Andrew **Tu**

Computer Engineer

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

Available for Full Time Fall 2020

Education

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

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

- Coursework: Autonomous Field Robotics (Grad), Mobile Robotics (Grad), Robotics Sensing and Navigation (Grad), Computer Vision (Grad), High Performance Computing (Grad), AI, Object Oriented Design
- Involvement: MIT Ballroom Dance Team, Undergraduate Research, numerous hackathons, IEEE, Toastmasters, SASE, HKN, TBΠ

Skills

Interests Autonomous Robotics, Perception, Navigation, Mapping, Computer Vision

Languages Python , C++ , C , CUDA , Java

Technologies ROS , OpenCV , OpenMP , MPI , MATLAB , Git , GDB , Linux , LCM , LaTeX

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

Technical Experience

Optimus Ride *Boston, MA*

Incoming Robotics Software Co-op | Mapping and Localization *Aug. 2019 - Dec. 2019*

Amazon *Palo Alto, CA*

Software Development Engineer Intern | Personalized Alexa Conversation *May 2019 - Aug. 2019*

- Designed and implemented Java based micro-service to enable personalized notifications for S-Team goal to personalize Alexa UX.
- Built VUI using Alexa Skills Kit to trigger enrollment process. Utilized AWS CloudFormation templates to configure serverless backend for skill using AWS Lambda.
- Utilized Google Guice and Lombok to develop highly modular code and Junit and Mockito for unit testing. Captured system architecture using modeling tools like PlantUML and DrawIO. Participated extensively with remote teams in project design reviews.

Flex Innovation and Design Labs *Milpitas, CA*

Robotics Software Co-op *Jul. 2018 - Dec. 2018*

- Primary software architect and developer of ROS based mobile robot in team of seven software and test engineers; project utilized six different languages, for seven unique pieces of hardware and ten different I/O peripherals. Project writeup on personal website.
- Integrated commercial SLAM system, fusing data from LIDAR, sonar, wheel encoders, and IMU. PoC for sensing and navigation software.
- Implemented several basic machine learning and deep neural net algorithms in Matlab to further technical understanding.

MIT Lincoln Laboratory *Lexington, MA*

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

- Independently parallelized radar signal processing chain in C++ using OpenMP and MPI to run in distributed multi-core Linux environments. Optimizations resulted in a 1700% speedup and demonstrated hybridized MPI and OpenMP parallelizations met stringent performance 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)

Reference: Prof. Hanumant Singh, Northeastern University: ha.singh@neu.edu