# HAN ZHENG

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## EDUCATION

**Johns Hopkins University** Baltimore, MD
*Bachelor of Science* Expected June 2026

- Mechanical Engineering (Aerospace Track)
- GPA: 3.77

## SKILLS

CAD (SolidWorks, Creo, Onshape), FEA (Abaqus, Creo), CFD (SimScale), MATLAB, C/C++, Arduino IDE, Micro-CT, Circuit Analysis & Implementation, Machining, GD&T, 3D Printing, Composite Manufacturing, Material Selection, Microsoft Office Suite (Word, PowerPoint, and Excel)

## RELEVANT EXPERIENCE

**Mechanical Engineering R&T Intern** Rochester, NH
Albany Engineered Composites June 2025 - August 2025

- Researched the relationship between fiber crimp and the elastic properties of 3D woven composites
- Devised and conducted experiments to study friction within woven preforms under varying environmental conditions and weaving architectures
- Simulated fixture response in Abaqus under preform compaction loads to evaluate stress distribution and deflection
- Designed a fixture in SolidWorks for securing woven preforms during μCT scanning and 3D-printed it in ABS

**Lead Mechanical Engineer** Baltimore, MD
Johns Hopkins University - Design/Build/Fly (DBF) September 2023 - Present

- Designed and integrated an aircraft empennage with a steerable tail gear into a carbon fiber fuselage using Onshape
- Performed structural analysis on the aircraft wing using a self-developed MATLAB-based beam analysis tool to optimize fuel tank placement, reducing maximum bending moment by 16%
- Conducted CFD simulations in SimScale for the aircraft payload at angles of attack from 4°-16° at 20 mph airflow, analyzing flow patterns around pylons to improve aerodynamic performance

**Mission Collaborator - Team VfOx, DAVINCI Mission** Baltimore, MD
Johns Hopkins University September 2024 - December 2024

- Identified optimal accommodations for the Venus Oxygen Fugacity (VfOx) sensor on the mission probe based on flow simulations at descent speeds of 20 and 30 m/s using COMSOL Multiphysics
- Quantified risk levels of VfOx accommodations with 5×5 risk matrices, evaluating each accommodation through trade studies
- Presented the final recommended VfOx accommodation to the DAVINCI crew at NASA Goddard Space Flight Center (GSFC) and scientists from Johns Hopkins Applied Physics Laboratory (APL)

## ADDITIONAL POSITIONS HELD

**Fabrication Engineer** Baltimore, MD
Johns Hopkins University Whiting School of Engineering September 2024 - December 2024

- Developed detailed process sheets for manufacturing Stirling engine components, including the flywheel, piston housing, and base plate, based on provided CAD drawings
- Operated lathe, mill, and other tools to fabricate a Stirling engine running at approximately 200 rpm

**Product Design Intern** Baltimore, MD
Open Avenues Foundation [Build Project] August 2024 - October 2024

- Redesigned a multi-purpose veterinary syringe in SolidWorks, implementing an advanced locking mechanism at the syringe tip for secure attachment to feeding tubes and needles
- Developed detailed user needs and product specifications for the redesigned syringe, enhancing user experience and ensuring compliance with Class II medical device regulations

**Research Assistant** Baltimore, MD
Fluid Transport Lab September 2023 - August 2024

- Engineered grid plates with filleted square holes ranging from 6×6 cm to 16×16 cm to vary turbulence intensity for studying how fish schools respond to eddies of different length and time scales
- Coauthored the user manual for a Python package built for 3D Lagrangian particle tracking