

## EDUCATION

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### Massachusetts Institute of Technology

*Ph.D. in Computer Science*

Advisor: Prof. Jonathan Ragan-Kelley

Cambridge, MA

*September 2020 –*

### Massachusetts Institute of Technology

*Master of Science (S.M.) in Computer Science*

Advisor: Prof. Jonathan Ragan-Kelley

Cambridge, MA

*September 2020 – May 2022*

### The University of Tokyo

*Bachelor of Science in Information Science. Major GPA: 3.98/4.0*

Awarded a Dean's Award and ranked top at the Department of Information Science.

Advisor: Prof. Takeo Igarashi

Tokyo, Japan

*April 2015 – March 2020*

## PUBLICATIONS

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- **UFO Instruction Graphs Are Machine Knittable**

Jenny Lin, **Yuka Ikarashi**, Gilbert Bernstein, Jim McCann

In *ACM SIGGRAPH Asia* 2024 (journal)

- **Tackling the Matrix Multiplication Micro-kernel Generation with Exo**

Adrin Castell, Julian Bellavita, Grace Dinh, **Yuka Ikarashi**, Hector Martinez

In *International Symposium on Code Generation and Optimization (CGO)* 2024

- **Semantics and Scheduling for Machine Knitting Compilers**

Jenny Lin, Vidya Narayanan, **Yuka Ikarashi**, Jonathan Ragan-Kelley, Gilbert Bernstein, Jim McCann

In *ACM SIGGRAPH* 2023 (journal)

- **Exocompilation for Productive Programming of Hardware Accelerators**

**Yuka Ikarashi**<sup>\*</sup>, Gilbert Louis Bernstein<sup>\*</sup>, Alex Reinking, Hasan Genc, Jonathan Ragan-Kelley

In *ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI)* 2022

- **Guided Optimization for Image Processing Pipelines**

**Yuka Ikarashi**, Jonathan Ragan-Kelley, Tsukasa Fukusato, Jun Kato, Takeo Igarashi

In *IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC)* 2021 short paper.  
*Best Short Paper Award*

- **PaintersView: Automatic Suggestion of Optimal Viewpoints for 3D Texture Painting**

**Yuka Takahashi**, Tsukasa Fukusato, Takeo Igarashi

In *ACM SIGGRAPH Asia* 2019 technical brief

- **Migrating Large Codebases to C++ Modules**

**Yuka Takahashi**, Oksana Shadura, Vassil Vassilev

In *19th International Workshop on Advanced Computing and Analysis Techniques in Physics Research (ACAT)* 2019.

- **Stitch: An Interactive Design System for Hand-Sewn Embroidery**

**Yuka Takahashi**, Tsukasa Fukusato

In *ACM SIGGRAPH* 2018 poster

*ACM SIGGRAPH Student Research Competition 3rd Place Award.*

- **Optimizing Frameworks' Performance Using C++ Modules-Aware ROOT**

**Yuka Takahashi**, Vasil Georgiev Vasilev, Raphael Iseman

In *23rd International Conference on Computing in High Energy and Nuclear Physics (CHEP)* 2018.

## EXPERIENCE

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### Apple

*Software Dev Eng Intern @ Vector and Numerics team*

Led Apple's adoption of Exo (part 2).

Cupertino, CA

*June 2023 – September 2023*

### Amazon

*Applied Scientist Intern*

Led Amazon Device's adoption of Exo.

Remote

*November 2022 – May 2023*

### Apple

*Software Dev Eng Intern @ Vector and Numerics team*

Led Apple's adoption of Exo (part 1).

Cupertino, CA

*June 2022 – September 2022*

### The University of Tokyo

*Project Academic Support Specialist (research staff)*

Tokyo, Japan

*April 2020 – May 2020*

### UC Berkeley

*Visiting Student*

Led the Guided Optimization project.

Berkeley, CA

*August 2019 – September 2019*

### CERN

*Research and Development Engineer*

Worked on Cling C++ interpreter and Clang C++ Modules in ROOT team.

Geneva, Switzerland

*March 2018 – February 2019*

### Google Summer of Code

*GSoC Student*

Worked on a dynamic shell autocompletion project in LLVM/Clang organization.

Remote

*April 2017 – August 2017*

## TEACHING AND MENTORING

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### Fundamentals of Programming (6.101)

*Teaching Assistant*

Taught at MIT undergraduate programming class.

Cambridge, MA

*Spring 2023*

### MIT Undergraduate Research Opportunities Program (UROP)

*Mentor*

Mentored four MIT undergraduate students on research and development on Exo.

Cambridge, MA

*September 2021 – present*

### Google Summer of Code

*Mentor*

Advised an undergraduate student on Global Modules Index project at HEP software foundation.

Remote

*April 2019 – August 2019*

### Security Mini-Camp

*Lecturer*

Gave a compiler lecture to young students in the government-funded security lecturing project.

Japan

*September 2019*

## AWARDS

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- **Quad Fellowship (2024)**
- **ML and Systems Rising Stars (2024)**
- **MIT Sandbox (2022)** Granted \$1000 to work on a startup.
- **Masason Foundation Fellowship (2020-2025)** Granted 5 years of tuition, stipend, and travel costs.
- **MIT Great Educators Fellowship (2020)** Granted 9 months of tuition and stipend.
- **Dean's Award (2020)** Dean's Award from the University of Tokyo, for excellent academic performance and bachelor thesis. I was ranked top at the Department of Information Science.
- **Funai Overseas Scholarship (2021-2023)** Granted 2 years of tuition and stipend.
- **The University of Tokyo Study and Visit Abroad Program (2019)** Granted 2 months of stipend and travel costs.

## COMMUNITY SERVICE

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- **SIGGRAPH Asia** Reviewer, 2024
- **ICFP** Artifact Evaluation Committee, 2024
- **MIT PLR** Program Committee, 2023-2024
- **Japanese Association of MIT (JAM)** President, 2022-2024
- **Japanese Graduate Student Association** Vice President, 2020-2023
- **.406 Ventures Fellowship** Student Fellow, 2021-2023
- **E14 Fund Fellowship** Student Fellow, 2022-2023