FRANK LIU

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SKILLS

Programming Languages: JavaScript/Node, Typescript, Java, Python, Bash, C/C++, Ruby, Rust, SQL
Framework: Angular, React, Vue, Express, Node, Spring, Flask, Django
Tools: NoSQL, Git, Docker, Jira, Jenkins, Redis, RabbitMQ, Linux OS, AWS
Methodologies: RESTful Web Services, Microservices architecture, Agile (Scrum)

PROFESSIONAL EXPERIENCE

Level Access – Ottawa, ON   May 2022 – September 2024
Full Stack Developer
- Enhanced MongoDB query performance by 90% for a collection containing 700 million entries by using indexable fields and creating new compound indexes.
- Optimized the website scanning process, increasing capacity from 1,000 to 10,000 pages by improving memory consumption with efficient caching mechanisms and ensuring fail-safe resumption with atomicity.
- Overhauled the logging architecture and established Datadog pipelines to analyze millions of logs, reducing response time to client support tickets by 30%.
- Developed and defined a RESTful API with Typescript, Angular, and Express, allowing staff to upload large data volumes and schedule tasks, reducing customers' onboarding time by 1 hour on average.
- Restructured the reporting architecture using microservices and RabbitMQ, reducing dashboard response times from 30 seconds to under 1 second and automating report generation and deletion tasks in response to data changes.
- Implemented MongoDB pipelines to aggregate data from multiple collections, reducing database queries and system memory usage by 30%.
- Conducted WCAG 2 audits, analyzed VPAT reports, fixed over 30 accessibility bugs to ensure web compliance and usability.

Red Canari – Ottawa, ON   May 2021 - August 2021
Software Developer & Hacker (Co-op)
- Developed a web-based tool that generated customized reports based on report dynamic schemas, using React, Couch/PouchDB (NoSQL), and Spring Reactive.
- Assembled a proxy database for runtime datatype analysis and version controlling through hooks, which uncovered over 40 data integrity issues/bugs.
- Collaborated with the CEO and the marketing director to promote the reporting tool by providing technical support and presenting use cases.

Ericsson – Ottawa, ON   January 2020 - April 2021
Python Developer (Co-op)
- Auto-generated over 30 pages of Network Entities APIs by creating Excel sheets, graphs, and JSON Schemas from datasets.
- Performed load tests supporting up to 50GB of data, aggregating results, and identifying scaling bottlenecks.
- Created Python scripts to validate JSON Schemas against network entities retrieved from Kubernetes. Discovered over 5000+ instances of structural inconsistencies.

Ericsson – Ottawa, ON   May 2020 - December 2020
Full Stack Developer (Co-op)
- Developed a proxy server written in Typescript, Angular, Postgres DB, and Spring Boot, responsible for network data version control and transformation.
- Facilitated network simulation by leading the development of a service using Java to batch process and feed data to 5G network labs, saving 15% of network testing costs.
- Refactored and improved Nginx and Docker configuration files to enable remote deployment on Windows and Linux.

Kinaxis – Ottawa, ON   May 2019 - August 2019
Software Developer Data Server (Co-op)
- Led the development of a website using JavaScript, Vue, Express, and SQLite to fetch datasets from the Elastic Stack endpoints and generated graphs for a dashboard.
- Automated REST test using Mocha, Chai, and Cypress.

Carleton University – Ottawa, ON   May 2018 - August 2018
Systems Engineering Faculty - Software Developer (Co-op)
- Implemented a program in Java that allows transferable datasets used for machine learning between DL4J and Keras frameworks.
- Redesigned Java Learning by Observation Framework, increasing speed, scalability, and extensibility.

PROJECTS
Math Latin Input   September 2021 - April 2022
- Designed the creation of a TypeScript-Vue application designed for physics and linguists to write symbols unavailable on standard keyboards efficiently.
- Engineered an algorithm utilizing a B+ Tree and a directed graph data structure, achieving live search weighing over 10000+ symbol entries in under 5ms.

Carleton Code Gym - Club Director   April 2020 - December 2020
- Directed a programming education platform that improved the knowledge of software design practices and scalable algorithms to over 60 students.
- Provided lessons on Git, Docker, Linux Operating System Architecture, Bash, multi-threading, data structures, and algorithms.

EDUCATION

Bachelor of Engineering: Software Engineer, Co-op   September 2017 - April 2022
Carleton University – Ottawa, Ontario

ACHIEVEMENTS
Nominated for Co-op Student of the Year 2020
Entrance Award, Ontario Professional Engineers Foundation for Education, 2017-2022