Olivia Weng

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Education

University of California San Diego РнD (<i>In progress</i>), Computer Science Advisor: Ryan Kastner	2020 - 2026 (expected)	
University of California San Diego MS, Computer Science	2020 - 2023	
The University of Chicago BS, Computer Science <i>spec.</i> Computer Systems	2016 - 2020	
Employment		
AMD Research Intern	Jul 2023 - Dec 2023	
The University of Chicago Computer Lab Tutor	Jan 2017 - Jun 2020	
Braintree Software Engineer Intern	Jun 2019 - Aug 2019	
The University of Chicago Research Assistant Advisor: Yanjing Li	Jun 2018 - Sep 2018	
Gridless Power Corporation Software Intern	Jun 2017 - Aug 2017	
Awards		
MICS-Qualcomm Hypatia Dissertation Fellowship	2024 - 2026	
Achievement Rewards for College Scientists (ARCS) Fellowship San Diego Chapter	2023 - 2025	
National Science Foundation Graduate Research Fellowship	2022 - 2025	
Jacobs School of Engineering Fellowship University of California, San Diego	2020 - 2022	
Kunzel Powell Fellowship 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

Grace Hopper Conference Scholarship The University of Chicago 2017, 2018, 2019

2018

Publications

1.	Greater than the Sum of its LUTs: Scaling Up LUT-based Neural Networks with AmigoLUT	FPGA 2025
	Olivia Weng, Marta Andronic, Danial Zuberi, Jiaqing Chen, Caleb Geniesse, George tinides, Nhan Tran, Nicholas J. Fraser, Javier Mauricio Duarte, Ryan Kastner. In <i>Proceedings of the 2025 ACM/SIGDA International Symposium on Field Programmable Gate A</i> Monterey, CA. February 2025.	A. Constan- rrays (FPGA).
2.	Turn on, Tune in, Listen up:	TRETS 2024
	Maximizing Side-Channel Recovery in Cross-Platform Time-to-Digital Converters Colin Drewes, Tyler Sheaves, <u>Olivia Weng</u> , Keegan Ryan, William Hunter, Christopher M Kastner, Dustin Richmond In ACM Transactions on Reconfigurable Technology and Systems (TRETS) 17, 3, Article 49. September 2024.	cCarty, Ryan
3.	FKeras: A Sensitivity Analysis Tool for Edge Neural Networks Olivia Weng, Andres Meza, Quinlan Bock, Benjamin Hawks, Javier Campos, Nhan Tran, J. Ryan Kastner. In <i>ACM Journal on Autonomous Transportation Systems 1, 3, Article 15.</i> September 2024.	JATS 2024 avier Duarte,
4.	Pentimento: Data Residue in Cloud FPGAs A Colin Drewes, Olivia Weng, Andres Meza, Alric Althoff, Bill Hunter, David Kohlbrenner, Dustin Richmond. A In Proceedings of the 29th ACM International Conference on Architectural Support for Program	SPLOS 2024 ;, Ryan Kast- amming Lan-
	guages and Operating Systems (ASPLOS). San Diego, CA. April 2024.	
5.	Reliable Edge Machine Learning Hardware for Scientific Applications Tommaso Baldi, Javi Campos, Ben Hawks, Jennifer Ngadiuba, Nhan Tran, Daniel Diaz, Ja Ryan Kastner, Andres Meza, Melissa Quinnan, Olivia Weng, Caleb Geniesse, Amir Ghola W. Mahoney, Vladimir Loncar, Philip Harris, Joshua Agar, Shuyu Qin. In <i>IEEE 42nd VLSI Test Symposium (VTS)</i> . Tempe, AZ. April 2024	VTS 2024 wier Duarte, ami, Michael
6.	Tailor: Altering Skip Connections for Resource-Efficient Inference Olivia Weng, Gabriel Marcano, Vladimir Loncar, Alireza Khodamoradi, Abarajithan G, bani, Andres Meza, Farinaz Koushanfar, Kristof Denolf, Javier Mauricio Duarte, Ryan Ka In <i>ACM Transactions on Reconfigurable Technology and Systems (TRETS) 17, 1, Article 11.</i> January 2024.	TRETS 2024 Nojan Shey- astner.
7.	Adapting Skip Connections for Resource-Efficient FPGA Inference Olivia Weng, Gabriel Marcano, Alireza Khodamoradi, Nojan Sheybani, Farinaz Kousha Denolf, Javier Duarte, Ryan Kastner. In Proceedings of the 2023 ACM/SIGDA International Symposium on Field Programmable Gate A Monterey, CA. February 2023.	FPGA 2023 nfar, Kristof rrays (FPGA).
8.	Turn on, Tune in, Listen up: Maximizing Channel Capacity in Time-to-Digital Converters Colin Drewes, Olivia Weng, Keegan Ryan, William Hunter, Christopher McCarty, Ryan Ka	FPGA 2023 Istner, Dustin
	Kichmond In Proceedings of the 2023 ACM/SIGDA International Symposium on Field Programmable Gate A Monterey, CA. February 2023. Nominated for Best Paper.	rrays (FPGA).
9.	Open-source FPGA-ML codesign for the MLPerf Tiny Benchmark M Hendrik Borras, Giuseppe Di Guglielmo, Javier Duarte, Nicolò Ghielmetti, Ben Hawks, S Shih-Chieh Hsu, Ryan Kastner, Jason Liang, Andres Meza, Jules Muhizi, Tai Nguyen,	LBench 2022 Scott Hauck, Rushil Roy,

