ANDI ZHOU

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Dear CNL Hiring Team,

I hope your day is going well! My name is Andi Zhou, a master's student from the University of Michigan Ann Arbor studying aerospace engineering, and I am writing to express my interest in applying for the **Thermo-Fluid Summer Student** position.

It may seem a bit counter intuitive as an aerospace engineer, but one of my biggest dreams is to work on a nuclear reactor, where the condition is so extreme that electrons could accelerate faster than the phase velocity of light.

I have a combined 3-year worth of CFD and thermal modeling experience in university project teams, aerospace, and the automotive industry. In particular, I am proficient at using ANSYS and STAR CCM+ to simulate complex multi-phase and multi-physics flow such as air-water turbulent mixing and supersonic convective heating.

As a CFD Engineer Intern at Volvo Trucks North America, I spent 4 months in Greensboro, North Carolina, and became proficient with Multiphysics modeling using industry-level software such as ANSA and PowerFLOW. Using Star CCM+, I single-handedly set up a multi-phase Eulerian-Eulerian workflow to evaluate air-water separation performance within a cyclone separator. In the end, I was able to design a separator capable of maintaining a 99% separation efficiency while reducing the mass from the original concept by 40%.

During my time as the aerostructure lead at MASA (University Rocketry Team), I led aerothermal analysis using ANSYS and Star CCM+, where we performed a fully transient supersonic convective heating simulation to ensure that our fins would not undergo aero-structural failure during flight. During the later stage of the project, I also led full-body aerothermal simulations on our rocket, where we leveraged ANSYS Fluent's aerothermal coupling abilities to investigate shock behaviors and their impact on external rocket components.

Outside of school, I single-handedly coded a CFD solver using MATLAB that employs the famous SIMPLE method to solve the incompressible Navier-Stokes equations. Furthermore, I was able to verify the solver using the classic lid-driven cavity flow with a Reynolds number of 5000.

As an aerospace engineer with an unrelenting passion for fluid dynamics, I believe my skill sets align perfectly with your listed opening. Thank you so much for your consideration, and don't hesitate to contact me if you have any questions.

Thank you so much again!

Sincerely,
Andi Zhou