Aidan Velleca

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EDUCATION

Purdue University   West Lafayette, IN
*Bachelors of **Aerospace Engineering**, Minor in **Computer Science**, GPA 3.1*   *Jun. 2020 - Dec. 2024*
- **Senior Design:** Designed a spacecraft mission using the concept of signals of opportunity to measure soil moisture content worldwide with a 3-day revisit time

WORK EXPERIENCE

Flight Dynamics Intern   Mar. 2025 – Jun. 2025
AstroForge Inc.   *Seal Beach, CA*
- Performed trade study to simulate filter performance for representative reference trajectory, varying tracking data types collected
- Implemented automated routine for maintaining potential mission target database

GNC Engineering Intern   May 2024 – Jul. 2024
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
- Created a new, more robust distance-finding algorithm to avoid spacecraft collisions and trigger abort procedure

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

OTHER EXPERIENCE

Turret Programmer   Sep. 2023 – May 2024
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

Spanish Club Treasurer   Aug. 2024 – Dec. 2024
Purdue University   *West Lafayette, IN*
- Organized fundraising dinner, occasionally led club in event of president's absence

PROJECTS

Home Server | *Docker, Linux*   Jul. 2025 – Present
- Configured drives in a RAID 1 configuration to ensure parity, ensured remote access with Tailscale VPN
- Managed access to self hosted services at my own domain via internal DNS and Caddy reverse proxy, utilized OIDC for SSO

Custom Monitor Arm | *CAD, Design*   Jul. 2025
- Designed a custom monitor arm that mounts a small Waveshare 10.1" screen to a PC cart via a clamping interface to display personalized PC diagnostics from scratch within Fusion 360

Satellite Viewing Tool @ *https://www.skyviewer.dev* | *Python, Flask, Astropy, API*   Sep. 2024 – Nov. 2024
- Accessed NASA TLE and OpenAI APIs to provide user with interesting information about satellites
- Utilized Astropy library to calculate satellite parameters

SKILLS

Technical: SolidWorks, MATLAB, Docker, Simulation, Software, Ubuntu Linux, Git, C, C#, C++, Python, CAD, SQL, Microsoft Excel, Google Cloud, Flask, Ansys ODTK, GMAT, 3D Printing
Interpersonal: Organization, Communication, Teamwork, Leadership