

# Ying (Freya) Luo

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## EDUCATION

### Carnegie Mellon University

*Master of Science in Electrical and Computer Engineering*

**Dec 2022**

*Pittsburgh, Pennsylvania*

### University of Waterloo

*Bachelor of Science | Dean's Honours List*

**Jun 2020**

*Ontario, Canada*

## SKILLS

**Languages:** Java, Python, JavaScript/Typescript, C++, HTML, CSS, Kotlin, SQL, Shell, YAML, GraphQL

**Frameworks & Platforms:** React, Vue, Django, NodeJS, jQuery, MySQL, MongoDB, Apollo, Dagger, Guice, Spring MVC

**Tools & Methodology:** Maven, Gradle, AWS, Docker, Git, GDB, ROS, CI/CD, Progressive Web Apps

## WORK EXPERIENCE

### Amazon Web Services, Inc.

*Software Engineer, Intern at AWS Certificate Manager (ACM) team*

Seattle, Washington

*May 2022 - Aug 2022*

- Designed a standalone Java-based Lambda service fronted by API Gateway, which generates certificate signing requests, encrypts certificate private keys, and serves team public core APIs to improve ACM's security posture.
- Implemented dependency injection using Dagger2 and Guice; Built service with Gradle Kotlin domain-specific language (DSL)
- Configured service cloud infrastructure and development stacks via AWS CDK based on Typescript; Applied efficient CI/CD strategy by enabling pipeline to automatically promote and deploy new code changes, and log stack trace if failure occurs.
- Created and added alarms to service metrics (e.g., Fault rate, Latency) to monitor server's behaviors; Enabled hydra canary tests, in which server's success rate achieved 100% under 1 API invocation/min testing rate and multiple concurrent requests.
- Integrated server to ACM main service and solved compatibility issues; Accomplished latency decrease by around 6% - 8% on average than that before service integration.

### IFLYTEK Corporation

*Software Engineer, Intern*

Anhui, China

*Oct 2020 - Dec 2020*

- Launched a medical audit system web application based on Vue serving 50+ hospitals; Cooperated with 15+ engineers to extend online doctor consultation service using React Native on both iOS and Android systems.
- Established a competitive diagnostic analysis web service, which generated medical reports based on data modeling and analyzing, saving up to approximately 200% consultation time compared to traditional processes.
- Remodeled asynchronous data fetching APIs and MongoDB data schema with team members for optimizing service performance in case of heavy user input or massive network requests; Tested and verified near 40% enhanced work efficiency.

### University of Waterloo

*Research Assistant*

Waterloo, Canada

*Jan 2019 - Apr 2020*

- Collaborated with team members to design the logic of modeling molecular structure; Wrote a Python program to identify the most stable configuration of Beryl crystal interacting with water; Plotted 3D dynamic graph with Matplotlib and Pandas.
- Troubleshoot potential bugs, reorganized code structure and cached matrix multiplication result; Optimized program's execution time (from ~18hrs to ~4hrs) with 450% increase than the initial version.

## PROJECTS

### Code and Text Editor

*An interactive in-browser code compiler and markdown editor.*

*Jan 2022 - Mar 2022*

- Developed an interactive coding environment with React, Typescript, and Redux middlewares to handle code execution logic.
- Leveraged Web Assembly to transpile and bundle code directly in browser supporting CommonJS and ES6 Modules syntax.
- Secured app against attacks due to potential security exploits by limiting cross-domain communication among code cells.
- Refactored app in a package-based architecture; Automated NPM registry packages deployment utilizing Lerna CLI.

### Clothing Website

*An e-commerce progressive web application (PWA) using GraphQL API and Apollo.*

*Jan 2022 - May 2022*

- Built a full-stack e-commerce website adding mobile responsiveness features; Set up Firebase database and authentication flow to store items data and verify users identity; Attached security rules to Firestore to restrict Write access to admin user.
- Gained flexibility by controlling returned data type and shape from database via incorporating GraphQL and Apollo client.
- Migrated application to progressive web app to optimize its performance and deployed it to production through Netlify.

### JSON Form Generator

*An easy-to-use automatic form generator based on user input JSON object.*

*May 2022 - July 2022*

- Created a dynamic Vue3 form generator that transforms input JSON object to Form bundled with fully-functioned validators.
- Enhanced components reusability and extensibility by introducing Provide and Inject API; Fulfilled 90% unit tests coverage.
- Extended functionalities to allow users applying widgets, Ajv format and keyword plugins to customize and validate forms.

### File Caching Proxy

*A file caching proxy in distributed file system with one-copy semantic.*

*Feb 2022 - Mar 2022*

- Designed a robust distributed system for concurrent files caching with check-on-use protocol and open-close session semantic.
- Implemented LRU replacement policy in which file metadata is stored in cache block objects; Improved server performance through transferring huge file in chunks and buffering file content when necessary.