

## Experience

**Google / Search / Quality** Software Engineer 2014 - 2017

**WebAnswers** Prominent Google Search component that serves featured snippets to answer user questions.

- Researched, prototyped, and launched NLP features for a high-throughput low-latency question-answering model, cumulatively improving relative search coverage by ~20%.
- Led a project to progressively roll training and test query sets across 30 locales. This allowed the team to keep language models updated with local current events, while conserving a budget of expensive human evaluators.
- Took ownership of a fragile MapReduce/bash data pipeline, refactored it to Flume, and processed a ~1 PB corpus of English text. Trained an unsupervised named-entity classifier to replace an aging core model feature.
- Collaborated with a Tokyo team to internationalize this named-entity classifier, eventually launching localized models for 10 locales.
- Optimized RAM and CPU usage for a subcomponent of our model running in Superroot, a critical path for all Search queries. This allowed us to launch a feature with no performance penalty.

**Palantir / Gotham** Software Engineer Intern Summer 2013

**Raven** Browser GIS deployment used for tactical geospatial data analysis.

- Designed and implemented import, serving, and visualization of time-series data.
- Implemented techniques from computational geometry for data visualization:  $\alpha$ -shapes for drawing concave hulls, non-Euclidean Voronoi diagrams for travel times.

**Caltech / Control and Dynamical Systems / Richard Murray Group** Research Fellow Summer 2011

**TuLiP** Research project that generates correct-by-construction embedded robot controllers.

- Implemented graph search and filter algorithms to analyze generated finite state automata.

## Education

**California Institute of Technology**  $\gamma\delta\beta\gamma$ , DEI 2010 - 2016

### B.S. Computer Science

Machine Learning, Distributed Systems, Operating Systems, Databases, Differential Privacy, Computability Theory, Complexity Theory, Algorithms, Functional Programming

### B.S. Mathematics

Abstract Algebra, Real/Complex Analysis, Point-Set/Algebraic/Differential Topology, Differential Geometry, Logic, Combinatorics, ODEs, PDEs, Stochastic Processes, Econometrics, Microeconomic Theory, Game Theory

## Technical Skills

**Actively using** Python, Rust, Bash

**Experience with** C++, SQL, Java, C, x86 Assembly, Haskell, Scheme, Mathematica, MATLAB, R,  $\LaTeX$

## Other

**Project Euler** 99th percentile among math/programming problem solvers

**Bay Area Mountain Rescue Unit** Field Member, Operations Lead 2017 - Present

**General Aviation** Private Pilot (Airplane Single Engine Land) 2018 - Present