

MATTHEW SOTOUDEH

masotoudeh@ucdavis.edu · (408) 832-5833 · <https://matthewsot.github.io/>

EDUCATION

University of California, Davis

BS Computer Science, BS Mathematics; Regents Scholar; GPA: 4.0

Davis, CA

Grad: Jun 2021

Lynbrook High School

GPA: 3.9

San Jose, CA

Grad: Jun 2017

EXPERIENCE

Intel AIPG, Office of the CTO

Research Intern

San Diego, CA

Jun 2018 — Sep 2018

- Developed a novel, fully-automated compiler system for heterogeneous, parallel systems.
- Fully automatic lowering of arbitrary linear algebra computations onto fixed-function accelerator instruction sets using a novel two-operand version of TVM IR, efficient sub-graph isomorphism solver, and feedback-driven transformation-space search.
- Unified interface to compiler heuristics enables rapid, reproducible testing of new heuristics (including ML-driven models).
- Tests on an upcoming deep learning architecture can achieve up to 3-5X faster execution times than hand-optimized kernel libraries.
- Work has already influenced other compiler and software teams across the company.
- “ISA Mapper: A Compute and Hardware Agnostic Deep Learning Compiler” (first author, <https://doi.org/10.1145/3310273.3321559>) presented and published as a full paper at the ACM International Conference on Computing Frontiers, 2019.

Intel Labs

Research Intern

Santa Clara, CA

Jul 2016 — Jan 2018

- Developed state-of-the-art ML parameter compression method. Up to 60% accuracy improvement over existing work after compressing models up to $1000\times$.
- Optimized compressed matrix-multiplication routine achieves $15\times$ faster inference than MKL.
- Wrote a unified library that simplifies implementation of multiple compression methods in TensorFlow by expressing each method as a weight-generating sub-graph.
- “C3-Flow: Compute Compression Co-Design for Deep Neural Networks” (first author, <https://doi.org/10.1145/3316781>) presented and published as a full paper at the Design Automation Conference, 2019.

Develop Summer Academy

Co-Founder & Instructor

San Jose, CA

Feb 2016 — August 2017

- Taught over 50 local middle school students programming, leadership, and other life skills
- Developed courses, marketed the camp, handled logistics, and taught classes
- Recognized by our school, district, and House Representative Ro Khanna
- Over \$30,000 in revenue over two summers.

Action

Co-Founder & Chief Software Engineer

San Jose, CA

Nov 2014 — Jan 2016

- Improved the meeting follow-up experience for 1,000s of meetings at Google, Microsoft, UC Berkeley, and others. Featured on Chrome Web Store.

SKILLS

Fields:	Systems, Compilers, Programming Languages
Interested Fields:	Cognitive Modeling
Programming Languages:	C, C++, Python, JavaScript, HTML, CSS
Other:	Education, course development

PROJECTS

Docs Plus *JavaScript, jQuery, Chrome and Firefox add-on APIs*

Only add-on library that enables deep integration support with the Google Kix editor

SharpSwift *C#, Swift, Roslyn*

C# - Swift transpiler, one of the first projects to use the Roslyn Compiler and Swift language

More projects can be found at <https://github.com/matthewsot>

RECOGNITION

Rep. Ro Khanna Congressional Award

Recognized by House Representative Ro Khanna for my role in founding the innovative Develop Summer Academy.

1st Place FBLA State & National Competitions

Jun 2014, Apr 2015

Won first place against hundreds of teams across the country for two e-business websites I built and presented.

1st Place Application at CodeDay SV

Oct 2014

An early version of our meeting efficiency add-on Action beat dozens of other teams at the CodeDay SV hackathon