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

Programming	MATLAB/Simulink, Python, C/C++, ROS, Arduino, Linux, GitHub, Visual Studio Code
Design & Analysis	SOLIDWORKS (CSWA), CATIA V5, Autodesk Inventor, Altium Designer, Ansys Workbench, Femap/Nastran, Blender
Manufacturing	FDM/SLA Printing, CNC Laser Cutting, Soldering, PCB Design, DFMA, 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 monitor RPM and angular acceleration of a rocket spin table for instrument 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 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 an industry 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.
- Presented the completed tool to facility leaders, highlighting a projected annual labor savings of **$250,000** while also 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 bottleneck 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**

- 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**

- 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 algorithm tuning.
- 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**

- 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.

Leadership

NASA Promoting Agency Cross-Center Connections (PAXC)

Glenn Research Center Chair **Aug. 2023 - Dec. 2023**

- Served as the primary liaison for the 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**

- 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 improve wildfire identification and address rural 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**

- 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**

- 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**

- Guided K-12 students in designing and programming Lego Mindstorm robots for a team competition centered on payload capture and delivery in simulated lunar missions, encouraging team communication and out-of-the-box thinking.

Honors & Awards

Student Ambassador, JPL-ERAU Academic Exchange Program | *Selected representative for Embry-Riddle at NASA JPL* **May 2024**

Spark Grant Recipient, ERAU Office of Undergraduate Research | *$1000 grant awarded to promising student researchers* **Feb. 2024**

Hackathon Winner, NASA Space Apps Challenge (Glenn Research Center) | *First Place awarded by panel of NASA Judges* **Oct. 2023**

Bright Futures Academic Scholar, Florida Department of Education | *Honored for academic excellence and service* **Nov. 2020**

Visionary Scholar, American College Foundation | *Awarded for top paper out of thousands of nationwide submissions* **Jun. 2020**

Commended Student, National Merit Scholarship Organization | *Recognized among the top 50,000 of 1.5 million SAT scores* **Oct. 2019**