

JONATHAN WALLEN

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EDUCATION

University of Hawaii at Manoa

PhD Candidate in Mechanical Engineering

Advisor: 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

Expected Spring 2022

University of Hawaii at Manoa

MS in Mechanical Engineering

Fall 2021

University of Hawaii at Manoa

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

Spring 2019

Kapiolani Community College

AS in Natural Science, Pre-Engineering

Overall GPA: 3.1

Spring 2017

EXPERIENCE

University of Hawaii, Department of Mechanical Engineering

Teaching Assistant

Spring 2020 - Present

Honolulu, Hawaii

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

Robot Autonomy and Navigation (RAN) Lab

Lab Manager & Graduate Student Researcher

Fall 2018 - Present

Honolulu, Hawaii

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

General Contracting

Freelance Designer/Builder

Fall 2017 - Present

Honolulu, Hawaii

- 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

Jan 2018 - Jan 2019

Waimanalo, Hawaii

- 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.

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

RESEARCH

Robot Autonomy and Navigation (RAN) Lab*Lab Manager & Graduate Student Researcher*

Fall 2018 - Present

Honolulu, Hawaii

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*

Fall 2019 - Present

Honolulu, Hawaii

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*

Fall 2016 - Spring 2017

Honolulu, Hawaii; Houston, Texas

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*

Fall 2016 - Spring 2017

Honolulu, Hawaii

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

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

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

SKILLS

Software	Solidworks, Adobe Creative Cloud, MacOS, Windows, Linux, Office, AutoDesk
Technical	Mechanical & Systems Design, GD&T, Automation, Woodworking, Machining, Electronics, Masonry, Scuba
Programming	Matlab, Python, Unix, GitHub, L ^A T _E X

SOCIETIES

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