

# Kilian O. Olen

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## Education

### Embry-Riddle Aeronautical University

Anticipated May 2025

Bachelor of Science in Aerospace Engineering | Concentration: Astronautics

GPA: 3.76/4.00

Bachelor of Science in Engineering Physics | Concentration: Spacecraft Systems

Honors Program

- Minors: Applied Mathematics & Computer-Aided Design/Manufacturing
- Honors: Dean's List (All terms), JPL-ERAU Student Ambassador, Spark Grant Recipient

### Broward Community College

May 2020

Associate of Arts in Engineering with Highest Honors

GPA: 3.87/4.00

- Honors: President's List (3 terms), Dean's List (1 term)

## Skills

<b>Programming</b>	MATLAB/Simulink, Python, C/C++, ROS, Arduino, Visual Studio Code
<b>Design</b>	CATIA V5, SOLIDWORKS (CSWA), Autodesk Inventor, Ansys, Femap/Nastran, Blender
<b>Manufacturing</b>	FDM/SLA Printing, CNC Laser Cutting, Soldering, PCB Design, Rapid Prototyping
<b>Languages</b>	English (Native), Spanish (Conversational), French (Basic Proficiency)

## Research & Professional Experience

### Embry-Riddle Aeronautical University

Undergraduate Research Assistant | Dr. Aroh Barjaty | Space and Atmospheric Instrumentation Lab

Feb. 2023 - Present

- Developed a Python script to parse Ionogram readings from the Global Ionospheric Radio Observatory during the 2024 total solar eclipse, aiding in the analysis of data for the NASA APEP 2 mission.
- Integrated a Feather M0 microcontroller and 9DOF IMU to calculate RPM and angular acceleration of a rocket spin table for sensor deployment.
- Developed a wireless communication system using MATLAB and Arduino IDE to transmit live IMU readings across LoRa radio modules.
- Assembled and deployed GPS receivers to assess the impact SpaceX's Falcon Heavy had on ionospheric wave propagation.
- Soldered and constructed several payloads for GPS radiosonde balloon satellite launches.

Engineering Sciences Tutor (CRLA Certified)

Aug. 2022 - Present

- Mentored 200+ students in foundational engineering subjects, including Statics, Dynamics, Solid Mechanics, MATLAB, and Computer-Aided Design. This guidance improved student understanding and practical application of essential principles, contributing to a 9% increase in student pass rates.

### Carnegie Mellon University

Robotics Institute Summer Scholar | Steven Willits | AirLab [ [Paper](#), [Poster](#), [Video](#) ]

May 2024 - Aug. 2024

- Conducted preliminary design and feasibility analysis for a 3-year initiative to develop a semi-autonomous eVTOL emergency aircraft, with a personal focus on optimizing sizing, weight distribution, power and propulsion systems.
- Enhanced research communication skills via [oral](#) and [poster](#) presentations, culminating in a published [paper](#).

### NASA Glenn Research Center

OSTEM Intern | Dr. Herbert Schilling | Graphics and Visualization Lab

Aug. 2023 - Dec. 2023

- Created detailed models for the X-66A, an experimental aircraft by Boeing and NASA targeting net-zero aviation greenhouse gas emissions.
- Developed a virtual twin of the NASA Electric Aircraft Testbed and surrounding facilities to aid in the construction of a new testing facility.
- Volunteered at numerous outreach events, where I got the opportunity to both teach and inspire the public about the cutting-edge research and technology being explored at NASA.

### Honeywell Aerospace

Electrical & Systems Engineering Intern | Trish Lueck

May 2023 - Aug. 2023

- Built upon my role in a prior research program by further optimizing the design and implementation of a knowledge-based diagnostic tool.
- Coordinated with site engineers and technicians, ensuring alignment between system functionality and manufacturing requirements.
- Delivered the completed tool to facility leaders, highlighting a projected annual labor cost reduction of \$250,000 while establishing a framework to extend these savings to other product lines.

Student Researcher | Warren La Chance

Nov. 2022 - May 2023

- Volunteered for an industry research program to streamline the diagnosis and repair procedures for malfunctioning inertial navigation systems, addressing a pressing issue at Honeywell facilities.
- Organized weekly sessions to identify the prevalent failure modes in faulty units and developed effective diagnostic trees to resolve them.

## Publications, Posters & Presentations

**K. Olen**, S. Willits, and S. Scherer, (under review), “Emergency Response Ambulance Drones: Feasibility in Design for the GoAERO Competition,” *Robotics Institute Summer Scholars Working Papers Journal*, vol. 12. Available: [Paper](#), [Poster](#), [Video](#)

**K. Olen** and S. Willits. (Jul. 2024) “Designing a Compact eVTOL Passenger Drone for Enhanced Emergency Response.” Presented at the SpeakUp! 2024 3-Minute Research Talk Symposium, Carnegie Mellon University, Pittsburgh, PA, USA. Available: [Video](#)

