

Austin Miles

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EDUCATION

Brown University, B.S. 3.8/4.0 GPA

Providence, RI | **Expected Graduation May 2024**

Relevant Courses: Data Structures and Algorithms, Operating Systems, Computer Networks, Functional Programming, Computer Systems

North Carolina School of Science and Mathematics, 4.50/4.00 GPA

Durham, NC | Class of 2020

WORK EXPERIENCE

Brown University Department of Computer Science

Head Teaching Assistant for CSCI0170

Providence, RI | March 2022 – Present

- Lead a team of 19 teaching assistants (with 3 others) to support 150+ students in learning introductory coding concepts
- Redesign course projects and interact with project code to realign the material with ever-changing course goals
- Coordinate staff meetings to gather teaching assistant and student feedback, communicate next steps with the course, and organize our teaching methods once a week

Brown University Department of Computer Science

Systems, Programmer, Operator, Consultant (SPOC)

Providence, RI | May 2022 – Present

- Manage and maintain the computer science (CS) department systems during nights, holidays, and weekends for at least 5 hours a week
- Upgrade the CS department software and systems
- On-call for acute problems, like file system downtime, power outages, or network issues

Brown University Department of Computer Science

Teaching Assistant for CSCI0170 and CSCI0200

Providence, RI | Sep 2021 – May 2022

- Held weekly lab and office hours to assist students with debugging and conceptual understanding
- Tested class project code and developed handouts to prepare for assignment releases
- Spent 4 hours each week offering students feedback and criticism on their assignments

PROJECTS

Weenix, *simple Operating System (Language: C)*

Jan 2022 – May 2022

- Developed a primitive thread scheduler with a one-to-one kernel thread to process model which allows processes to run
- Coded a tty driver with a functional line discipline which allows for visible terminal input along with 2 simple memory devices (/dev/null and /dev/zero)
- Added in a virtual file system which supports multiple system calls and a file-based abstraction of a disk drive
- Implemented a file system based off the original UNIX file system
- Developed data structures to represent virtual memory and added in code to manage userspace processes

IP/TCP, *networking stack (Language: C)*

Feb 2022 – May 2022

- Constructed a link layer (layer 2 of OSI model) by encapsulating IP packets inside UDP packets
- Created a router like node which implements RIP, packet forwarding, and packet delivering to allow a collection of nodes to talk to another by referencing RFC 791
- Coded the TCP protocol to allow 1 megabyte files to be sent reliably between two nodes by referencing RFC 793

Snowcast, *music server (Language: Go, C++)*

Feb 2022

- Implemented a simulated radio station that streams out data (read from input files) to specific UDP ports in Linux
- Established a TCP server and client connection which both follow a reusable network protocol
- Built a multithreaded backend in which the server supports multiple “station” threads that send out data to clients

Shell, *computer terminal (Language: C)*

Oct 2021

- Included extensive error checking to prevent user input from crashing shell
- Supported various builtin commands: cd, cat, rm, ln, exit. While also providing use of non-builtins by using path name
- Controlled jobs and processes through the shell via signals and builtins like: fg and bg

Search, *search engine (Language: Scala)*

Oct 2021

- Implemented a basic Indexer and Querier search engine that is space and time efficient by using hashmaps
- Studied and implemented Google’s PageRank algorithm for links within websites
- Developed the support to read in information and search within a formatted XML file

SKILLS & INTERESTS

Programming Languages: C/C++ (proficient); Go, Python, Java, ReasonML, ARM, x86 Assembly (experienced)

Technical Skills: Linux, Git, Latex, Bash, G suite, Wireshark

Language: English, German (intermediate)