

FALL 2024

AEROSPACE AND MECHANICAL  
ENGINEER STUDENT

Julio Wall

PORTFOLIO AND RESUME

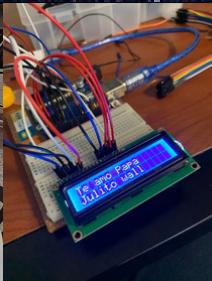


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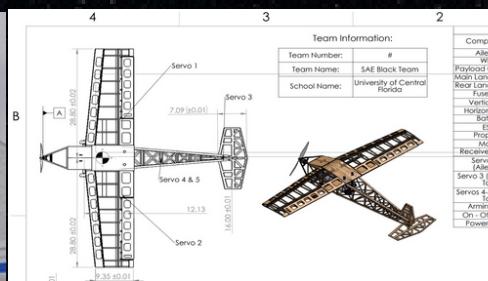
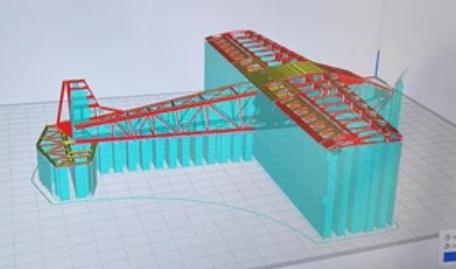
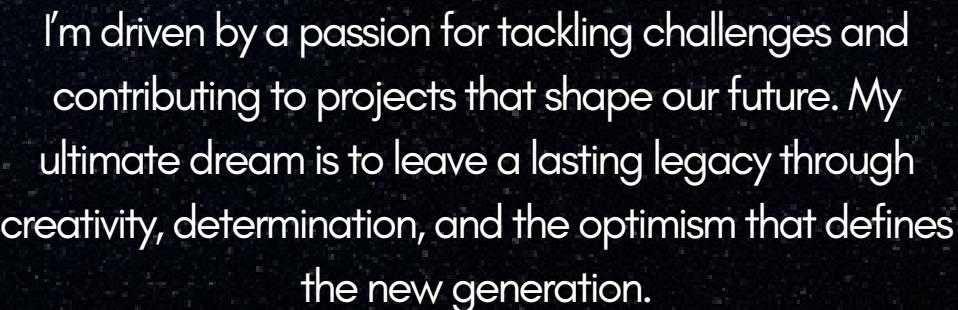
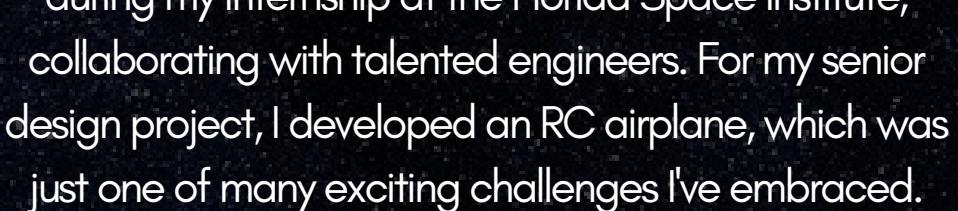
# ABOUT ME



I'm a proud Venezuelan aerospace and mechanical engineering student at the University of Central Florida.

From a young age, I've been fascinated by innovation and technology. My academic journey began at Universidad Simón Bolívar, followed by Valencia College, and has continued to flourish at UCF. I've actively participated in various clubs at UCF, including Vensa and SHPE, and gained valuable experience during my internship at the Florida Space Institute, collaborating with talented engineers. For my senior design project, I developed an RC airplane, which was just one of many exciting challenges I've embraced.

I'm driven by a passion for tackling challenges and contributing to projects that shape our future. My ultimate dream is to leave a lasting legacy through creativity, determination, and the optimism that defines the new generation.

