

A senior software engineer with extensive experience at scale in a broad range of domains. I have:

- Strong system design and architecture experience, focusing on large-scale, data-intensive, high-efficiency environments; emphasizing object-oriented design, code reuse, software design patterns, and an emphasis on Agile practice with behavior- and test-driven development.
- Demonstrated a track record of increasing impact through policy and process development, analytics, and testing.
- Passion for learning and teaching through staff development, mentoring, and team leadership.
- Commitment to exploring the ways technology can bring about local and global social change, empowering people the world over, and bringing them together in meaningful ways.

## Professional Experience

*Principal Engineer — Data Engineering — Change.org, San Francisco, CA*

2019 - Present

Technical lead for a new direction on the Data Intelligence team while maintaining legacy support.

- Building a geographic recommendation engine for millions of daily active users, with a projected 5-figure monthly revenue potential. Extracting data signals from user event streams using Spark and Scala. Working with Data Science to deploy and compare multiple models, and Product to prioritize business needs. Automated monitoring of the pipeline for early detection of faults and issues.
- Improved Redshift cluster utilization by nearly 50% while auditing the 48-terabyte data warehouse and discovering several performance impacting use cases. On track to reduce the 6-figure cost center by half in the next year.
- Built scheduled ETLs and collated a weekly sample data dictionary in Python with Apache Airflow.
- Mentored junior developers on project management, coding standards, and software testing.
- Collaborated on the Change.org Fellowship Leadership Team to develop and define this very successful program, exploring feasibility and costs, while maximizing benefit to the company and the participants. Also participated in candidate selection, and mentored the Data Engineering fellow.

*Principal Engineer — Performance & Internationalization — Change.org, San Francisco, CA*

2016 - 2018

Led the team driving performance and internationalization tools.

- Drove engagement by empowering users and staff to deliver more timely signatures and comments to decision makers by extracting petition data export into a microservice that generated PDF and CSV files. Migrating PDF generation to Apache FOP also enabled far better multi-lingual support, and added support for right-to-left languages.
- Reduced fraudulent signatures by over 20%, drastically curbing their support and safety workload, by integrating an external email validation service into site sign-up flows. This also led to an email deliverability boost by helping users with typos.
- Planned and built developer and translator velocity improvement tool chain using a Serge workflow to reconcile changes between Agile feature development and batched translations needs. Added and open-sourced a Serge plugin for the OneSky TMS.
- Took initiative with colleagues to find and present unconscious bias training. Originally aimed at the Product and Engineering teams, this training was widened to the entire company. After the presentations we worked with management to upgrade hiring practices to combat biases, include bias consideration as part of employee growth paths, and integrate bias training into on-boarding.

**Principal Engineer — DevOps — Change.org, San Francisco, CA****2015 - 2016**

Volunteered to bring development bandwidth to an under-staffed Infrastructure team. Built and replaced tools, gave support to the team, helping them articulate needs and concerns to management, and worked with them to build a shared vision of team direction.

- Reduced developer velocity cycle-time by an order of magnitude, risks and side-effects when making changes substantially, and server instantiation time by 90% by modernizing the configuration management stack to a streamlined, modular, unit-tested, standards-based Chef 12 installation.
- Reduced cloud computing costs by 5-figures monthly building tools to provision newly instantiated servers from peers without a site-wide code deploy. These tools facilitated tighter tracking of capacity to actual need and also enabled better scaling during viral traffic spikes.
- Led design and execution of aggressive relocation of the entire server stack to AWS with a two hour downtime window. This move led to a 6-figure monthly savings in expenditures, and opened up opportunities for auto-scaling and global data-locality.
- Helped grow the team threefold; fostered pride in and mastery of the new tools through training, brown-bags, and individual support; built team dynamics and camaraderie; and evangelized tool set to the wider team, clearing bottleneck caused by DevOps as gatekeeper to the previous codebase.

**Revenue Team Lead — Change.org, San Francisco, CA****2013 - 2015**

Led the team responsible for the engineering aspects of company revenue. Managed client support tools, revenue stream experiments and optimization, and exploration of new revenue sources. Responsible for sprint planning; experiment design, execution, and integration; and team mentoring.

