

FALL 2024

AEROSPACE AND MECHANICAL
ENGINEER STUDENT

Julio Wall

PORTFOLIO AND RESUME



FOLLOW ME!

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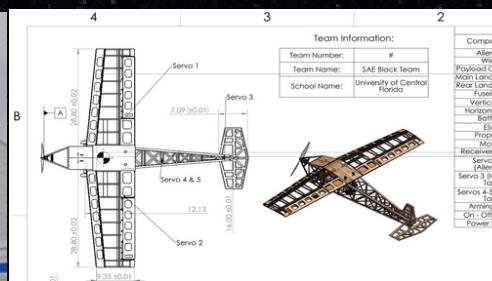
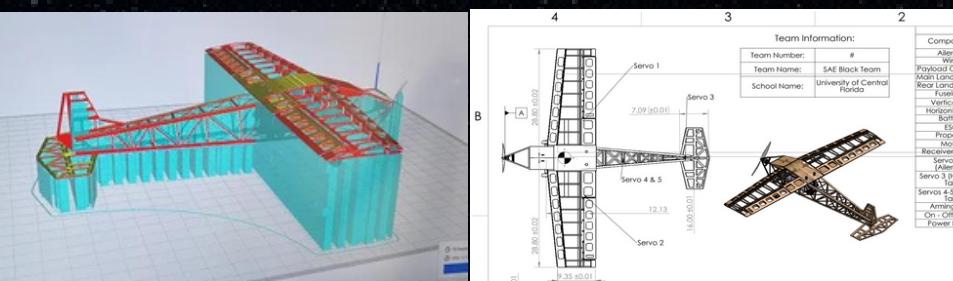
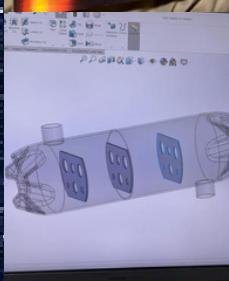
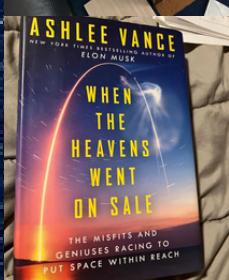
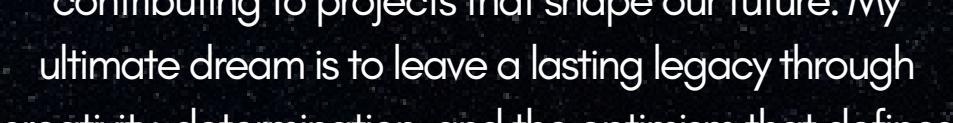
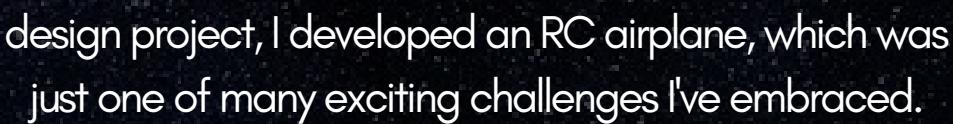
ABOUT ME



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.

