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, Systems Programming, Software Engineering

Certificates

Amazon Web Services, Solutions Architect Associate — June 2024

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**—reducing data conflicts to 0
- Enhanced data management by designing a sync flow to import/export **150,000 assets** between Amazon Redshift and a PostgreSQL database
- Streamlined data tracking processes by creating a reusable metrics tracking library for **Spring Boot** and **Flask** backends, enabling the logging of 3 microservices' usage and reporting data to **Splunk**
- Architected a containerization solution for 50% of the team's **Jenkins CI/CD pipelines**, such that unit tests and Sonarqube 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 by 20%** on initial mount to client websites
- Reduced product integration time by 15% by pioneering a reusable **A/B testing API** with asynchronous JavaScript

Projects

Parla · GitHub · *React, Flask, Cohere, Google Cloud, EC2, Route53, Nginx*

- Created an AI language learning bot capable of delivering oral speech feedback, and hosted it on an **EC2 instance**
- Developed frontend UI components using **React** and **Tailwind CSS**, including a chat page, and feedback page
- Leveraged **Google Cloud STT API** via a Flask backend to convert audio into machine-readable input and trained a **Cohere model** to discern subtle nuances in natural speech

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 can perform optimal route navigation
- Innovated a **grid clustering algorithm** to dynamically group over 1000 locations on map pan in linear time
- Implemented **A*** and **multi-Dijktra** pathfinding algorithms using **C++ STL containers** for route navigation

Java Distributed System

- Led a team of 3 in designing a multi-threaded distributed key-value store in Java that implements consensus algorithms, failure detection, fault tolerance, mutual exclusion, and consistency mechanisms
- Produced a **consistent hashing** mechanism using an **MD5-encoded** ring topology with socket communication
- Conceived a **heartbeat failure detection** mechanism and **Lamport leader election algorithm** for server failure detection, and a replication-based recovery strategy

Skills

Frameworks & Libraries: Spring, React, Redux, Node.js, Next.js, Flask, Tailwind CSS
Languages: Java, C/C++, Python, JavaScript, TypeScript, GraphQL, HTML, CSS
Development Tools: AWS (EC2, ECS, S3, SQS, Kinesis, IAM, RDS), Docker, Kubernetes, PostgreSQL, Jenkins, Terraform, Git