**K. Olen**. (Apr. 2024) “Self-balancing wheeled robot for discontinuous terrains.” Presented at the ERAU Discovery Day Student Research Conference, Embry-Riddle Aeronautical University, Daytona Beach, FL, USA. Available: [Poster](#)

## Projects

<b>Wheeled Biped for Discontinuous Terrains</b>   Independent Research Project, Awarded Grant Funding	<b>Feb. 2024 - Present</b>
<ul style="list-style-type: none"><li>Secured a \$1000 grant to develop a cost-effective jumping wheeled biped, serving not only as a platform for testing control algorithms, but also as an educational resource for students interested in robotics.</li><li>Spearheading the mechanical design, sensor integration, and system simulations for the research project.</li><li>Expected outcomes include an academic paper, a low-cost open-source prototype, and detailed video documentation that will allow students to follow along without any prior experience and learn how to design their own robots.</li></ul>	
<b>Buoyant Pneumatic Drone</b>   Space Systems Capstone	<b>Jan. 2023 - May 2023</b>
<ul style="list-style-type: none"><li>Designed a physical model to simulate satellite orbital adjustments in a 2D plane, implementing cold gas thrusters and autonomous control.</li><li>Utilized parametric modeling principles to facilitate iterative design improvements while ensuring compliance with all design requirements.</li><li>Developed a virtual model of the system in Matlab, enabling rapid evaluation and optimization of control algorithms.</li><li>Presented the system to faculty and peers, incorporating feedback to drive further design refinements.</li></ul>	
<b>Balloon Satellite Sun Tracking Payload</b>   Microcomputers & Electronics Capstone	<b>Jan. 2023 - May 2023</b>
<ul style="list-style-type: none"><li>Engineered and prototyped a balloon satellite payload designed for sun orientation tracking and real-time transmission to a ground station.</li><li>Led the development of power and monitoring subsystems, implementing signal conditioning circuits and embedded microcontroller code.</li><li>Integrated all subsystems into a cohesive package, achieving reliable tracking performance and successful field test demonstrations.</li></ul>	

## Leadership

<b>NASA Promoting Agency Cross-Center Connections (PAXC)</b>	
Glenn Research Center Chair	<b>Aug. 2023 - Dec. 2023</b>
<ul style="list-style-type: none"><li>Served as the primary contact for Glenn Research Center within PAXC, organizing several collaborative events between NASA centers.</li><li>Conducted an agency-wide presentation to showcase the achievements and ongoing research initiatives at the Glenn Research Center.</li></ul>	
<b>NASA Space Apps Challenge</b>	
VULCAN Team Lead   Awarded Global Nominee Recognition	<b>Oct. 2023</b>
<ul style="list-style-type: none"><li>Competed in a global NASA hackathon, where our team developed a machine learning algorithm using real-time Landsat data and the Fosberg Fire Weather Index to enhance wildfire identification and address fire monitoring challenges.</li><li>Showcased a functional prototype to NASA judges, winning first place at the Glenn Research Center and receiving global nominee recognition.</li></ul>	
<b>Service &amp; Outreach</b>	
<b>United Way Summer Career Camps</b>   Oil City, PA	<b>Aug. 2024</b>
<ul style="list-style-type: none"><li>Speaker in a seminar series for rural middle school students, exploring the applications of robotics in agriculture, transportation, and hospitality, while highlighting available educational opportunities and inspiring students to explore beyond their immediate surroundings.</li></ul>	
<b>Arts Excursions Unlimited Workshops</b>   Pittsburgh, PA	<b>Jun. 2024 - Aug. 2024</b>
<ul style="list-style-type: none"><li>Mentored residents in an underserved community to develop a smart air quality sensor network, enabling them to monitor and address growing health concerns, while introducing them to STEM concepts in a hands-on, approachable manner.</li></ul>	
<b>AIAA Young Astronaut Day</b>   Cleveland, OH	<b>Nov. 2023</b>
<ul style="list-style-type: none"><li>Guided K-12 students in designing and programming Lego Mindstorm robots for a team competition, focusing on payload capture and delivery in simulated lunar missions.</li></ul>	

## Honors & Awards

<b>Student Ambassador</b> , JPL-ERAU Academic Exchange Program   <i>Selected representative for Embry-Riddle at NASA JPL</i>	<b>May 2024</b>
<b>Spark Grant Recipient</b> , ERAU Office of Undergraduate Research   <i>\$1000 grant awarded to promising student researchers</i>	<b>Feb. 2024</b>
<b>Hackathon Winner</b> , NASA Space Apps Challenge (Glenn Research Center)   <i>First Place awarded by panel of NASA Judges</i>	<b>Oct. 2023</b>
<b>Bright Futures Academic Scholar</b> , Florida Department of Education   <i>Honored for academic excellence and service</i>	<b>Nov. 2020</b>
<b>Visionary Scholar</b> , American College Foundation   <i>Awarded for top paper out of thousands of nationwide submissions</i>	<b>Jun. 2020</b>
<b>Commended Student</b> , National Merit Scholarship Organization   <i>Recognized among the top 50,000 of 1.5 million SAT scores</i>	<b>Oct. 2019</b>