

# CURRICULUM VITAE

## Shion Fukuzawa

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### EDUCATION

PhD	2025 (expected)	Computer Science, University of California, Irvine
B.S.	2020	Mathematics, Calvin University

### RESEARCH INTERESTS

Algorithm and data structure design  
Quantum algorithms  
Quantum information science  
Computational geometry

### PROFESSIONAL EXPERIENCE

**Quantum Computing Research Intern**, qBraid Jun 2022 – Sep 2022  
Conducted research in QC algorithms, application-based benchmarking, and quantum computing frameworks.  
Contributed to user account webpage using the MERN stack and AWS integrations.  
Added support for automated unit testing with Cypress and quality control (linting etc.) through Github actions.

**Graduate Assistant**, UC Irvine Sep 2020 - Present  
Coordinated with professors to help teach, evaluate, and enhance student learning each quarter. Assisted instruction of courses including introduction to data structures, advanced algorithms, and introduction to C++. Developed software in Python and C++ to automate grading for engineering projects, reducing the grading load which led to better availability of instructors for courses with hundreds of students.

**LAMP Stack Instructor**, Iki Commercial Highschool Jul 2020 – May 2021  
Designed and taught a year-long curriculum and instructed four Japanese high school students with no programming experience to learn HTML, CSS, and JavaScript then create a full-stack website using Linux, Apache, MySQL and PHP.

**Student Web Communications Developer**, Calvin University Oct 2016 – May 2017  
Curated and edited quality visual media for Calvin University's website. Updated and maintained Calvin's student portal as well as over ten different department pages using HTML, CSS, and JavaScript.

## RESEARCH

### Papers in Peer-Reviewed Proceedings

- C-1. G. Barequet, S. Fukuzawa, M.T. Goodrich, D. Mount, M. Osegueda, and E. Ozel, “Diamonds are Forever in the Blockchain: Geometric Polyhedral Point-Set Pattern Matching,” 34th Canadian Conf. on Computational Geometry (CCCG), 2022.  
[arXiv:2208.05597](https://arxiv.org/abs/2208.05597)
- C-2. S. Fukuzawa, C. Ho, S. Irani, J. Zion, “Modified Iterative Quantum Amplitude Estimation is Asymptotically Optimal,” To appear in ALENEX 2023.  
[arXiv:2208.14612](https://arxiv.org/abs/2208.14612)

### Poster Presentations

- P-1. S. Fukuzawa, N. Sunukjian, “On the correspondence between 1-1 knots and 2-bridge links,” 2018 Calvin University Science Fair

### Invited Talks

- T-1. An Introduction to Quantum Computing Through Amplitude Estimation. [Link](#)

## TEACHING

### UC Irvine (Teaching Assistant)

- ICS 46 Data Structure Implementation and Analysis (FA2020)
- ICS 45 Introduction to C++ (WI2021, SU2021, FA2022)
- CS 161 Design and Analysis of Algorithms (FA2021)
- CS 165 Project in Algorithms and Data Structures (SP2021)
- CS 166 Quantum Computing (WI2022)
- CS 262P Text Processing and Pattern Matching (SP2022)

### IKI Commercial Highschool (Remote Instructor)

- Introduction to web development (LAMP Stack)