Frank Liu

Website frankliu197.github.io/personal-website | **LinkedIn** frankliu197
GitHub frankliu197 | **E-mail** frankliu197@gmail.com | **Phone** 613-322-6347

SKILLS

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, Linux, Windows, Jira, Jenkins, Redis, RabbitMQ
Methodologies: RESTful Web Services, Microservices architecture, Agile (Scrum)

PROFESSIONAL EXPERIENCE

Level Access   05/2022 – 09/2024
Full Stack Developer   *Ottawa, ON*

- 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 optimizing memory consumption with **Redis** 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 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%.

Red Canari (Co-op)   05/2021 – 09/2021
Software Developer & Hacker   *Ottawa, ON*

- Developed a web-based tool that generates 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 (Co-op)   01/2021 – 04/2021
Python Developer   *Ottawa, ON*

- 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 (Co-op)   **05/2020 – 12/2020**
Full Stack Developer   *Ottawa, ON*

- 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 (Co-op)   **05/2019 – 08/2019**
Software Developer Data Server   *Ottawa, ON*

- Led the development of a website using **JavaScript**, **Vue**, **Express**, and **SQLite** to fetch datasets from the **Elastic Stack** endpoints and generate graphs for a dashboard.
- Automated REST test using **Mocha, Chai, and Cypress**.

Carleton University (Co-op)   **05/2018 – 07/2018**
Systems Engineering Faculty - Software Developer   *Ottawa, ON*

- 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**   **09/2021 - 04/2022**

- 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   **01/2020 - 09/2020**

- 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, Bash, multi-threading, data structures, and algorithms.

EDUCATION   **Bachelor of Engineering:** Software Engineer, Co-op   **09/2017 – 04/2022**
                   Carleton University – Ottawa, Ontario   GPA: 3.8

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