

Dear Hiring Manager:

I am writing to express my sincere interest in Undergraduate Science/Engineering Research Intern at Los Alamos Laboratory. With hundreds of hours spent in ANSYS and Star CCM+, and personal experience in leading a complex engineering project, I was beyond excited when I found your opening for an CFD intern in the QUIC CBR Plume Modeling team. Being an aerospace student, applying numerical techniques to analyze airfoil properties is of no stranger to me. Yet, running CFDs for weather prediction, forest fire dispersion and nuclear fallout transportation is a tremendous step up from airfoils, and its challenges, coupled with positive impacts it could bring to our society, absolutely excites me as a CFD enthusiasts.

I discovered Computational Fluid Dynamics while being a project lead at the University of Michigan rocketry team. Leading a group of 12, we designed, analyzed, and manufactured the fins for a hypersonic, spacefaring rocket. A hypersonic rocket presents a few unique challenges, especially in the aerodynamic field where the fins have to be both slim and structurally sound. As a freshman who just entered college, knowing absolutely nothing about numerical techniques, I self-learned ANSYS Fluent and found myself deeply in love with this subject.

I single-handedly coded my own custom CFD solver using MATLAB that employs the multigrid, SIMPLE algorithm, and Gauss-Seidel method to solve the incompressible Navier-Stokes equations. Furthermore, I was able to verify my own solver using the lid-driven test case comparing with published paper while pushing the Reynolds number to 5000.

Currently, I work as a CFD engineer intern in Volvo Truck North America, where I utilize ANSA and PowerFLOW to optimize meshes and airflow over next generation of Volvo Trucks.

A passionate aerospace engineer who not only loves and understands CFD, 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.

Sincerely
Andi Zhou