- Managed design and development of the user petition promotion platform, creating a new revenue stream and growing it to multiple million dollars annually, taking a first step toward democratizing the funding of social movements. This product has become our dominant source of income.
- Accelerated developer velocity and site scaling by building tools for live migration of highly active MySQL database table schemata containing millions of rows with zero downtime. Investigation of this problem led to several patch contributions to open-source tools.
- Mentored developers and provided architectural, engineering, and personal development guidance. Contributed feedback via code review, one-on-one meetings, and regular employee review cycles.

**Senior Software Engineer — Change.org, San Francisco, CA****2011 - 2013**

Ruby-on-Rails developer and architect building the world's largest social empowerment platform.

- Led the tiger team to internationalize the application from US-only to 12 languages in 18 countries, allowing international user acquisition to surpass domestic within 4 months.
- Designed and built a proof-of-concept machine-learning ETL data pipeline using Cascading, Hadoop, and Amazon Elastic MapReduce.
- Spearheaded, designed, and built tools instrumental in defusing several international brand crises by accelerating detection of fraudulent and spammy signatures.
- Greatly improved security and developer velocity by rearchitecting authorization from invasive, custom code to a concise, abstracted, role-based configuration using Declarative Authorization.
- Attended the invite-only, "We the People" Open Data Day Hackathon at The White House. Demonstrated a petition integration at the closing ceremonies.

**App Genius — Context Optional, Inc., San Francisco, CA**

2009 - 2011

Ruby-on-Rails architect and developer for social media applications on the Facebook Platform.

- Developed and maintained high-volume, high-availability, highly-viral Ruby-on-Rails applications leveraging Memcached, Redis, Resque, and Sphinx; including Chase Community Giving, the #1 highest-volume, non-game application on the Facebook Platform.
- Collaborated in agile, cross-functional teams at every step of an application life cycle: inception, design, architecture, implementation, release, and maintenance. Mentored and guided junior developers in building skills in agile development and software maintenance.

**Primary Developer — Emmet Labs, Inc., San Francisco, CA**

2008 - 2009

Built and maintained a Ruby-on-Rails social media platform to plot the stories that bring us together.

- First technical hire. Collaborated with the technical founder to agilely deliver rapidly prototyped and deployed solutions in an RSpec-based, Behavior-Driven Development environment.

**Senior Applications Engineer — CloudShield Technologies, Inc., Sunnyvale, CA**

2004 - 2008

Rapidly prototyped and built complete customer solutions and platform customization including web user interfaces, reference implementations, and SDK components.

- Led the Common Criteria EAL 4+ software security hardening certification for the CS-2000 product line, opening up large new government markets, leading directly to a dramatic increase in sales.
- Mentored junior developers in agile methodology, object-oriented architecture, and database design.
- Designed user interfaces with Java, Ruby-on-Rails, PHP, and CGI; built Eclipse RDP applications; system programming in C, C++, Perl, Python, and shell; ported Linux kernel modules from 2.4 to 2.6.

**A Varied and Foundational Career**

1994 - 2004

**Education & Interests****SPARK**

2016

*Mentored 7th and 8th grade students weekly to develop skills, cultivate a growth mindset, and illustrate how school subjects can relate to fun projects and career opportunities.*

**CompuMentor**

1998 - 2002

*Taught non-profit and public school staff and volunteers hardware and software skills to help them in their duties. Built and maintained a database application to help a non-profit track membership.*

**University of California at Berkeley Extension**

1998

*Project Management for Software Engineers*

**Carnegie Mellon University, School of Computer Science**

1991 - 1994

*B.S. Computer Science (incomplete)*

**Technical Expertise****Languages, Protocols, Libraries, and Frameworks**

Java, Scala, Python, Ruby, Rails, RSpec, Javascript, Node.js, jQuery, React, GraphQL, C, C++, Perl/XS, PHP, TCP/IP, HTTP, LDAP, SELinux policy development

**Applications**

Spark, Hadoop, PostgreSQL, Redshift, Cassandra, Amazon Elastic MapReduce, MySQL, Redis, Elasticsearch, MongoDB, Oracle, Chef, Terraform, Cascading, Sphinx, Eclipse, Git, Apache HTTPD, nginx, Phusion Passenger, Kafka, RabbitMQ, Sidekiq, Resque