Kilian Olen

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Summary

BS honors student in aerospace engineering and engineering physics at Embry-Riddle Aeronautical University, consistently recognized on the Dean's List, and a dedicated tutor and undergraduate researcher. Utilizing research experience from both academia and industry, including internships at NASA and Honeywell, I am passionate about enhancing the adaptive capabilities of mobile robots. My research interests lie in biologically inspired robotics and self-reconfigurable systems, where I seek to develop robots that can interact and maneuver effectively in dynamic environments.

Education

Embry-Riddle Aeronautical University, ERAU — **Anticipated May 2025**

Bachelor of Science in Aerospace Engineering | Concentration: Astronautics — Daytona Beach, Florida

Bachelor of Science in Engineering Physics | Concentration: Spacecraft Systems — GPA: 3.76/4.00

- Minors: Applied Mathematics & Computer-Aided Design/Manufacturing — Honors Program
- Academic Honors: Dean's List (All terms)

Broward College — **Aug. 2020**

Associate of Arts in Engineering — Davie, Florida

- Academic Honors: President's List (3 terms), Dean's List (1 term) — GPA: 3.92/4.00
- Graduation Honors: Highest Honors, Robert "Bob" Elmore Honors College

Research Experience

Carnegie Mellon University — **May 2024 – Present**

Robotics Institute Summer Scholar — Pittsburgh, Pennsylvania

- Currently contributing to the preliminary design of a safe, portable, and semi-autonomous aerial emergency vehicle in response to the HeroX GoAERO competition.
- Serving as a student lead in an outreach initiative that hosts weekly workshops in a low-resource community, residents are taught how to build their own smart air quality sensor network. This enables them to monitor and manage their health following growing concerns from local community members.

ERAU Office of Undergraduate Research — **Feb. 2024 – Present**

Undergraduate Researcher — Daytona Beach, Florida

- Successfully secured an internal grant of $1000 to develop a cost-effective jumping wheeled robot, serving not only as a platform for testing control algorithms, but also as a educational resource for students interested in robotics.
- Currently leading all aspects of the research project, including the mechanical design, sensor integration, and control behaviors.
- Expected outcomes include an academic paper, a low cost open-source design, and detailed video documentation that will allow students to follow along without any prior experience and learn how to design their own robots.

ERAU Space and Atmospheric Instrumentation Laboratory — **Feb. 2023 – Present**

Undergraduate Research Assistant to Dr. Aroh Barjatya — Daytona Beach, Florida

- Integrated a Feather M0 microcontroller with a 9DOF IMU to accurately track and monitor a sounding rocket boom spin table.
- Utilized MATLAB and the Arduino IDE to develop a wireless communication system capable of transmitting live IMU readings across LoRa radio modules, improving system efficiency and data accuracy for future experiments.
- Implemented a MATLAB script to parse through individual data packets and export the transmitted data into a formatted Excel table.
- Soldered and constructed multiple payloads for GPS radiosonde balloon satellite launches.
- Assisted with the deployment and monitoring of GPS receivers used to assess the launch impact SpaceX's Falcon Heavy had on ionospheric electromagnetic wave propagation.

Honeywell Aerospace & ERAU Office of Undergraduate Research — **Nov. 2022 – May 2023**

Electrical & Systems Engineering Research Assistant — Daytona Beach, Florida

- Volunteered for a collaborative research program aimed at optimizing the diagnosis and repair processes of malfunctioning inertial navigation systems, addressing a pressing issue at Honeywell facilities.
- Organized weekly sessions to identify the prevalent failure modes demonstrated by faulty units and developed effective diagnostic trees to resolve them.

Relevant Professional Experience

ERAU Academic Advancement Center — **Aug. 2022 – Present**

Engineering & Engineering Sciences Tutor — Daytona Beach, Florida

- Provide mentorship and guidance to fellow students, fostering their understanding of foundational engineering subjects including Statics, Dynamics, Solid Mechanics, MATLAB, and CATIA V5.

