

# Emma Dai

3B Computer Science | University of Waterloo

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## EXPERIENCE

### Software Engineering Intern | Ford Autonomous Vehicles

Jan 2021 - April 2021 | Remote

Java, Spring, JPA, Swagger, React, Angular, MS SQL Server



- Worked alongside terminal management system team to collect vehicle metrics and establish efficient fleet operations services supporting AV pilots
- Developed a new microservice that polls vehicle onboarding requests from AWS SQS, then makes gRPC calls to another service for handling CRUD operations on vehicle objects
- Built an event triggered notification listener system that consumes RabbitMQ notification messages related to changes in vehicle availability
- Employed several scaling techniques such as query optimization, server-side caching and pagination to speed up loading performance of vehicle details page
- Wrote Groovy scripts to automate Jenkins pipeline with blue-green deployment for minimum service downtime

### Software Developer Intern | Martello Technologies

Sept 2019 - Dec 2019 | Kanata, ON

Java Spring Framework, Hibernate ORM, PostgreSQL, JSP



- Developed features and fixed bugs for the company's leading SaaS platforms (Mitel Performance Analytics and Licensing and Support Server)
- Designed a container manager tool with Spring MVC and Hibernate ORM that allows clients to organize their customers hierarchy with intuitive and informative UI
- Architected the data access object layer for a new Mitel feed to support the onboarding of hundreds of partners to the company's platform

## PROJECTS

### Gomoku AI | Swift

2021

- A Gomoku agent that implements the minimax algorithm optimized with alpha-beta pruning
- Extrapolated the best defensive and offensive moves that feed into minimax by using Zobrist hashing coupled with heuristics evaluation to achieve further speedup

### Reddit Anti-depression Bot | Python, Flask, React, Axios

2020

- A bot that screens new posts on target subreddits and automates messages to users with signs of depression
- Conducted sentiment analysis of texts using Google's Natural Language Processing API in Python
- Engineered RESTful API endpoints with Flask to configure user information and bot settings

### 3D Billiard Game | Java, Blender

2020

- A multi-level eight ball pool game built entirely from scratch featuring texture mapping, dynamic shadow mapping, and physics engine
- Made use of homogeneous coordinates and transformation matrices to render 3D objects

### Social Recipe Sharing App | Java Servlet, JSP, JDBC, MySQL

2019

- A Java web application that provides a social networking platform for end-users to share and discuss their home-recipes

## SKILLS

### Languages

- Java
- C
- C++
- JavaScript
- SQL
- HTML / CSS
- Racket
- Python
- Bash

### Frameworks

- Spring
- React
- Express
- Flask
- Angular
- Android SDK

### Databases

- PostgreSQL
- MySQL
- MongoDB

### Tools

- Node.js
- AWS
- GCP
- Microsoft Azure
- Firebase
- RabbitMQ
- Git
- Vim
- Maven
- Gradle
- Splunk

## EDUCATION

### University of Waterloo

Bachelor of Computer Science

Sept 2018 - Present

- Cumulative Average: 94.7%

- Term Dean's Honours List for all terms

## INTERESTS

- Cooking
- Food Blogging
- Gardening
- Rock Climbing