	Nhan Tran, Yaman Umuroglu, Olivia Weng, Aidan Yokuda, Michaela Blott In Workshop on Benchmarking Machine Learning Workloads on Emerging Hardware (MLBend at Fifth Conference on Machine Learning and Systems (MLSys). Santa Clara, CA. September 2022.	ch)
10.	A Tunable Dual-Edged Time-to-Digital Converter Colin Drewes, Steven Harris, Winnie Wang, Richard Appen, Olivia Weng, Ryan Kas Hunter, Christopher McCarty, Dustin Richmond In IEEE International Symposium on Field-Programmable Custom Computing Machines (FCC Virtual, May 2021.	FCCM 2021 stner, William CM)
11.	Design Space Exploration for Machine Learning Architectures Michael Barrow, Olivia Weng, Ryan Kastner In <i>Workshop on Reimagining Codesign</i> hosted by <i>US DOE</i> , Office of Advanced Scientific Computing Research. Virtual, March 2021.	ReCoDe 2021
12.	Hardware-efficient Residual Networks for FPGAs Olivia Weng, Alireza Khodamoradi, and Ryan Kastner. In Workshop on System-level Design Methods for Deep Learning on Heterogeneous Architectur at Conference on Design, Automation and Test in Europe (DATE). Grenoble, France, February 2021.	SLOHA 2021 res (SLOHA)
13.	Evaluating Achievable Latency and Cost: SSD Latency Predictors 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.	AccML 2020

Preprints

1.	Neural Network Quantization for Efficient Inference: A Survey	arXiv 2021
	Olivia Weng	
	In <i>arXiv:211</i> 2.06126.	
	December 2021.	

Presentations

Greater than the Sum of its LUTs: Scaling Up LUT-based Neural Networks with AmigoLUT	
FPGA 2025, Monterey, CA	February 27, 2025
AmigoLUT: Scaling Up LUT-based Neural Networks with Ensemble Learning Fast Machine Learning for Science Workshop 2024, West Lafayette, IN	October 16, 2024
Efficient and Resilient Neural Networks for On-chip Inference	
The University of Chicago, Chicago, IL	October 10, 2024
Fermi National Accelerator Laboratory, Batavia, IL	October 11, 2024
Reliable Edge Machine Learning Hardware for Scientific Applications VTS 2024, Tempe, AZ	April 23, 2024
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

SLOHA 2021, Virtual	February 5, 2021
Evaluating Achievable Latency and Cost: SSD Latency Predictors AccML 2020, Bologna, Italy	January 20, 2020
Teaching	
 CSE 142L: Computer Architecture: A Software Perspective – <i>Head TA</i> Developed control flow graph visualizer for students to visually see control action 	Summer 2021, Fall 2021 omputer architecture concepts in
CMSC 15400: Introduction to Computer Systems – <i>Grader</i> CMSC 15200: Introduction to Computer Science II – <i>Grader</i> CMSC 22200: Computer Architecture – <i>Grader</i> CMSC 16100: Honors Introduction to Computer Science I – <i>Grader</i>	Spring 2020 Summer 2018, Winter 2019 Spring 2018 Autumn 2017
Service	
 UCSD CSE NSF GRFP Workshop, Organizer Develop curriculum on how to write a strong application for the NSF weekly lessons and peer review Mentees: Anya Bouzida (Awardee), Katherine Izhikevich, Lisa Takai 	Oct 2022 - Present GRFP, leading students through
 UCSD CSE Graduate Committee, PhD Student Representative Represent PhD student interests during committee discussions to guide Exam and guidelines for PhD student advising 	Oct 2022 - Present the formation of a new Research
 UCSD CSE DEI Book Club, Organizer + Member Select books and lead discussion on pressing and timely diversity issue Books read: The Color of Law, Minor Feelings, How to be an Anti-Racist, W to Silicon Valley and Speaking Out Against Injustice, Between the World and End of Bias: A Beginning, Automating Inequality, Fulfillment: Winning and Ungrateful Refugee: What Immigrants Never Tell You, The Autobiagraphy of to Transgress: Education as the Practice of Freedom, What Can a Body Do?: F Capture: How the Powerful Took Over Identity Politics (And Everything Else 	Oct 2020 - Present es, focusing on the U.S. Thistleblower: My Unlikely Journey Me, The Loneliest Americans, The Losing in One-Click America, The f a Transgender Scientist, Teaching How We Meet the Built World, Elite
UCSD GradWIC Mentorship Program, Mentor Oct 20	021 - Jun 2023, Oct 2024 - Present
 Mentor a PhD student Sung Eun Kim in havigating the first year of h research and balancing classes Mentored a Masters student Qian Qian in finding a software enginee through the interview process Mentored a Masters student Feiyu in starting research in machine learn 	ring internship and guiding her ning hardware acceleration
 MyCSPhD.org, Content Creator + Panelist Created an informational video on the CS Ph.D. experience based on an at the University of Washington, currently available on the My CS Ph.D. Participated in two My CS Ph.D. information session panels, answerin Ph.D in CS and what Ph.D student life is like 	Dec 2020 - Apr 2021 n interview with a Ph.D. student) Youtube channel g questions about why pursue a
 Jacobs Undergraduate Mentoring Program, Mentor Mentored three undergraduate students, fostering connections between and maintaining morale amidst a global pandemic 	Oct 2020 - Jun 2021 n software engineers in industry
 UCSD GradWIC Graduate School Application Workshop, Volunteer Reviewed and gave feedback on several undergraduate students' gradu over multiple workshop sessions 	Oct 2020 - Mar 2021 1ate school application materials
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Hardware-efficient Residual Networks for FPGAs

ACM-W@UChicago Mentorship Program, Undergraduate Mentor

- · 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

• 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

• 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

- 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

• 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

• 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

Jan 2017 - Jun 2018

Sep 2017 - Jun 2020

May 2018 - Jun 2020

Jan 2017 - Jun 2020

May 2019

Apr 2019