KAI SAWAMOTO | 2023-April grad 672-999-6944 | kaisawamoto@gmail.com | www.linkedin.com/in/kaisawamoto

FULL-TIME WORK EXPERIENCE

Junior Software Engineer Co-op | SkyBox Labs, 4 months – Burnaby, Canada (Aug. 30, 2021 - Dec. 22, 2021)

- Developing the Forge mode in Halo
- Contributing to a complex codebase written in **C++** and **Lua**
- Fixed UI-related bugs

Research Assistant Co-op | UBC Electrical & Computer Eng. (ECE) Lab, 8 months – Vancouver, Canada (Jan. 3, 2021 – Aug. 20, 2021)

- Assisted research on the 5G network for an ECE lab and Rogers Communications under direction by Dr Vincent Wong.
- Created an AR crowdsensing software (an iOS client in **Swift** and **Node.js** back end), which collects crowd information from end-users. This information will allow for retaining the hygiene of the city and optimizing food vendors' operation location and time.
- Wrote **Python** scripts to simulate user experiments for the crowdsensing project before actual user tests to validate the service.
- Built a full-stack web app (**React, Django**) to visualize scientific data and its stats, using Google Maps API. This allowed for viewing the distribution of mobile internet signals and people's usage at a glance, which helped Rogers strategize where to reinforce signals.
- Deployed the app on a Linux server using Apache2 and conducted operations such as setting up SSL certificates and managing SSH traffic, so that the app is securely accessible from remote locations.
- Built deep learning models, such as Convolutional Auto Encoder and Seq2Seq that compress data by 90% with little noise, using **PyTorch**

Software Engineer Intern | Eaglys, 4 months – Tokyo, Japan (May. 1st 2020 – Aug. 29th 2020)

- Worked on a machine learning library that allows for prediction with encrypted data, utilizing **C++** encryption library, Microsoft SEAL (SEAL) and multi-party computation
- Implemented wrapper classes of SEAL to simplify and facilitate the use of the library. This library was then used in the main product.
- Developed multi-party computation between several servers, using **gRPC**, which allowed for separating confidential and non-confidential computation.
- Created **unit tests** using Google Test to optimize code integration process and robustify the code.
- Automated performance test using **Python** to compare performance under different encryption schemes.
- Interfaced **C++** code with **Python** code using **Cython** to use the C++ encryption library and enable fast computation

PERSONAL PROJECTS | github.com/sawamotokai

Typebits | Typing Game for Programmers – **React / Node.js, TypeScript, Firebase** *(Mar. 2021)*

- Typing game where "words" are programming snippets, which users can create
- Designed user-friendly UI/UX; typed words are displayed green if correct and red if wrong
- Used by 50+ competitive programmers before contests and enhanced their performances

Vault | CLI Password Manager – **Node.js** *(Nov. 2020)*

- Randomly generates arbitrarily long secure passwords and store them encrypted
- Uses two-factor authentication for better security

SKILLS

Technologies: Git, Docker, Kubernetes, Node.js, React, Flask, Django, GraphQL, gRPC, MySQL, Firebase, Linux, Numpy, PyTorch etc.

Languages: C/C++, Type/JavaScript, Python, Java, Bash, Cython, SQL, HTML, CSS, Dart, Swift

Misc: Microservices Architecture, Test-driven/Object-oriented programming, Agile, Unit test, REST, UML/ER Diagram, Figma, Serverless, Design Patterns, SOLID principles, LaTex

EXTRACURRICULAR EXPERIENCE

Code the Change (SWE Club at UBC) | Back End Developer (Volunteer) – Vancouver, Canada (Sep. 2019 – Apr. 2020)

- Built a volunteer management web app for an NGO, with **Agile** workflow in a group of six using **Git**
- Implemented API endpoints using **Azure** Function, interfaced with Azure SQL database
- Created **React** components of Atomic Design

EDUCATION

The University of British Columbia – *BSc in Computer Science, 4th year* | *Co-op* GPA 91.8%. Vancouver, BC, Apr. (2023 Grad)