

RIANNA JITOSHO

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EDUCATION

STANFORD UNIVERSITY – Stanford CA

Graduate Student, Department of Mechanical Engineering

MASSACHUSETTS INSTITUTE OF TECHNOLOGY – Cambridge MA

2019

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

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

Relevant Coursework: Robot Autonomy, Algorithms, Feedback System Design, Controls, Linear Dynamical Systems

EXPERIENCE

CHARM LAB AT STANFORD UNIVERSITY – Robotics Researcher | Stanford CA

Oct 2019-present

- o Developing a practice environment in **VR** for surgeons to improve their suturing technique
- o Utilizing **C++** and **ROS** for implementation on Intuitive Surgical's Da Vinci robotic-assisted surgical system

NASA JET PROPULSION LABORATORY – Mobile Robotics Intern | Pasadena CA

June-Aug 2019

- o Developed an autonomous hybrid aerial-ground vehicle to compete in the DARPA Subterranean Challenge
- o Led sensor integration, electronics packaging, and wire harnessing of the aerial-ground vehicle
- o Experimentally characterized propeller thrust variation as a function of distance from wall to verify first order dynamics
- o Performed data analysis on **MATLAB**; Interfaced with ATI force-torque sensors, drone propulsion systems, and Arduino

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

Feb-May 2019

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

RESPONSIVE ENVIRONMENTS, MIT MEDIA LAB – Robotics Researcher | Cambridge MA

Mar 2018-May 2019

- o Designed a silicone pneumatic actuator for a wearable robot to traverse a patient's skin for the purpose of medical monitoring
- o Developed fabrication methods utilizing multi-part molds, and implemented electronic controls for a prototype actuator
- o Trained a neural network on experimental sensor data to be applied to the robot for tumor detection and size characterization

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

May-Aug 2018

- o Designed and manufactured a bistable, reflexive, lightweight gripper featuring a high force density and rapid activation
- o Led project from concept phase to working prototype which carried 15-28 times its weight and actuated in 0.12 seconds
- o 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

- o Automated data entry processes to speed up the documentation workflow of the testing team
- o Programmed features in **python** such as a GUI, online database accesses, and excel generation
- o 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

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

Sept 2015-Sept 2018

- o Placed 5th in the 2018 American Solar Challenge, a nearly 2000-mile race from Nebraska to Oregon
- o Coordinated with Mechanical, Aerodynamics/Composites, and Electrical team leaders for systems integration
- o Designed parts/assemblies in **Solidworks** with detailed consideration for race regulations and driver experience
- o Performed structural analysis via **FEA** for the chassis and hand calculations for suspension component selection
- o Operated machine shop equipment to fabricate components; wrote/ran toolpaths in **HSMWorks** for complex operations
- o Composed BOM for all mechanical systems, sourced and procured stock/components for mechanical and composites teams
- o 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

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