

Rebecca E. Schwartz

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Education

Master of Engineering in Mechanical Engineering | Control of Robotic and Autonomous Systems | May 2020
Fung Institute for Engineering Leadership | College of Engineering | University of California, Berkeley | GPA: 3.77

Bachelor of Science in Mechanical Engineering | Minor in Engineering Management | June 2019
Pennoni Honors College | College of Engineering | Drexel University, Philadelphia, PA | GPA: 3.58

Professional Experience

- Robotics QA/QC Engineer II** | Vicarious, Union City, CA August 2021 - Present
- Leading QA for Vicarious' largest in-development packaging project using AI to pick and place in an unstructured environment
 - Wrote the verification matrix based off of internal and external requirements, and detailed test methods and cases
 - Diagnose bugs through testing and work with respective engineering teams to ensure bug-fixes are adequate
 - Identified risks and offered mitigation strategies during early stage development, which is shaping the project
 - Adjusting test methods and strategies in real-time along with changing customer requirements
 - Designed and implemented release test verification for kitting and packaging projects, ensuring bug-free software releases
 - Leading QA for a secondary kitting project; diagnosing bugs as they arise in our Latest master branch
 - Using ROS, git and github in a linux environment to run robots to perform regression, AB, integration, and bisect testing
- Quality & Reliability Engineer** | Kawasaki Robotics, San Jose, CA July 2020 - July 2021
- Led reliability testing for the company's #1 priority project, for R&D of new flagship silicon-wafer handling robot
 - Wrote test programs in Kawasaki language; complete testing involving accelerometers, laser tracker, Keyence lasers
 - Analyzed and presented data to internal and external customers
 - Performed quality assurance (QA) on silicon-wafer handling robots to ensure robot physical health
 - Led Failure Analyses (FA's), involving diagnosing, fixing, and writing detailed reports for customers
 - Tuned robots to minimize vibration, acceleration, while maximizing silicon-wafer throughput

Projects

- Sensor Robots for Emergency Response: Centrally Actuated Mobile Robot** Sept. 2019 - July 2020
- Led hardware assembly to build Squishy Robotics' first centrally actuated tensegrity mobile robot, "Flounder"
 - Enabled face-to-face motor control using Dijkstra's shortest path algorithm and an IMU for Flounder
 - Hired as a full time Mechatronics Engineering Intern for May - July 2020
 - Optimized GUI for the centrally actuated tensegrity mobile robot, taking into consideration potential future design choices
 - Assembled the company's next flagship mobile tensegrity robot, MR3 (dremeling, assembly of electro-mechanical parts)

Advanced Controls

- Controlling a Simulated Landing of the SpaceX Starship Rocket on Mars** Dec. 2019
- Simulated a rocket landing on Mars by implementing Model Predictive Control (MPC) with reference tracking
 - Tested robustness via varying initial conditions and environmental disturbances
- State Estimation of a Bicycle with the Extended Kalman Filter (EKF)** Apr. 2020
- Designed an EKF in MATLAB to predict the final position of a bicycle despite various unknowns

Robotics

- Low Level Control of a 3D Printed Pick and Place Robot** Jan. - May 2020
- Controlled a 3D printed robot arm with a PSOC microcontroller, interfacing with C and LabVIEW
 - Concepts Implemented: real-time, multitasking, interrupts, state machine, data communication
- Pick and Place Challenge** Jan. - March 2019
- Designed and built a 2P 3R Vex robot to compete in a pick-and-place challenge
 - Coded and wired Arduino UNO in C++ to control all 5 selected motors using the serial monitor
- Feedback Control with Optical Shaft Encoders Honors Project** Jan. - March 2019
- Built a 2R robot to demonstrate feedback control using optical shaft encoders and Arduino UNO
- Wearable Energy Harvesting Device Senior Design Project** Sept. 2018 - May 2019
- Built wearable energy harvesting components using MXene coated yarns
 - Engineered a yarn-coater for mass production of MXene coated yarns for knitted antennas with <\$100

Computer Vision Independent Side Project

- June - July 2019
- Implemented an image classifier with Google's GPU Compute Engine, Jupyter Notebook, and fastai
 - Hand selected 150 impressionist paintings for training and testing, receiving a 67% success rate

Advanced Programming

- Jan. 2018 - June 2019
- Built and implemented an automatic file organizer in Unix
 - Learned object-oriented programming (OOP), data structures, and algorithms

Computer Skills

Python, MATLAB, git/ github, ROS, Linux, C++, C, LabVIEW, Bash/ Unix, AutoCAD, Creo, Revit, Excel, Jupyter/ Pytorch/ fastai

Leadership

- President of Drexel Honors Student Advisory Committee (HSAC) June 2018 - June 2019
- ITF Taekwondo Instructor July 2010 - Sept 2015

Coursework

Graduate

Experiential Advanced Control Design I,II
Advanced Controls
Design of Microprocessor-Based Mechanical Systems

Undergraduate

Dynamics; Controls I, II, Micro-controls
Intro to Robotics
Advanced Programming I, Data Structures