Nathaniel Allwine

nathaniel.j.allwine@wmich.edu · (269) 329-9533

Education

Western Michigan University — Kalamazoo, Michigan
Bachelor of Science in Engineering - Aerospace Engineering — September 2018 - April 2022

- GPA: 3.72/4.0
- Magna Cum Laude
- Minor in Mathematics and Physics

Pre-Doctor of Philosophy (Ph.D.) Candidate in Mechanical Engineering — August 2022 - Current

- GPA: 3.5/4.0
- Kenneth W. Knight Scholarship Recipient

Educational Experience

Western Aerospace Launch Initiative (WALI) — September 2018 - Current
Co-Chief Engineer 2021 - Current

- Developed requirements and concept of operations for the Performance of Electrospray Propulsion on Ground and In Space CubeSat mission
- Composed and reviewed documentation that was submitted to a review board
- Verify system compatibility with the mission requirements
- Lead the team through meetings and tasks

Payload Team Member 2018 - 2021

- Tasked with testing and documenting the payload systems for cube satellite
- Designed LED array to replicate Teflon spectrum from Pulsed Plasma Thruster (PPT)
- Designed and documented testing procedure for in-house plasma diagnostics with Langmuir probe
- Wrote scripts for testing and data processing for a Langmuir probe

Aerospace Laboratory for Plasma Experiments (ALPE) — October 2019 - April 2022
Student Assistant

- Vacuum chamber experimental setup, testing assistance, and laboratory organization and upkeep

Graduate Assistant — August 2022 - Current

- Perform research on plasmadynamics, plasma diagnostic technology, and electric propulsion devices

SWARM-EX CubeSat Team — May 2021 - Current
Propulsion Team Member May 2021 - August 2022

- Integrated and documented electrical components into thrust stand design for low thrust propulsion systems

Propulsion Team Lead August 2022 - Current

- Verified cold gas thruster performance with thrust stand
- Compose and review sub-system documentation
- Verify sub-system satisfies sub-system and mission requirements
- Organize and lead sub-team through meetings

Advanced Rocketry Club (ARC) — September 2018 - Current
Chief Engineer 2020 - Current

- Lead team through meetings and tasks
- Designed and produced a CAD model of entire payload system
- Assembled, tested, and documented GPS system
- Participating in Argonia Cup Collegiate Rocketry Competition

Payload Team Member 2018 - 2020

- Responsible for designing, testing and documenting the mission payload system
- Participated in NASA SLI Competition and Argonia Cup Collegiate Rocketry Competition
- Developed Arduino based payload parachute GPS guidance system

Professional Experience

Pro Services Portage, Michigan
Project Manager Intern November 2020 - June 2021

- Designed and implemented system for daily and long term project progression reporting and worker productivity
- Site-wide inspection of components with isometric and P&ID drawings to provide quality assurance and completion status

Relevant Skills

- Microsoft Excel, Powerpoint, AutoCAD, Inventor, LabView, Matlab, Navisworks, Abaqus, and SolidWorks
- Milling and other machining skills
- C, C++, Java, HTML, CSS, and Python