

## Education

### Princeton University 2009 PhD in Electrical Engineering

- ▶ Wallace Fellow (top 24 within PhD cohort)
- ▶ Wu Prize for Excellence

### Princeton University 2006 MA in Electrical Engineering

- ▶ With coursework through the Woodrow Wilson School of Public & International Affairs
- ▶ National Science Foundation Graduate Research Fellowship

### Colorado School of Mines 2004 BS in Physics

- ▶ Minors: Electrical Engineering, Public Affairs
- ▶ GPA 4.00/4.00 (1st in class)
- ▶ Dean's Service Award
- ▶ Member, Board of Trustees

## Software Skills

Core Language Proficiencies: Python, Java, Bash, C, Go

Configuration Management & Orchestration: Ansible, Terraform, Kubernetes, Nomad

Packaging & Package Managers: Conda, Maven, RPM, pip, npm, Helm

Virtualization & Containerization: Docker, Vagrant, Packer, VirtualBox, VMWare

Relational Databases: MySQL, PostgreSQL, SQLite

Distributed Data Grids & Caching: Redis, Memcached, Terracotta, Hazelcast

NoSQL Databases: MongoDB, Cassandra, Elasticsearch

Message & Task Queues: Kafka, RabbitMQ, AWS SQS, Celery

Application & Web Servers: nginx, Apache, uWSGI, Tomcat, Jetty, ejabberd

Cloud Infrastructure: Amazon Web Services, Google Cloud Platform, Azure, Digital Ocean

Continuous Integration & Automation: Jenkins, TravisCI, CircleCI, AppVeyor, Concourse

Load Testing Frameworks: JMeter, Grinder, Tsung, Locust

TDD: pytest, JUnit, nose

E2E Testing: Selenium, SauceLabs

Frameworks: Django, Flask, Qt

Microservices

Event-driven Architecture

Design Patterns

RESTful APIs

Web and Network Security Best Practices

Agile / Scrum / Jira

## Experience

### Anaconda, Inc 2018–present Principal Software Engineer Austin, TX

- ▶ Building the next generation of the Anaconda Enterprise data science platform and binary repository.
- ▶ Responsible for the technical design and architecture of the binary artifact repository, and leading its implementation.
- ▶ The product scales up to a public cloud service, serving some 18 million users installing a billion packages every month--2.5 petabytes worth.
- ▶ The product also scales down for enterprise on-prem installations, maintaining a hybrid delivery model.

### Anaconda, Inc 2016–2018 Conda Tech Lead Austin, TX

- ▶ Filled roles of both lead developer and product manager for the Conda package manager, an open source project with 18 million active users.
- ▶ Prioritized feature development by integrating over input from a diverse set of stakeholders, including extensive interaction through the project's GitHub issue tracker.
- ▶ Implemented substantial, impactful new features and capabilities.
- ▶ Advanced test coverage from 40% to over 90%, while stabilizing release cycles to provide reliability for our users.

### 23andMe, Inc 2015 Cloud Infrastructure and Automation Tech Lead Mountain View, CA

- ▶ Founded, lead, and managed the first dedicated DevOps team.
- ▶ With four engineers, transitioned infrastructure from bare metal colo hardware to AWS, within the context of the stringent information security requirements of a regulated industry.

### 23andMe, Inc 2013–2015 Senior Software Engineer Mountain View, CA

- ▶ Member of the backend performance and security group.
- ▶ Introduced message queues within the engineering infrastructure, and implemented the first use cases.
- ▶ Created and deployed local vagrant-based development environments so engineers could write and test code on their local machines. With a legacy eight years' development on a single monolithic app, veteran engineers thought it couldn't be done. Previously, all dev was done on a single, centralized mainframe.
- ▶ Successfully abstracted and decoupled the engineering application stack from the techops infrastructure stack with a "deploy anywhere" philosophy.

### BioDiscovery, Inc 2013 Senior Software Engineer El Segundo, CA

- ▶ Implemented numerically-efficient versions of several published algorithms for analyzing DNA microarray and Next Generation Sequencing data.
- ▶ Introduced and implemented modern software development practices, including a code and architecture documentation strategy, a transition from Subversion to Git version control, and a peer code review process.

### Grindr LLC & Blendr LLC 2012–2013 Core Software Engineer Hollywood, CA

- ▶ Developed proprietary location algorithm at the heart of the company's location-based technology offering. The algorithm eliminated the use of 3000 Google App Engine instances, which were replaced with a single AWS EC2 m1.large instance for production-scale traffic. The new algorithm resulted in a savings to the company of \$1.4 million per year.
- ▶ Architected scaling and redundancy strategies for multiple technologies.
- ▶ Authored 78% of server-side code for next-gen technology platform.

