

Meghan Cowan

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EMPLOYMENT

Google Software Engineer <ul style="list-style-type: none">PyTorch XLA	Seattle, WA January 2023–
Microsoft Research Senior Research Software Development Engineer <ul style="list-style-type: none">Research in Software Engineering (RiSE)	Redmond, WA May 2021–December 2022
University of Washington Graduate Research Associate	Seattle, WA September 2016–June 2021
Facebook Reality Labs Research Contract Research Scientist	Redmond, WA February 2020–March 2021
Microsoft Research Research Intern	Redmond, WA June 2019–September 2019
Microsoft Research Research Intern	Redmond, WA June 2018–September 2018

EDUCATION

University of Washington Ph.D. Computer Science <ul style="list-style-type: none">Advisor: Luis CezeThesis: Automated Generation of Domain Specific Kernels	Seattle, WA 2016–2021
University of Washington M.S. Computer Science	Seattle, WA 2016–2018
University of Washington B.S. Computer Engineering, <i>magna cum laude</i>	Seattle, WA 2011–2015

PUBLICATIONS

Meghan Cowan, Saeed Maleki, Madanlal Musuvathi, Olli Saarikivi, and Yifan Xiong. “MSCCLang: Microsoft Collective Communication Language”. In: *ASPLOS* (2023).

Aashaka Shah, Vijay Chidambaram, **Meghan Cowan**, Saeed Maleki, Madan Musuvathi, Todd Mytkowicz, Jacob Nelson, Olli Saarikivi, and Rachee Singh. “TACCL: Guiding Collective Algorithm Synthesis using Communication Sketches”. In: *NSDI* (2023).

Deeksha Dangwal, Vincent T Lee, Hyo Jin Kim, Tianwei Shen, **Meghan Cowan**, Rajvi Shah, Caroline Trippel, Brandon Reagan, Timothy Sherwood, Vasileios Balntas, Armin Alaghi, and Eddy Igg. “Mitigating Reverse Engineering Attacks on Local Feature Descriptors”. In: *British Machine Vision Conference (BMVC)*. 2022.

Meghan Cowan, Deeksha Dangwal, Armin Alaghi, Caroline Trippel, Vincent T Lee, and Brandon Reagen. “Porcupine: A synthesizing compiler for vectorized homomorphic encryption”. In: *Programming Language Design and Implementation (PLDI)*. 2021.

Meghan Cowan, Thierry Moreau, Tianqi Chen, James Bornholt, and Luis Ceze. “Automatic generation of high-performance quantized machine learning kernels”. In: *Code Generation and Optimization (CGO)*. 2020.

Joshua Fromm, **Meghan Cowan**, Matthai Philipose, Luis Ceze, and Shwetak Patel. “Riptide: Fast end-to-end binarized neural networks”. In: *Machine Learning and Systems (MLSys)* (2020).

Tianqi Chen, Thierry Moreau, Ziheng Jiang, Lianmin Zheng, Eddie Yan, Haichen Shen, **Meghan Cowan**, Leyuan Wang, Yuwei Hu, Luis Ceze, et al. “TVM: An automated end-to-end optimizing compiler for deep learning”. In: *Operating Systems Design and Implementation (OSDI)*. 2018.

Amrita Mazumdar, Thierry Moreau, Sung Kim, **Meghan Cowan**, Armin Alaghi, Luis Ceze, Mark Oskin, and Visvesh Sathe. “Exploring computation-communication tradeoffs in camera systems”. In: *International Symposium on Workload Characterization (IISWC)*. 2017.

WORKSHOP PUBLICATIONS

Deeksha Dangwal, **Meghan Cowan**, Armin Alaghi, Vincent T Lee, Brandon Reagen, and Caronline Trippel. “SoK: Opportunities for Software-Hardware-Security Codesign for Next Generation Secure Computing”. In: *Hardware and Architectural Support for Security and Privacy (HASP)*. 2020.

Meghan Cowan, Thierry Moreau, Tianqi Chen, and Luis Ceze. “Towards Automated Generation of Low Precision Deep Learning Operators”. In: *Machine Learning on the Phone and other Consumer Devices (MLPCD)*. 2018.

SERVICE

- Architectural Support for Programming Languages and Operating Systems (ASPLOS) – PC 2023
- Principles and Practices of Parallel Programming (PPoPP) – PC 2023
- Parallel Architectures and Compilation Techniques (PACT) – PC 2022
- Architectural Support for Programming Languages and Operating Systems (ASPLOS) – ERC 2022
- Code Generation and Optimization (CGO) – AEC 2022
- Parallel Architectures and Compilation Techniques (PACT) – PC 2021

TEACHING

- UW CSE 352 – Hardware Design and Implementation TA 2014sp
- UW CSE 451 – Introduction to Operating Systems TA 2014au
- UW CSE 401 – Introduction to Compiler Construction TA 2015wi
- UW CSE 333 – Systems Programming TA 2015sp,2017au,2018wi