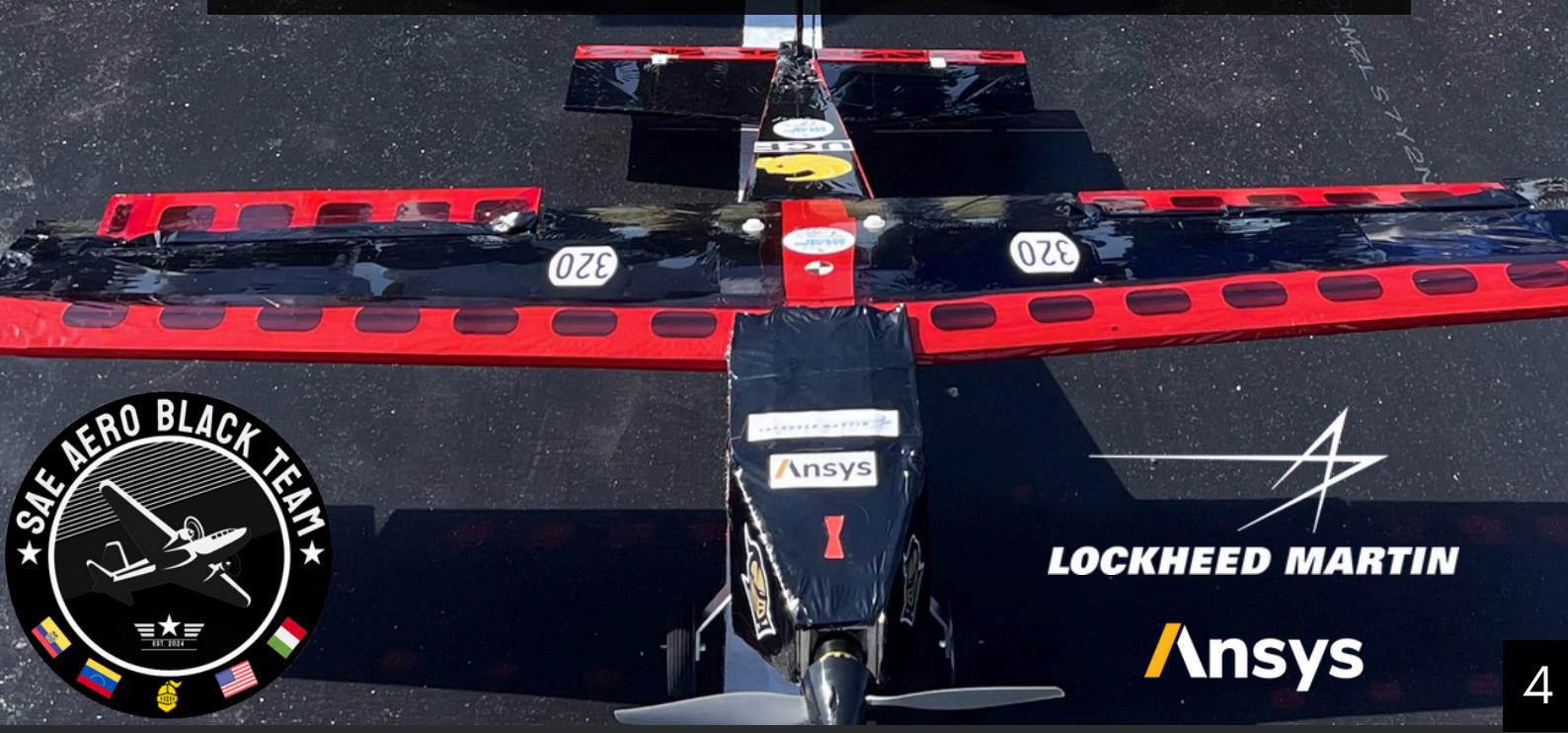


# EXPERIENCE



## AERO DESIGN

The SAE Aero Design Competition is an international engineering challenge where student teams design, build, and test radio-controlled aircraft to delivery water and meet specific mission requirements. It served as the project for my Senior Design project



