

Logan Shaffer

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EDUCATION

Embry-Riddle Aeronautical University Daytona Beach, FL
BS in **Engineering Physics**, Spacecraft Instrumentation Track Expected May 2026
Minors: Electrical and Computer Engineering, Astronomy and Astrophysics, Applied Mathematics

TECHNICAL SKILLS

Languages: C/C++/C#, Python, MATLAB, Assembly, JavaScript/TypeScript, Java, HTML, CSS
Software: CATIA V5, Godot, Unity, Houdini SideFX, Renode, PuTTY
Tools: Git/GitHub, Visual Studio Code, STMCubeMX/IDE, Arduino IDE

RESEARCH EXPERIENCE

Embry-Riddle Aeronautical University Daytona Beach, FL
NSF REU Intern - "A Versatile Synthesis of Self-Healing Polymers" May 2024 – Jul 2024

- Conducted mechanical characterization of self-healing PDMS-based polymers through tensile testing to evaluate healing efficiency, discovering a 30% increase in healing performance when alcohol was introduced during the repair process
- Developed **Python** scripts to automate the analysis of force and distance data, saving over 10 hours weekly while improving accuracy in stress and strain calculations with repeatable tests
- Integrated a sensor and **Arduino microcontroller** into the tensile tester, enabling real-time distance measurement that improved strain rate precision by 15%

PROJECT EXPERIENCE

Embry-Riddle Aeronautical University Daytona Beach, FL
2D Platformer Game Sept 2024 – Present

- Designed and programmed a 2D platformer game using **Godot Engine**, incorporating animated sprite movement and procedural level generation that adapts to different playstyles
- Created an **AI** algorithm that simulates enemy behavior to enhance immersion and difficulty
- Participate in design and code reviews, providing valuable feedback that improved game quality and **user experience**

IEEE Xtreme Programming Competition

Oct 2024

- Ranked in the top 37% of over 8,000 global teams in a 24-hour programming competition
- Collaborated to solve coding challenges, optimized algorithms for speed and efficient memory usage in **Python**, **C**, and **C++**

Differential Equations Honors Project

Jan 2024 – May 2024

- Engineered a **Python** program that simulates the behavior of 10 unique mass-spring systems using **data visualization** libraries, providing graphical representations of second-order differential equations for future engineering students

NASA RASC-AL Competition

Aug 2023 – Dec 2023

- Conducted collaborative research with a team of 50 students, focusing on design and innovative concepts aimed at enhancing human space exploration
- Computed and plotted the mission trajectories for launch, transfer orbit, reentry, and landing using **MATLAB**

Graphical Communications CATIA Final Project

Aug 2023 – Dec 2023

- Designed a realistic **3D CAD** model of a toaster in **CATIA V5** with accurate dimensions
- Rendered the simulated model using **Houdini SideFX** and animated the moving components with lifelike textures and shaders

3D Multiplayer Minigame

Jan 2022 – Aug 2022

- Developed a 4-player minigame in **C#** using **Unity Engine**, integrating open source libraries to create object physics interactions that enhanced user experience and increased player engagement
- Created a virtual environment by implementing detailed 3D models of trees, plants, and monuments with realistic shaders to enhance user immersion

TEACHING EXPERIENCE

Embry-Riddle Aeronautical University

Daytona Beach, FL

Supplemental Instruction Leader, Teaching Assistant

Sept 2023 – Present

- Boosted student pass rate by 9% in introductory physics courses over the course of a year
- Instruct up to 40 students at a time on core concepts and numerical questions with an emphasis on group engagement
- Collaborate with co-tutors to align sessions with course objectives, adjusting pacing and structure to optimize student learning outcomes

PRESENTATIONS

Investigating the Relationship of Molecular Attributes and Intrinsic Self-Healing Efficiency in PDMS Based Polymers With Application Towards Coatings in UAVs

AIAA SciTech Forum, January 8, 2025

Self-Healing Sensors for Advanced Health Monitoring

40th Southern Biomedical Engineering Conference, Sept 13-15, 2024

Determination of Self-healing Efficiency for PDMS Based Polymers

NSF-REU Embry-Riddle Aeronautical University Poster Presentations, Jul 17, 2024

HONORS & AWARDS

Embry-Riddle Aeronautical University

Daytona Beach, FL

Spark Travel Grant

Sept 2024 – Present

Honors Program

May 2023 – Present

University Presidential Scholarship

Mar 2023 – Present

LEADERSHIP & OUTREACH

Embry-Riddle Aeronautical University

Daytona Beach, FL

Omicron Delta Kappa National Leadership Honor Society, *Vice President*

Apr 2024 – Present

- Coordinate operations of the society by organizing monthly meetings, setting clear goals for members, and planning leadership events that achieve 75% satisfaction rate

Plastic Free Campus Initiative, *Member*

Mar 2023 – Present

- Achieved College of Arts and Sciences elimination of single-use plastics through 160 student signed petitions
- Maintain 2 years of detailed records of petitions, reports, marketing information, and data regarding sustainable practices; streamlining access for collaboration across university departments and clubs

Student Union Advisory Board, *Point of Contact / Officer*

Nov 2022 – Present

- Represent the 7000+ student body in decision-making processes to improve the Student Union by gathering feedback through tabling events and conducting surveys to enhance the student experience
- Led proposal to acquire \$10,000 to host annual Super-Bowl Party event, seeing an improvement in student engagement of 60% for the event
- Compiled and summarized data from student survey results, displaying the data to stakeholders with graphs and charts that supported budgeting decisions for furniture purchases valued over \$150,000
- Created an interactive website prioritizing user experience and **interface design**, leveraging custom **HTML** and **CSS** widgets, leading to increased survey responses and visitor engagement

PROFESSIONAL AFFILIATIONS

Tau Beta Pi Engineering Honor Society

Nov 2024 – Present

International Game Developers Association (IGDA)

Nov 2024 – Present

Institute of Electrical and Electronics Engineers (IEEE)

Oct 2024 – Present

Omicron Delta Kappa National Leadership Honor Society

Apr 2024 – Present

National Society of Physics Students (SPS)

Dec 2023 – Present

PROFESSIONAL EXPERIENCE

Embry-Riddle Aeronautical University

Daytona Beach, FL

Orientation Ambassador, *Professional Development Committee Lead*

Dec 2022 – Sept 2023

- Welcomed over 3000 students and parents during 2023 orientation week, promoting a culture of inclusion and belonging
- Led the coordination of campus tours and activities for 40 incoming students, fostering a welcoming environment that enhanced student engagement through implementation of feedback-driven programs designed to meet student needs

