

Ulyssa Mello

Portfolio: ulyssa.net
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Pronouns: she/her/hers



WORK EXPERIENCE

Joyent, Inc. (a subsidiary of Samsung Electronics)

Software Engineer

San Francisco, CA
June 2015 - Sep 2019

- **Triton Cloud Firewall (FWAPI):** Added support for port ranges, more complex firewall rule sets, and made significant performance improvements to the daemon responsible for syncing rules.
- **Triton Networking API (NAPI):** Overhauled the NIC and IP allocation logic in Triton, as well as the network portion of the server selection logic for VM provisioning, to support a separate L2 domain per rack.
- **Postgres Connection Pooling & K/V API (Moray):** Added queuing logic to improve system stability and recovery time when overloaded.
- **IPv6 support for SmartOS tooling:** Added IPv6 support to SmartOS' VM and firewall management tools.

Computer Science Dept. at Brown University

Head Teaching Assistant

Providence, RI
Fall 2013 - Spring 2015

- **Distributed Computer Systems (CS 138, Spring 2015):** Introduces students to principles of distributed systems. Students implemented the Raft consensus algorithm, and use it to build a distributed filesystem.
- **Computer Networks (CS 168, Fall 2014):** Introduces students to various networking technologies and protocols. Students implement TCP/IP from scratch.
- **Computer Science: An Integrated Introduction (CS 17, Fall 2013):** An introductory computer science course that taught students functional programming using the Racket and OCaml programming languages.

Computer Science Dept. at Brown University

Systems Programmer, Operator and Consultant (SPOC)

Providence, RI
Spring 2012 - Spring 2015

- Managed the Brown Computer Science Department's infrastructure during the evening hours. I was responsible for responding to service outages (e.g. network, filesystem and mail), as well as helping to improve our infrastructure.

Brown PLT Group

Undergraduate Research Assistant

Providence, RI
Summer 2014

- Developed the foundation of a bidirectional type system for the Pyret programming language.

Computer Science Dept. at Brown University

Teaching Assistant

Providence, RI
Fall 2012 - Spring 2014

- **Logic for Hackers (CS 195Y, Spring 2014):** Students learned to prove properties of systems and programs using tools like the Alloy Analyzer.
- **Introduction to Programming Languages (CS 173, Fall 2013):** Students explored the principles of modern programming languages through implementation.
- **Computer Science: An Integrated Introduction (CS 18, Spring 2013):** Students learned OOP and data structures using Scala & Java.

EDUCATION

Brown University

Bachelor of Science in Computer Science

Providence, RI
September 2011 - May 2015

- **Courses:** Programming Languages, Multiprocessor Synchronization, Operating Systems, Topics on Networking and Distributed Systems

PROJECTS/OTHER

modalkit (github, docs.rs):

- Rust crate to help develop vi-like applications (specifically a terminal Matrix client I've been building.)
- Supports entering text using Vim keybindings, creating custom keybindings and modes, using marks, registers and digraphs, and splitting windows both horizontally and vertically.

illumos Operating System:

- Improved IP anti-spoofing protection for zones by adding support for IPv6 SLAAC and DHCPv6 Rapid Commits
- Added ndp(1M) tool for manipulating the IPv6 neighbors table.
- Redesigned illumos online guides and added indexes and PDFs (see the DTrace Guide for an example)
- Helped port FreeBSD's pluggable congestion control framework to illumos
- Added support for configuring congestion control on a per-zone and per-connection basis through ipadm(1M) and the TCP_CONGESTION socket option respectively.

AWK-related work and talks:

- Helped fix multiple bugs in the One True AWK implementation
- Presented at Systems We Love on AWK (<https://youtu.be/IfhMUed9RSE>)
- Presented internally at Joyent to help people learn AWK (<https://youtu.be/DsFTmGzC-QA>)

LEADERSHIP EXPERIENCE & OTHER

President of the Brown Linux User's Group (BLUG)

(2012-2014)

- Responsible for all interactions with the Brown Student Activities Office, organizing the semesterly Installfest, and preparing weekly presentations given by myself and others.

Scouts BSA, Eagle Scout

(2006-2011)

- Served as Senior Patrol Leader, which entailed leading approximately 40 scouts, organizing campouts, and taking care of troop problems and conflicts.