

# Qianru Zhang

226-899-7882 | [qianru.zhang@uwaterloo.ca](mailto:qianru.zhang@uwaterloo.ca) | [LinkedIn](#) | [GitHub](#) | [Portfolio](#)

## EDUCATION

---

### University of Waterloo

Waterloo, Canada

M.Eng in Electrical & Computer Engineering

Sept. 2022 – Dec. 2023

- Selected Courses: Software Design and Architecture, Methods and Tools for Software Engineering, Computer Network Security, Computational Intelligence/ Intelligent Systems Design

### Harbin Institute of Technology

Harbin, China

B.E. in Aerospace Engineering

Sept. 2016 – Jun. 2021

## TECHNICAL SKILLS

---

**Languages:** Java, JavaScript, Python, C/C++, Kotlin, SQL, HTML, CSS, R

**Frameworks:** Node.js, Express, React, Spring, Django, JUnit, Jest, Cypress

**Additional Skills and Tools:** Git, MongoDB, AWS, Docker, Jenkins

## INTERNSHIP

---

### Software Engineer Intern

Waterloo, Canada

TaskMapper

Aug. 2023 – Dec. 2023

- Resolved critical back-end bugs, focusing on API optimization and data processing errors in **Node.js** routes, leading to a 10% improvement in server response time and enhanced system reliability.
- Implemented data type validation using **Node.js** and **MongoDB**, ensuring data integrity.
- Collaborated with cross-functional teams to align project requirements with business goals, exceeding stakeholder expectations.

## SELECTED PROJECTS

---

### TravelogueHub Website

- Developed a responsive front-end using **HTML**, **CSS**, and **JavaScript**, and a **Node.js/Express.js** server-side, integrating **RESTful** routing, middleware, and **MongoDB** for data management.
- Enabled users to share travel experiences by uploading photos, descriptions, and locations, with an interactive map on the homepage showcasing these spots.
- Containerized the entire TravelogueHub application using **Docker**, deployed the containerized application on **AWS**, ensuring high availability and scalability.

### Health Tracker Android Application

- Used **Kotlin** to develop the core logic and **XML** for designing the user-friendly interface, enabling efficient tracking and analysis of daily fitness activities in the app.
- Applied **Nutritionix API** to fetch and integrate nutritional information for food items into the application.
- Implemented **SQLite** to securely store user data, such as personal information and activity history.

### Algorithm Visualization Web

- Developed a web-based platform utilizing **Bootstrap** and **D3.js** for frontend, and **H2 database**, **Java**, and **Spring Framework** for backend, following an **Agile** development methodology.
- Implemented CI/CD with **Jenkins** and achieved 95% test coverage using **Jest** and **Cypress**.
- Utilized iterative development cycles and **Git version control** for continuous improvement.

### SAT Solver

- Developed a SAT solver using **C++** to determine the satisfiability of Boolean formulas.
- Wrote a parser to convert input strings into a boolean formula syntax tree and an assignment map.
- Implemented Tseitin's Transformation to convert boolean formulas into equisatisfiable CNF formulas.