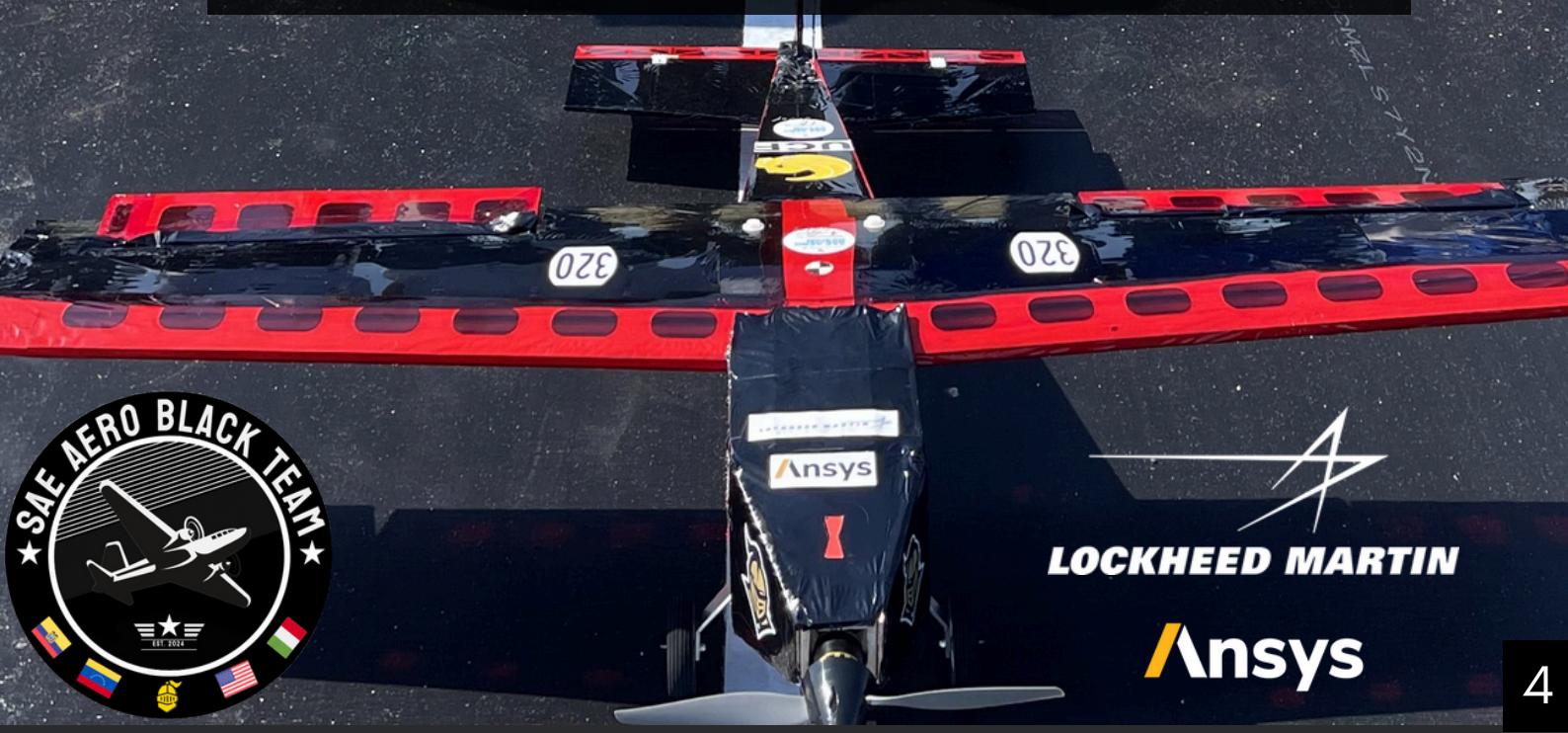


EXPERIENCE



AERO DESIGN

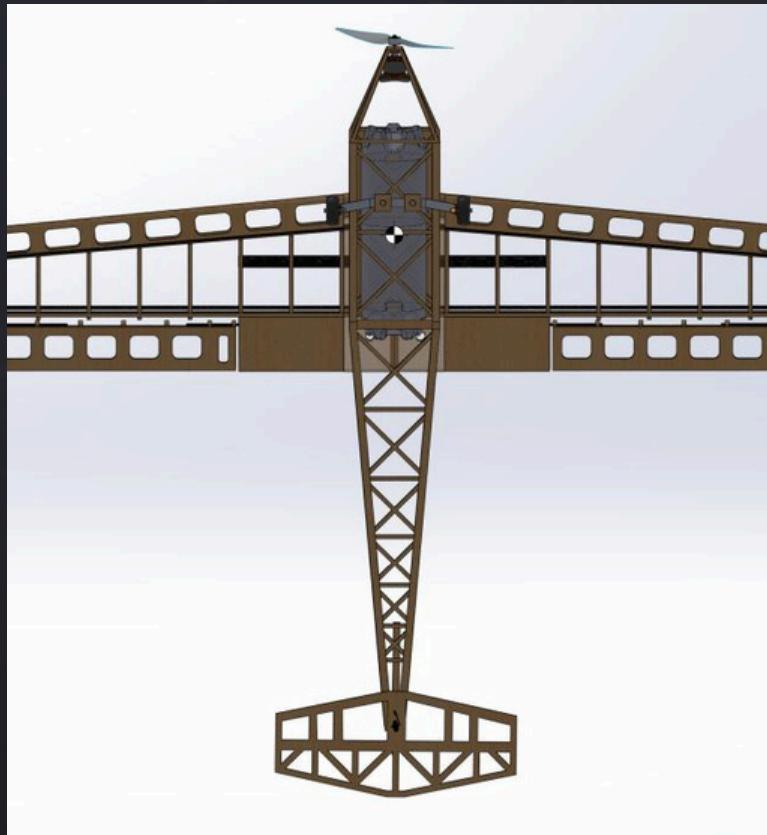
The SAE Aero Design Competition is an international engineering challenge where student teams design, build, and test radio-controlled aircraft to delivery water and meet specific mission requirements. It served as the project for my Senior Design project



BLACK WIDOW



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.

