ANDI ZHOU

Canadian Citizen
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Education

University of Michigan Ann Arbor **Ann Arbor, MI**
Bachelor of Science in Engineering Graduated May 2022
Major: Aerospace Engineering **GPA: 3.70/4.00**
Master of Science in Engineering Starting January 2023
Major: Aerospace Engineering **GPA: N/A**
Clubs/Programs – *Michigan Aeronautical and Science Association (MASA), Sigma Gamma Tau, AIAA*

Skills

Engineering Skills: CAD, FEA, CFD, Thermodynamics, Thermal Structure, Thermal Management
CAE Software: CATIA, ANSA, PowerFLOW, Microsoft Access, 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
Powertrain Simulation Intern *January 2022 – Present*

- 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 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 ANSA, cleaned 100s of powertrain CAD models and generated for them fine and efficient meshes for thermal and airflow simulations
- Wrote engineering reports and gave regular team presentation, gained extensive experience working in an Agile team and a large company of 10,000 people

Project Team Experience

MASA (University Rocketry Team) Ann Arbor, MI
Aerostructure Lead – Rocket fins *September 2019 – Present*

- Led a team of 12 in designing, simulating, and manufacturing rocket fins able to take on supersonic flight loads
- Led aero-thermal-structure interaction studies and optimized thermal-structural SF to 2
- Investigated transient rocket aerothermodynamic behavior at Mach 4.49 by performing high-fidelity CFD simulation leveraging ANSYS Fluent and STAR-CCM+
- Increased the apogee of our rocket from 40,000 to 60,000 feet through aero-structural optimization
- Coordinated with out-of-house manufacturers; in 3 months, fabricated and assembled the largest rocket fin assembly (3-ft wide, 4-ft tall) that MASA has ever built

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
- Prepared over 20 CFD-optimized geometries using Solidworks and CATIA, utilizing functions such as extrude-cut, loft-cut, cavity, and fillet to trim out little imperfections and round off sharp edges
- 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

Personal Project

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 Difference 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