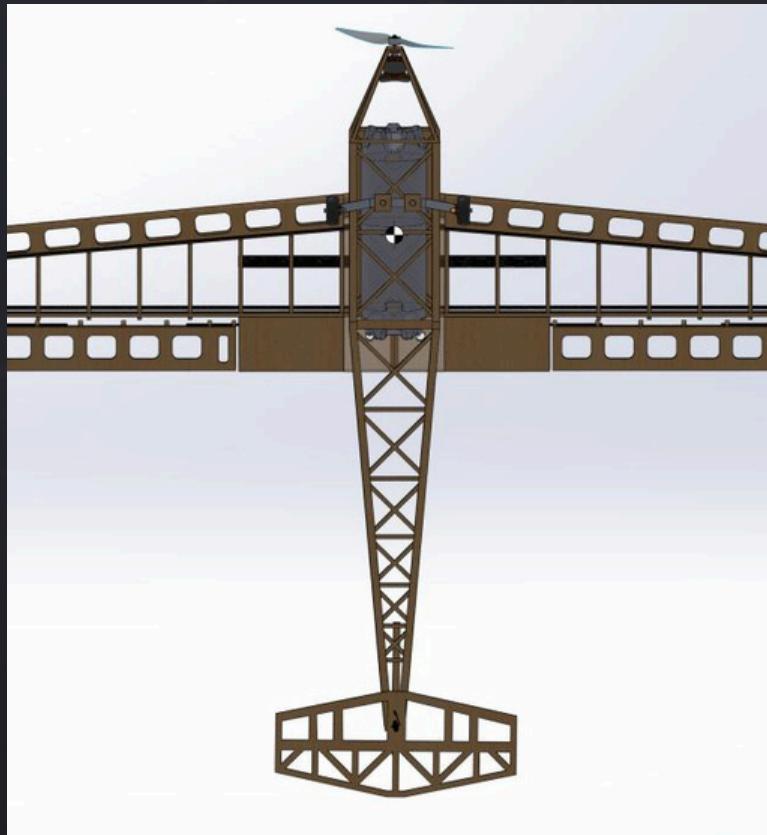
# BLACK WIDOW



UCF

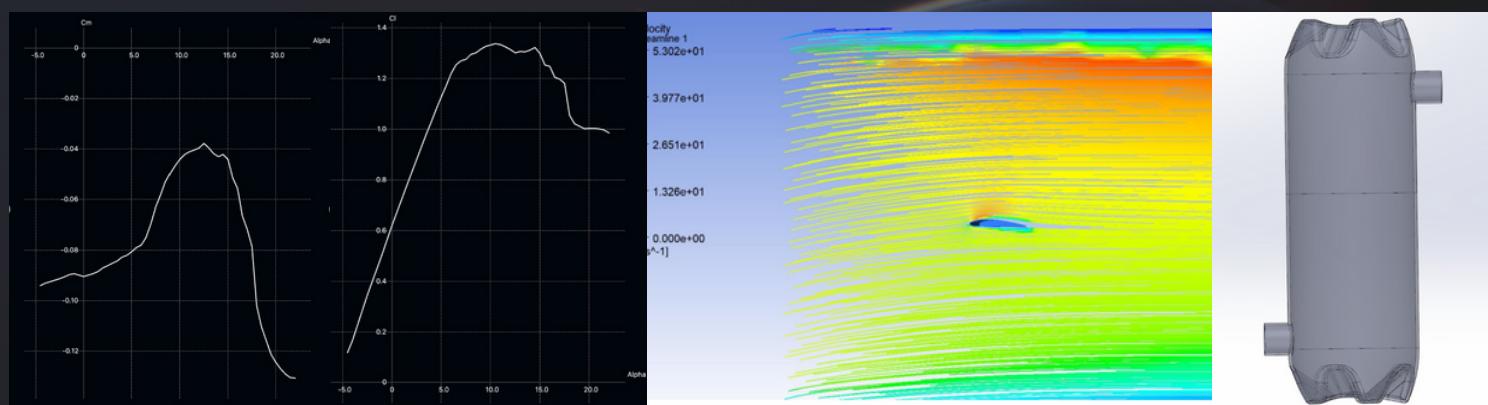
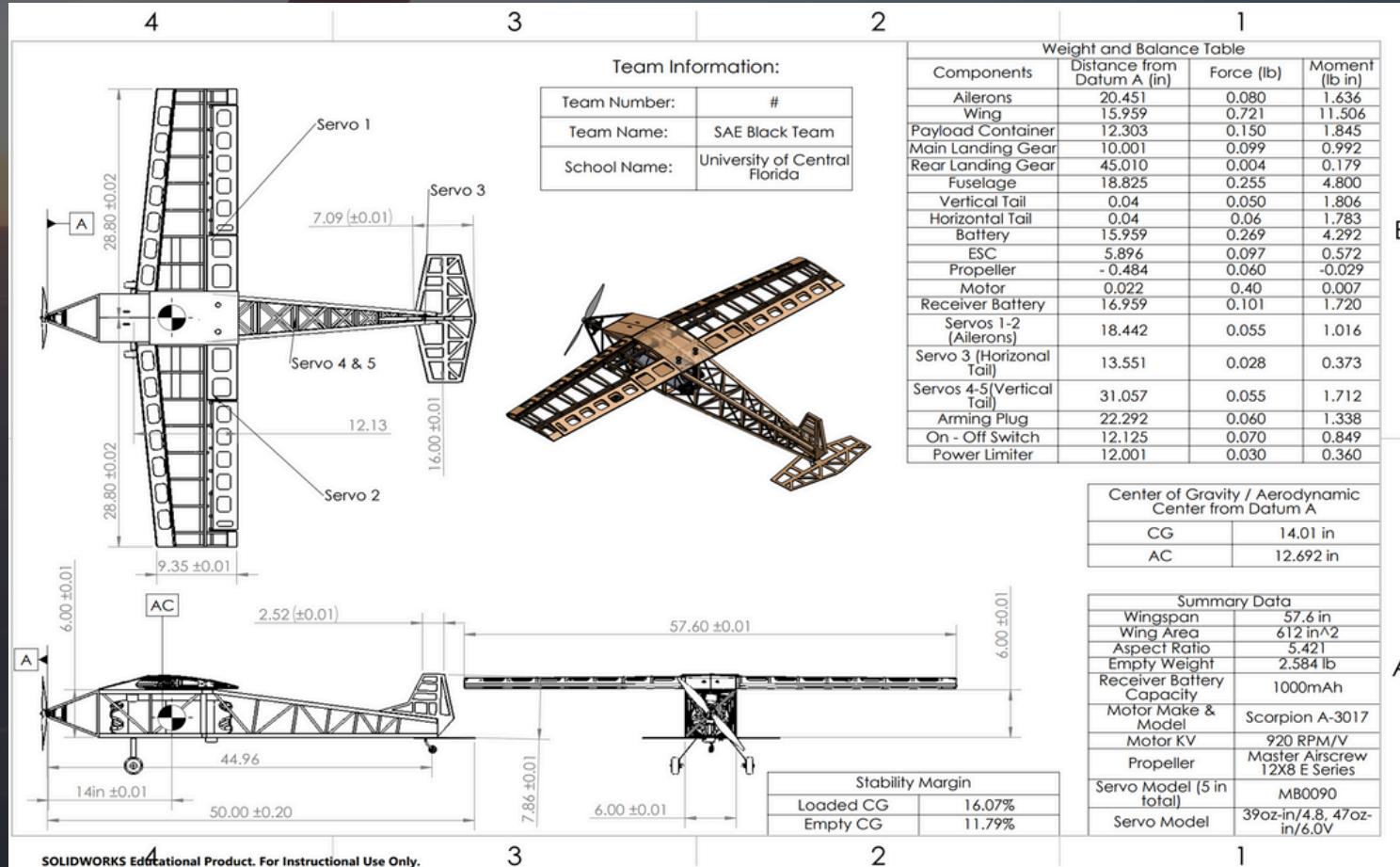


For my senior design project, this competition provided the perfect opportunity to not only apply our engineering skills but also to dive into the complexities of manufacturing. We engaged in hands-on processes like laser cutting, 3D printing, and assembly, overcoming real-world manufacturing challenges.



