# Jonathan Heidegger

*DoD: Secret Clearance*

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## 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 | *August 2018 – May 2022* | *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

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|---|---|---|
| **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 |