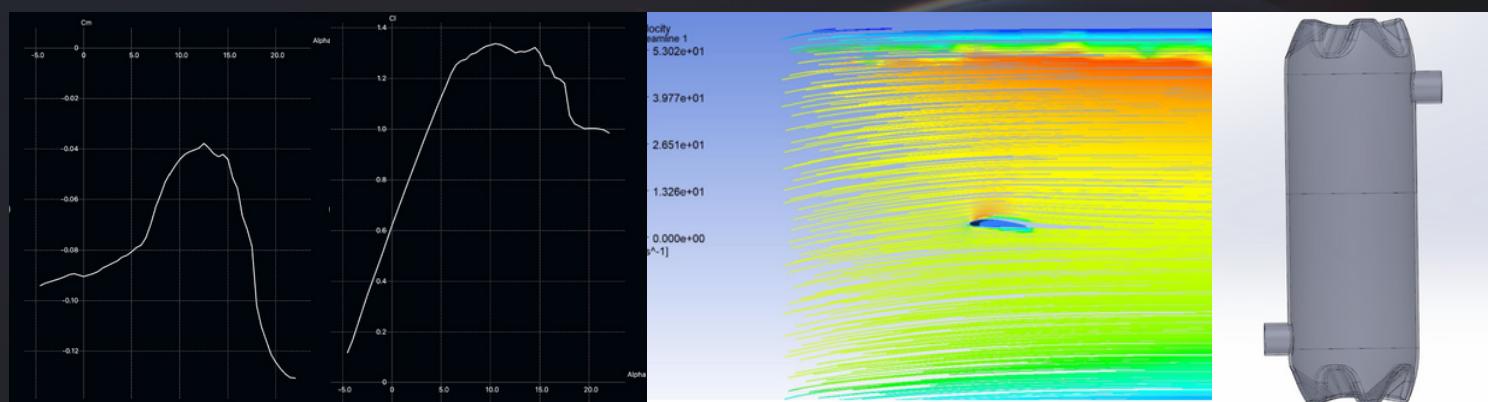
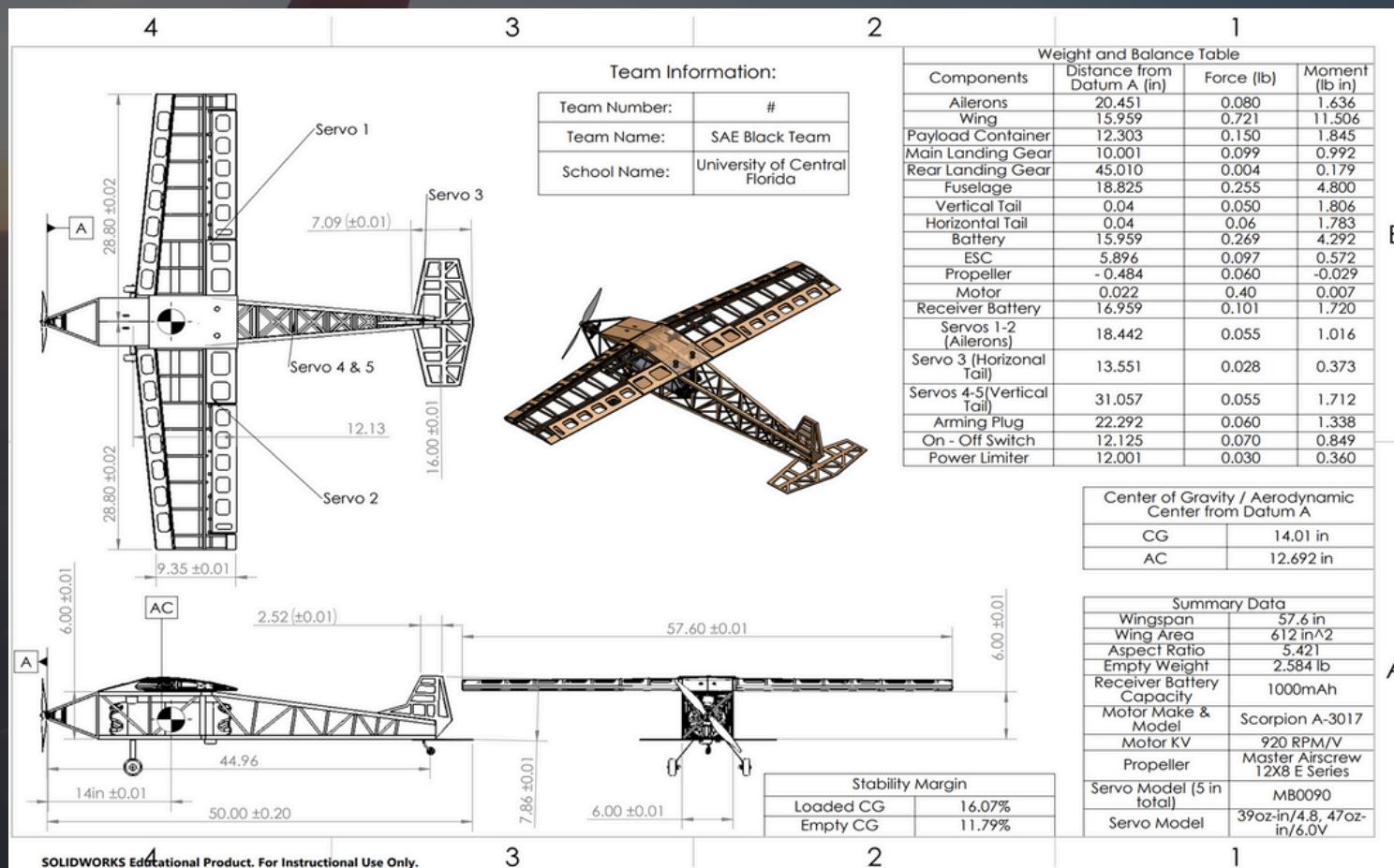


- Led the manufacturing and design process the Senior Design project.
- Innovated with the wing design using the USA 35b airfoil.
- Utilized SolidWorks, Ansys, xflr5 and Inkscape for design and optimization.

