Delmar Zhao

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EDUCATION

University of Toronto   Toronto, Ontario
Bachelor of Computer Science, *3.95 GPA*   Sep 2017 - Nov 2021

EXPERIENCE

Amazon   Toronto, ON
Software Engineer - Ads   Apr 2022 - Present

- Lead cross-team effort to execute a zero-downtime migration of all FireTV ads to a new **NodeJS** dynamic ad rendering service, reducing latency by 40% and error rate to <0.05%
- Architected data pipeline using **Kafka** to stream product information and cache in **ElastiCache** for Redis, supporting rendering of ads for over 30 ad programs serving over 800,000 RPS with <15ms latency
- Designed and implemented an L1 in-memory cache for dynamic data required at ad rendering time, reducing average ad rendering latency by over 200%.
- Developed horizontally scalable cache-warming service using **Java, DynamoDB, SQS, and AWS Batch** to periodically refresh stale cache entries and backfill cache misses, maintaining cache hit-rate of over 99.97%
- Overhauled **Java** based REST service for fetching product info to support postal code specific offers, enabling launch of sponsored display ads on Amazon Fresh and Whole Foods Market store pages
- Reduced developer time spent by 12 hours per week by implementing automated load tests, rollback monitors, and deployment windows in CI/CD pipelines for over 4 core services

SurveyMonkey   Ottawa, ON
Software Engineer - Platform   Sep 2021 - Apr 2022

- Created automated alert system for Rails application by implementing Sentry event logging and configuring integrations with Splunk Cloud, PagerDuty, and Slack
- Lead engineer on large-scale breaking major version upgrade of GetFeedback customer experience platform Rails app, creating and executing detailed migration and regression testing plans

Software Engineering Intern - Platform   May 2020 - Sep 2020

- Automated common customer support requests by developing features for administrator interface of customer experience surveying web app using **Ruby on Rails** and HAML, fulfilling the top five feature requests from the customer success team
- Designed cron jobs to automatically delete data for GDPR compliance using **Redis** and **Sidekiq** workers
- Optimized large ActiveRecord ORM and **PostgreSQL** queries for internal administration tools, resolving slow page loads for customer support engineers
- Used **RSpec** to write unit and integration tests, achieving over 95% code coverage on new features

Fortran Traffic Systems Limited   Toronto, ON
Full Stack Developer Intern   May 2019 - Aug 2019

- Led development of cross-platform mobile app using **Dart** and **Flutter** to display live map navigation and real-time traffic signal information to users, delivering the MVP within two months
- Implemented email and Google account based user authentication using Google **Firebase**, and allowed administrators to create priority accounts with additional privileges for public transit and emergency vehicles
- Created REST API endpoints with **Nodejs** and **Express** for serving intersection geometry, signal phase, and timing information based on GPS protocol buffer stream
- Optimized REST API payload sizes using gzip encoding, reducing cellular data usage by 88% per nearby intersection for mobile app users

SKILLS

Languages: Python, Java, Typescript

Tools and Frameworks: AWS, Redis, Kibana, Node, Express, Rails, SQL