

VED THAKARE



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EDUCATION

University of Virginia

Charlottesville, Virginia

Bachelor of Science in Aerospace Engineering, Mechanical Engineering (GPA: 3.80 / 4.00; Highest Distinction)

August 2021 - May 2025

- **Extracurriculars:** Sigma Gamma Tau, Capstone Lab Assistant, Hoos Flying (SAE Aero Design)
- **Relevant Coursework:** Computational Methods, Mechatronics, Flight Vehicle Dynamics, Aerospace Structures, Aerospace Materials, Mechanical Systems, Aerodynamics, Aerospace Propulsion, Aerospace Systems Development

ENGINEERING EXPERIENCE

Hoos Flying (SAE AeroDesign), UVA

Charlottesville, VA

Vice President

May 2024 - May 2025

- Led 100+ members and managed 6 leads through the design and build of the plane as Vice President.
- Translated mission requirements into structural/aerodynamic specifications, managing timeline and deliverables for competition readiness.
- Independently designed and analyzed full fuselage structure over winter break after prior leads disengaged, ensuring team stayed on schedule.

*Fuselage Lead
Wing Lead*

August 2023 - May 2024

August 2022 - May 2023

- Created 3D fuselage and wing CADs (400+ hrs SolidWorks), integrated subsystems, ran FEA/CFD.
- Presented technical design reviews to industry panel, incorporating feedback to optimize weight savings and performance.

Hybrid Rocket Engine Capstone, UVA

Charlottesville, VA

Nozzle & Combustion Lead

August 2024 - May 2025

- Led a team of 5 in the design, development, and successful hotfire testing of the combustion chamber and nozzle for an H-class hybrid rocket engine producing 320 Ns of impulse.
- Validated combustion chamber integrity via FEA (FOS 7) and hydrostatic testing (FOS 2) at 500 psi operation.
- Built and operated a DAQ system with ROS, integrating ESP32 and Raspberry Pis to capture sensor and video data, cutting costs by hundreds of dollars.
- Developed Python GUI for real-time monitoring and control allowing for seamless test stand operation.

Carrier Air Management Systems

Syracuse, NY

Engineering Intern

May 2024 - August 2024

- Conducted 3D LES CFD simulations on mixed-flow fans, predicting aeroacoustic performance and iteratively reducing noise.
- Built a generalized automated Python post-processing tool with an Excel-based GUI for CFD analysis of 84+ fan blade geometries—originally for my study, now used across projects, saving hours of company time.
- Developed a FORTRAN/Python pipeline to generate and iterate blade geometries, validated designs via CFD simulations, and 3D printed prototypes for aeroacoustic testing—resulting in quieter designs and reducing iteration time by 40%.

Center for Applied Biomechanics, UVA

Charlottesville, VA

Engineering Intern

May 2023 - May 2024

- Conducted LS-Dyna FEA simulations to model pedestrian impact from NYC MTA train collisions.
- Managed logistics and instrumentation for 10+ full-scale train/pedestrian crash tests, including safety protocols, high-speed camera lighting, and VICON 3D motion capture setup.
- Automated LS-Dyna data analysis with Python scripts, reducing post-processing time by 15 min per simulation.
- Performed Instron compression tests to model orthotropic and strain rate properties of aluminum honeycomb structures for LS-Dyna simulation accuracy.
- Developed hardware-in-the-loop system with OpenCV and motors for object tracking across the sled bay.

One Moment Air Racing

Norfolk, VA

Freelance Engineer

May 2022 - Present

- Designed carbon fiber/foam composite rudder for P-51 Mustang, achieving 50% weight reduction while maintaining structural integrity.
- Performed structural calculations for tail control systems, sizing hardware to 1.5 safety factor per aviation standards.

SKILLS AND PROFICIENCIES

Engineering Tools: SolidWorks, ANSYS Fluent, LS-Dyna, SC-Flow, Numeca Fine-Turbo/CFView, ANSYS SpaceClaim, Microsoft Office Suite, 3D Printing (SLA/FDM)

Programming: Python, MATLAB, R, Bash, FORTRAN, C, C++, ROS 1, LaTeX

Systems & Hardware: Embedded Systems Design, Mechatronics, DAQ Systems, OpenCV, Instron Testing, Sensor Integration

Other: Academic Writing, Systems Analysis, Cost and Risk Analysis, Verification and Validation, Project Management

INTERESTS

Automation, Testing, Propulsion, Mechatronics, RC Aircraft, Fitness, and Motorcycles.