James Thomas

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Education

Ph.D., Computer Science, Stanford University (9/2016 – present)
M. Eng., B.S., EECS, Massachusetts Institute of Technology, 5.0/5.0 (8/2012 – 6/2016)
Performance Engineering (6.172), Distributed Systems (6.824), Operating Systems (6.828), Large-Scale
Computer Systems (6.S897), Computer Architecture (6.004, 6.175), Digital Circuits Lab (6.111), Machine
Learning (6.036), Linear Optimization (6.251), Inference and Information (6.437)
Bellarmine College Preparatory (8/2008 – 5/2012)

Technical Experience

Research with Stanford Professors Pat Hanrahan and Matei Zaharia (9/2016 – present)
- Evaluating the impact of running (de)compression and (de)serialization routines for big data workloads on FPGAs

Software Engineering Intern, Databricks (6/2016 – 9/2016)
- Developed low-latency single-node streaming system competitive with modern cluster streaming systems with tens of nodes

M. Eng. research with MIT Professor Matei Zaharia (9/2015 – present)
- Developing simple but expressive intermediate language called Weld for data-parallel computations that can target multicores, vector units, and GPUs, for use in applications like databases, machine learning, and graph algorithms
- Designing parallel backend for Weld loops; initial tests show performance comparable to Cilk implementations hand-tuned for each program

Research Intern, Microsoft Research Redmond (6/2015 – 8/2015)
- Built system for fast analytics on indexed social media data with Apache Spark-based computation layer and Apache Lucene-based storage layer
- Implemented support for incremental computation in the Spark compute layer; the system is more efficient and expressive than previous incremental batch processing systems

SuperUROP (research) with MIT Professor Charles Leiserson (9/2014 – 5/2015)
- Designed shared memory graph-parallel computation framework for locally connected graphs embeddable in 3-space, using cache-efficient Hilbert curve-based vertex ordering and other techniques (ongoing work)
- Worked on profiling tool to report per-function work and critical path length for parallel Cilk programs

Software Engineering Intern, Cloudera (5/2014-8/2014)
- Made a number of contributions to the open-source Hadoop Distributed Filesystem (HDFS), including more efficient storage of HDFS file blocks on nodes' local filesystems, faster data checksumming, and an API for clients to listen for filesystem events

Software Engineering Intern, Benchling (1/2014)
- Worked on a web application for the analysis of gel electrophoresis images, including algorithms for automatic identification of important image components

Awards and Extracurricular Activities

- School of Engineering Fellowship, Stanford (9/2016 – 6/2017)
- Fall 2014-2015 6.111 (Digital Circuits) Best Project Award at MIT
- 2014-15 co-president, South Asian Association of Students (SAAS) at MIT
- 2011 Research Science Institute (RSI) Scholar
- 4th place in Foreign Extemporaneous at 2011 California State Speech and Debate Tournament
- Eagle Scout