

# JONATHAN WALLEN

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## EDUCATION

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### University of Hawaii at Manoa

*Expected Spring 2025*

PhD Candidate in Mechanical Engineering

Advisor: Dr. Zhuoyuan Song

Research: Dynamics and Control, Robotics, Autonomy, and System Design

Courses Taken: ME696(x2), ME 699, ME 691, ORE 791, ICS 635, ICS 691D, EE 640 EE 618,

PHYS 610, MATH 601, ME 451, ARCH 692, ORE 411

Overall GPA: 3.6

### University of Hawaii at Manoa

*Fall 2021*

MS in Mechanical Engineering

### University of Hawaii at Manoa

*Spring 2019*

BS in Mechanical Engineering

Courses Taken: ME 492, 491(x2), 482/1, 422, 375, 374, 372, 371, 360, 341, 331,

322, 311, MATH 307, COMG 361, THEA 221

Overall GPA: 3.1

### Kapiolani Community College

*Spring 2017*

AS in Natural Science, Pre-Engineering

Overall GPA: 3.1

## EXPERIENCE

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### Built Robotics

San Francisco, Ca

*Senior Robotics Hardware Engineer*

*May 2022 - Oct 2022*

- Promoted for shipping multiple quick-turn projects in first five months.
- Designed robust hardware systems to convert construction equipment into autonomous robots.
- Designed second production run of hardware system and coordinated supply chain with manufacturers.
- Led mechanical engineering efforts and was backup hardware team lead.

### Built Robotics

San Francisco, Ca

*Robotics Hardware Engineer*

*Jan 2022 - May 2022*

- Designed robust hardware systems to convert construction equipment into autonomous robots.
- Designed first production run of hardware system and coordinated supply chain with manufacturers.

### University of Hawaii, Department of Mechanical Engineering

Honolulu, Hawaii

*Teaching Assistant*

*Spring 2020 - Present*

- Provide assistance to course instructors and provide instruction and lectures to students.
- Courses: ME 213, 481/2

### Robot Autonomy and Navigation (RAN) Lab

Honolulu, Hawaii

*Lab Manager & Graduate Student Researcher*

*Fall 2018 - Present*

- Manage day to day lab operations.
- Oversee installation and use of lab equipment

**General Contracting***Freelance Designer/Builder*Honolulu, Hawaii  
*Fall 2017 - Fall 2021*

- Manage and run business operations with multiple subcontractors and workers.
- Design and build small residential home renovations and supervise crew.
- Over 6000 hours of trade experience.

**Makai Ocean Engineering Inc.***Mechanical Engineering Inter*Waimanalo, Hawaii  
*Jan 2018 - Jan 2019*

- Assembled a 23 inch diameter, novel autonomous underwater vehicle (AUV) over a period of 6 months.
- Assisted with iteration and design of mechanical components.
- Assisted with sea and pier side testing of an autonomous underwater vehicle.

**Kapiolani Community College STEM Department***Lead Tutor*Honolulu, Hawaii  
*Spring 2016 - spring 2017*

- Tutored undergraduate students in math and physics.
- Managed other tutors and reported to faculty manager.
- Attended tutor training to improve instructional skills.

**RESEARCH**

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**Robot Autonomy and Navigation (RAN) Lab***Lab Manager & Graduate Student Researcher*Honolulu, Hawaii  
*Fall 2018 - Present*

Began with the Robot Autonomy and Navigation (RAN) Lab as an undergraduate researcher investigating AUV docking. Continued to a PhD program under the advising of Dr. Zhuoyuan Song. Current research projects include Investigating Dynamics Learning and Localization; Developing an indoor autonomous vehicle testbed with motion capture feedback system; and Mentoring multiple undergraduate engineering teams.

**Halona Project***Mechanical Engineer/Researcher*Honolulu, Hawaii  
*Fall 2019 - Present*

Work in collaboration with researchers from the Department of Ocean Resource Engineering at The University of Hawaii on dynamic interactions of autonomous marine vehicle and large ocean energy infrastructure. The Halona project has placed as a finalist in two ocean energy competitions sponsored by the U.S. Department of Energy.

**NASA Micro-G NExT Competition***Team Lead/Designer*Honolulu, Hawaii; Houston, Texas  
*Fall 2016 - Spring 2017*

Participated in NASA's Micro-G NExT in which I led a team to design a tool for use by astronauts. Tool testing was conducted in the Neutral Buoyancy Lab at Johnson Space Center.

**Dark Side Dark Matter Detection Experiment***Mechanical Designer/Lab Technician*Honolulu, Hawaii  
*Fall 2016 - Spring 2017*

Designed and machined hardware for a custom 6 foot tall liquid nitrogen dewar used to calibrate thermal sensing experiment for the Dark Side Dark Matter Detector.

**PUBLICATIONS & PRESENTATIONS**

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**Publications**

- Jonathan Wallen, Maddyson Jeske, Z. Song. Co-design Optimization for Underwater Vehicle Docking Systems. MTS/IEEE OCEANS Conf., San Diego, California, September 2021

- Jonathan Wallen, Nic Ulm and Z. Song. Underwater Docking System for a Wave Energy Converter based Mobile Station. MTS/IEEE OCEANS Conf., Seattle, Washington, October 2019
- Jonathan Wallen, and Z. Song. Development of an adaptive docking station for resident underwater vehicles. MTS/IEEE OCEANS Conf., Marseille, France, June 2019.

### Presentations

- MTS/IEEE OCEANS Conference, San Diego California, USA | September 2021  
Student poster competition finalist: Co-design Optimization for Underwater Vehicle Docking Systems
- MTS/IEEE OCEANS Conference, Seattle, Washington, USA | October 2019  
Presented: Underwater Docking System for a Wave Energy Converter based Mobile Station
- MTS/IEEE OCEANS Conference, Marseille, France | June 2019  
Presented: Development of an adaptive docking station for resident underwater vehicles
- Community College Undergraduate Research Initiative, Minneapolis, Minnesota | April 2017  
Presented: Celestial Screw Anchor: an Investigation of Applied Newtonian Mechanics in Microgravity

### GRANTS & AWARDS

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<b>U.S. Department of Energy Ocean Observing Award</b> <i>Discover Competition Winner   Autonomous Systems</i>	Spring 2020 \$10,000
<b>2020 U.S. Department of Energy Marine Energy Collegiate Competitions</b> <i>Overall Competition Winner</i>	Spring 2020 \$15,000
<b>University of Hawaii Undergraduate Research Opportunity Program</b> <i>Research Grant</i>	Spring 2019 \$10,000
<b>S-STEM Scholarship</b> <i>Academic Scholarship</i>	Spring 2017 \$14,400

### SKILLS

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<b>Software</b>	Solidworks, Adobe Creative Cloud, MacOS, Windows, Linux, Office, AutoDesk
<b>Technical</b>	Mechanical & Systems Design, GD&T, Automation, Woodworking, Machining, Electronics, Masonry, Scuba
<b>Programming</b>	Matlab, Python, Unix, GitHub, L <sup>A</sup> T <sub>E</sub> X

### SOCIETIES

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IEEE (member)	2019-2020
MTS (member)	2019-2020
ESW (Chapter President)	2016-2017