Nishanth Kunchala

614-815-1403 | nishanth.kunchala@gmail.com | https://www.linkedin.com | https://github.com | U.S. Citizen, Clearance eligible

EDUCATION

The Ohio State University, College of Engineering
- B.S. Aerospace Engineering, Minor in German – GPA: 3.9/4.0 – Graduating May 2026
- **Relevant Courses:** Flight Vehicle Structures I & II, Flight Vehicle Controls, Flight Vehicle Dynamics, Gas Dynamics, Astronautics, Heat Transfer, Statics and Mechanics of Materials

EXPERIENCE

NASA Human Lander Challenge (HuLC)   01/2024 – Present
AI & CFD Lead:
- Developing an AI model (10,000-image dataset; 12ms inference time) for autonomous fuel coupler alignment.
- Utilizing ANSYS Fluent to simulate cryogenic flow under microgravity conditions, guiding CAD optimizations.
- Coauthoring technical paper, focusing on CFD validation for flow, and AI accuracy for autonomous coupling.

Buckeye Space Launch Initiative   08/2022 – Present
Airbrakes Responsible Engineer:
- Mentoring new members joining the Airbrakes sub-team, while overseeing member progress and development.
- Validating mechanical integrity of airbrake systems through torque testing.
- Implementing a control algorithm, using sensor data, to adjust percentage deployment of airbrakes subsystem.
- Utilizing a Kalman Filter to filter live sensor data for better apogee predictions.

Structures Team Member:
- Completed a series of effective carbon fiber epoxy layups, including the construction of bulkheads and the nose cone.
- Integrated avionics and payload bays into the body tube, while optimizing material usage in relation to rocket weight.

RESEARCH

OSU Aerospace Research Center (ARC) Drone Research   12/2024 – Present
- Creating an autonomous navigation system used by unmanned drones for detecting wildfires and predicting their paths.
- Implementing a U-Net on 400,000,000-sample wildfire dataset, boosting classification accuracy from 40% to 97%.
- Engineering data augmentation pipelines and optimized training to enhance performance across heterogeneous terrain.
- Coauthoring research papers on autonomous wildfire prediction methods for submission to AIAA and SciTech forums.

SKILLS

Programming Languages: MATLAB, Python, Java, C, LaTeX
Technical Skills: CAD, Machining (CNC, Lathe, Drill Press), CFD, Tensorflow, Git, Jupyter Notebook, Technical Writing
Software: ANSYS Fluent, SOLIDWORKS, Simulink, Microsoft Office, XFLR5, Overleaf
Clubs: Ohio State Artificial Intelligence Club, Buckeye Tennis

CERTIFICATIONS

- CEFR-Level B2 German Language Certification   06/2024
- PCEP – Certified Entry-Level Python Programming   04/2024

TECHNICAL PROJECTS

Airfoil Design and Analysis   11/2023
- Designed an airfoil in XFLR5 software, with a primary focus on optimizing the angle of attack at which stall occurs.
- Analyzed stall angle utilizing a low-speed subsonic wind tunnel and a physical prototype.

Lunar Orbit Simulation   01/2023 – 05/2023
- Programmed a MATLAB simulation of a lunar spacecraft in stage 2 orbit over variable mission time constraints.
- Integrated Euler's Method of variable time steps as part of the optimization process to increase speed of the simulation.

AWARDS

- Awarded $9,250 in prototype funding as one of 12 national finalists in NASA's HuLC Competition   2025
- 2nd Place, OSU HackAI Hackathon   2025
- 2nd Place OSU Society for Women in Engineering Integral Bowl   2024
- 2nd Place, Ohio State Engineering FYE Design Showcase   2023
- Eagle Scout, Boy Scouts of America   2022