

Kilian O. Olen

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Education

Embry-Riddle Aeronautical University

Bachelor of Science in Aerospace Engineering | Concentration: Astronautics

Bachelor of Science in Engineering Physics | Concentration: Spacecraft Systems

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

Anticipated May 2025

GPA: 3.76/4.00

Honors Program

Broward Community College

Associate of Arts in Engineering with Highest Honors

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

May 2020

GPA: 3.87/4.00

Skills

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

Research & Professional Experience

Embry-Riddle Aeronautical University

Undergraduate Research Assistant | Dr. Aroh Barjatya | 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 over **200** students in foundational engineering subjects, including Statics, Dynamics, Solid Mechanics, MATLAB, and Computer-Aided Design.
- Awarded for providing impactful guidance to students, consistently receiving positive feedback, and contributing to a **9%** improvement in pass rates.

Carnegie Mellon University

Robotics Institute Summer Scholar (NSF REU) | Dr. Sebastian Scherer & Steven Willits | AirLab

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 through oral and poster presentations in the NSF REU program, 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

- Selected 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

Autonomous Balancing Robot Architecture Undergraduate Research Project, Awarded Grant Funding	Feb. 2024 - Present
<ul style="list-style-type: none">Secured a \$1000 grant to develop a self-balancing cube robot, designed to validate advanced control algorithms and serve as an educational resource.Spearheading the mechanical design, system modeling, and control implementation for the research project.Expected outcomes include an academic paper, a low-cost open-source prototype, and detailed video documentation to guide students through the design and theory of balancing robots.	
Buoyant Pneumatic Drone Space Systems Capstone	Jan. 2023 - May 2023
<ul style="list-style-type: none">Designed a physical model to simulate satellite orbital adjustments in a 2D plane, implementing cold gas thrusters and autonomous control.Utilized parametric modeling principles to facilitate iterative design improvements while ensuring compliance with all design requirements.Developed a virtual model of the system in Matlab, enabling rapid evaluation and optimization of control algorithms.Presented the system to faculty and peers, incorporating feedback to drive further design refinements.	
Balloon Satellite Sun Tracking Payload Microcomputers & Electronics Capstone	Jan. 2023 - May 2023
<ul style="list-style-type: none">Engineered and prototyped a balloon satellite payload designed for sun orientation tracking and real-time transmission to a ground station.Led the development of power and monitoring subsystems, implementing signal conditioning circuits and embedded microcontroller code.Integrated all subsystems into a cohesive package, achieving reliable tracking performance and successful field test demonstrations.	

Leadership

NASA Promoting Agency Cross-Center Connections (PAXC)	
Glenn Research Center Chair	Aug. 2023 - Dec. 2023
<ul style="list-style-type: none">Served as the primary contact for Glenn Research Center within PAXC, organizing several collaborative events between NASA centers.Conducted an agency-wide presentation to showcase the achievements and ongoing research initiatives at the Glenn Research Center.	
NASA Space Apps Challenge	
VULCAN Team Lead Awarded Global Nominee Recognition	Oct. 2023
<ul style="list-style-type: none">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.Showcased a functional prototype to NASA judges, winning first place at the Glenn Research Center and receiving global nominee recognition.	

Service & Outreach

United Way Summer Career Camps Oil City, PA	Aug. 2024
<ul style="list-style-type: none">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.	
Arts Excursions Unlimited Workshops Pittsburgh, PA	Jun. 2024 - Aug. 2024
<ul style="list-style-type: none">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.	
AIAA Young Astronaut Day Cleveland, OH	Nov. 2023
<ul style="list-style-type: none">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.	

Honors & Awards

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