Matthew T. Brewer

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Education

- B.S. in Computer Science, minor in Math. Carnegie Mellon University, Pittsburgh, PA. 2006

Skills

- Proficient in C, C++, Python, and Shell
- Experience in JS, Go, Rust, SML, Ocaml, x96 assembly, Java, LaTeX, Matlab, Visual Basic, Pascal, etc.
- Debugging large-scale systems, Monitoring, *nix administration, Threading, Datacenter management
- Algorithm/data structure design and usage, Logic/Type theory and proofs, Security, Robotics

Experience

Traveled the U.S. - 2016 to 2018

- Explored the country in a pickup-truck, staying in National Forests, backpacking, and rockclimbing. See https://blog.smalladventures.net
- Wrote a C++ library of every common data-structure I'm aware of and benchmarked them against each other. See http://www.blog.computersarehard.net
- Taught myself some car repair. For example, I changed the clutch on my truck with help from a friend.
- Built a 3-season backpacking kit involving no synthetics.
- Interned with Robin Blankenship of EarthNack (http://www.earthknack.com) for 3 months. Learned to drive a horse-cart, composting, gardening, house construction techniques, canning, etc.

Sole Site Reliability Engineer at Meteor - 2014 to 2016

- Organized and ran 24/7, 15 min SLA oncall shift, runbooks, and monitoring for all of Meteor's systems.
- With a team, as the security/reliability expert, I designed, coded, and shipped Galaxy, a distributed docker-based system for serving Meteor (Javascript) applications. I then maintained, improved, and scaled Galaxy as it gained both small and large paying clients using it in production with 10's of thousands of simultaneous users. Galaxy was Meteor's first revenue generating product.
- Maintained, scaled, and eventually decommissioned free Node/Mongo legacy web-hosting service, as well as a second web-hosting service still used internally.

Senior Site Reliability Engineer at Google - 2007 to 2013

- TL of the SRE team responsible for crawling the web.
- Support and oncall for infrastructure of Indexing system (the system Mapreduce was designed for), utilizing several of the largest datacenters at Google.
- Initiated designed and instantiated first SLA on many years mature system, including monitoring, alerting, graphs, runbook, etc. Met this SLA consistantly across scaling.
- Led scaling of the system by 10x, including redesigns and infrastructure adoptions required to sustain that scaling.
- With another, initiated and led replacement of system and migration of customers to our product reducing staffing and maintenance by 10 or more engineers while increasing the SLA and improving stability.
- Via metrics and monitoring, helped increase harddrive storage efficiency Googlewide by 40%.

Research software Analyst at the Parallel Data Lab (CMU) - summer 2007

- Worked on the Self-* research distributed filesystem. The Systems goal is to be tunable for parameters like reed-solomon encodings, while also being self-tuning to reduce both operating, pesonel, and maintenance costs. I worked specifically on making this research system more functional.

CMU Operating Systems TA - Fall 2006, Spring 2007

- Helped to modify curriculum, wrote support code, helped students face to face, held office hours, and graded students work

National Robotics Engineering Center - Summer 2005

- Added experimental Flash Lidar Camera for obstacle detection/avoidanceto exiting mobile robot system. This involved rewiring the robot, kernel driver hacking, testing and calibration of cameras, and path-planning software integration.

UMASS Laboratory for Perceptual Robotics - Summers 2000 through 2003

- Reimplemented Fox and Thrun's mobile robot sonar-based localization algorithm, as well as designing and implementing a two-layer harmonic function based path planning system.
- Rewrote the low-level robot interface for an RWI robot by combining CMU's GPL'd CARMEN project, and the GPL'd Player project. Reverse engineered the serial line protocol to work-around system bugs. Code was upstreamed and subsequently used at several other research institutions.
- As part of a group, built and demonstrated a system allowing a user to control a robot at various levels of abstraction via a wearable computing interface, including rendering the robot into a 3D model of the environment in real-time.

Github Account http://www.github.com/multilinear