

# ASHWIN BHAT

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## 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**  
**Cumulative GPA: 3.21, Upper-Division GPA: 3.43; Dean's List: Fall 2016, Spring 2018**

- 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

<b>Programming Languages</b>	C, C++, Python, Matlab, VHDL, Java, HTML & CSS
<b>Programming Skills</b>	Robot OS (ROS), OpenCV, PyTorch, scikit-learn, Version Control (Mercurial, Git), Machine Learning
<b>Engineering Skills</b>	FPGA Synthesis (VHDL), Arduino (Uno, Due, etc.), PCB Design (Eagle), LTSpice, Electronics Lab equipment, Soldering
<b>Selected Coursework</b>	Computer Vision, FPGA Lab, Robot Sensors/Actuators, ML: Deep Learning, Algorithms for Robotics, Electronics/Circuits
<b>Other Skills</b>	Research (scientific/engineering), Technical and Creative writing/Proposal writing, Presentation, Teamwork, Carpentry

## EXPERIENCE

**Galen Robotics**  
May 2018 – present  
Summer Internship

**Electrical Engineering Intern**

- Working on electronics for a cooperatively controlled surgical robotics platform.
- Designing printed circuit boards for internal electronics and testing of electrical systems.

**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 object 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](https://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.