ELI ROSENTHAL

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EDUCATION

Brown University — **Anticipated Degrees**
Bachelor of Science (Sc. B), Computer Science-Math — *May 2016*
Master of Science (Sc. M), Computer Science — *May 2016, concurrent with Bachelors.*

COURSES

Computer Science/Math — *Fall 2015

- CS173 CS273: *Undergraduate and Graduate-level Programming Languages*. Formalized the type system and operational semantics of small functional languages in Idris, an interactive theorem prover.
- CS138: *Distributed Systems*: Implemented the Tapestry distributed hash table, the Raft consensus protocol in Go. Used these to build a distributed File System.
- CS167/9: *Operating Systems*: Implemented Processes, Drivers, File System and Virtual Memory.
- CS126*: *Compilers*: Developing domain-specific language in Idris for verifying the runtime of simple programs.
- MATH153,251*: *Undergraduate and Graduate-level Abstract Algebra*
- MATH141*: *Combinatorial Topology*
- MATH156*: *Cryptography*
- CS2951-Q: *Advanced Algorithms* (On Machine Learning)
- CS2951-S: *Distributed computing through combinatorial topology*

EXPERIENCE

Software Engineering Intern: Delphix — June 2015 - August 2015
Delphix Corp. — *San Francisco & Menlo Park, CA*

- Kernel-level improvements to the ZFS file system, written in C.
- Improved ZFS's "scrub/resilver" feature for end-to-end data integrity by optimizing the order in which IO operations are issued, improving scrub performance by 3-5x.
- Allowed for ZFS users to set recommended completion times for a system scan, lowering the runtime overhead of scans.

Computer Science TA Positions — August 2013 - Present
Brown Computer Science Department — *Providence, RI*

- **Meta TA** — One of two top-level undergraduate administrators of the TA program at Brown, managing over 200 TAs and Head TAs in the Fall 2015 semester. Involves coordinating department-wide activities, enforcing department policies, and maintaining infrastructure used by TAs.
- **Head TA (HTA)** – Managing a staff of UTAs, providing office hours and developing course material.
  Courses HTA'd: CS17: a large intro. course. Over 200 students, managed a staff of over 20 TAs. CS157: advanced undergraduate algorithms, managing a staff of 13 with over 130 students.
- **Undergraduate TA (UTA)** – Providing help on course curriculum: lecturing, holding office hours, grading and course development. *Courses UTA'd*: CS17 and CS18: introductory sequence emphasizing functional programming. CS167/9: Implementation-focused Operating Systems course. Mentoring students on implementing a small Unix-like OS in C.

Programming Language Research — Spring 2015
Brown University Computer Science Department, (with Shriram Krishnamurthi) — *Providence, RI*

- Implemented novel test-driven type-inference algorithm. This infers types of values and functions based on test cases written by the programmer.
- Integrated this algorithm into the compiler for the Pyret language.

High Performance Computing Research — June - August 2013, June - August 2014
Lawrence Livermore National Laboratory — *Livermore, CA*

2014

- Used hardware performance counters to qualify performance characteristics of DOE workloads; Implemented networking microbenchmarks for assessing various performance metrics on Linux supercomputers.
- Research concerning the efficacy of multirail InfiniBand networks for improving scientific application performance. Poster "Characterizing Application Sensitivity to Network Performance" accepted to 2014 Supercomputing conference (SC14).

2013

- Implemented a high-resolution clock synchronization algorithm in C to measure the impact of Operating System Noise on performance of parallel scientific applications
- Poster: "Mitigating System Noise With Simultaneous Multi-Threading" accepted to 2013 Supercomputing conference (SC13).

TECHNICAL STRENGTHS

Github `https://github.com/ezrosent`
Languages Proficient: C, Python, Go, Haskell, Java Basic Knowledge: OCaml, Scala, Rust, Racket, C++