

# ANAS KHAN

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## EDUCATION

### University of Toronto

Honours BSc Double Major in Computer Science & CCIT

September 2019 - December 2024

## EXPERIENCE

### Software Engineer (Golang, Typescript, Next.js, GraphQL, GCP, PubSub, CircleCI)

September 2023 - May 2024

Ecobee - co-op

- Lead migration of **70,000 devices** from **Google IOT Core** to an internal IOT service, maintaining a **99% uptime** and making sure service was healthy.
- Refined Ecobee's Subscriptions portal web application for new feature releases using **Typescript** and **Next.js**.
- Actively participated in **incident response** and mitigation. Worked through debugging services using logs and metrics in order to provide and implement solutions.
- Implemented **Dead Letter Queue** for the backend's **pubsub event-driven architecture** to allow for messages between services to be addressed appropriately, increasing reliability of the services.

### QA Embedded Engineer (Python, Selenium, Jenkins)

May 2023 - August 2023

Ecobee - co-op

- Developed and enhanced **AVS test automation** utilizing **Python** and **Selenium WebDriver**, resulting in increased reliability and coverage of **Alexa voice service** functionalities, reducing manual testing time by **50%**.
- Implemented **Apache Guacamole (VNC Webclient)** for simulator testing in a **Kubernetes cluster**, providing unified access to multiple simulators and enhancing resource efficiency.
- Developed a dynamic configuration mechanism to automatically establish connections to new simulators, reducing manual setup and simulator setup time by **30%**.
- Executed **regression and smoke tests** for new firmware releases, ensuring stability and performance, and validating that deliverables met quality standards prior to deployment.

### Site Reliability Engineer (Kubernetes, Terraform, GCP, GKE, ArgoCD, Grafana, Prometheus)

May 2022 - April 2023

Ecobee - co-op

- Successfully migrated all workloads from **Flux** to **ArgoCD**, including setting up self-managing Argo using the **apps-to-apps pattern**, improving deployment automation, reliability, and scalability across tenants.
- Deployed and maintained **ArgoCD Bot** to automate ArgoCD changes via **GitHub PRs**, streamlining deployments, reducing errors, and improving auditability.
- Implemented **GitHub actions** to automate PR approvals based on **PagerDuty incidents**.
- Migrated tenant services into **GKE cluster** by developing **helm charts** encapsulating **Deployments, Services, and Ingress configurations**, coupled with **DNS record management** and **OAuth configurations**. Overall reducing infrastructure costs.
- Maintained/Updated **Terraform** configurations, ensuring optimal infrastructure provisioning and scalability on **GCP**.

## PROJECTS

### YouTube Learning Mode AI Extension (Go, Python, Redis, OpenAI, Docker, Kubernetes, GCP)

August 2024 - Present

- Developed an **AI-powered platform** that transforms YouTube videos into an interactive, question-answering tool using **OpenAI GPT-4 API** for context-based responses from video transcripts.
- Designed and implemented **microservices architecture** with **Go** and **Python**, integrating **Redis** for **caching** and efficient handling of video metadata and conversations.
- Established **event-driven architecture** for asynchronous communication between services, ensuring smooth query handling and AI response management.
- **Containerized services with Docker**, orchestrated deployments using **Kubernetes on GCP**, and automated **CI/CD pipelines** with **Jenkins** to ensure scalability and continuous delivery.

### BizReach Marketplace Application (Firebase, Express.js, React, Node.js, Docker, GKE)

May 2023 - August 2023

- As a team lead took charge of designing the **architecture** and structuring the project, ensuring **scalability** & maintainability.
- Utilized **Firebase** for real-time database, authentication, and image storage.
- Employed **Express** and **Node.js** for the backend, creating a robust **API** to handle business logic and communication.
- Designed a dynamic user interface with **React.js** for the frontend and incorporated real-time features using **Socket.io**.
- Implemented **Docker** and **GitHub actions** for streamlined deployment and **Kubernetes** for scaling using **GKE**.

## SKILLS

<b>Languages/Frameworks:</b>	Python, HTML, CSS, Bootstrap, Typescript, React, Node.js, Express.js, Go, REST, GRPC, GraphQL, Terraform, Bash, Java, SQL
<b>Tools:</b>	Git, Kubernetes, GCP, AWS, Grafana, Prometheus, Docker, ArgoCD, Linux, Postman, Jira
<b>Knowledge &amp; Concepts:</b>	Data Structures, OOP, Microservices, Design Patterns, Cloud