Kilian O. Olen

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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 — **May 2020**

Associate of Arts in Engineering — Davie, Florida

- Academic Honors: President's List (3 terms), Dean's List (1 term) — GPA: 3.87/4.00
- Graduation Honors: Highest Honors, Robert "Bob" Elmore Honors College

Skills

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

Experience

Carnegie Mellon University — Pittsburgh, PA

Robotics Institute Summer Scholar — **May 2024 – Present**

- Conducting preliminary design and feasibility analysis for a 3-year team initiative to develop a semi-autonomous eVTOL emergency aircraft, with a personal focus on optimizing sizing, weight distribution, power and propulsion systems.
- Strengthening research communication skills through delivering a 3-Minute Research Talk, presenting at a Poster Symposium, and preparing a research paper for publication.

ERAU Space and Atmospheric Instrumentation Laboratory — Daytona Beach, FL

Undergraduate Research Assistant to Dr. Aroh Barjatya — **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 from 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, and exporting the desired data into a formatted Excel table.
- Assisted in deploying and monitoring GPS receivers to assess the impact SpaceX's Falcon Heavy had the on ionospheric wave propagation.
- Soldered and constructed several payloads for GPS radiosonde balloon satellite launches.

ERAU Academic Advancement Center — Daytona Beach, FL

Engineering & Engineering Sciences Tutor — **Aug. 2022 – Present**

- Mentored 100+ students in foundational engineering subjects, including Statics, Dynamics, Solid Mechanics, MATLAB, and Computer-Aided Design, fostering a deeper understanding and practical application of key engineering principles.

NASA Glenn Research Center — Cleveland, OH

OSTEM Intern — **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 — Clearwater, FL

Electrical & Systems Engineering Intern — **May 2023 – Aug. 2023**

- Continued my role in a research 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 system 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.

Student Researcher — **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.

Academic Contributions

K. Olen, S. Willits, and S. Scherer, **"Working Paper Title from Robotics Institute Summer Scholars Program, "** Paper developed during the Robotics Institute Summer Scholars Program, Carnegie Mellon University, Pittsburgh, PA **(In Progress)**

K. Olen, **"Designing a Compact eVTOL Passenger Drone for Enhanced Emergency Response,"** Oral presentation at the SpeakUp! 2024 3-Minute Research Talk Symposium, Carnegie Mellon University, Pittsburgh, PA **(Jul. 2024)**

K. Olen, **"Self-balancing wheeled robot for discontinuous terrains,"** Poster presentation at the ERAU Discovery Day Student Research Symposium, Embry-Riddle Aeronautical University, Daytona Beach, FL **(Apr. 2024)**

Independent Study

Underactuated Robotics, Russ Tedrake (Textbook) **Jul. 2024 – Present**

- Currently studying nonlinear dynamics, control, and motion planning for underactuated robotic systems, including applications to legged locomotion, compliant manipulation, and underwater robots, to enhance my understanding of advanced robotics concepts.

Michigan Robotics OpenCourseWare, University of Michigan (Online Courses) **Aug. 2023 – Present**

- Utilizing publicly available undergraduate and graduate course offerings from the University of Michigan to develop a background in robotics concepts not available at my current institution.

Principles of Animal Locomotion, R. McNeill Alexander (Textbook) **Nov. 2023 – Jan. 2024**

- Undertook a self-led study on the biomechanics and energetics of animal locomotion, focusing on movement mechanisms across diverse species and environments, to expand my knowledge of the principles behind energy-efficient movement.

Leadership

ERAU Office of Undergraduate Research Daytona Beach, FL

Undergraduate Researcher **Feb. 2024 – Present**

- 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.
- Leading mechanical design, sensor integration, and system simulations for the research project.
- 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.

NASA Promoting Agency Cross-Center Connections (PAXC) Cleveland, OH

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

- 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 Cleveland, OH

VULCAN Team Lead **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 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

Arts Excursions Unlimited Workshops - Pittsburgh, PA **Jun. 2024 – Present**

- Mentor 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 a team competition to design and program Lego Mindstorm robots, focusing on capturing and delivering payloads to a mission objective in a simulated lunar environment.

NASA Aviation Day - Cleveland, OH **Aug. 2023**

- Volunteered to showcase NASA technology and hardware, involving the public in interactive STEM activities and hands-on demonstrations.

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 **Nov. 2020**
Visionary Scholar, American College Foundation **Jun. 2020**
Commended Student, National Merit Scholarship Corporation **Nov. 2019**