Kei Imada

Pronounced like the letter after “J”
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WHO AM I?

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. Spearheaded multiple projects that helped thousands of clients. A 3.94 GPA Swarthmore College graduate who majored in computer science and mathematics. Looking to develop formal verification tools that prove the correctness of parallel and distributed systems.

I am skilled in **Python**, **C**/**C++**, **MPI**, **CUDA**, **Keras, React**, **Typescript**, OCaml, Git, SQL, Japanese, Chinese, and Singing.

WHERE DID I GO?

Swarthmore College **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

- 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 **January 2019 – May 2019**
Magas Kitüntetéssel High Honors (5+ courses with A or better grade) *4.0 GPA*

- Real Functions and Measures, Theory of Computing, Conjecture & Proof, Topology, Mathematical Cryptography

WHAT DID I DO?

Software Engineer at *Pure Storage* *August 2020 – Present*

- Developed an internal Python *iptables* library with in-memory caching and batch-commit functionalities for performance
- Improved existing Python *iptables* library’s performance by 4 orders of magnitude
- Integrated *iptables* into FlashBlade clusters and improved its performance by removing unnecessary system calls

Software Engineer Intern at *Pure Storage* **Mountain View, CA**
SSD Anomaly Analytics Tool *June 2019 – August 2019*

- Designed and implemented a scalable web analytics tool that detects and diagnoses SSD drive failures
- Improved latency by 200% 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 when the system is about to swap to disk
- Headed the development of the user-level policy infrastructure in C for the NSwap network RAM implementation
- Improved the runtime of memory-intensive benchmarks by 100x and their swap disk usage by more than 30x

Project Lead at *Swarthmore College Computer Society* (SCCS) **Swarthmore, PA**

- One of 15 students who maintain servers hosting services web servers, mail servers, the student directory, and alike
- Collaborated with other SCCS members to develop services for the Swarthmore College community

Airpool *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
- Designed the frontend using *DataTables*, *Fullcalendar*, *JQuery*, and *Semantic UI*
- Implemented the backend with *Flask* and *MySQL* with LDAP authentication

TriCo Course Scheduler *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

Mathematics Mentor at *Swarthmore College* *September 2018 – January 2019*

- Facilitated weekly support sessions to help over 100 students for all mathematics classes offered at the college
- Guided students through difficult concepts in real analysis, modern algebra, multivariable calculus, and linear algebra

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

WHAT ELSE?

Singing *2012 – Present*

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