Vai Srivastava

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Highly motivated Aerospace undergraduate researcher at UMD, specializing in high-performance computing and innovative propulsion systems. Proven expertise in MATLAB, Python, R, C++ to optimize simulations and designs, demonstrating strong analytical skills, and excellent communication.

Education

University of Maryland *May 2026 (Expected)*
B.S. | *Aerospace Engineering - Space Track* *College Park, MD*
Coursework: Fluid/Gas/Thermodynamics, Control Systems, Systems Reliability

Experience

Undergraduate Researcher *Jan. 2025 - May 2025*
UMD Department of Aerospace: Space Power and Propulsion Lab *College Park, MD*

- Designing and building a prototype magnetic nozzle for UMD's direct-drive fusion and space propulsion research
- Iterating on current helium-based physics model to optimize magnetic nozzle efficiency
- Planning a testing suite to measure viability of magnetic nozzle prototype in space exploration applications

AEROS Scholar & Undergraduate Researcher *Jun. 2024 - Dec. 2024*
UMD Department of Aerospace: Computational Fluid Dynamics Lab *College Park, MD*

- Optimized Computational Fluid Dynamics Simulation software to better leverage GPU technology in UMD's High Performance Computing Clusters
- Collaborated with my research group on Computational Fluid Dynamics Simulations utilizing various flow models to improve aerodynamic geometries
- Documented codebase to streamline onboarding of future researchers

Team KIWI Project Co-Lead *Sep. 2022 - Jan. 2024*
UMD Nearspace: Balloon Payload Program *College Park, MD*

- Led the design for a proof-of-concept for an energy recovery system for near-space ascension scientific payloads
- Contributed to various launch processes including balloon tracking, payload tie-on, and management
- Participated in multiple launch operations for data collection and experimentation

Undergraduate Researcher *Jun. 2024 - Dec. 2024*
UMD Department of Agricultural & Resource Economics - FIRE: Sustainability Analytics *College Park, MD*

- Conducted research as part of a multi-year project focusing on electric grids and carbon emissions
- Analyzed and modeled multiple US Energy Information Administration and US Environmental Protection Agency datasets using R and Python

Projects/Publications

William Ratnavale, Defne Demirekler, **Vai Srivastava**, Thanicha Ruangmas, "The Efficacy of Electric Vehicles", *UMD Undergraduate Research Day*, 2024.

Custom Keyboard Design and Manufacturing *Mar. 2021 - Oct. 2022*

- Designed and built client-customized keyboard cases using AutoCAD and PCB schematics and layout using KiCAD
- Developed C-firmware for keyboards and OLED displays
- Learned design and manufacturing processes for personal electronics hardware

Affiliations/Awards

UMD President's Scholarship *Fall 2022 - Present*

- University of Maryland Four-Year Merit Scholarship

Alpha Lambda Delta Honor Society *Spring 2023 - Present*

- University of Maryland Chapter of National **ΑΛΔ** Honor Society

UMD Clark School of Engineering Dean's List *Fall 2022, Spring 2024*

Skills

Software: Fusion 360, KiCad, AutoCAD, Git, Linux
Languages: MATLAB, LaTeX, Typst, Python, R, Julia, C/C++, TypeScript, Rust, Nix