

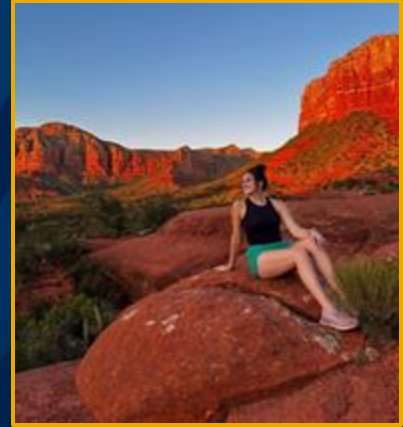
**Isabella Hart**

**Session #5: Student Talks**

Small Satellite Conference 2024  
University Nanosatellite Program Intern

# About Me

- From Hurricane, WV attending West Virginia University
- Senior dual majoring in Mechanical and Aerospace Engineering
  - Astronautics area of emphasis
  - Graduating December 2025 (4.5 year program)
- Hobbies include:
  - Graphic design
  - Collecting vinyl records
  - Traveling
  - Creative hobbies = innovative engineer!
  - Pursue your interests!
- Growing up as a young girl in a small town, my options for pursuing a career in engineering seemed limited, even though it was always my dream
- Biggest role models were WV natives like Emily Calandrelli, Katherine Johnson, and Chuck Yeager



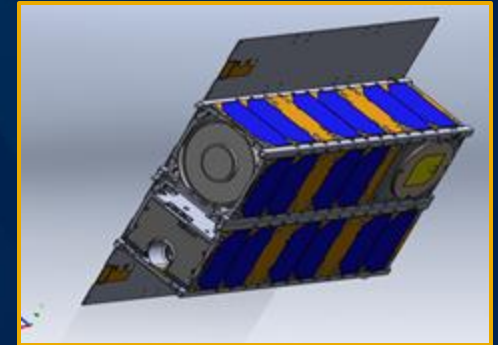
# My Introduction to UNP

- University Nanosatellite Program (UNP) funded my university to participate in the Mission Concept Program during the summer of 2024
- As a part of the WVU Spacecraft Design Capstone and WVU Space Club, I was selected as one of the 3 interns for our mission
- Previous technical experience with satellites includes the WVU College Outreach Satellite for Motion Observation and Science (COSMOS) capstone project
  - Educational tool created for high school students to gain interest in aerospace engineering
  - Mission simulates an orbit around earth and tracks wildfires (as represented by lights in a classroom)



# WVU Small Space Debris Detection (S2D2)

- S2D2 mission is a small satellite mission that aims to detect space debris in-situ using a long exposure camera
- Also focuses on the verification of flight software through the use of NASA Operational Simulation for Small Satellites (NOS3)
  - Creates a digital twin of the satellite
  - Simulates the state of the hardware and performs software integration testing
  - Also simulates the physical dynamics of the spacecraft in its orbit in a non terminal-based software
- Completed the Summer 2024 Mission Concept Program through UNP
- Hoping to get selected for Phases A-D → LAUNCH!



# My UNP Experience

- Unique internship experience that allowed me to participate in real-world aerospace mission design projects
- Allowed me to apply my passion for astronautics to my industry experience outside of the classroom
- Provided weekly technical workshops from industry experts
- **Key Takeaway:** Systems engineering not only requires technical experience, but also requires strong communication between diverse groups of engineers
  - Working with a diverse group of people allowed me to learn skills from multiple different perspectives and apply those to my own design ideas
  - These professional skills can be applied to ANY future career!



# Contact Information

- For any further questions or inquiries, feel free to contact me!
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