

# Ashwin Bhat

## COMPUTER ENGINEER

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## Education

### Johns Hopkins University

Baltimore, MD

#### BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

May 2018

- IEEE (Vice President of Student Chapter), Robotics Club, Association for Computing Machinery
- **Selected Coursework:** Computer Vision, Data Mining, Deep Learning, Algorithms for Sensor-Based Robotics, Data Structures, Computer System Fundamentals, FPGA Lab, Electronics Design, Intro to VLSI, Analog Circuits, Digital System Fundamentals, Renewable Energy Engineering

## Skills

**Languages** Python, C, C++, Matlab, VHDL, HTML & CSS

**Software Libraries** OpenCV, scikit-learn, PyTorch, numpy, pandas, Robot Operating System (ROS), Gazebo

**Software Tools/Misc.** Git, Jira, Bitbucket, Confluence, Ubuntu, Linux command-line, Jama

**Electrical** PCB Design, Soldering, Circuit Analysis, FPGAs, Lab Equipment: Oscilloscope, Function Generator, Multimeter, etc.

**Other Skills** Research, Technical Writing, Proposal Writing, Presentation, Teamwork, Leadership

## Experience

### Galen Robotics

Baltimore, MD

#### COMPUTER ENGINEER/LEAD ELECTRICAL ENGINEER

May 2018 - PRESENT

- Programming sensor-based error checks, robot kinematics, frame transformations, and motion trajectory constraints in C++.
- Creating sets of hardware unit, integration, and verification tests. Writing test scripts and test plans.
- Designing (in Eagle), building, and testing printed circuit boards (PCBs) and RFID antennas in electrical subsystems for robot.
- Supervising team of electrical eng. interns. Incorporated an Agile development methodology for electronics work (in Jira).
- Designing internal electronics ready for commercial production by reducing cost and complexity.

### Johns Hopkins University: Laboratory for Computational Sensing and Robotics

Baltimore, MD

#### UNDERGRADUATE RESEARCH ASSISTANT

Sept. 2016 - May 2018

- Researched and implemented motion-based teleoperation for a robotic arm attached to a drone for application in aerial object manipulation using the Razer Hydra game controller, C++, and ROS.
- Implemented first person view teleoperation for aerial manipulation and installed flight control systems/components on drones.

### Florida International University: School of Computing and Information Sciences

Miami, FL

#### UNDERGRADUATE RESEARCH ASSISTANT, NSF/DoD FUNDED REU

May 2017 - Aug. 2017

- Applied advanced statistical techniques to improve hyper parameter selection in augmented terrain-based navigation by robots.
- Used selection and weighting techniques to develop an algorithm for reducing autocorrelation to create combined parameter data maps for underwater localization. This algorithm achieved greater accuracy for localization.
- Developed software implementations of algorithm in Python and Matlab. Test algorithm on historic data.

## Projects

### Augmented Webcam Experience

#### COMPUTER VISION COURSE

- Developed a webcam experience that used finger and face tracking on real-time video to apply filters over the users face.
- Made filters select-able by the user depending on the number of fingers being held up in video. Filters changed in real-time.

### Bluetooth Obstacle Avoiding Robot Car

#### ROBOT SENSORS/ACTUATORS COURSE

- Built a small robotic car that used ultrasonic sensors to detect and avoid obstacles autonomously.
- Integrated a Bluetooth to allow a smartphone to communicate over Bluetooth and control car manually.

### Electronic Tracking for Earth Movers

#### ADVANCED ECE TEAM PROJECT COURSE

- Implemented Kalman filter based noise reduction of Bluetooth sensors to reduce error in predicting location of Bluetooth beacon that would be placed on construction worker around the earth mover.
- Created a position zone (estimated position of worker) and used weighted readings to reduce hysteresis seen by user in proof-of-concept of tracking system.