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

Technical Skills

Frameworks & Libraries: Spring, React, Redux, Node.js, Next.js, Flask, Tailwind CSS
Languages: Java, C/C++, Python, JavaScript, TypeScript, GraphQL
Development Tools: Amazon Redshift, Amazon RDS, Amazon IAM, Amazon EKS, Docker, Kubernetes, PostgreSQL, Jenkins, Git

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 **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
- Designed a sync flow to import/export over **150,000 assets** between **Amazon Redshift**, and a **PostgreSQL** database
- Created a metrics tracking library for Spring and **Flask**, logging microservice usage and reporting data to **Splunk**
- Wrote a containerization solution for all the organization's **Jenkins** pipelines, such that unit tests and Sonarqube scans could be run from within a **Docker-in-Docker** Jenkins configuration

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

Parla · GitHub · *React, Flask, Cohere, Google Cloud*

- Created an AI language learning assistant capable of engaging in conversations and delivering oral speech feedback
- Developed UI components using React and **Tailwind CSS**, including a homepage, chat page, and feedback summary page
- Leveraged **Google Cloud TTS** to convert audio into machine-readable input and used **Google Cloud Translate** to feed readable input into Cohere
- Trained a **Cohere model** to discern subtle nuances in natural speech, in conjunction with the **LanguageTool API** to provide comprehensive feedback

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

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-Dijktra** path-finding algorithms using **C++ STL containers** for route navigation

Interests

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