Sandy Harvie

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Education

Brown University *Providence, RI*
B.S. Computer Science *Expected May 2019*

- *Grade Point Average*: 3.9 / 4.0
- *Relevant Coursework*: Distributed Computer Systems, Operating Systems, Design and Analysis of Algorithms, Software Security and Exploitation, Data Structures and Algorithms, Software Engineering, Database Management Systems, Artificial Intelligence

Skills

Languages C, Go, Java, Python, JavaScript, x86, SQL, TLA+, Alloy, HTML, CSS

Experience

Two Sigma *New York, NY*
Software Engineering Intern *Summer 2018*

- Worked as a software engineer on the High-Frequency Order Management team
- Engineered the core components of a distributed stream processing framework for Two Sigma's trading records
- Developed in C to meet the strict latency requirements of downstream consumers
- Enabled real-time reporting of trading events

Blend *San Francisco, CA*
Software Engineering Intern *Summer 2017*

- Worked as a software engineer on the Lending Platform and New Business Initiatives teams
- Developed and shipped support for home equity loans, the second loan type to be added to Blend's platform after mortgages
- Contributed to Blend's shift to a multi-tenant deployment architecture
- Refactored Blend's use of Amazon SQS to allow for the consolidation of low-priority asynchronous workers
- Gained experience with Node.js, MongoDB, AngularJS, and React

Brown University Department of Computer Science *Providence, RI*
Head Teaching Assistant - CSCI 0330 *Fall 2018*

- Assist Professor Thomas Doeppner in instructing and administering CSCI 0330: Introduction to Computer Systems
- Hire and manage a staff of 34 teaching assistants

Teaching Assistant - CSCI 1380 *Spring 2018*

- Topics covered include the foundations of distributed computing and the design and development of distributed systems

Teaching Assistant - CSCI 0330 *Fall 2017*

- Topics covered include C, x86 assembly language, and computer architecture as well as networking and concurrency

Teaching Assistant - CSCI 0150 *Fall 2016*

- Topics covered include object-oriented design, Java programming, and fundamental data structures and algorithms

Projects

Weenix Implemented the essential components of a Unix-like operating system, including the thread and process constructs, scheduler, terminal line discipline, virtual file system, disk-based file system, and virtual memory manager.

PuddleStore Designed and developed a fault-tolerant, strongly consistent distributed file system. Written in Go, it uses Apache ZooKeeper as a membership server, Tapestry to store blocks, and the Raft consensus algorithm to commit changes.

JIT-ISR Designed and implemented a dynamic binary instrumentation tool which performs just-in-time instruction-set randomization (JIT-ISR) in order to mitigate code disclosure and defeat just-in-time code reuse.

Maps Implemented a web mapping service with real-time traffic updates, similar to Google Maps. Written from scratch in Java, it uses a *k*-d Tree for nearest neighbor searches, A* for routing, and autocorrect to suggest locations.