Yuka Ikarashi

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EDUCATION

Massachusetts Institute of Technology — Cambridge, MA
Ph.D. in Computer Science — *September 2020 –*
Advisor: Prof. Jonathan Ragan-Kelley

Massachusetts Institute of Technology — Cambridge, MA
Master of Science (S.M.) in Computer Science — *September 2020 – May 2022*
Advisor: Prof. Jonathan Ragan-Kelley

The University of Tokyo — Tokyo, Japan
Bachelor of Science in Information Science. Major GPA: 3.98/4.0 — *April 2015 – March 2020*
Awarded a Dean's Award and ranked top at the Department of Information Science.
Advisor: Prof. Takeo Igarashi

PUBLICATIONS

- **Exo-GPU: Safe, Imperative, User-schedulable Programming for Tensor Cores**
  David Zhao Akeley, **Yuka Ikarashi**, Jonathan Ragan-Kelley
  Under review at PLDI 2026
- **Value-Sensitive Analysis for Looping Array Code**
  Yuka Ikarashi, Chengpeng Wang, Jonathan Ragan-Kelley, Gilbert Bernstein
  Under review at PLDI 2026
- **Portable, High Performance Matrix Multiplication Micro-Kernels for RISC-V with Exo**
  Adrian Castello, Hector Martinez, Sandra Catalan, Jie Lei, **Yuka Ikarashi**, Grace Dinh, Francisco D. Igual, Enrique S. Quintana-Orti
  In *PDP* 2025
- **Exo2: Growing a Scheduling Language**
  Yuka Ikarashi, Kevin Qian, Samir Droubi, Alex Reinking, Gilbert Bernstein, Jonathan Ragan-Kelley
  In *ACM ASPLOS* 2025
- **UFO Instruction Graphs Are Machine Knittable**
  Jenny Lin, **Yuka Ikarashi**, Gilbert Bernstein, Jim McCann
  In *ACM SIGGRAPH Asia* 2024 (journal track)
- **Tackling the Matrix Multiplication Micro-kernel Generation with Exo**
  Adrian Castello, 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 track)
- **Exocompilation for Productive Programming of Hardware Accelerators**
  Yuka Ikarashi*, Gilbert Louis Bernstein*, Alex Reinking, Hasan Genc, Jonathan Ragan-Kelley
  In *ACM 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 Vasilev, Raphael Isemann
  In *23rd International Conference on Computing in High Energy and Nuclear Physics (CHEP)* 2018.

EXPERIENCE

Apple Cupertino, CA
Software Dev Eng Intern @ Vector and Numerics team *June 2023 – September 2023*
Led Apple's adoption of Exo (part 2).

Amazon Remote
Applied Scientist Intern *November 2022 – May 2023*
Led Amazon Device's adoption of Exo.

Apple Cupertino, CA
Software Dev Eng Intern @ Vector and Numerics team *June 2022 – September 2022*
Led Apple's adoption of Exo (part 1).

The University of Tokyo Tokyo, Japan
Project Academic Support Specialist (research staff) *April 2020 – May 2020*

UC Berkeley Berkeley, CA
Visiting Student *August 2019 – September 2019*
Led the Guided Optimization project.

CERN Geneva, Switzerland
Research and Development Engineer *March 2018 – February 2019*
Worked on Cling C++ interpreter and Clang C++ Modules in ROOT team.

Google Summer of Code Remote
GSoC Student *April 2017 – August 2017*
Worked on a dynamic shell autocompletion project in LLVM/Clang organization.

TEACHING AND MENTORING

MIT Undergraduate Research Opportunities Program (UROP) Cambridge, MA
Mentor *September 2021 – present*
Mentored nine MIT undergraduate students on research and development on Exo.

Fundamentals of Programming (6.101) Cambridge, MA
Teaching Assistant *Spring 2023*
Taught at MIT undergraduate programming class.

Google Summer of Code Remote
Mentor *April 2019 – August 2019*
Advised an undergraduate student on Global Modules Index project at HEP software foundation.

Security Mini-Camp Japan
Lecturer *September 2019*
Gave a compiler lecture to young students in the government-funded security lecturing project.

AWARDS

- **Jane Street Fellowship Honorable Mention (2025)**
- **Rising Stars in EECS (2024)**
- **Quad Fellowship (2024)** Granted $40,000
- **ML and Systems Rising Stars (2024)**
- **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

- **TOPLAS** Reviewer, 2025
- **PLDI** Artifact Evaluation Committee, 2025
- **OOPSLA** Artifact Evaluation Committee, 2025
- **CGO** Artifact Evaluation Committee, 2025
- **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