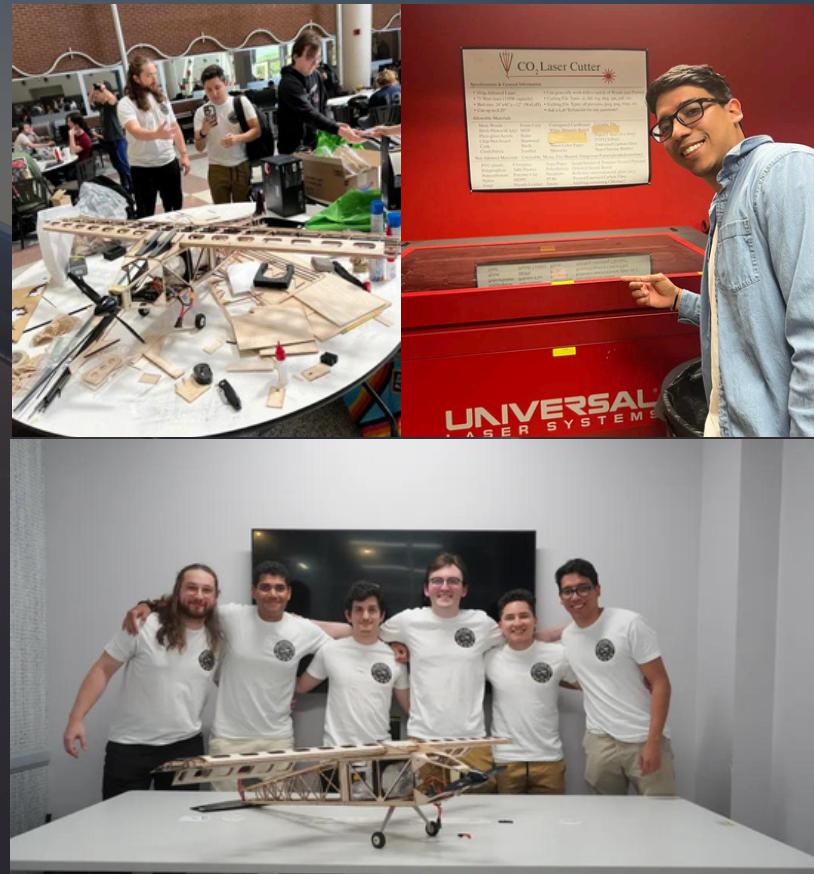
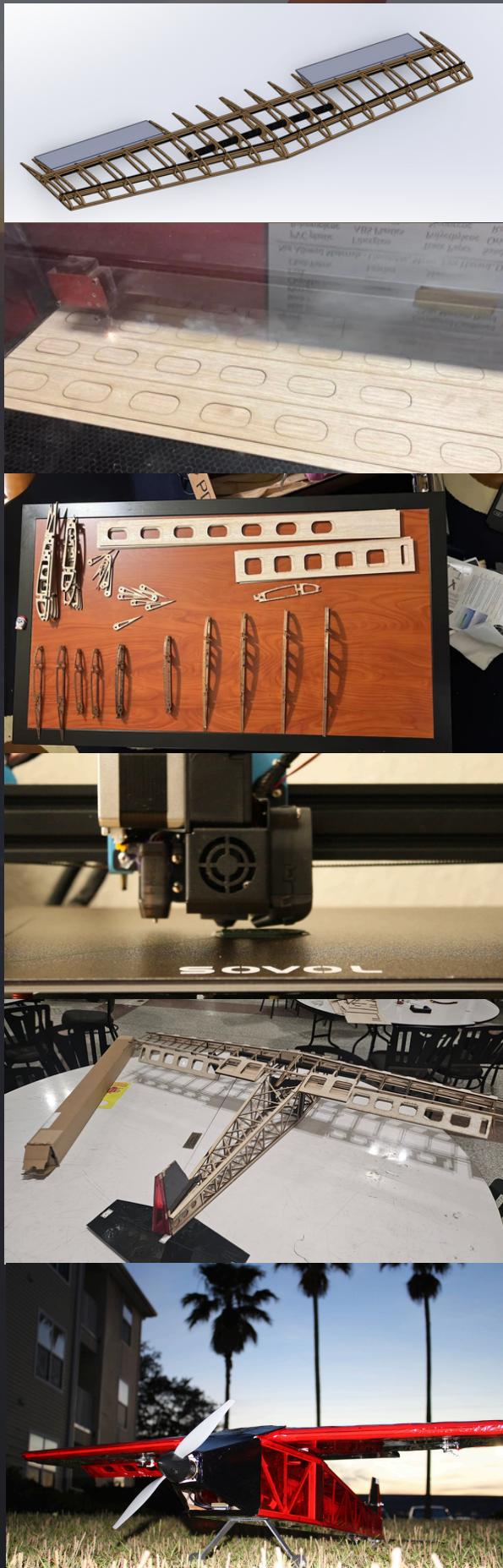
- Led the manufacturing and design process the Senior Design project.
- Innovated with the wing design using the USA 35b airfoil.
- Utilized SolidWorks, Ansys, xflr5 and Inkscape for design and optimization.

