GABRIEL RODRIGUEZ

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EDUCATION

Embry-Riddle Aeronautical University (ERAU) **Exp. Grad: May 2025**

Bachelor of Science in Aerospace Engineering and Engineering Physics

Track: Aeronautics & Spacecraft Systems GPA: 4.00/4.00

Minor: Applied Mathematics

Student Athlete, Varsity Baseball (2020-2022)

PROFESSIONAL EXPERIENCE

Engineering Physics Propulsion Lab @ ERAU – Undergraduate Researcher **Jan. 2024 – Present**

- Received $15,000 in funding for the development of an autonomous, AI-powered system capable of conducting power plant diagnostics and reports using a Unitree Go2 EDU quadruped, added sensors, and Jetson devices.
- Developed a ROS2 workspace for deploying low-level (locomotion) and high-level (navigation) control policies with Python and C++ packages, training all policies through massively parallel reinforcement learning with Isaac Lab.
- Collaborated with team members to implement Nav2 using LiDAR and camera data, for autonomous 2D navigation.

Textron Systems – Mechanical Engineering Co-Op (Fall) **Sep. 2023 – Dec. 2023**

- 3D Modeled and revised various parts and assemblies, contributing to the GBSD/Sentinel Program.
- Strengthened analytical skills in ANSYS through exposure to static linear analysis and nonlinear analysis.

ERAU – Undergraduate Researcher **May 2023 – Aug. 2023**

- Developed an autonomous AI-powered vehicle for capturing of a free-falling object utilizing an NVIDIA Jetson Nano.
- Authored PID control algorithm in Python based on input from AI object detection, yielding a 48% capture rate.
- Conceived, modeled, and 3D printed various parts and mechanisms to house hardware and object capture system.

PROJECTS

Variable Area Nozzle Research **Jan. 2023 – May 2023**

- Created a model of the nozzle to control throat area for ideal aerodynamic conditions based on sensor input.
- Designed and constructed a prototype nozzle to accelerate incoming subsonic flow to supersonic conditions.
- Devised and executed various tests to quantify success, test hypotheses, and provide insight for improvements.

MATLAB Trajectory Calculator **Dec. 2020**

- Authored a MATLAB program capable of predicting and graphing the trajectory of a baseball given initial conditions.
- Mastered commonly used computational and graphing capabilities of MATLAB to depict expected trajectory.

INVOLVEMENT AND LEADERSHIP

Society of Hispanic Professional Engineers (SHPE) – Academic Chair **May 2023 – May 2024**

- Lead educational research meetings, introducing members to research opportunities for undergraduates.
- Planned and managed various events to provide supplementary instruction to members in MATLAB and 3D printing.

Boeing Career Mentorship Program (BCP) – Mentee **May 2022 – Oct. 2022**

- Fostered mentor-mentee relationships with Boeing employees through the BCP curriculum.
- Developed skills necessary to integrate into a professional environment like initiative, networking, and leadership.

SKILLS

Proficient in: Inventor, Siemens NX, MATLAB, Python, ROS2, Linux, Edge Implementation, Isaac Lab, GitHub

Familiar with: Simulink, CATIA v5, STK, SolidWorks, Nastran, JavaScript, C++ (CMake), ANSYS, Isaac Gym, Nav2, PyTorch, Docker

Languages: English *(Fluent)*, Spanish *(Full Professional Proficiency)*

AWARDS

- Dean's List: Spring 2024, Spring 2023, Fall 2022, Spring 2022, Fall 2021, Spring 2021, Fall 2020
- Diamond Eagle Scholarship
- 2021-2022 Scholar-Athlete Award
- 2020-2021, 2021-2022 Sunshine State Conference Commissioner's Honor Roll