Jonathan Heidegger

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DoD: Secret Clearance

Education

Master of Science | *Robotics* University of Michigan | *Aug 2022 – Present* | *GPA:3.67*

Relevant Courses: Math for Robotics, Mobile Robotics Systems, Avionics Navigation and Guidance of Aerospace Vehicles, Deep Learning for Robotics

Bachelor of Science | *Computer Science Honors* Purdue University | *May 2015 – August 2019* | *GPA: 3.8*

Relevant Courses: Robotics Systems, Operating Systems, Data Structures and Algorithms, Software Engineering

Work Experience

Air Force Research Laboratory | *Summer 2023* *Albuquerque, NM*
Graduate Researcher

- Researched and implemented adaptive control methods for satellite proximity operations
- Implemented Model Reference Control for a marginally stable reference model and conducted stability analysis and proofs
- Delivered a python control simulation for both discrete and continuous time with options for interfacing with embedded hardware in the future

Vehicle Optimization, Dynamics, Controls & Autonomy Lab | *2022 – Present* *Ann Arbor, MI*
Graduate Research Assistant

- Led student team of 3 undergraduate researchers in developing a new hardware platform for control research.
- Researched novel methods for close proximity spacecraft control using mobile holonomic robotics as an experimental platform for hardware validation
- ROS2 full stack robotics development, C++, Python, Docker

Rolls Royce North America | *Summer 2021,2022* *Indianapolis, IN*
Controls Engineering Intern

- Created interface layer for legacy engine software development in Ada for hardware unicorn emulator
- Researched and presented a market readiness analysis of modern concurrent safety critical real-time operating systems for engine control applications.

Projects

Purdue Collaborative Robotics Lab | *Undergraduate Research Assistant* 2020-2022

- Applied and implemented modular omnidirectional robots for response to respiratory pandemics and small batch manufacturing
- Published as lead author for REMAR 2021 conference on modular robotics

X-14 ROV | *Captain, Lead Developer* 2019-2022

- Developed software control architecture and kinematics for 6DoF thrust mapping calculations for an underwater ROV autonomous and teleoperated control
- Led vehicle integration and project management of the 30 person team to deliver a custom ROV for competition

Leadership and Extracurriculars

Purdue All-American Marching Band	Drum Major	2018-2021
Kappa Kappa Psi	President,Vice President	2019-2021
Purdue FIRST Programs		2019-2021
Boston Crusaders Drum and Bugle Corps		2021
Colts Drum and Bugle Corps	Mellophone Section Leader	2018-19