Andrew **Tu**

Computer Engineer

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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*

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.
- 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)

Achievements

Spring 2019 **Tau Beta Pi**, Engineering Honor Society, Northeastern University

Spring. 2018 **Eta Kappa Nu**, IEEE Student Honor Society, Gamma Beta Chapter, Northeastern University

Feb. 2017 **NU Talk 2017**, Presented to 300+ people on NU MONET underwater networking project

Dec. 2014 **Boy Scouts of America**, Eagle Scout (Bronze Palm)

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