

# Joel Gallant

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*Driven, detail oriented software engineer - with a passion for making complex systems simple. I work hard without sacrificing quality.*

## Experience

### Cruise

Staff Software Engineer (Dec 2022 - Jun 2024)

Senior Software Engineer (Dec 2020 - Dec 2022)

Worked on remote assistance platform for self-driving cars. This included backend services (Go, gRPC) to communicate in real-time with cars spread across cities, a heavy web app (React, WebGL) used for visualization and maneuver staging, video feed pipelines (WebRTC), all with high availability and stability requirements.

Worked with many internal teams and customers, with integrations and many cross-functional projects. I led project teams and managed execution, hitting aggressive deadlines.

### Launchcode / Patronscan

Lead Software Developer (Jul 2018 - Oct 2020)

Developed new solutions for our clients, internal tools and the PatronScan ID scanner. It consisted of a mixture of experience in backends (NodeJS, Koa, Postgres, MS SQL, etc.), frontends (React, Mobx, TypeScript), system software (Rust, C++, OpenCV, Tokio), devops and tooling.

I led a few teams and projects, with a variety of clients. The role included a fair amount of mentorship as well.

### Renoworks

Full Stack Software Developer (Jan 2017 - Jul 2018)

Developed software for frontend (jQuery, Vue.js) and backend (ASP.net, express, koa, J2EE) portions of Renoworks' core products. I worked on the core rendering engine, iOS native apps, API endpoints, internal tools, build + release systems and a lot more.

Most of my experience was migrating legacy code, data and infrastructure to a more maintainable platform. As part of a new team, we took control of a complex web application, integrations, and mobile apps. This work accelerated the company's rate of growth and continued to push the business in the right direction.

### Draganfly / Trace

Computer Vision Technologist (Apr 2015 - Dec 2016)

Responsible for developing, testing and integrating embedded Linux computer vision tracking software. Worked with the state-of-the art short term general object trackers, high speed detection, machine learning classification and gesture control. Advanced techniques and integrating them into a low power system to control cameras and UAVs.

Tracking software developed controls an autonomous UAV, target assists in public safety situations, and is adaptable to any type of target. It is general purpose and capable of many different tracking tasks that are complex and real-time.

## Achievements & Projects

### Remote Assistance

I rebuilt most of RA's matchmaking between vehicles requesting help with Remote Advisors, the most critical component of the system. This effort included migrating to Spanner, deploying multi-region and building an isomorphic test suite.

I was deeply involved in multiple rounds of UI improvements, including vehicle maneuvers, sensor data visualization, and operational workflows.

I designed and built a new modular architecture for the frontend application to enable faster iteration, AB testing, and legacy migrations.

This role has given me opportunity to work with system engineers, test engineers, UX designers, product managers, operational staff, and leadership stakeholders on numerous high-profile projects.

### Patronscan ID Scanner Evolution

I developed a rewrite of the main Patronscan application logic for ID verification. The stack consisted of Rust, C++, OpenCV, gRPC, Node.js, Postgres and more.

We built a new hardware product using custom calibrated IR + UV cameras, and sold hundreds in the first year.

### SOL Health Care Platform

I led development of a health care facility management platform that empowers employees and managers. It has advanced scheduling rules and ties into payroll systems.

This project included a new mobile app, an admin portal, and a payroll system synchronization service. Between 3 of us, we built and operated the platform within a year.

## Skills

### Languages

TypeScript / JavaScript, Go, Rust, PostCSS, LESS & SCSS, C++, Java, Python, Swift

### Frameworks & Libraries

Node.js (Express, Koa, Fastify), React, Redux / RTK, MobX, gRPC, WebRTC, Tailwind, WebGL, Tokio, GraphQL, React Native, Vue.js

### Databases & Infrastructure

Kubernetes (Helm), PostgreSQL, Spanner, Redis, SQL Server, Terraform, Kafka

### Tools

Docker, Continuous Integration (GitLab, Buildkite, CircleCI), git (GitHub, GitLab, Gitea, Bitbucket), Unit Testing (Jest, vitest, xo), Browser Testing (Cypress, Playwright, Puppeteer), APM & Monitoring (Datadog, Sentry), Sysadmin (linux, systemd), Cloud Infra (GCP, AWS, Azure), CAD (Solidworks)

\* Largely in order of professional expertise & comfort level

