Matthew O'Shaughnessy

matthewoshaughnessy@gatech.edu
(404) 431-5709
1355 Mayfield Manor Dr.
Alpharetta, GA 30009

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: 3.71/4.0, ECE GPA 3.66, CS GPA 4.0

Skills

Programming

- High-level: MATLAB, Java, Python (NumPy, SciPy)
- Low-level: C/C++, CUDA, VHDL, Assembly (MIPS, ARM, AVR)
- Implementation of Data Structures and 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, Spring 2014), Dean's List (all other semesters)