Andrew **Tu**

Computer Engineer

(908) 605-0288 | tu.a+resume@husky.neu.edu | andrewtu.me | drewtu2 | drewtu2

Available for Co-Op July – December 2019

Education

Northeastern University | *Boston, MA* *May 2020*

Bachelor of Science in Computer Engineering and Computer Science ***GPA: 3.9/4.0***

- Coursework: Robotics Sensing and Navigation (Grad), Computer Vision (Grad), Algorithms, Object Oriented Design, Computer Systems, Linear Systems, Circuits and Signals, Embedded Design
- Involvement: MIT Ballroom Dance Team, Undergraduate Research, numerous hackathons, IEEE, Toastmasters, SASE

Skills

Programming Python , C++ , C , Javascript|HTML|CSS , Java

Technologies ROS , OpenMP , OpenCV , MATLAB , Git , GNU Make , GDB , Linux , LCM

Hardware IMUs , GPS , XBee Radio Modules , Teledyne Benthos Acoustic Smart Modems , Ethereum Miners

Upcoming **Spring 2019 coursework will consist heavily of grad level robotics and high performance computing classes**

Technical Experience

Flex Innovation and Design Labs

Milpitas, CA

Robotics Software Co-op *July 2018 - Present*

- Designing and implementing entire software system with ROS; working closely with electrical and mechanical sub teams.
- Integrating SLAM functionality into mobile robot system, fusing data from LIDAR, sonar, wheel encoders, and IMU.

MIT Lincoln Laboratory

Lexington, MA

Co-Op Technical Assistant, Interim Secret Clearance | Group 102 - Open and Embedded Systems *Jan. 2017—Aug. 2017*

- Parallelized radar signal processing chain in C++ using OpenMP and MPI resulting in 1700% speedup. Work demonstrated hybridized MPI and OpenMP parallelizations met project requirements and reduced development costs.
- Automated benchmarking efforts through python and bash scripts to rapidly test and compare over 350 configurations.
- Leveraged analysis tools from the Intel Parallel Studio Suite and Allinea Forge for debugging and optimization

Northeastern University Marine Observatory Network

Boston, MA

Undergraduate Research Assistant **(NSF REU)** *Oct. 2015 - Jan. 2017*

- Designed and implemented smart buoy and GUI control system using C++, QT framework, and XBee Radio modules to bridge above water radio network with subsea acoustic network.
- Implemented MAC protocols in MATLAB on Teledyne Benthos SM-975 Acoustic Smart Modems to advance understanding of modem interactions and compare efficacy of MAC protocols over acoustic channel.
- Co-authored two papers and gave two major presentations (see personal website for links)

Technical Projects

Human Tracking TurtleBot

Boston, MA

Robotics Sensing and Navigation Project *Spring. 2018*

- Combined LIDAR and camera data through ROS to detect and follow humans around a room on TurtleBot3 platform
- Designed and implemented image processing pipeline through ROS to stream, process, and react to camera sensor data.
- Utilized OpenCV Hog Detection and MobileNet SSD for person detection

Performance Comparison of Dead Reckoning against GPS

Boston, MA

Robotics Sensing and Navigation Project *Spring. 2018*

- Implemented data collection drivers through LCM to collect data from GPS and 9 DOF IMU in autonomous car while driving in Boston.
- Compared estimate of estimated path based on IMU data to GPS ground truth - one of few students to get partial alignment between dead reckoning and GPS data.