Matthew O'Shaughnessy

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EDUCATION

B.S. Electrical Engineering, Georgia Institute of Technology (GPA 3.75/4.0) **August 2012 – May 2016**

- Concentrations: signal processing, machine learning, computer architecture
- Additional coursework in computer science (CS GPA: 4.0)
- Graduate coursework in pattern recognition and machine learning
- Research option (undergraduate thesis)

EXPERIENCE

Systems Engineering Intern, The Boeing Company **May 2015 – Present**

Boeing Satellite Systems – DSP Algorithms Group

- Designed requirements, MATLAB prototypes, and HDL implementation of power and spectrum measurement functions on channelizer for 702 satellite program
- Derived analytical bound and created simulations to quantify error in block compensating for analog front-end effects

Co-op, Georgia Tech Research Institute **May 2014 – April 2015**

Electro-Optical Systems Lab – Remote Sensing Group *(Full time, two semesters)*

- Optimized and multithreaded C++ bathymetric lidar processing system to allow realtime processing; work enabled GTRI to be first in bathymetric lidar industry to achieve realtime processing with 40kHz laser fire rate
- Wrote C++ arbitrary waveform generator sequencing program, allowing simulation of bathymetric lidar system
- Designed processing algorithms for hybrid (linear/Geiger mode) lidar system in MATLAB and implemented in C++
- Implemented instrument control and HDF5 data storage C++ procedures, enabling data collection from test hybrid lidar
- Created simulation and post-processing algorithms in MATLAB for analysis of collected hybrid lidar data; used to contribute data analysis and writing to technical reports delivered to project sponsors

Undergraduate Research, Georgia Tech Center for Signal and Information Processing **August 2012 – Present**

Center for Signal and Information Processing *August 2014 – Present*

- Derived and implemented convex optimization procedures for localization using binary comparisons
- Created MATLAB simulations for high-performance computing cluster to perform parameter sweeps

Efficient Signal Processing Lab *August 2013 – May 2014*

- Implemented deep belief networks in Python and CUDA C++ for GPU classification and fusion of multimodal sensor data
- Team won third place out of twenty-one teams in annual ORS program research competition

Parallel and Distributed Computing Lab *August 2012 – May 2013*

- Wrote distributed storage component of a MapReduce/Apache Hadoop simulator in Java; used to evaluate performance of different distributed storage topologies for MapReduce jobs
- Team won second place out of eighteen teams in annual ORS program research competition

Senior Teaching Assistant, CS 1371 (Computing for Engineers) **August 2013 – Present**

- Taught weekly 90 minute recitation to 50 students, earning over 4.8/5 mean score on end of term student evaluation
- Selected from group of 50 TAs as one of five Senior TAs to collaborate with class professors on class administration
- Led software development team of 10 TAs. Introduced agile development process and oversaw creation of online practice question bank and new automatic homework grader

Other Leadership Positions

- ECE Section Editor, The Tower (Georgia Tech Undergraduate Research Journal)
- Principal Violist, Georgia Tech Symphony Orchestra

SKILLS

Programming *Proficient:* MATLAB, C/C++, *Experienced:* CUDA, Python, Java, Assembly, VHDL, Web (HTML, CSS, JavaScript) Object-oriented programming, Data structures, Sorting and search algorithms, Git, SVN, Unix

Hardware FPGAs, Microcontrollers, Circuit analysis and design, Electronics instrumentation

OTHER

Projects http://matthewoshaughnessy.github.io/

Awards National Merit Corporate Scholarship, Zell Miller Scholarship (full tuition), Kelley Family Music Scholarship, Dean's List, Faculty Honors

Clearance Department of Defense Security Clearance (Active Secret)