

# RIANNA JITOSHO

rjitoshogithub.io | rjitoshostanford.edu

## EDUCATION

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### STANFORD UNIVERSITY – Stanford CA

Graduate Student, Department of Mechanical Engineering, GPA: 4.0/4.0

2024

Coursework: Robot Autonomy, Optimal Control, Convex Optimization, Mechatronics, Machine Learning

### MASSACHUSETTS INSTITUTE OF TECHNOLOGY – Cambridge MA

Bachelor of Science in Mechanical Engineering, GPA: 4.9/5.0

2019

*Pi Tau Sigma, Mechanical Engineering Honors Society | Tau Beta Pi, Engineering Honors Society*

Coursework: Feedback Systems, Design of Electromechanical Robotic Systems, Algorithms

## EXPERIENCE

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### CHARM LAB & REX LAB AT STANFORD – Robotics Researcher | Stanford CA

#### Motion Planning

Jan 2020 - present

- Created a high-speed dynamics simulator for a class of soft growing robots to be used in motion planning algorithms
- Implemented trajectory optimization for a quadrotor system with an emphasis on speed for real-time, onboard planning

#### Medical Robotics

Sep – Dec 2019

- Developed a practice environment in VR for surgeons to improve their suturing technique
- Utilized C++, ROS, and QT for implementation on Intuitive Surgical's Da Vinci robotic-assisted surgical system

### NASA JET PROPULSION LABORATORY – Mobile Robotics Intern | Pasadena CA

June-Aug 2019

- Developed an autonomous hybrid aerial-ground vehicle to compete in the DARPA Subterranean Challenge
- Led sensor integration, electronics packaging, and wire harnessing of the aerial-ground vehicle
- Experimentally characterized propeller thrust variation as a function of distance from wall to verify first order dynamics

### ROBOTICS: SCIENCE AND SYSTEMS AT MIT – Student | Cambridge, MA

Feb-May 2019

- Implemented a fully autonomous ground vehicle capable of navigating underground tunnels as well as a mock city
- Designed algorithms for trajectory optimization, state estimation, and vision-based sensing with ROS in python on Linux

### DART LAB AT GEORGIA TECH – Robotics Research Fellow | Atlanta GA

May-Aug 2018

- Designed and manufactured a bistable, reflexive, lightweight gripper featuring a high force density and rapid activation
- Led project from concept phase to working prototype which carried 15-28 times its weight and actuated in 0.12 seconds
- Conference paper (first author) accepted to the 2019 IEEE International Conference on Robotics and Automation

### DRAPER – Test Engineer | Cambridge MA

Jan 2017, Jun-Jul 2017

- Developed enhancements to a python program that incorporated GUI, online database accesses, and excel generation which sped up the system testing department's workflow by automating multiple data entry processes
- Conducted software research and developed a test plan for the data organization, scripting, and execution of automated testing for a company-wide web application that organized the related files, documents, and other information for all ongoing projects

## LEADERSHIP

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### SOLAR ELECTRIC VEHICLE TEAM – Systems Lead | MIT, Cambridge MA

Sept 2015-Sept 2018

- Placed 5<sup>th</sup> in the 2018 American Solar Challenge, a nearly 2000-mile race from Nebraska to Oregon
- Coordinated with Mechanical, Aerodynamics/Composites, and Electrical team leaders for systems integration
- Designed parts/assemblies in Solidworks with detailed consideration for race regulations and driver experience
- Performed structural analysis via FEA for the chassis and hand calculations for suspension component selection
- Operated machine shop equipment to fabricate components; wrote/ran toolpaths in HSMWorks for complex operations
- Produced GD&T drawings for parts; communicated with external parties for fabrication when outsourcing was necessary

### CHINA EDUCATIONAL TECH INITIATIVE – Executive Member | MIT, Cambridge MA

Aug 2016-May 2019

- Coordinated with the Director of the MIT-China program for recruiting and selecting students to participate in the program
- Led multiple information sessions to equip CETI teams for living and teaching in China

## SKILLS

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**PROGRAMMING** – Intermediate: Julia, Python, Matlab, Arduino, ROS | Beginner: C++, C, HTML, CSS, Javascript

**ROBOTICS** – Motion Planning, Controls, Computer Vision, Electronics, Hardware Design