

# 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

## Skills

|                              |  |
|------------------------------|--|
| <b>Programming</b>           | MATLAB/Simulink, Python, C/C++, ROS, Arduino, Linux, GitHub, Visual Studio Code                          |
| <b>Design &amp; Analysis</b> | SOLIDWORKS (CSWA), CATIA V5, Autodesk Inventor, Altium Designer, Ansys Workbench, Femap/Nastran, Blender |
| <b>Manufacturing</b>         | FDM/SLA Printing, CNC Laser Cutting, Soldering, PCB Design, DFMA, Rapid Prototyping                      |
| <b>Languages</b>             | 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 instrument deployment.
- Constructed a wireless communication system using MATLAB and Arduino 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.

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 the inception of a 3-year initiative to develop a semi-autonomous eVTOL emergency aircraft.
- Optimized mission critical factors through iterative design, with a personal focus on aircraft sizing, weight distribution, power, and propulsion systems.
- Strengthened 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 of the X-66A, an experimental aircraft developed by Boeing and NASA to validate the transonic truss-braced wing concept.
- 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, teaching and inspiring the public about the exciting research being conducted at NASA.

### Honeywell Aerospace

Electrical & Systems Engineering Intern | Trish Lueck

May 2023 - Aug. 2023

- Built upon my role in a research program by further refining and optimizing the design and implementation of a knowledge-based system.
- Coordinated with site engineers and technicians, ensuring alignment between system functionality and manufacturing requirements.
- Delivered the completed system 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.

## Selected Projects

**Autonomous Balancing Robot Architecture** | Undergraduate Research Project, Awarded Grant Funding

Feb. 2024 - Present

- 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.

**Balloon Satellite Sun Tracking Payload** | Microcomputers & Electronics Capstone

Jan. 2023 - May 2023

- 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 C code for accurate diagnostics.
- Integrated all subsystems into a cohesive package, achieving reliable tracking performance and successful field test demonstrations.