# DESIGN & ANALYSIS



The early stages of our concept design involved complex analysis using ANSYS, SolidWorks, and XFLR5. ANSYS was used for finite element analysis (FEA) to ensure structural integrity under various conditions. SolidWorks helped with parametric modeling and stress analysis, enabling iterative design refinement. XFLR5 provided aerodynamic insights for airfoil and wing performance.

# MANUFACTURING



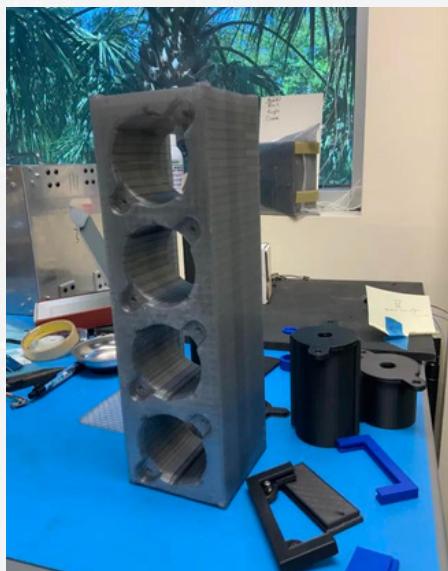
The process of developing our RC airplane began with a conceptual design phase, where we outlined the key mission requirements, followed by detailed analysis using ANSYS, SolidWorks, and XFLR5. After refining the design, we built a prototype and focused on using lightweight materials. Manufacturing involved laser cutting and 3D printing, leading to the assembly of the aircraft. Finally, we conducted flying tests to validate the design.

# EXPERIENCE

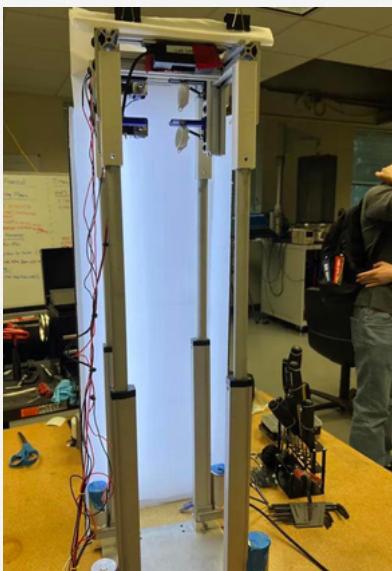


The Florida Space Institute (FSI) at the University of Central Florida is a leading research center focused on advancing space science and technology. I worked on experiments to understand planet formation, asteroid and comet surface processes, and supported NASA's Artemis missions.

