

# DYLAN CHENG

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## EDUCATION

**University of Toronto**, Bachelor of Applied Science in Computer Engineering

September 2020 – April 2025

Relevant Courses: Operating Systems, Networks, Distributed Systems

## EXPERIENCE

**Zynga**, Software Engineer Intern

May 2023 - April 2024

- Developed a **distributed locking solution** with **PostgreSQL** and **Spring JPA** for a YAML sync flow involving concurrent database mutations across **3 Kubernetes pods**
- Populated an **AWS IAM** role by investigating presently used AWS services, and using **Terraform** to add policies and actions
- Built a user settings flow by creating UI components using **React** with **Redux**, and using **Spring** and **GraphQL** to model a database and authenticate users
- Created a sync flow to import/export over **150,000 assets** between **Amazon Redshift**, and a **PostgreSQL** database

**Besty AI**, Software Engineer Intern

May 2022 - August 2022

- Built a microservice for the Growth team with **Node.js**, **PostgreSQL**, and **JavaScript** to visualize metrics for performance, demographic, and revenue
- Integrated a machine learning algorithm into **7 clients'** websites with **asynchronous JavaScript**, and improved its performance by **decreasing latency** on initial mount to client websites
- Designed a reusable **A/B testing** API with asynchronous JavaScript, and deployed it to client product pages

## PROJECTS

### Java Distributed System

- Designed a multi-threaded distributed key-value store in Java that implements consensus algorithms, failure detection, failure handling, distributed mutual exclusion, and consistency mechanisms
- Created a **consistent hashing** mechanism using an **MD5-encoded** ring topology with socket communication
- Implemented a **heartbeat failure detection** mechanism and **Lamport leader election algorithm** for server failure detection, and a replication-based recovery strategy

### Square Booking App · [GitHub](#) · *Next.js, Firebase, Square APIs, Material UI*

- Designed a booking application in Next.js to mitigate the challenges of online booking for Square sellers
- Used **Firebase Authentication** and **Firestore** to verify, store, and query customer information
- Used **server-side rendering** to pre-load business and service-related information into React components

### Student Life Mapper · [GitFront](#) · *C++, GTK, OpenStreetMap*

- Designed a **GTK** mapping application in **C++** which accesses data from the **OpenStreetMap API** to map out cities, and which can perform optimal route navigation
- Developed a **grid clustering algorithm** to dynamically group points of interest on map pan
- Implemented **A\*** and **multi-Dijkstra** path-finding algorithms using **C++ STL containers** for route navigation

## TECHNICAL SKILLS

**Frameworks & Libraries:** Spring, React, Redux, Node.js, Next.js, Flask, Tailwind CSS, Material UI

**Languages:** Java, C/C++, Python, Golang, JavaScript, TypeScript, GraphQL

**Development Tools:** Amazon Redshift, PostgreSQL, Firebase, Git, Linux, Vim

## INTERESTS

Cello, Piano, Alto Saxophone, Running, Tennis, Badminton, Cooking, Coffee-Making