Zachary Koo

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Summary

Software developer with a Computer Science degree and 4 years of experience with non-academic projects.

Skills *(Years of experience listed after each item.)*

Languages: Python 5 | Java 4 | C/C++ 4 | JavaScript 3 | C# 2 | Go 2 | Haskell 1 | PHP 0.5
Frameworks: React 2 | Angular 2 | Vue 1
Databases: Firebase 2 | Sequelize 2 | MySQL 2 | SQLite 1

Education

BSc in Computer Science, Graduation: 12/2022
University of Calgary, Calgary

- GPA: 3.72 / 4.00 (Magna cum laude)

Japanese Language Exchange Program: 2018–2019
Senshu University, Tokyo

- GPA: 3.92 / 4.00 (Magna cum laude)

Experience

Honest Empathy - Calgary (Remote), AB | Full Stack Engineer | 09/2022 - CURRENT

- Utilize React JS as the front-end framework to create modular, user-friendly interfaces. Implement robust testing practices and implement responsive design principles for optimal mobile compatibility.
- Leverage Node, Redux, Express, Sequelize and Firebase as the primary REST API frameworks to construct scalable, multi-tenant database endpoints that include intricate relational models.
- Designed and executed a highly efficient real-time chat system by utilizing Firebase's real-time database features, resulting in seamless and immediate updates for enhanced user communication.
- Introduced and Implemented automated end-to-end Cypress testing and unit testing using Jest to increase testing efficiency and reduce manual testing time for the application.

University of Calgary - Calgary, AB | Computer Science Teacher Assistance (CPSC 413) | 08/2022 - Present

- Collaborated with professors to lead diverse teaching and assessment initiatives, including targeted tutorials on undergraduate-level design and analysis of algorithms.
- Covered fundamental concepts and methodologies such as greedy algorithms, divide and conquer, and dynamic programming.

University of Calgary - Calgary, AB | Backend Engineer | 08/2022 - 10/2022

- Improved the University of Calgary's web-enabled scheduling system using PHP and C#, and optimized SQL query performance by implementing targeted modifications to data retrieval methods in MySQL, resulting in enhanced system functionality and faster query execution times.

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Projects

Ecommerce Web Application | Open Source

- Developed an efficient backend database management system utilizing GORM and SQLite for an E-commerce application, and implemented robust API handlers and services using Golang.
- Built seamless connectivity between the frontend and API through the utilization of Angular, implementing GET, SET, and POST requests for optimal data retrieval and transfer.
- Achieved a 33% improvement in SQL query performance by expertly optimizing query statements and predicates.

Distributed System | Academic

- Developed a robust Peer-to-Peer Distributed system in Java utilizing the B-multicast algorithm, featuring both peer and registry processes to achieve efficient data distribution and management.
- Spearheaded the implementation of a cutting-edge communication system, leveraging paradigms such as fault tolerance and coordinated timed systems, paired with ACKs, to enhance system reliability and synchronization.
- Established a high-performance UDP Datagram socket connection, capable of concurrently handling a minimum of 121 user requests with negligible delay, and optimized for seamless scalability and performance.

Self-checkout software | Academic

- Designed and implemented advanced item-scanning and payment functionality for the Self-Checkout System, leveraging PLU codes, Barcode scanning, and corresponding observers to achieve optimal database scanning efficiency.
- Demonstrated exceptional leadership skills as the Backend Team Lead, directing and organizing a team of 13 students and effectively delegating work tasks to ensure timely and high-quality project delivery.
- Meticulously ensured the functional integrity of each software component through rigorous testing, achieving 100% unit test coverage to verify optimal performance of the application using Java.

Competitions & Certificates

2021| Calgary Collegiate Programming Contest 6th place
2020| Alberta Collegiate Programming Contest 12th place
2019| Japanese N2 Language Test