

# Zachary Liou

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## Experience

### Google

8/2018 - 3/2023

Software Engineer - Infrastructure, Data, and APIs

San Bruno, CA

Utilized: C++, Python

- Led a team in implementing a full-stack data consistency pipeline for transferring videos between YouTube channels that regularly processes *X0,000 transfer requests* per day. (Frontend: TypeScript, React)
- Led a team in optimizing the external video metadata API by adding RPC orchestration & parallelization and migrating implementations from Python to C++, resulting in *~85% p95 latency reduction*.
- Implemented API endpoints, indexers, and queue workers for the internal YouTube video metadata API, which handles *X00,000 queries/sec* regularly. Kept up a 99.99% SLO with canary releases, percent launches, feature flags, and monitoring/observability tools.
- Migrated *billions* of database rows from Vitess to Spanner with *zero downtime* for dependent services, resulting in cost savings of *millions* of dollars.
- Triaged and resolved P0/P1 bugs, pain points & features affecting high-growth verticals (e.g. YouTube Shorts Trust & Safety) and high-profile channels (e.g. government agencies, news outlets & celebrities).
- Implemented a templated code generation tool that reduced boilerplate overhead for feature teams, reducing average API feature onboarding time from *5 weeks to 5 days*.
- Mentored new-grad teammates on best practices for on-call triaging, data pipelines, and code reviews.

### Google

6/2017 - 9/2017

Software Engineering Intern

Mountain View, CA

Utilized: JavaScript, Python, Polymer, Jasmine

- Modernized the interface & UX of the review queue tool for YouTube Trust & Safety administrators.

### Track Revenue

6/2016 - 9/2016 and 12/2016 - 1/2017

Software Engineering Intern

San Francisco, CA

Utilized: JavaScript, AngularJS, PHP, AWS, Jenkins

- Reduced annual overhead by approximately \$60,000 by engineering a framework for automating backups of AWS EBS instances, with integration into Jenkins. Built a vanilla JavaScript bot detector.

### Partners in Life

9/2018 - Current

Founder

La Jolla, CA

Utilized: TypeScript, React Native, Firestore

- NSF-funded nonprofit providing an electronic records solution for free clinics servicing underprivileged/homeless populations in San Diego County. Mentored junior software engineers.

## Education

University of California, San Diego

2014 - 2018

Bachelor of Science in Mathematics-Computer Science

La Jolla, CA

Founder, Triton Software Engineering ([tse.ucsd.edu](https://tse.ucsd.edu)) Pro-bono apps, websites, & tools for local nonprofits.

Founder/CTO of Egge ([eggeapp.com](https://eggeapp.com)) Hyperlocal spontaneous event planning app.

### Skills

**Programming languages:** C++, Python, TypeScript, JavaScript, SQL, Rust

**Technologies:** Cloud Spanner, Vitess, Kubernetes, Looker, Cloud DataFlow, gRPC, Protobuf, Abseil, C++17, C++20, Mercurial, Git, React, React Native, Flask, incident management

### Volunteering

**gPause YouTube:** Guided 80+ hours of meditation across 160+ sessions since 2020, for groups as large as 15 participants and as intimate as 1-on-1s. Supported colleagues' well-being via mindfulness training.

### Personal

Multi-instrumentalist: guitar, piano, and alto saxophone. Surfer and snowboarder. Meditation guide. Avid investor in stocks and real estate. Conversationally fluent in Mandarin.