

Vikram Venkataramanan

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WORK EXPERIENCES

ecobee | Software Engineer

Mar 2021 – present

Worked on ecobee's subscriptions, contractor-linking, energy control and commercial thermostat platform offerings. Codebases spanned front-end web, backend and infrastructure concerns

- Planned and coordinated migration from nginx-ingress to Istio/Envoy Gateway across 18 service instances, owning rollout preparation and staged traffic validation to ensure zero downtime
- Architected and implemented a fault-tolerant asynchronous retry workflow using Google Cloud Tasks, delivering 99.99% API availability despite a critical third-party dependency operating at only 20% uptime
- Drove cross-functional consensus among Product, Developer Relations, and Engineering teams to establish an API versioning and migration strategy that enabled phased partner adoption across four major feature releases
- Scaled real-time device-linking platform to process 200k daily thermostat state changes while maintaining contractor-to-device associations across ecobee's residential ecosystem with backup ETL pipeline
- Built and scaled a marketability decision engine serving ecobee's 6M thermostats, sustaining 300+ requests/sec and validating performance through k6 load testing
- Devised a distributed rate-limiting strategy using Pub/Sub flow control and backoff delays, maximizing throughput while avoiding third-party API throttling across horizontally scaled services
- Moved commercial thermostat platform from AWS's ECS Containers into company GKE cluster with new Kong Gateway ensuring zero downtime, resulting in five figure annual cost reductions and better supported stack
- Built reusable Auth0 JWT authentication middleware backed by JWK validation with integration tests against an independently implemented JWK provider.
- Implemented admin and customer service tooling for replaying subscription web-hooks and altering subscription states
- Reduced operational burden by 20% through metrics-driven incident analysis, automation initiatives, and standardized operational playbooks while participating in on-call rotations and post-incident reviews

Per Vices | Software Engineer

May 2020 – Feb 2021

Contributed to development of software-defined radio systems under performance constraints, working across firmware-adjacent and user-space. Maintained and improved low latency C/C++ code interfacing with hardware.

INTERNSHIP EXPERIENCES

ecobee | Software Engineer, U of T Professional Engineering Year

Sep 2018 – Aug 2019

- Collaborated across frontend, backend, and data science teams to design the energy portion of ecobee's gateway API.
- Refactored 30k line JavaScript codebase into strict-mode Typescript with high test coverage in two weeks
- Explored use of circuit breakers to ensure GraphQL changes do not impact downstream REST API stability

MeazureUp | Summer Software Engineering Co-op

Summer 2017 & Summer 2016

Added REST endpoints to Django + React.js app. Ingested backfill data for endpoints into SQL-backed database.

EDUCATION

B.Sc (Hons) **Computer Science | University of Toronto**, Class of 2020

PROGRAMMING LANGUAGES: TypeScript, Go, Python (I've also with Haskell, Lisp, Java and C in a professional capacity)

SYSTEMS: REST APIs, distributed systems, Google Cloud, Docker, Kubernetes, Postgres and Redis, observability tooling (including OpenTelemetry (OTEL), PromQL, Honeycomb and Grafana)