

## Education

### Johns Hopkins University

*Master of Science in Engineering - Robotics*

*Bachelor of Science - Double Major in Electrical Engineering and Computer Engineering*

Cumulative GPA: 3.58 (Dean's List 5 semesters)

Baltimore, MD

Expected May 2019

May 2018

## Languages

Advanced: MATLAB, Python, C++

Familiar: Java, Perl

Beginner: VHDL, Assembly

## Technical Skills & Tools

Advanced: PCB design, Bluetooth, soldering

Familiar: Power electronics, ROS, systems design

Beginner: Laser cutting, 3D printing

## Experience

### Galen Robotics

*Electrical Engineering Team Leader*

Baltimore, MD

May. 2017 - present

- Designing microsurgery robots aimed at mass production and improved performance
- Solving challenges including EMI mitigation, redundant sensors and miniaturization
- Previously integrated features include backup battery, internal computer, fly-by-wire solenoid brakes, internal temperature monitoring and integrated tool IO
- Exhibited earlier robots at the American Academy of Otolaryngology - Head & Neck Surgery Annual Meeting in September 2017

### FactoryFour

*Research & Development Team*

Baltimore, MD

May 2015 - present

- Designed and implemented scalable distributed architecture for 3D scanner with Raspberry Pis
- Achieved wireless time synchronization (<10ms max offset) between 32 Pis
- Automated 3D model generation with Agisoft Photoscan API
- Created robust script for remote control of RepRap CNC machines via the Internet
- Team selected to receive support from 500 Startups and Refactor Capital

### Electronic Tracking for Earth Movers

*Advanced ECE Team Project Member*

Baltimore, MD

Sept. 2016 - May 2018

- Developed proof of concept for a mobile tracking system to prevent collisions between heavy machinery and construction workers
- Implemented Sequential Monte Carlo Particle Filter to estimate worker position relative to vehicle
- Experimented with software protocols and hardware platforms including networks of RFduinos, BLE Beacons, and iPhone receivers
- Won Best Technology Award and 3rd Place in Category at JHU Business Plan Competition 2018
- Custom hardware currently under development

### Laboratory for Computational Sensing + Robotics

*Lab Manager & Student Researcher*

Baltimore, MD

Feb. 2016 - present

- Designed electrical systems for 5-DOF surgical system prototype
- Coded logic and user interface for multi-axis control via touchscreen and joystick
- Constructed circuitry for motors and reverse-engineered hydraulics
- Provide electronic interfaces for new surgical tools including drills and lasers
- New prototypes constructed as part of Galen Robotics
- Plan lab meetings, distribute radiation safety badges and create a welcoming environment

### Applied Physics Laboratory

*Advanced Application Scholars Program Intern*

Laurel, MD

May. 2016 - Aug. 2016

- Wrote C++ driver class for lossless communication with wireless sensing platform
- Created Java Native Interface for driver integration with existing Java projects
- Modified solar-powered battery charger circuit to change output voltage of buck-boost converter from 12V to 25.2V