

Experience

YouTube Trust & Safety

Engineering Manager, Staff SWE

2021-present

- **Led user flagging team to execute through several directional changes.** New EU regulations, and rise of GenAI caused rapid shifts in the org's priorities. Led the team through these changes and successfully launched high priority projects.
 - **Critical DSA compliance projects** (Flag Appeals, Legal Reporting) launched on schedule.
 - **GenAI User Feedback.** Team completed ideation, design, implementation, and launch on tight timeline of 1.5 quarters.
- **Increased team's ownership and scope of the full end-to-end stack.**
 - **Guided Flagging Flow.** Dramatically improved team's productivity on frontend components – from 2 quarters for minor changes, to ~weeks for launching entire new surfaces. Cross-platform architecture halved feature development & maintenance time.
 - **Flag Lifecycle service.** Real-time event listener service increased team's data completeness on the full lifecycle of a flag. Asynchronous, low-latency architecture designed to handle highly variable fanout, up to 6 orders of magnitude.
 - **Flag Notifications.** Improved transparency of flag outcomes to users, resulted in 2x increase in Report History views. Delivered over 600M emails since launch.
- **Responsible for 8 engineers.** Team's C++ infrastructure processes 150M user flags per month. Hired and onboarded 5 new engineers to productivity on regulatory projects. Led design reviews and coached engineers to improve skills. Iterated and improved team processes for oncall, bug triage, planning.

2020-2021

Computer Vision & Camera Projects

Consultant

- **Real-time computer vision projects.** Developed C++ framework integrating thermal cameras and INS for soft real-time CV applications. Hardware-synced frame capture & alignment, fully multi-threaded asynchronous C++ code. Extensive use of CMake and OpenCV.
- **Image alignment for super-resolution.** CUDA implementation of FFT phase-correlation-based image alignment running at >1000 FPS with sub-pixel accuracy (0.1 pixels mean).

2017-2020

rideOS

Founding Engineer, Tech Lead

- **Ridehail API for autonomous vehicle dispatch.** Architected and implemented ridehail backend and API from scratch, from internal prototype to production service with high availability. Java microservice backed by GCP Cloud Spanner for state management. Led team of 4 engineers. Company's first product integrated with external customers.
- **Cloud and developer infrastructure for Java microservices.** Helped stand up company's tech stack from scratch: monorepo build system using Bazel, Kubernetes cluster on GCP with Helm, load balancing for gRPC. Core team member on A* routing engine with online map updates from OSM and real-time constraints.

2013-2017

Google (Nest), Dropcam

Senior Software Engineer

- **Nest Cam video stack tech lead.** Led team of 3 engineers to implement Nest Cam IQ video stack. Implemented C++ firmware on Android/Brillo platform to enable 24/7 live streaming of 4k video. Led encoder evaluation, integration, and tuning. Optimized end-to-end playback latency from >30s to under 2s with improvements on device, cloud, and in iOS/Android apps. Prototyped solutions using advanced encoder features (ROI, HEVC, LTR, SVC-T).
- **Real-time cloud video & audio transcoding service.** On-demand, low-latency (# b-frames + 1) h.264 + audio transcoding to lower bit-rates for adaptive live streaming. Go and C++ integrated with Cgo. Early adopter of Docker-based reproducible build pipeline.

Projects

Img2loc. Estimate the user's location on earth's surface using only camera images, without GPS. Dataset generation, model fine-tuning. PyTorch, PyTorch Lightning, Pandas.
github.com/fyhuang/img2loc

Archive Box. Personal file organizer project. Content-based addressing. Offline-first design featuring serverless sync with CRDTs. Automatic summarization with sklearn. Python 3 with typing.
github.com/fyhuang/archive_box

World Budget. Multi-currency budgeting webapp. Novel rolling window budget projection algorithm smoothes projections over month boundaries. React submission form uses geolocation to automate currency and merchant selection. Used successfully on long international trip during pandemic. Adaptive "new transaction" form powered by React. Python + Django + Postgres, deployed on Heroku.

Education

Stanford University, B.S. Symbolic Systems. 2013