

# Matthew Geng

SOFTWARE ENGINEER · UNIVERSITY OF WATERLOO

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## Education

### University of Waterloo

Waterloo, ON

CANDIDATE FOR BACHELORS OF SOFTWARE ENGINEERING (BSE)

Sept. 2019 - Present

- Competitive **chess player** with **National awards** and Waterloo Men's **Varsity Basketball** player

## Skills

Languages	Python, C++, SQL, JavaScript, TypeScript, Java
Frameworks/Libraries	Flask, Node.js, Express, FastAPI, React.js, Next.js, Websockets, Spring
Technologies	Docker, Kubernetes, AWS, Azure, MongoDB, Redis, PostgreSQL, MySQL, Terraform, NGINX

## Experience

### Amazon (AWS)

May. 2022 - Aug. 2022

SOFTWARE ENGINEER INTERN

Vancouver, BC

- Slashed time-to-market for all new **AWS regions** by **2 days**, saving ~\$50,000 per region
- Cut **RDS** service build from **2-days** to **30-seconds** by building an automated **SQL** execution service with **Spring**
- Reduced deployment time of **horizontally-scaled RDS** architecture by **20%** by building node-aware tooling.

### D2L

Sept. 2021 - Dec. 2021

SOFTWARE ENGINEER INTERN

Toronto, ON

- Deployed production **AWS** architecture with **Terraform** to automate user-actions within educational platforms
- Orchestrated critical infrastructure migration with **20+ AWS** services to a new region with **zero** downtime
- Implemented a new logging system with **80%** more app coverage using **Lambda**, **Firehose**, and **OpenSearch**
- Reduced failed deployments by **half** by building dynamic and reusable **GitHub Actions** for the **CI/CD** pipeline

### UW Blueprint (non-profit)

Sept. 2021 - Aug. 2022

PRODUCTION ENGINEER

Waterloo, ON

- Built production and staging infrastructure for [app.socialdiversity.org](https://app.socialdiversity.org) with **Terraform**, **AWS**, and **Railway**
- Designed **CI/CD** and release pipeline with **GitHub Actions** - cut release time by **50%** + reduced process to **2** clicks
- Created file-uploading **REST** API with **AWS S3**, **Next.js**, and **TypeScript** for **500+** users to submit sensitive files
- Developed **Stripe** payment system to support ~**1000** monthly transactions with **Next.js** and **TypeScript**

### CGI

Jan. 2021 - Apr. 2021

SOFTWARE ENGINEER INTERN

Toronto, ON

- Developed framework to cut internal-project deployment times by **60%** with **Jenkins**, **Docker**, and **NGINX**
- Eliminated development overhead by **50%** by engineering data pipeline from **Oracle** and **Mongo** with **Spark**
- Created a performance recommendation-engine for **200+** investment advisors and **60,000+** investor accounts
- Built a risk-assessment web-app by applying a financial-risk [research paper](#) with **React** and **Flask**, demonstrating **2X** assessment accuracy improvement; received funding and VP approval

### Praemo

May 2020 - Aug. 2020

SOFTWARE ENGINEER INTERN

Waterloo, ON

- Created a dashboard to monitor **50+** real-time client data streams and **30+** machine learning model outputs with **Vue**, **Flask**, **Redis**, **Mongo**, and **Websockets**, identifying **5** service outages that led to a critical bug discovery
- Simplified large-scale testing by spinning up company infrastructure with **Kubernetes** (microK8s)
- Implemented **JWT** user-authentication, **Pub/Sub** patterns, anomaly detection model, and a multithreaded API

## Projects

### Photo Repository

May 2021

WEB APPLICATION 🐙

- Built an SSL web-app to upload, download, and view images with **Typescript**, **React+Redux**, **Mongo**, and **NGINX**
- Scaled application with **dockerized** microservices, reverse proxy, **Mongo** GridFS, and chunked image API calls