## Non-Technical Strengths

Mentoring and teaching  
Conflict resolution  
Acute attention to detail  
Analytical writing  
Public affairs and business foundation  
Political campaigning and public policy  
Research and self-learning  
Root cause problem solving

## Hardware Specialization

Quantum cascade lasers  
Compound semiconductor device fabrication  
Opto-electronic packaging  
Mid-infrared laser sources  
Sensors and sensing applications  
Analytical instrumentation

## Awards

Jet Propulsion Laboratory Team Award	2011
Princeton University Wallace Fellow (signifying top 24 recognition within PhD cohort)	2008
Princeton University Wu Prize for Excellence	2008
Sigma Xi	2008
IEEE Indium Phosphide and Related Materials Conference Best Student Paper Award	2006
National Science Foundation Graduate Research Fellowship	2004
Colorado School of Mines Highest Scholastic (first in class) Honors	2004
Colorado School of Mines McBride Honors Program Philipose Senior Award	2004
Colorado School of Mines Physics Faculty Distinguished Graduate Award	2004
Colorado School of Mines Dean's Service Award	2004
Tau Beta Pi	2002
American FFA Degree	2000

## Experience (continued)

<b>NASA Jet Propulsion Laboratory</b> <b>Microdevices Engineer</b>	2010–2012 Pasadena, CA
<ul style="list-style-type: none"><li>▶ Principal Investigator for JPL award "Low power consumption lasers".</li><li>▶ Developed ErwinJr software package for quantum cascade laser simulation; NTR #48342; released publicly as open source. Written in a combination of Python and C++.</li><li>▶ Designed, fabricated, and tested 4.x μm quantum cascade lasers for CO detection.</li><li>▶ Demonstrated high power (&gt;100 mW) room temperature continuous wave 2.05 μm single spatial mode lasers for CO<sub>2</sub> lidar.</li><li>▶ Developed advanced packaging techniques and procedures for high reliability laser operation.</li><li>▶ Mentored multiple graduate student interns.</li></ul>	

<b>Primis Technologies LLC</b> <b>Founding Partner &amp; Senior Engineer</b>	2006–2009 Princeton, NJ
<ul style="list-style-type: none"><li>▶ Founded a startup company leveraging graduate research in mid-infrared laser and systems technology.</li><li>▶ Authored funding proposals for spectroscopic sensor systems and laser development.</li><li>▶ Developed core intellectual property, including<ul style="list-style-type: none"><li>▪ advanced quantum cascade laser design software</li><li>▪ novel quantum cascade laser designs and strategies</li><li>▪ mid-infrared spectroscopic sensing systems</li></ul></li></ul>	

<b>Princeton University</b> <b>Research Assistant</b>	2004–2009 Princeton, NJ
<ul style="list-style-type: none"><li>▶ Developed infrared lasers for applications in medical diagnostics, explosives sensors, and infrared countermeasures.</li><li>▶ Invented new mechanism for achieving lasing in quantum cascade lasers through "high k-space lasing"; U.S. Patent Application 11744508.</li><li>▶ Invented "short injector" quantum cascade lasers that led to lowered threshold current and deeper understanding of QC laser physics.</li><li>▶ Invented ultra-strong coupling quantum cascade laser designs that led to world record 50% wall-plug efficiencies; U.S. Patent Application 12795954.</li><li>▶ Demonstrated world's first intersubband emission from II-VI quantum cascade structures.</li></ul>	

<b>National Renewable Energy Laboratory</b> <b>Research Intern</b>	2003–2004 Golden, CO
<ul style="list-style-type: none"><li>▶ Researched novel approaches to carbon nanotube synthesis.</li><li>▶ Constructed an automated prototype nanotube growth system.</li><li>▶ Synthesized carbon nanotubes through a laser vaporization process.</li><li>▶ Used Raman spectroscopy, transmission electron microscopy, and thermogravimetric analysis characterization techniques.</li></ul>	

<b>Colorado State House of Representatives</b> <b>Legislative Intern</b>	2002 Denver, CO
<ul style="list-style-type: none"><li>▶ Aid to Representative Brad Young, Chairman of the Joint Budget Committee</li><li>▶ Drafted responses to constituent mail</li><li>▶ Assisted in analysis of TaBOR effects on state budget</li></ul>	

<b>U.S. Department of Energy, Office of Science</b> <b>Intern</b>	2001–2002 Washington, D.C.
<ul style="list-style-type: none"><li>▶ Traveled to DOE National Labs assisting University of Washington Center for Workforce Development in internship program review and evaluation, examining program value and customer (intern) satisfaction.</li><li>▶ Advised on strategic direction for individual programs and department mission.</li><li>▶ Editor and contributing author for first and second volumes of DOE Office of Science Journal of Undergraduate Research.</li><li>▶ Worked directly under an Office of Science director in policy-related matters, including program management and Congressional budget proposals.</li></ul>	