DESIGN & ANALYSIS



UCF

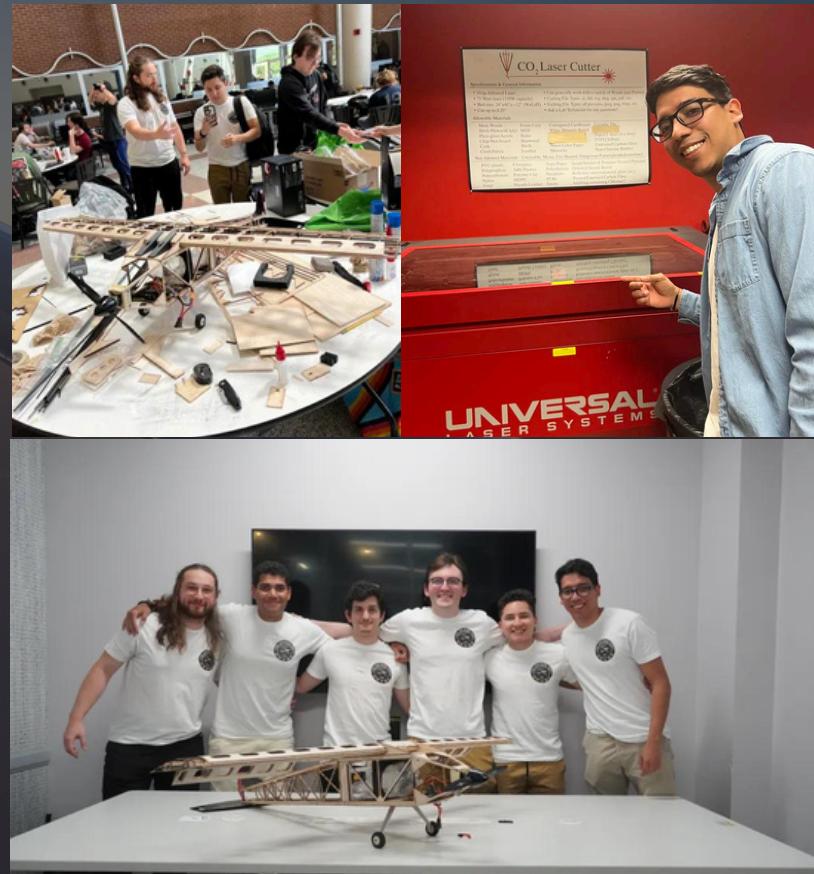
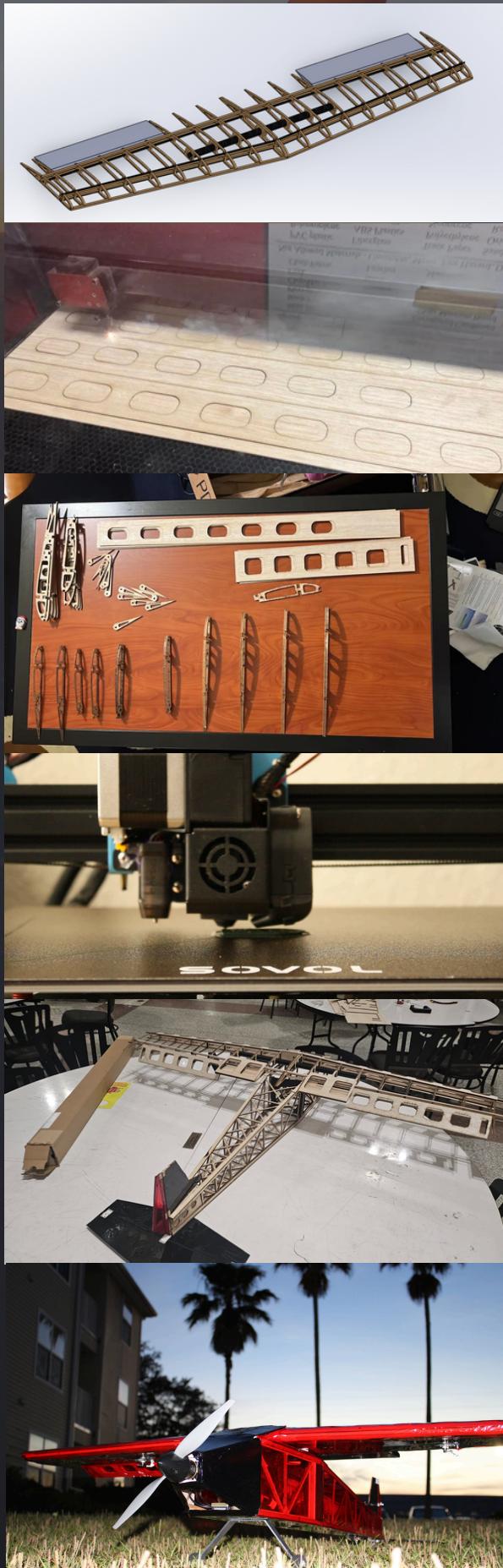


