Karan **Thukral**

SOFTWARE ENGINEER · PRODUCTION ENGINEERING

☐ +1 (226)-978-7543 | ✉ mail@karanthukral.me | 🏠 www.karanthukral.me | 🐙 karanthukral | 💼 thukralk | 🐦 @k_thukral

Skills

Technologies	Kubernetes, Docker, Chef, Ansible, Vagrant
Languages	Ruby, GoLang, Objective C, Swift
Frameworks	Ruby on Rails, iOS, Cocoa

Experience

Production Engineer, Cloud Platform
Ottawa, ON

SHOPIFY INC.
May. 2017 - Present

The Cloud Platform team focused on migrating 400+ running services from Shopify's two data centers over to Google Kubernetes Engine. The goals were to increase reliability, define best practices for the company, and to develop easy-to-use tooling for developers with little knowledge of containers or Kubernetes. On the team, I focused on the continuous deployment pipeline, improving platform resiliency, and teaching developers to own their infrastructure.

- **Led migration** of multiple production applications to the platform with **minimal downtime**.
- Created a custom Kubernetes controller to create **resource quotas** and **limit ranges** for application namespaces and reduce the impact of a noisy neighbour.
- Worked on **kubernetes-deploy** to improve the deploy pipeline by adding rollout monitoring for daemon sets, stateful sets, resource quotas and more.
- Implemented **better error handling** for invalid Procfile entries in **Herokuish** to enable developers to self resolve certain deploy issues.
- **Reduced container build times** from **5 minutes** to **under a minute** for configuration file changes by leveraging previously built containers. This allows for faster deployments and scaling of applications.

Production Engineering Intern, Cloud Platform
Ottawa, ON

SHOPIFY INC.
May. 2016 - Aug. 2016

I joined the Cloud Platform team during the initial months after the team was built. The team was focused on validating the premise of running all services at Shopify on Kubernetes and Google Kubernetes Engine. During the internship, I focused on migrating multiple services to Kubernetes, automating cluster creation, and using a chat bot as a tool to provision infrastructure for an application.

- **Containerized & migrated** multiple services including the deploy tooling, automated ssl certificate provisioning, and image resizing to Kubernetes. Migrations were used to validate the platform along with helping dictate the roadmap of the project.
- **Automated cluster creation** on Google Kubernetes Engine by exposing functionality through a CLI.
- Experimented using a **chat bot** as a **developer interface** to provision infrastructure. This included **cluster creation**, **provisioning a container build pipeline**, and **Kubernetes template generation** for a generic application.

Production Engineering Intern, Developer Acceleration
Ottawa, ON

SHOPIFY INC.
Sep. 2015 - Apr. 2016

I joined the Developer Acceleration team when the team started focusing on internal tooling and developer experience. During the internship, I focused on leveraging the test infrastructure in order to build an on demand staging environment along with database snapshots and the ability to generate test data for development. This improved confidence in deploys by making testing code changes easier.

- Built an **on-demand staging environment** for developers to boot up **standalone Shopify instances**. This included **database snapshots** to seed the staging environment.
- Built tooling to access **production fidelity data** through a **UI element** during development. This reduced developer effort to seed development databases.

Speaking Opportunities

SRECon18 Americas | Shopify's Path to k8s

- Presented a talk regarding building a platform as a service on top of Kubernetes and Google Kubernetes Engine. The goal was to share Shopify's best practices and start a discussion around the community to see how others are tackling similar challenges. (Talk Info)

Google Modernizing IT in a Cloud-First World 2018 | How we did it: One customer's journey to modern infrastructure

- Co-presented a session dealing with the experiences of using container and Kubernetes in production along with lessons to keep in mind when undertaking such a migration. (Talk Info)

Ottawa DevOps Meetup 2017 | Building Containers @ Shopify
- Gave a talk at a DevOps meetup regarding container building at Shopify and the tooling we use and built. The goal was to share our experiences and promote best practices across the local community. (Video)

Other Experience

Mobile and Backend Software Developer Intern   *Ottawa, ON*
SHOPIFY INC.   *May. 2014 - Apr. 2015*
- Worked on Shopify mobile applications along with the Ruby on Rails backend.

iOS Developer Intern   *Toronto, ON*
CANADIAN BROADCASTING CORPORATION   *Sep. 2013 - Dec. 2013*
- Built a **fully native** iOS implementation for CBC's news client.

Projects

Machine Learning Based Network Intrusion Detection   *Sep. 2016 - Apr. 2017*
- Developed for the fourth year capstone project which used machine learning to detect network intrusion attempts.
- Achieved **99.1752 (+/- 0.4571) %** accuracy using Random Forests on an academic dataset from the University of New Brunswick. These results were displayed in a custom built UI based on user research.

devctl   *May. 2016 - Mar. 2017*
- Worked on a command line tool using golang, to simplify setting up and managing development environments. (Github)

Hack the North Organizer   *Jan. 2015 - Apr. 2016*
- Part of the organizing team for Hack The North, Canada's largest hackathon in Waterloo.
- Worked on the 2015 iOS application along with event logistics in 2015-2016.

FIRST Robotics   *Jan. 2014 - May. 2015*
- One of the mentors for a local FIRST robotics team, Team Dave 3683.
- Worked with other mentors to help highschool students design, build and program robots as per competition requirements.

Education

University of Waterloo   *Waterloo, ON*
BASC. SYSTEMS DESIGN ENGINEERING WITH DISTINCTION & HONORS   *Sep. 2012 - May. 2017*