Kei Imada

Pronounced like the letter after "J"

7144 45th Ave NE • Seattle WA 98115 • 206-380-3855 (cell) • kimada1.swarthmore (at) gmail.com
GitHub: keikun555 • **Website**: keikun555.github.io • **LinkedIn**: kei-imada

ABSTRACT

Software developer and a **mathematician**. Former **systems research assistant** and **teaching assistant** for computer science and mathematics. Fluent in **Python**, **C**, **C++**, **OpenMPI**, **CUDA**, and **Japanese**. A 3.94 GPA Swarthmore College graduate who majored in computer science and mathematics. Spearheaded technical projects that helped thousands. Looking to develop formal verification tools that prove the correctness of parallel and distributed systems.
Skills: Python, Golang, C, C++, OCaml, LaTeX, Git, MPI, CUDA, Keras, React, Typescript, SQL, Japanese, and Chinese.

EXPERIENCE

Software Engineer at *Pure Storage* in Mountain View, CA **August 2020 → Present**
- Developed an internal firewall library with in-memory caching and batch-commit functionalities for performance
- Improved an existing Python *iptables* library's performance by 2 orders of magnitude
- Integrated *iptables* into FlashBlade clusters and improved its initialization and sync performance
- Spearheaded the networking items to secure FlashBlades according to the Center for Internet Security Benchmarks
- Implemented VLAN translation with field processor rules into Broadcom Tomahawk3 chips
- Triaged over 500 test failures and discovered zero-day vulnerabilities and race conditions

Software Engineer Intern at *Pure Storage* in Mountain View, CA **June 2019 → August 2019**
- Designed and implemented a scalable web analytics tool that detects and diagnoses SSD drive failures
- Improved latency by 2-fold with Redis caching layers storing structured responses from Amazon Redshift
- Developed the frontend using React and Typescript, with *ag-grid*, *highcharts*, and *react-select* as core components

Network RAM Research Assistant at *Swarthmore College* **June 2018 → December 2018**
- Employed machine learning analysis methods on system statistics to predict system swapping behavior
- Developed the user-level policy software in C for the NSwap network RAM implementation
- Improved the runtime of memory-intensive benchmarks by 100-fold and their swap disk usage by more than 30-fold

Project Lead at *Swarthmore College Computer Society* (SCCS)
- One of 15 selected students who host and maintain web servers, mail servers, the student directory, and tech solutions
- Collaborated with other SCCS members to develop services for the Swarthmore College community

  Airpool at *SCCS* **January 2018 → September 2018**
  - Headed the development team to streamline carpooling between Swarthmore and popular transportation hubs
  - Scheduled more than 200 rides with more than 1,000 views and saved over $2,000 in transportation costs
  - Designed the frontend using *DataTables*, *Fullcalendar*, *JQuery*, and *Semantic UI*
  - Implemented the backend with *Flask* and *MySQL* with LDAP authentication

  TriCo Course Scheduler at *SCCS* **October 2016 → May 2017**
  - Spearheaded the project that would help over 4,000 students schedule their courses out of over 10,000 courses
  - Built the backend for the project using Python, developed the frontend with *Bootstrap*, *Fuze.js*, and *DHTMLX*
  - Improved the course scheduling experience for more than 1,000 students
  - Awarded a $5,000 scholarship at a Swarthmore College hackathon as the Best Educational Hack

Computer Science Teaching Assistant at *Swarthmore College* **January 2017 → January 2019**
- Assisted computer science professors in lectures and help students learn data structures, algorithms, and systems
- Led weekly support sessions to clarify class material and provide lab assistance to students
- Mentored students through structural, logical, and syntactical errors while teaching debugging techniques
- Communicated with students, professors, and other peer mentors to explain difficult concepts in clear, concise ways

ACADEMICS

Swarthmore College in *Swarthmore, PA* **August 2016 → May 2020**
Bachelor of Arts with dual majors in Computer Science and Mathematics *Cumulative 3.94 and Major 3.95 GPA*
Thesis: The Equivalence of Typed λ Calculi and Cartesian Closed Categories *Alpha Beta Kappa and Sigma Xi*
- Parallel and Distributed Computing, Programming Languages, Algorithms, Networks, Artificial Intelligence, Natural Language Processing, Category Theory, Topology, Real Analysis, Modern Algebra, Differential Equations, Modeling

Budapest Semesters in Mathematics in *Budapest, Hungary* **January 2019 → May 2019**
Magas Kitüntetéssel High Honors (A or above on 5+ courses) *4.0 GPA*
- Real Functions and Measures, Theory of Computing, Conjecture & Proof, Topology, Mathematical Cryptography

SINGING

Repertoire: My Way, Fly Me To The Moon, My Funny Valentine, Unchained Melody, 千里之外, and more
- Awarded a semesterly $560 scholarship to take classical singing lessons with Professor Nancy Jantsch
- A high baritone at Swarthmore College Choir for 7 semesters