

MEGHAN COWAN

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EDUCATION:

- University of Washington** – Seattle, WA **Sept. 2016 - present**
- Ph.D. Computer Science
 - Advisor: Luis Ceze
 - Thesis: Automated SIMD kernel generation
 - Expected graduation: June 2021
- University of Washington** – Seattle, WA **Sept. 2016 – June 2018**
- M.S. Computer Science
- University of Washington** – Seattle, WA **Sept. 2011 – June 2015**
- B.S *magna cum laude*, Computer Engineering,

WORK HISTORY:

- Facebook Reality Labs Research, Contractor** – Redmond, WA **Feb. 2020 – present**
- Optimizing kernels for homomorphic encryption.
 - Prototyping privacy preserving machine learning and vision systems.
- Microsoft Research, Intern** – Redmond, WA **June 2019 – Sept. 2019**
- Mentor: Matthai Philipose
 - Trained and implemented ultra low-bit neural networks.
- Microsoft Research, Intern** – Redmond, WA **June 2018 – Sept. 2018**
- Mentor: Luke Marshall
 - Designed and implemented a SAT solver for FPGAs.
- EMC Isilon, Software Test Intern** – Seattle, WA **June 2015 – Aug. 2015**
- Certification Team
 - Developed automated tests to verify published limits and discover hard limits of parameters in Isilon's OneFS operating system.
- Hewlett Packard, Firmware Intern** – Vancouver, WA **June 2013 – Sept. 2014**
- Developed a graphical tool written in C++ used to debug printer firmware using Qt IDE.
 - Added support to parse commands sent to printers and decode responses.
 - Added support for live time graphing to display data for performance and debugging.
- Center for Learning and Undergraduate Education** – University of Washington **Sept. 2012 – June 2013**
- Tutored students one on one, focusing on pre-calculus through linear algebra and differential equations.
 - Lead large group midterm and final review sessions.

CONFERENCE PUBLICATIONS:

M.Cowan, D. Dangwal, A. Alaghi,, VT Lee, C. Trippel, B. Reagen. *Porcupine: A Synthesizing Compiler for Vectorized Homomorphic Encryption*. Under submission.

J. Fromm, **M. Cowan**, M. Philipose, L. Ceze, S. Patel. *Riptide: Fast End-to-End Binarized Neural Networks*. MLSys 2020.

M. Cowan, T. Moreau, T. Chen, J. Bornholt, L. Ceze. *Automatic Generation of High-Performance Quantized Machine Learning Kernels*. CGO 2020.

T. Chen, T. Moreau, Z. Jiang, L. Zheng, E. Yan, H. Shen, **M. Cowan**, L. Wang, Y. Hu, L. Ceze, C. Guestrin, A. Krishnamurthy. *TVM: An Automated End-to-End Optimizing Compiler for Deep Learning*. OSDI 2018.

A. Mazumdar, T. Moreau, S. Kim, **M. Cowan**, A. Alaghi, L. Ceze, M. Oskin, V. Sathe. *Exploring Computation-Communication Tradeoffs in Camera Systems*. IISWC 2017.

WORKSHOP PUBLICATIONS:

D. Dangwal, **M. Cowan**, A. Alaghi, V. Lee, B. Reagen, C. Trippel. *SOK: Opportunities for Software-Hardware Codesign for Next Generation Secure Computing*. HASP 2020 co-located with MICRO 2020.

M. Cowan, T. Moreau, T. Chen, L. Ceze. *Towards Automated Generation of Low Precision Deep Learning Operators*. In MLPCD2 co-located with NeurIPS 2018.

TEACHING

- UW CSE 352 – Hardware Design and Implementation, UW Teaching Assistant Sp '14
- UW CSE 451 – Introduction to Operating Systems, UW Teaching Assistant Au '14
- UW CSE 401 – Introduction to compiler Construction, UW Teaching Assistant Wi '15
- UW CSE 333 – Systems Programming, UW Teaching Assistant Sp '15, Au '17, Wi '18