022
Major: Aerospace Engineering **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 high-fidelity meshes using ANSA and PowerDELTA on Volvo truck grilles
- Review past simulation and experimental results; provide data-based 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^{th} 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

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 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