

Aidan Velleca

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EDUCATION

Purdue University

West Lafayette, IN

Bachelors of Aerospace Engineering, Minor in Computer Science, GPA 3.1

Expected Dec. 2024

- **Senior Design:** Designed a spacecraft mission using SoOp to measure soil moisture content worldwide with a 3-day revisit time
- **Zero Gravity Flight Experiment:** Designed pitot tube rake to test TransAstra data acquisition unit

Universidad Carlos III de Madrid

Leganés, Spain

Study Abroad

Jan. 2023 – June 2023

WORK EXPERIENCE

GNC Engineering Intern

May 2024 – Present

Northrop Grumman

Dulles, VA

- Innovated simulator to include new truth values in new reference frames to support docking
- Introduced a lighting requirement to ensure that spacecraft camera is not facing the sun for too long when within docking range
- Experimented with a distance-finding algorithm using GJK to avoid spacecraft collisions and trigger abort procedure, determined if method was suitable for use case

Research and Development Intern

May 2022 – Aug. 2022

SprintRay

Los Angeles, CA

- Engineered a new mirror calibration tool in SolidWorks for 3D printers to allow for more precise adjustments challenging to make by hand
- Designed model to simulate layer distortion from poor calibration and output correction process
- Disassembled and analyzed competitor products to report on other industry solutions and identify where to prioritize additional improvements
- Analyzed and repaired broken printers

OTHER EXPERIENCE

Turret Programmer

Sep. 2023 – Present

Purdue Special Interest Group Game Development

West Lafayette, IN

- Programmed turret spawn mechanics and object-oriented behavior scripts for each type
- Led programming work for a game jam that was published on the club website

Suspension Team

Sep. 2021 – Dec. 2021

Purdue Human Exploration Rover Team

West Lafayette, IN

- Assembled suspension subsystem
- Manufactured spars and other parts at the Purdue Bechtel Design Center using CNC techniques

Boiler Gold Rush Team Leader

April 2021 – September 2021

Purdue University

West Lafayette, IN

- Mentored a group of around ten students and crafted a daily schedule to introduce them to campus
- Mediated conflict and strengthened bonds between new students using leadership skills

PROJECTS

Satellite Viewing Tool @ <https://www.skyviewer.dev> | Python, Flask, Skyfield, API

Sep. 2024 – Present

- Accessed NASA TLE and OpenAI APIs to provide user with interesting information about satellites
- Utilized Skyfield library to calculate satellite parameters

SKILLS

Technical: SolidWorks, MATLAB, Simulink, CNC, Autodesk Suite, Simulation, Software, Git, C, C#, C++, Python, Modeling, Microsoft Excel, NX, Java, Google Cloud, Flask

Interpersonal: Organization, Communication, Teamwork, Leadership

Language: Spanish, Italian