HAN ZHENG

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EDUCATION

Johns Hopkins University Baltimore, MD
Bachelor of Science Expected June 2026
- Mechanical Engineering
- GPA: 3.77

SKILLS

CAD (SolidWorks, Onshape, Creo), FEA (Abaqus, Creo), CFD (SimScale), MATLAB, C/C++, Arduino IDE, Micro-CT, Circuit Analysis & Implementation, Machining, GD&T, 3D Printing, 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

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

Fabrication Engineer Collegeville, PA
Johns Hopkins University Whiting School of Engineering July 2024 - August 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