Aidan Velleca

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