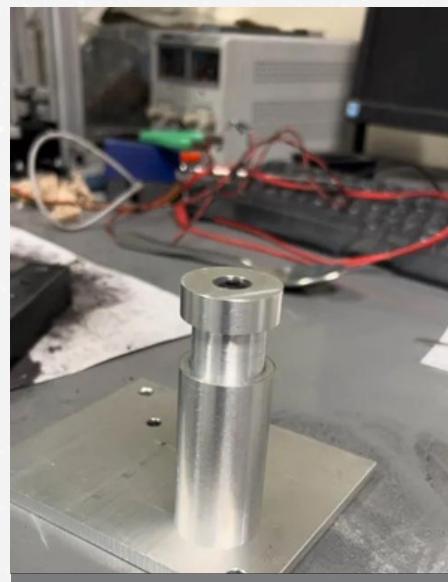
Collaborating with students and industry, I played a key role in the development of spaceflight hardware and exploration.



3U CUBESAT



AGGREGATE



REGO-MOLD

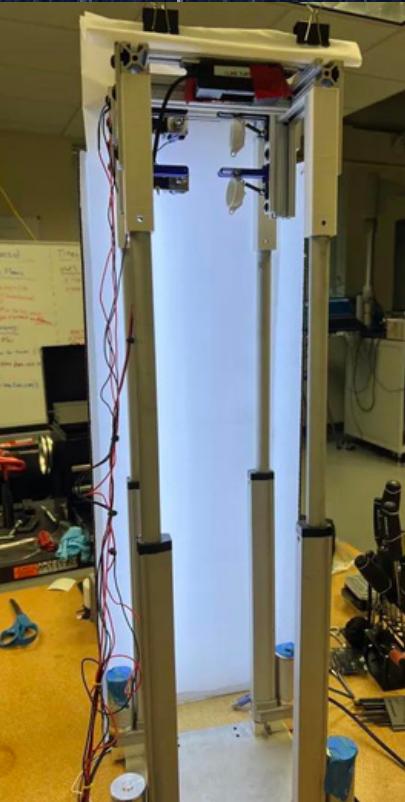
# 3D CUBESAT

During my time at the FSI, I led the design and testing of a 3U payload. This project involved multiple stages, from concept to launch, and required close collaboration with a multidisciplinary team. Key aspects of the project included:

- 3U Payload Design and Testing: I developed a 3U payload for microgravity research, focusing on gathering data on regolith behavior.
- Launch and Testing: I participated in launching the payload at the Polytechnical University of Florida to test their senior design parachutes with 3-5 seconds of microgravity.
- Data Collection: crucial data on regolith, contributing to space exploration research.



# AGGREGATE



I assisted a Ph.D. research student in a project focused on simulating the collision of dust aggregates, which is essential for understanding the early formation of small icy bodies in the Solar System. Key aspects of the project included:

- Hardware Development: Assisted in designing and building experimental hardware.
- Simulation: Helped simulate collisions and collect data on early formation processes of icy bodies.
- Collaboration: Worked with a Ph.D. student to ensure successful experiment execution.



# Emergency Insights

Emergency Insights is a venture improving hazard risk awareness for individuals and counties. It provides accurate assessments to help users make informed decisions about property investments and disaster preparedness. The company offers clear hazard reports for homeowners and comprehensive annual reports for local governments.

**Business Model - Market Opportunity - Product Development - Marketing Strategy**



**Aref Abdala** **Javier Arocha**  
Technical Lead & Website development  
Data Specialist & Data

**Sonia Alvarez**  
Management & Communication

**Julio Wall**  
Administration & Operations Lead

# HIGHLIGHTS



2024 JOUST NEW VENTURE SEMI-FINAL

After competing against over 60 teams, we were thrilled to advance to the semifinals of the 2024 Joust New Venture Competition. Out of all participants, only four teams, including ours, were selected for this prestigious stage.

The 2024 Joust New Venture Competition at UCF features student teams competing for a \$50,000 prize by presenting business proposals to a panel of judges. Among the finalists is Emergency Insights



After a crazy four months of grinding and late nights, we managed to push forward. The teamwork was solid, and with everyone's support, we ended up getting 4th place in the 2024 Joust New Venture Competition!

Couldn't have asked for a better team to go through this with!

# EXTRACURRICULAR



## Undergraduate Research

I performed particle imaging velocimetry (PIV) testing to analyze detonation waves and collaborated with graduate students on static firing experiments for Rotating Detonation Engines (RDEs).



