ANDI ZHOU

Canadian Citizen

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Education

University of Michigan Ann Arbor	**Ann Arbor, MI**
Master of Science in Engineering	Expected Graduation November 2023

Major: Aerospace Engineering (Aerodynamics and Structure)   **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: Leadership, Design Engineering, Compressible Flow, Structure Analysis, Multi-Phase Flow, Heat Transfer

CAE Software: CATIA v5, Solidworks, PowerFLOW, ANSA, Star CCM+, ANSYS, NASTRAN, Linux OS, Linux HPC

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

Work Experience

Solar Ship Inc.	Toronto, ON
Mechanical, Test Engineer Intern, and Drone Test Pilot	*May 2022 – August 2022*

- Drafted flight test plans. Thoroughly examined aircraft before test flight and made sure that all safety standards are followed throughout
- Worked tightly with a team of 6 engineers, designed the gondola for an 11-m diameter, human piloted, solar-electric tsorocopter airship used for disaster relief in remote areas
- Designed and prototyped a light, ergonomic, 11-G crash-resilient extendable controller mount for an 11-m diameter airship, allowing a 2-m tall pilot to fly the aircraft comfortably and safely
- Modeled and integrated all avionic component within the avionics bay, reduced the size of avionics bay by 40% while lowering the entire vehicle mass by 5%

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 – January 2022*

- 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, 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%

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 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+