NASA Glenn Research Center **Aug. 2023 – Dec. 2023**

OSTEM Intern Cleveland, Ohio

- Designed detailed models of the X-66A, a Transonic Truss-Based Wing concept vehicle developed between Boeing and NASA under the Advanced Air Transport Technology initiative.
- Developed models and assemblies for ongoing construction efforts to facilitate the replacement of NASA's Electric Aircraft Testbed with an improved test facility.
- Volunteered at numerous NASA outreach events, where I got the opportunity to both teach and inspire the public about the cutting-edge research and technology being developed at NASA.

Honeywell Aerospace **May 2023 – Aug. 2023**

Electrical & Systems Engineering Intern Clearwater, Florida

- Maintained an integral role in the program by further refining and optimizing the design and implementation of a knowledge-based system.
- Arranged and conducted vital meetings with site engineers and technicians, providing valuable insights into the intricacies of the manufacturing process and ensuring a seamless alignment between the system's functionality and the manufacturing requirements.
- Presented the completed model to facility leaders, highlighting a projected annual labor cost reduction of $250,000 for the eTALIN product line and establishing a framework for extending these savings to other product lines.

Skills

Programming	MATLAB/Simulink, Python, C/C++, Arduino, Microsoft Excel
Design	CATIA V5, SolidWorks, Autodesk Inventor, Femap/Nastran, Blender
Technical	FDM/SLA Printing, Soldering, PCB Design, Rapid Prototyping
Languages	English (Native), Spanish (Conversational), French (Basic Proficiency)

Extracurricular Activities

NASA Promoting Agency Cross-Center Connections (PAXC) **Aug. 2023 – Dec. 2023**

Glenn Research Center Chair Cleveland, Ohio

- Served as the primary liaison for the Glenn Research Center within PAXC, an intern-led organization aimed at fostering communication and collaboration across NASA centers to promote a unified organization.
- Conducted an agency-wide presentation to showcase the achievements and ongoing research initiatives at the Glenn Research Center.

NASA Space Apps Challenge **Oct. 2023**

VULCAN Team Lead Cleveland, Ohio

- Competed in a two-day worldwide NASA hackathon that tasked our team with using open data from NASA and its Space Agency Partners to solve challenges encountered on Earth and in space.
- Utilized real-time NASA LANDSAT data to identify potential wildfires and categorize their risk level through a machine learning algorithm trained on NOAA satellite data in conjunction with the Fosberg Fire Weather Index.
- Demonstrated a functional prototype to a panel of NASA judges who awarded our team the first place prize for the Glenn Research Center competition and nominated us as a global nominee.

Robot Sumo Competition **Oct. 2023**

Team Lead Cleveland, Ohio

- Spearheaded the design and development of an autonomous sumo bot, resulting in a highly competitive robot that consistently performed well in both offensive and defensive scenarios.
- Developed custom Python scripts enabling autonomous movement and defensive behaviors in a dynamic environment.
- Demonstrated strong leadership and project management skills, where through effective collaboration and communication, our team's design won the competition

Honors & Awards

Student Ambassador, JPL-ERAU Academic Exchange Program	**May 2024**
Spark Grant Recipient, ERAU Office of Undergraduate Research	**Feb. 2024**
Hackathon Winner, NASA Space Apps Challenge (Glenn Research Center)	**Oct. 2023**
Bright Futures Academic Scholar, Florida Department of Education	**Fall 2020 - Present**
Visionary Scholar, American College Foundation	**Jun. 2020**
Commended Student, National Merit Scholarship Corporation	**Nov. 2019**

Independent Study

• Russ Tedrake, Underactuated Robotics	**Jun. 2024 – Present**
• R. McNeill Alexander, Principles of Animal Locomotion	**Nov. 2023 – Present**
• University of Michigan, Robotics OpenCourseWare	**Aug. 2023 – Present**
• Rice University, Introduction to Biology: Ecology, Evolution, and Biodiversity	**Aug. 2023**
• Northwestern University, Modern Robotics: Mechanics, Planning, and Control	**Aug. 2023**