Brian Shi

Raleigh, NC
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EDUCATION:

B.Sc. Aerospace Engineering **GPA:** 4.00
Minors: Computer Programming, Mathematics
North Carolina State University, Raleigh, NC **Graduation:** 05/2024

M.Sc. Aerospace Engineering **GPA:** 4.00
North Carolina State University, Raleigh, NC **Expected Graduation:** 08/2026

RELEVANT TECHNICAL SKILLS AND COURSEWORK:

- MATLAB data analysis and Simulink Modeling
- Fortran, Java, C, C++, and GitHub
- Unix/Linux OS
- Ansys Fluent and Mechanical
- SolidWorks and Fusion 360 Modeling
- Wind Tunnel Testing

PROFESSIONAL EXPERIENCE:

Army Research Lab Internship, Aberdeen Proving Grounds **May 2024 – July 2024**

- Studied complex high enthalpy, hypersonic flows over the double cone geometry by analyzing the effects of various CFD parameters on resulting flow solutions.
- Simulated Reynolds-averaged Navier–Stokes (RANS) models on CFD++ that vary in time and space with remotely utilized high-performance computing (HPC) clusters.

Capstone Project, NCSU **Aug 2023 – May 2024**

- Designed and prototyped an award-winning VTOL fixed-wing UAS as the Aerodynamics Lead using trade studies and CFD tools such as OpenVSP, FlightStream, and Ansys Fluent.
- Constructed critical components by employing skills such as 3d printing, composite layups, etc.
- Led collaborative meetings to debate design problems and investigate potential solutions.

Undergraduate Research, NCSU **May 2022 – May 2024**

- Diagnosed technical issues found within hypersonic flow models through iterative testing and analysis.
- Optimized numerical flow models using novel differential techniques (automatic differentiation) that produce higher accuracy results and faster running simulations while participating in the Research Experience for Undergraduates (REU) program.

NASA Internship, Langley Research Center **June 2023 – August 2023**

- Validated various hypersonic nozzle flows using the VULCAN-CFD software package. Work included the utilization of both traditional structured and adaptive unstructured solvers on 3D combusting flows.
- Constructed structured and unstructured computational domains with tools such as Pointwise.
- Performed large-scale simulations by remotely utilizing HPCs.
- Co-authored a JANNAF paper based on data obtained during the internship.

ACHIEVEMENTS/ CERTIFICATES:

NASA Gateways to Blue Skies Competition 2024 Most Innovative Concept Award **June 2024**

- A NASA-hosted university competition to develop innovative solutions regarding aviation and natural disasters.

AIAA Dr. Hassan A. Hassan Graduate Award in Aerospace Engineering **May 2024**

- AIAA Graduate Scholarship Award.

NCSU Roland and Aileen Leon Memorial Scholarship award **June 2022**

- Engineering Scholarship Award

NCSU Developing Cultural Competence Certificate **May 2021**

- For demonstrating understanding of the process of developing cross-cultural competence through a multi-national co-curricular program.