## Passion for Music

I've been involved in music since I was a child, and I love playing the piano and viola as a hobby. At one point in my life, I had the honor of being the principal violist and section leader in the prestigious Orquesta José Francisco del Castillo, where I performed in over 20 concerts across Venezuela.



## PRIME STEM Scholar

I was a PRIME STEM scholar at UCF, where I collaborated with peers and mentors in interdisciplinary research. This program played a crucial role in shaping my skills and commitment to excellence in aerospace engineering.

The Ginsburg Center for Inclusion and Community Engagement

TRiO Center

**SCHOLAR HIGHLIGHT**

**Julio Wall Chirinos**  
Aerospace Engineering  
Senior

PRIME STEM scholar Julio Wall Chirinos placed 4th in this year's UCF Joust Competition for his start-up, Emergency Insights. Read on to learn more about his accomplishment.

In the Spring 2024 semester, alongside three friends, Julio Wall Chirinos, Alvaro Diaz, Jesus Hernandez, and Daniel Gómez, achieved the 4th position out of over 60 companies in the Joust Competition organized by the Blackstone LaunchPad. This milestone marked the inception of our startup, proudly named Emergency Insights. Our inspiration came from a concern for the lack of a platform that offers precise insights into past hazards in any given location. For instance, our platform could assist individuals in making informed decisions when purchasing or renting properties.

The application process for the competition was tedious, particularly as I was having a heavy academic workload of five classes, senior design 2, and employment. We poured countless hours of dedication and late-night work into our project. The driving force behind our perseverance was the support and guidance of our team members.

One of the most memorable aspects of the competition was surpassing our own modest expectations. Initially, we doubted our ability to even secure a spot among the top 16 teams. However, after three weeks of intense preparation, we delivered a compelling presentation to esteemed judges, including innovative directors and CEOs. Advancing to the finals as one of only sixteen selected teams was a surreal experience.

**Advice to PRIME STEM Scholars**

This accomplishment really hits home for me because it's been a dream of mine since I was a kid to start a business that helps people. My advice from PRIME STEM is to never let fear stop you from doing something new was pretty scary at first, I found courage in a simple idea. "The magic you're seeing is not just in the work, you're reading" Never give up on your dreams seek out help from mentors, coaches, and professors; you never know whose words will truly resonate and make a lasting impact on you. Go Knights!



# EXTRACURRICULAR



## **Undergraduate Teaching Assistant (ULA)**

As an (ULA) for the course "Intro to Vibrations and Controls" under Dr. Sudeshana Pal since August 2024, I have conducted weekly office hours and review sessions to support students by clarifying complex topics and solving practice problems to enhance student learning and understanding of the material.

## **Extreme Engineering Challenge (XEC)**

I was honored to be one of the few selected from over 400 students to join a team of 11 in the Extreme Engineering Challenge (XEC) at the SHPE National Convention.

Together, we completed a project in under 24 hours and presented it to the community. This experience allowed me to demonstrate my leadership and technical skills, with valuable support from our advisor at John Deere.



# SPECIAL THANKS



Mom and Dad

## Florida Space Institute



Dr. Julie Brisset  
Interim Director  
of Florida Space Institute



Custom Order  
Engineer at Eaton



Research Scientist at  
the Florida Space  
Institute

## SAE Aero Design



Aaron Phu  
System Integration Analyst  
Sr. at Lockheed Martin



Aaron Phu  
Systems Engineer at  
Lockheed Martin



Kurt Stresau  
Senior Design  
Coordinator at UCF

# SPECIAL THANKS



## Blackstone LaunchPad Advisors Emergency Insights



Cassi Willard  
Instructor, Management;  
Program Director,  
Blackstone LaunchPad at  
UCF



Scott Vedder  
Coach, Program Director,  
Blackstone LaunchPad at  
UCF



Elizabeth Trader  
Entrepreneurship  
Coach

## PRIME STEM



Desiree Mathis  
Academic Support  
Coordinator, PRIME STEM  
at UCF

# Thank you!