

Education

Ph.D. Physics, Massachusetts Institute of Technology, Cambridge MA, 2002-2007

B.S. Physics, California Institute of Technology, Pasadena CA, 1997-2001

Experience

STAFF SOFTWARE ENGINEER, INFRASTRUCTURE • FLOCK FREIGHT • OCTOBER 2019 - PRESENT

Managed cloud computing resources (Google Cloud, Kubernetes, MySQL) for a Series B startup revolutionizing freight through algorithmic pooling. Championed adoption of formal software engineering practices (unit tests, linting) and a higher-level language (Python instead of shell scripts) for infrastructure code to improve reliability and engineering productivity.

SENIOR WEB DEVELOPER • ALWAYS AI • FEBRUARY 2019 - OCTOBER 2019

Architected and implemented the SaaS platform for a newly-formed San Diego startup including API servers, websites, serverless computing, user-facing and administrative command-line interfaces (CLI) (AWS, GCP, Node.js, React, TypeScript, Postgres, Docker).

OPEN-SOURCE SOFTWARE ENGINEER • AUGUST 2018 - JANUARY 2019

Contributed to popular open-source software packages (Google Cloud Platform's Node.js libraries, DefinitelyTyped) and developed new ones (a TypeScript-first Node.js CLI framework, Node.js utilities for administering bitcoin server software).

LEAD FRONT-END ENGINEER (CONTRACT) • AMERIPRISE FINANCIAL • OCTOBER 2017 - JULY 2018

Led efforts to modernize and standardize web application development across the enterprise. Collaborated with the architecture and DevOps teams to institute internal code sharing via npm and to automate CI/CD. Developed the enterprise "reference application", a set of project templates and tools to encourage best practices and technologies.

SENIOR SOFTWARE ENGINEER (CONTRACT) • YA ENGAGE • APRIL 2017 - SEPTEMBER 2017

Automated provisioning for and deployment of web applications to AWS using Node.js. Secured the production environment and set up monitoring, logging, and alerts. Developed multi-tenant web services (Node.js, Postgres) and custom websites (React, Angular.js).

SENIOR SOFTWARE ENGINEER • GLOBAL TRAFFIC TECHNOLOGIES • FEBRUARY 2016 - MARCH 2017

Led a nascent web engineering program. Developed cloud and device-embedded services (Node.js, MongoDB) and internal and customer-facing web apps (React, Angular.js). Instituted automated testing, continuous integration, code reviews, reproducible builds, continuous deployment (AWS), and other best practices.

LEAD DEVOPS ENGINEER • STORYCLOUD • MARCH - DECEMBER 2014

Configured cloud computing resources for a Silicon Valley startup (AWS, Ansible).
Standardized local development and cloud deployment environments (Vagrant, VirtualBox).
Implemented continuous build-test-release pipelines and live monitoring and alerts.

FIELD CONSULTANT, AB INITIO SOFTWARE • JUNE 2011 - DECEMBER 2013

Provided on-site technical assistance to high-value customers. Invented a novel data differencing algorithm. Architected and led development for the sunsetting of a mission-critical mainframe at a major airline.

Experience (continued)

INTERNAL CONSULTANT, AB INITIO SOFTWARE • APRIL 2009 - MAY 2011

Responded to customer support requests about application design, performance tuning, production outages. Delivered on-site instructor-led training courses. Developed a unified framework for the company's diverse demonstration and training materials.

POSTDOCTORAL RESEARCHER, CARNEGIE MELLON UNIVERSITY • SEPTEMBER 2007 - JANUARY 2009

Calculated Higgs boson production rates at the Large Hadron Collider (LHC).

Skills

Web engineering, project management, leadership, DevOps, technical writing, application architecture, distributed data processing, education, consulting, customer interaction, security, configuration management, automation, testing

- Languages: TypeScript, JavaScript, HTML, CSS, Ab Initio, SQL, Script, Ansible, Matlab, Mathematica, Bash, Ksh, Python, PHP, Fortran, LaTeX, Cobol, Markdown
- JavaScript: Node.js, Express, Koa, Hapi, React, Redux, Angular, BackBone, Webpack, Babel, Next.js, create-react-app, Pug, lodash, Gulp
- Cloud: Amazon Web Services, Google Cloud Platform
- Databases: PostgreSQL, MongoDB, Bitcoin, SQL Server, MySQL, Teradata, Oracle, Hadoop, HBase, Kafka, ElastiCache, WebSphere MQ, RabbitMQ, Ab Initio multfiles and queues
- Version control: Git, npm, Subversion, Maven, Perforce
- Other technologies: Blockchain, GitHub, Docker, virtualization, Vagrant, REST
- Operating Systems: Linux, macOS, Windows, AIX, SunOS, z/Linux
- Math & physics: linear algebra, geometry, quantum mechanics, quantum field theory, statistics, calculus, trigonometry, complex analysis, Fourier series, linear regression, classical mechanics, symmetry groups, genetic algorithms

