Matthew O'Shaughnessy

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Objective

Obtain an internship after graduation (Summer 2016) that combines interests in signal processing, machine learning, and computer architecture.

Education

Georgia Institute of Technology, Atlanta, GA **Expected May 2016**

- Bachelor of Science in Electrical Engineering – concentrations in signal processing and computer architecture
- Minor in Computer Science – AI concentration
- Overall GPA: 3.7/4.0, ECE GPA 3.6, CS GPA 4.0

Skills

Programming

- High-level: MATLAB, Java, Python (NumPy, SciPy)
- Low-level: C/C++, CUDA, VHDL, Assembly (MIPS, ARM, AVR)
- Data structures, Search/Graph Algorithms
- Web: HTML, CSS, JavaScript (incl. jQuery)

Hardware

- FPGAs, VHDL, Microcontrollers
- Circuit Analysis and Design, Oscilloscope, DMM, Logic Analyzer, Function Generator

Software

- MATLAB/Simulink, Altera Quartus II, EAGLE
- SPICE, Mathcad, NI Multisim, ModelSim
- Windows and Linux/UNIX Shell Scripting, Source control (Git, SVN)

Signal Processing

- Theory – convolution, correlations, DTFT/DFT/FFT, z-transforms, sampling, filter design and implementation
- RADAR processing – noise elimination, target range, velocity, and angle of arrival determination
- Array processing – noise elimination, target detection and enhancement, beamforming, MVDR
- Image processing – target tracking using correlations and optical flow

Projects

http://matthewoshaughnessy.github.io/

Experience

Research Assistant, Efficient Signal Processing Lab **August 2013 – May 2014**

- Implemented Deep Belief Networks for classification of sensor data from multimodal accessibility device in MATLAB and Python (NumPy/SciPy)
- Implemented performance-intensive portions of training algorithms in CUDA C++ for GPU execution
- Presented at Georgia Tech Undergraduate Research Symposium; team won third place out of twenty-one teams in the ORS program research competition

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

- Teach weekly 90 minute class to 50 students covering programming in MATLAB; grade homework and exams and help students in office hours
- Develop new interactive practice question bank with team of 6 TAs in Python/HTML/CSS/JS, accessed by more than one thousand students per semester

Research Assistant, Parallel and Distributed Computing Lab **August 2012 – May 2013**

- Wrote distributed storage component of a MapReduce/Apache Hadoop simulator in Java and used to estimate the performance of different distributed storage topologies for MapReduce jobs
- Wrote project summaries and technical report, presented project to faculty judges and industry sponsors
- Team won second place out of eighteen teams in the ORS program research competition

Musician

- Principal Violist, Georgia Tech Symphony Orchestra
- Violist in ensembles playing at weddings and receptions

Awards

National Merit Corporate Scholarship (2012-Present)
Zell Miller Scholarship (2012-Present)
Kelly Family Music Scholarship (Spring 2013)
Faculty Honors (Perfect GPA, Fall 2013), Dean's List (all other semesters)