The early stages of our concept design involved complex analysis using ANSYS, SolidWorks, and XFLR5. ANSYS was used for finite element analysis (FEA) to ensure structural integrity under various conditions. SolidWorks helped with parametric modeling and stress analysis, enabling iterative design refinement.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

MANUFACTURING



UCF



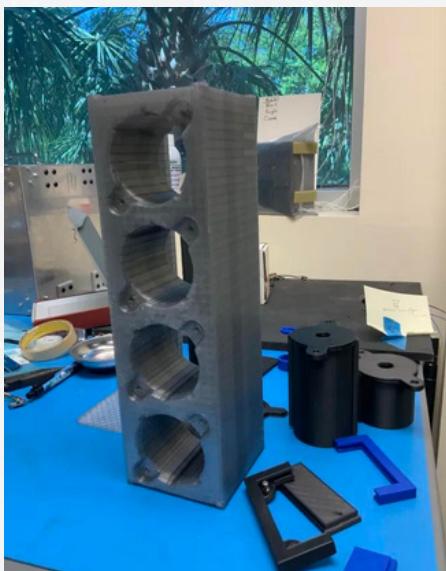
The process of developing our RC airplane began with a conceptual design phase, where we outlined the key mission requirements, followed by detailed analysis using ANSYS, SolidWorks, and XFLR5. After refining the design, we built a prototype and focused on using lightweight materials. Manufacturing involved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

EXPERIENCE

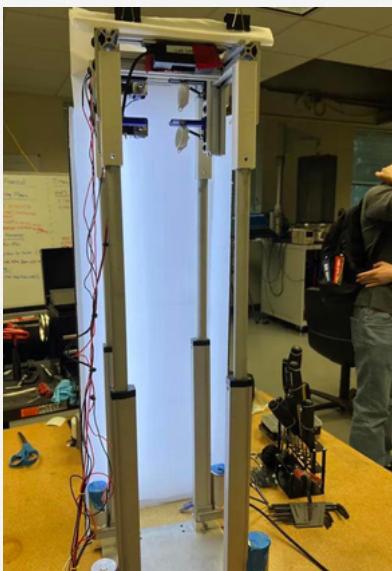


The Florida Space Institute (FSI) at the University of Central Florida is a leading research center focused on advancing space science and technology. I worked on experiments to understand planet formation, asteroid and comet surface processes, and supported NASA's Artemis missions.

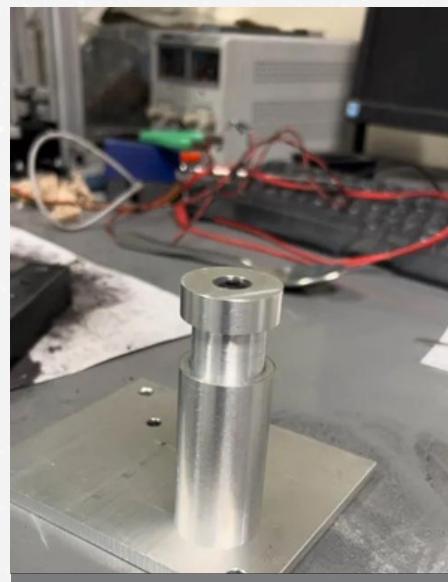
Collaborating with students and industry, I played a key role in the development of spaceflight hardware and exploration.



