Matthew O'Shaughnessy

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Seeking internship for summer 2016 before entering graduate program

EDUCATION

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

- Concentrations: signal processing, machine learning
- Additional coursework in computer science (CS GPA: 4.0)
- Graduate coursework in digital signal processing, pattern recognition, and machine learning

EXPERIENCE

Signal Processing Intern, Boeing Company **May 2015 – August 2015**

Boeing Satellite Systems – DSP Algorithms Group

- Created MATLAB and SystemVerilog implementation of 702 satellite channelizer power/spectrum measurement functions
- Derived analytical bound and created simulations to quantify error in block compensating for analog front-end effects
- Designed multi-rate filter for spectrum monitoring function. Developed analysis to quantify trade-offs in design

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

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

- Optimized and multithreaded C++ lidar processing code to allow realtime operation; work enabled GTRI to be first in bathymetric lidar industry to achieve realtime processing with 40kHz laser fire rate
- Wrote C++ instrument control programs for arbitrary waveform generator, function generators, motors, cameras, and other sensors, allowing testing and data collection from experimental lidar systems
- Debugged and resolved issues with test hardware, coordinate computation model, and C++/CUDA/VHDL code, allowing successful data collection and realtime processing demonstrations
- Created post-processing algorithms and simulations in MATLAB to analyze the collected data; used to contribute data analysis and writing to technical reports delivered to project sponsors
- Updated coordinate computation models and C++/CUDA code to allow land use of ocean/shoreline mapping lidar system

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 recommendation system
- Created MATLAB simulations for high-performance computing cluster to evaluate recommendation system

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 professors on class administration
- Led software development team of seven TAs. Introduced agile development process and oversaw creation of online practice question bank and updated automatic homework grader

Other Leadership Positions

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

SKILLS

Software	*Proficient:* MATLAB, C++; *Experienced:* CUDA, Python, Java, Assembly, VHDL, Web Development Object-oriented programming, Data structures/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	Active Department of Defense Security Clearance (Secret)