



Education

University of Pennsylvania

MSE Mechanical Engineering (Mechatronics concentration)
May 2017

Experience

Amazon Robotics - North Reading, MA
Hardware Development Engineer II
Hardware Development Engineer I (8/2017-8/2019)
Hardware Development Intern (5/2016-8/2016)

- Created next generation charging station including creating all models and drawings (using GD&T), formulating and executing test plans, and working with vendors to validate manufacturing processes
- Developed next generation HMI safety tech vest to improve reliability and user experience
- Developed user interface, charging station, battery housing, power module, and cabling for next generation drive unit

Hardware Mechanical Engineering Intern

- Developed MATLAB tools for analyzing motion capture and sensor data for use in creating and verifying a system-level mathematical model of next generation drives
- Created Python scripts to rename downloaded McMaster-Carr SolidWorks parts according to an in-house naming convention using web scraping

mLab/xLab - UPenn, Dept. of Electrical & Systems Eng.
Student Researcher

- Designed and prototyped mechanical aspects of a 1/10th scale autonomous race car for the embedded systems lab
- Designed and built www.F1Tenth.org
- Worked on a team tasked with designing the future of internet-connected toys
- Designed and prototyped mechanical and electrical components for patent-pending electronic building blocks (xBlox)

Priority Designs - Columbus, OH
Mechanical Engineering Co-op

- Worked in collaborative teams of designers and engineers to develop consumer and industrial products, and design/build prototypes
- Wired and programmed electromechanical consumer device prototypes using an Arduino microcontroller
- Designed, assembled, and tested a commercial fruit processing/smoothie making machine from second generation prototype to fully tooled production machine
- Modified and manufactured parts, created testing fixtures and jigs, debugged electrical and mechanical issues

Awards and Certifications

- Eagle Scout + Bronze Palm
- Engineer in Training (FE Exam passed in May 15)
- Certified SolidWorks Professional (CSWP)

The Ohio State University

BS Mechanical Engineering
June 2015

Projects

Robokey | *MEAM510 Final Project*

- Designed and built three robots capable of autonomously playing “hockey” using wireless communication and localization techniques
- Designed and modeled all mechanical components in SolidWorks; constructed robots from laser cut acrylic and MDF, and machined steel
- Programmed robots in C/C++ using a custom AVR microcontroller
- Implemented algorithms for localization using Nintendo Wii remote camera and infrared LED array

Hybrid Quadcopter | *Senior Capstone Design Project*

- Led a five-person team in constructing a quadcopter and hybrid drive power plant
- Designed and engineered the complete hybrid system and all electronics and power management systems
- Created MATLAB scripts to determine mechanical failure points of various machine elements
- Sourced all mechanical and electrical components, machined various parts for the hybrid power transmission system, soldered and prototyped electrical circuits

Patents

The following patents are under review:

- 16/084,816: Systems of Stacking Interlocking Blocks
- P44355-US (internal ref.): Self-Aligning Lens Holder
- P45534-US (internal ref.): Sprung Cartridge Mechanism for Robotic Drive Unit Charging
- P45537-US (internal ref.): Elastomeric Bellows Mechanism for Robotic Drive Unit Charging
- P63916-US01 (internal ref.): Techniques for Managing Device Interactions in a Workspace

Skills

Software & Programming Languages

SolidWorks, SW EPDM, ANSYS, MATLAB, Creo/ProE, Adobe Creative Suite, Keyshot, HTML5, CSS3, Javascript, JQuery, Python, C/C++, L^AT_EX

Prototyping & Manufacturing

Mill, lathe, waterjet, saws, welding, woodworking tools (design and build all of my own furniture), 3D printing, mechanism design, plastic and sheet metal part design, prototyping