Qianru Zhang

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Education

University of Waterloo — Waterloo, Canada
M.Eng in Electrical & Computer Engineering — Sept. 2022 – Jan. 2024
- 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, C/C++, Python, SQL, JavaScript, HTML, CSS, R
Frameworks: Node.js, Express, React, Spring, JUnit, Jest, Cypress
Additional Skills and Tools: Git, MongoDB, GCP, AWS, Docker, Jenkins

Work Experience

Software Engineer Intern — Waterloo, Canada
TaskMapper — Aug. 2023 – present
- Optimized website performance by resolving critical back-end and front-end issues using ***JavaScript, React*** and ***MySQL***, achieving a 15% improvement in site load times.
- Addressed user authentication challenges, enhancing user satisfaction and reducing complaints by 50%.
- Maintained consistent communication with the mentor, aiding in task prioritization, and aligning with the company's web development goals.

Projects

TravelogueHub Website
- Designed and implemented the front-end user interface using ***HTML, CSS,*** and ***JavaScript.***
- Built the server-side functionality using ***Node.js*** and ***Express.js***, incorporating ***RESTful*** principles for efficient routing, versatile middleware utilization, and seamless database integration.
- Developed ***MongoDB*** infrastructure to efficiently store and retrieve reviews, comments, and user data.

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 API calls 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.

Quantitative Trading System
- Developed a Quantitative Trading System in ***C++*** that automated stock data fetching, signal analysis using the Simple Moving Average strategy, and executed trades based on generated signals.
- Enhanced the trading strategy by incorporating machine learning models, such as Random Forests, to predict future price movements based on historical data and technical indicators.
- Integrated an ***SQLite*** database using C++ libraries for persistent storage of trade data, providing traceability and facilitating historical analysis of trades.

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.