

# Olivia Weng

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## Education

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<b>University of California, San Diego</b> PhD ( <i>In progress</i> ), Computer Science Advisor: Ryan Kastner	2020 - 2026 (expected)
<b>University of California, San Diego</b> MS, Computer Science	2020 - 2023
<b>The University of Chicago</b> BS, Computer Science <i>spec.</i> Computer Systems	2016 - 2020

## Research Experience

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<b>University of California, San Diego</b> Research Assistant Advisor: Ryan Kastner	Oct 2020 - Present
<b>The University of Chicago</b> Research Assistant Advisor: Andrew A. Chien	Apr 2019 - Jan 2020
<b>The University of Chicago</b> Research Assistant Advisor: Yanjing Li	Mar 2018 - Jan 2020

## Employment

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<b>AMD</b> Research Intern	Jul 2023 - Dec 2023
<b>The University of Chicago</b> Computer Lab Tutor	Jan 2017 - Jun 2020
<b>Braintree</b> Software Engineer Intern	Jun 2019 - Aug 2019
<b>The University of Chicago</b> Research Assistant Advisor: Yanjing Li	Jun 2018 - Sep 2018
<b>Gridless Power Corporation</b> Software Intern	Jun 2017 - Aug 2017

## Awards

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<b>Achievement Rewards for College Scientists (ARCS) Fellowship</b> San Diego Chapter	2023 - 2024
<b>National Science Foundation Graduate Research Fellowship</b>	2022 - 2025
<b>Jacobs School of Engineering Fellowship</b> University of California, San Diego	2020 - 2022
<b>Kunzel Powell Fellowship</b> University of California, San Diego	2020 - 2021

**Dean's Fund for Undergraduate Research**  
The University of Chicago

2020

**Dean's List**  
The University of Chicago

2017, 2018, 2019

**Grace Hopper Conference Scholarship**  
The University of Chicago

2018

## Publications

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1. **FKeras: A Sensitivity Analysis Tool for Edge Neural Networks** In submission  
Olivia Weng, Andres Meza, Quinlan Bock, Benjamin Hawks, Javier Campos, Nhan Tran, Javier Duarte, Ryan Kastner.
2. **Pentimento: Data Residue in Cloud FPGAs** To appear  
Colin Drewes, Olivia Weng, Andres Meza, Alric Althoff, Bill Hunter, David Kohlbrenner, Ryan Kastner, Dustin Richmond.  
In *International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*.
3. **Tailor: Altering Skip Connections for Resource-Efficient Inference** TRETS 2024  
Olivia Weng, Gabriel Marcano, Alireza Khodamoradi, Nojan Sheybani, Farinaz Koushanfar, Kristof Denolf, Javier Duarte, Ryan Kastner.  
In *ACM Transactions on Reconfigurable Technology and Systems (TRETS)* 17, 1, Article 11.  
January 2024.
4. **Adapting Skip Connections for Resource-Efficient FPGA Inference** FPGA 2023  
Olivia Weng, Gabriel Marcano, Alireza Khodamoradi, Nojan Sheybani, Farinaz Koushanfar, Kristof Denolf, Javier Duarte, Ryan Kastner.  
In *Proceedings of the 2023 ACM/SIGDA International Symposium on Field Programmable Gate Arrays (FPGA)*.  
Monterey, CA. February 2023.
5. **Turn on, Tune in, Listen up: Maximizing Channel Capacity in Time-to-Digital Converters** FPGA 2023  
Colin Drewes, Olivia Weng, Keegan Ryan, William Hunter, Christopher McCarty, Ryan Kastner, Dustin Richmond  
In *Proceedings of the 2023 ACM/SIGDA International Symposium on Field Programmable Gate Arrays (FPGA)*.  
Monterey, CA. February 2023. **Nominated for Best Paper.**
6. **Open-source FPGA-ML codesign for the MLPerf Tiny Benchmark** MLBench 2022  
Hendrik Borras, Giuseppe Di Guglielmo, Javier Duarte, Nicolò Ghielmetti, Ben Hawks, Scott Hauck, Shih-Chieh Hsu, Ryan Kastner, Jason Liang, Andres Meza, Jules Muhizi, Tai Nguyen, Rushil Roy, Nhan Tran, Yaman Umuroglu, Olivia Weng, Aidan Yokuda, Michaela Blott  
In *Workshop on Benchmarking Machine Learning Workloads on Emerging Hardware (MLBench)* at *Fifth Conference on Machine Learning and Systems (MLSys)*.  
Santa Clara, CA. September 2022.
7. **Neural Network Quantization for Efficient Inference: A Survey** arXiv 2021  
Olivia Weng  
In *arXiv:2112.06126*.  
December 2021.
8. **A Tunable Dual-Edged Time-to-Digital Converter** FCCM 2021  
Colin Drewes, Steven Harris, Winnie Wang, Richard Appen, Olivia Weng, Ryan Kastner, William Hunter, Christopher McCarty, Dustin Richmond  
In *IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM)*  
Virtual, May 2021.

