

## ABOUT

I recently graduated from Johns Hopkins University with my Bachelor of Science in computer engineering. I also minored in robotics, computer science, and applied math/statistics. I am primarily interested in opportunities in engineering to gain experience with real-world applications. I enjoy working with robots and computers and conducting research. From my previous work, I have learned how to tackle challenging problems and find solutions to them.

## EDUCATION

**Johns Hopkins University**

August 2014 – May 2018

**Whiting School of Engineering****Major: Computer Engineering; Minors: Robotics, Applied Math and Statistics, and Computer Science****Dean's List**

- Robotics Club
- Institute of Electrical & Electronics Engineers (Vice President)
- Association for Computing Machinery

**John A. Ferguson Senior High School**

August 2010 – June 2014

**International Baccalaureate Diploma Program, GPA: 4.000, 8.033 (weighted)**

- Top 1% of class, Summa Cum Laude, earned the IB Diploma and AP Scholar with Distinction

## SKILLS

**Programming Languages**

C, C++, Python, Matlab, VHDL, Java, HTML &amp; CSS

**Programming Skills**

Robot OS (ROS), OpenCV, PyTorch, scikit-learn, Version Control (Mercurial, Git), Machine Learning

**Engineering Skills**

FPGA Synthesis (VHDL), Arduino (Uno, Due, etc.), PCB Design (Eagle), LTSpice, Electronics Lab equipment, Soldering, RFID

**Selected Coursework**

Computer Vision, FPGA Lab, Robot Sensors/Actuators, ML: Deep Learning, Algorithms for Robotics, Electronics/Circuits

**Other Skills**

Research (scientific/engineering), Technical and Creative writing/Proposal writing, Presentation, Teamwork, Carpentry, Jira

## EXPERIENCE

**Galen Robotics**

May 2018 – present

Summer Internship then full-time

**Computer Engineer (Previously: Electrical Engineering Intern)**

- Designing printed circuit boards/working on electronics for internal electronics and RFID hardware.
- PID tuning for smooth control of cooperatively controlled robot platform.
- Creating verification tests for electrical subsystems of robot platform.

**JHU Laboratory for Computational Sensing and Robotics: Autonomous Systems, Control, and Optimization Lab**

September 2016 – May 2018

**Undergraduate Research Assistant**

- Installed newer components including flight control systems, guidance, and computers on drones.
- Researched and implemented motion-based teleoperation for a robotic arm attached to a drone for use in object manipulation. Implemented first person view teleoperation for aerial manipulation.

**Florida International University: School of Computing and Information Science**

May 2017 – August 2017

**Undergraduate Research Assistant at NSF/DoD Funded Research Experience for Undergraduates (REU)**

- Applied advanced statistical techniques such as principal component analysis to improve hyper parameter selection for use in augmented terrain-based navigation by robots.
- Developed a method for assigning weights to water parameters while reducing correlation.
- Used these selection and weighting techniques to develop an algorithm for reducing autocorrelation to create combined parameter data maps for underwater localization.

## PROJECTS – more details and links to repositories/papers on my website (theshwin.com)

**Computer Vision Projects**

Augmented Webcam, Face matching

- 1) Developed an augmented webcam experience using finger and face detection/tracking in real-time.
- 2) Implemented Siamese networks to recognize facial similarity between pairs of faces using PyTorch.

**Robot Sensors/Actuators**

Bluetooth-controlled, obstacle-avoiding car

Built a small robotic car that used ultrasonic sensors to detect and avoid obstacles. Implemented a bluetooth module and programmed bluetooth control of the car to have autonomous and manual modes.

**FPGA Synthesis Lab**

Logic Analyzer/Frequency Meter

Implemented an FPGA-based logic analyzer that could be used as a USB oscilloscope/picoscope. Implemented a frequency meter that counted the frequency of inputted signals.