3U CUBESAT



AGGREGATE



REGO-MOLD

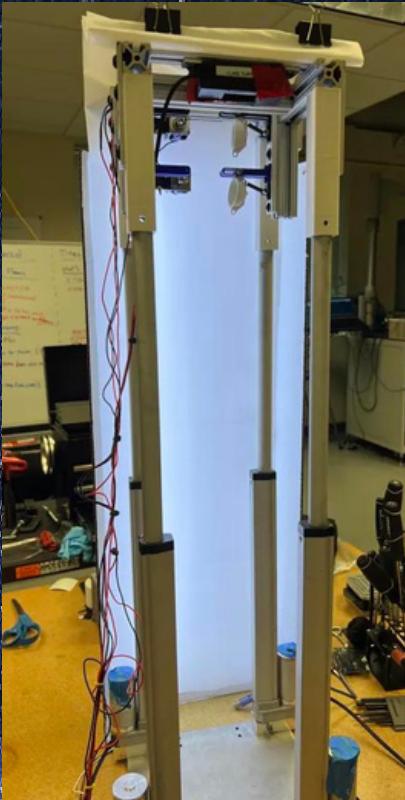
3D CUBESAT

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



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 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.



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!



RESUME

JULIO WALL

 (407) 437-1878  jwallchirinos@gmail.com  Julio Wall

Education

University of Central Florida

Bachelor of Science in Aerospace and Mechanical Engineering

Graduation: Dec 2024

GPA: 3.38

Valencia college

Associate Degree in Arts

Aug 2019 - Jul 2021

Experience

Society of Automotive Engineers (SAE) Aero Design

Aug 2023 – Present

Senior Design - Technical Design and Manufacturing Lead

- Presented a innovative design to Lockheed Martin sponsors, securing recognition and selection to represent UCF at the prestigious 2024 SAE Aero Design Competition
- Utilized principles of Flight Mechanics to design and produce a Micro Class RC airplane, overseeing the development of wings, fuselage, and control surfaces
- Conducted comprehensive trade studies and performance analyses to select an optimal layout, balancing mission performance, schedule, and cost constraints

Florida Space Institute (FSI)

Engineer - Project Manager

Sep 2022 – Dec 2023

- Executing regolith simulation experiments in microgravity on a bi-monthly basis.
- Led a four-member team in innovating experimental hardware, simulating dust aggregate collisions to mimic the early formation of small icy bodies in the Solar system
- Designed, manufactured, printed, optimized, and sliced 3D models for different lab experiments

3U CubeSat

Jan 2023 – Apr 2023

- Led the design and fabrication of a 3U payload for microgravity asteroid soil research.
- Oversaw payload assembly and collaborated with the rocket team to ensure successful integration
- Conducted testing on a 3U CubeSat, which sustained 90% structural integrity following a 300-foot crash

Propulsion and Energy Research Laboratory (PERL)

Undergraduate Research

Feb 2022 – Aug 2022

- Followed a procedure for particle imaging velocimetry (PIV) testing to analyze detonation waves
- Collaborated with graduate research students to conduct controlled static firing experiments Rotation Detonation Engines (RDEs)

Extracurricular

Extreme Engineering Challenge (XEC)

Extreme Lead Engineer / 4rd Place team

Nov 2023

- Selected as a standout candidate from a group of 400 individuals to participate in a rigorous 24-hour challenge.
- Led a multi-disciplinary team in planning, designing, and testing phases of a groundbreaking project to create a hotel in low Earth orbit.

Society of Hispanic Professional Engineers (SHPE)

MentorSHPE - Mentor

Aug 2022 – May 2023

- Created goals and milestones with mentees.
- Introduced mentees to opportunities and resources available to students
- Met monthly with mentees to discuss progress and blockers

Poster Presentation

Gentle Collisions between Icy Dust Aggregates with Applications to KBO Formation **Sep 2023**

Rachel Lowers, Dianna McNair, Daniel Angulo, Santiago Chang, Jocelyn Ignacia, Francisco Trujillo, Julio Wall, Julie Brisset.

Skills

Languages: English, Spanish

Knowledgeable in: SolidWorks, Matlab, Labview, Ansys, HyperX, Python, C programming, OpenRocket, and Cura

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

Thank you!