9. **Design Space Exploration for Machine Learning Architectures** ReCoDe 2021  
 Michael Barrow, Olivia Weng, Ryan Kastner  
 In *Workshop on Reimagining Codesign*  
 hosted by US DOE, Office of Advanced Scientific Computing Research.  
 Virtual, March 2021.
10. **Hardware-efficient Residual Networks for FPGAs** SLOHA 2021  
 Olivia Weng, Alireza Khodamoradi, and Ryan Kastner.  
 In *Workshop on System-level Design Methods for Deep Learning on Heterogeneous Architectures (SLOHA)*  
 at *Conference on Design, Automation and Test in Europe (DATE)*.  
 Grenoble, France, February 2021.
11. **Evaluating Achievable Latency and Cost: SSD Latency Predictors** AccML 2020  
 Olivia Weng and Andrew A. Chien.  
 In *Workshop on Accelerated Machine Learning (AccML)*  
 at *High Performance Embedded Architectures and Compilers (HiPEAC)*.  
 Bologna, Italy, January 2020.

## Presentations

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- FKeras: A Sensitivity Analysis Tool for Edge Neural Networks**  
 Fast Machine Learning for Science Workshop 2023, London, UK September 27, 2023
- Open-source FPGA-ML codesign for the MLPerf Tiny Benchmark**  
 MLBench 2022, Santa Clara, CA September 1, 2022
- Hardware-efficient Residual Networks for FPGAs**  
 SLOHA 2021, Virtual February 5, 2021
- Evaluating Achievable Latency and Cost: SSD Latency Predictors**  
 AccML 2020, Bologna, Italy January 20, 2020

## Teaching

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- CSE 142L: Computer Architecture: A Software Perspective – Head TA** Summer 2021, Fall 2021  
 · Developed control flow graph visualizer for students to visually see computer architecture concepts in action
- CMSC 15400: Introduction to Computer Systems – Grader** Spring 2020
- CMSC 15200: Introduction to Computer Science II – Grader** Summer 2018, Winter 2019
- CMSC 22200: Computer Architecture – Grader** Spring 2018
- CMSC 16100: Honors Introduction to Computer Science I – Grader** Autumn 2017

## Service

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- UCSD CSE NSF GRFP Workshop, Organizer** Oct 2022 - Present  
 · Develop curriculum on how to write a strong application for the NSF GRFP, leading students through weekly lessons and peer review  
 · Mentees: Anya Bouzida (Awardee), Katherine Izhikevich, Lisa Takai
- UCSD CSE Graduate Committee, PhD Student Representative** Oct 2022 - Present  
 · Represent PhD student interests during committee discussions to guide the formation of a new Research Exam and guidelines for PhD student advising
- UCSD GradWIC Mentorship Program, Mentor** Oct 2021 - Present  
 · Mentor a Masters student (Qian Qian) in finding a software engineering internship and guiding her through the interview process  
 · Mentored a Masters student (Feiyu) in starting research in machine learning hardware acceleration
- UCSD CSE DEI Book Club, Organizer + Member** Oct 2020 - Present  
 · Select books and lead discussion on pressing and timely diversity issues, focusing on the U.S.

- Books read: *The Color of Law*, *Minor Feelings*, *How to be an Anti-Racist*, *Whistleblower: My Unlikely Journey to Silicon Valley and Speaking Out Against Injustice*, *Between the World and Me*, *The Loneliest Americans*, *The End of Bias: A Beginning*, *Automating Inequality*, *Fulfillment: Winning and Losing in One-Click America*

**MyCSPHD.org**, Content Creator + Panelist

Dec 2020 - Apr 2021

- Created an informational video on the CS Ph.D. experience based on an interview with a Ph.D. student at the University of Washington, currently available on the My CS Ph.D Youtube channel
- Participated in two My CS Ph.D. information session panels, answering questions about why pursue a Ph.D in CS and what Ph.D student life is like

**Jacobs Undergraduate Mentoring Program**, Mentor

Oct 2020 - Jun 2021

- Mentored three undergraduate students, fostering connections between software engineers in industry and maintaining morale amidst a global pandemic

**UCSD GradWIC Graduate School Application Workshop**, Volunteer

Oct 2020 - Mar 2021

- Reviewed and gave feedback on several undergraduate students' graduate school application materials over multiple workshop sessions

**ACM-W@UChicago Mentorship Program**, Undergraduate Mentor

May 2018 - Jun 2020

- Guided Neha through how to start research and secure a research advisor, pointing her to various professors in the department with whom she could potentially work—she worked with Professor Shan Lu
- Supported and checked in with Melanie as she went through the internship recruiting process and the CS major at UChicago, reviewing her resume and helping her select classes

**CS Student Activities Council**, Student Representative

Sep 2017 - Jun 2020

- Secured funding to support four computer science student organizations on campus to host events that foster collaboration and grow the undergraduate tech community at UChicago

**Asynchronous Anonymous**, Director

Jan 2017 - Jun 2020

- Coordinated weekly tech talks given by a diverse set of undergraduates, elevating minority speakers, to build an inclusive tech community at UChicago, engaging students with new technologies

**Society of Women Engineers' Girls' Day in STEM**, Volunteer

May 2019

- Created a workshop that taught basic cryptography topics, in which 50 middle and high school girls participated
- Facilitated a discussion on diversity and what it means to be a woman in STEM among a group of 7 local Chicago middle school girls

**compileHer Tech Capstone 2019**, Volunteer

Apr 2019

- Led a group of 12 local Chicago middle school girls through interactive workshops that introduced select computer science topics, guiding them through completing each activity

**ACM-W@UChicago**, Board Member

Jan 2017 - Jun 2018

- Organized study breaks and student panels in committee of five women computer science majors weekly to bring women and minority computer science community together and discuss diversity issues in the tech industry