

ZHENGRONG WANG

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Website / Google Scholar

EDUCATION

University of California, Los Angeles , <i>Department of Computer Science</i> Ph.D. in Computer Science	Los Angeles, U.S. Aug. 2018 - Jul. 2024 (Expected)
University of California, Los Angeles , <i>Department of Computer Science</i> Master of Science in Computer Science	Los Angeles, U.S. Sep. 2016 - Jul. 2018
Tsinghua University , <i>Department of Electronic Engineering</i> Bachelor of Engineering in Electronic Engineering, GPA: 91/100	Beijing, P.R. China Aug. 2012 - Jul. 2016
ETH Zürich , <i>Department of Information Technology</i> Exchange Student, International Academic Program, GPA: 5.50/ 6.00	Zürich, Switzerland Sept. 2014 - Feb. 2015

PUBLICATION

Z. Wang, J. Weng, S. Liu, T. Nowatzki.
Near-Stream Computing: General and Transparent Near-Cache Acceleration. To Appear in *HPCA '22*.

Best Paper Runner-Up: Z. Wang, J. Weng, J. Lowe-Power, J. Gaur, T. Nowatzki.
Stream Floating: Enabling Proactive and Decentralized Cache Optimizations. In *HPCA '21*.

Z. Wang, T. Nowatzki.
Stream-Based Memory Access Specialization for General Purpose Processors. In *ISCA '19*.

IEEE Micro Top Picks Honorable Mention: J. Weng*, S. Liu*, V. Dadu, **Z. Wang**, P. Shah, T. Nowatzki.
DSAGEN: Synthesizing Programmable Spatial Accelerators. In *ISCA '20*.

J. Weng, S. Liu, **Z. Wang**, V. Dadu, T. Nowatzki.
A Hybrid Systolic-Dataflow Architecture for Inductive Matrix Algorithms. In *HPCA '20*.

J. Lowe-Power, ..., **Z. Wang**, et al.
The gem5 Simulator: Version 20.0+. In *arXiv:2007.03152v2*.

Z. Wang, F. Qiao, Z. Liu, Y. Shan, X. Zhou, L. Luo, and H. Zhong.
Optimizing Convolutional Neural Network on FPGA under Heterogeneous Computing Framework with OpenCL. In *TENCON '16*.

AWARDS AND HONORS

IEEE HPCA 2021 Best Paper Runner-Up (Stream Floating, in <i>HPCA '21</i>), <i>IEEE</i>	Feb. 2021
IEEE Micro Top Picks 2020 Honorable Mention (DSAGEN, in <i>ISCA '20</i>), <i>IEEE</i>	Jan. 2021
2021 Dongguan Entrepreneur Scholarship, <i>Dongguan Entrepreneurs Federation</i>	Nov. 2021
Second-class Scholarship for Excellent Freshmen, <i>Tsinghua University</i>	Oct. 2012
Wang Zhaosheng Scholarship for Excellent Student from Dongguan, <i>Wang Zhaosheng Foundation</i>	Oct. 2012
Second Prize in 30 th Chinese National Physics Contest (Non-Physical Group A)	Dec. 2013
Ranked No.5 in National Matriculation Test(Science), Guangdong Province (5/600,000)	Jun. 2012

SELECTED PROJECTS & INTERNSHIPS

GemForge Framework	Jan. 2018 - Present
<ul style="list-style-type: none">Research project of full-stack trace-based simulation for stream-specialized systems.Implement LLVM passes to recognize streams and transform program with new stream instructions.End-to-End execution-based simulation in gem5.Results published in ISCA' 19 and HPCA' 21. More in submission.Repo: https://github.com/PolyArch/gem-forge-framework	
Gem5-AVX	Jan. 2019 - Present

- Add AVX-512 support to gem5 simulator, extensively used in research.
- Faithfully model the microarchitecture of vectorized instructions, including microops.
- Detailed tutorials on how to support new instructions.
- Repo: <https://github.com/seanzw/gem5-avx>

OpenCL@FPGA (Undergraduate Thesis)

Sep. 2015 - Jun. 2016

- Supervised by Assoc. Prof. Fei Qiao, Tsinghua University
- Use OpenCL to implement CNN on Xilinx Alpha Data FPGA, and accelerate with pipeline.
- Paper on TENCON 16: Optimizing Convolutional Neural Network on FPGA under Heterogeneous Computing Framework with OpenCL

MicroPython on FPGA, Dept. EEE, Imperial College London

Jul. 2015 - Aug. 2015

- Supervised by Prof. Peter Y. K. Cheung, Head of Dept. EEE.
- Port MicroPython on Altera DE0-Nano-SoC FPGA.
- Build FFT example with DMA.
- Repo: <https://github.com/seanzw/MicroPythonFPGA>

Software Engineering Internship, Facebook, Menlo Park

Jun. 2017 - Sep. 2017

- Work in the infrastructure team to build an offline back test system.
- Reprocess all Ads classification streams to detect any regression.

PROFESSIONAL & PERSONAL SKILLS

Mathematic: Familiar with calculus, linear algebra, probability theory, discrete mathematics, algorithms.

Computer Capability: Skilled at C/C++, Python, MATLAB.

Language Proficiency: English: Toefl 114; German: B1 Level(MCER).

EXPERIENCE

Courses in CS

- Compilers by Alex Aiken, Stanford University
- Operating System Engineering, MIT
- Programming Languages by Dan Grossman, University of Washington
- Machine Learning by Andrew Ng, Stanford University
- Algorithms Part I & II by Robert Sedgewick, Princeton University
- Introduction to Computer Science and Programming, MIT
- Introduction to Probability, MIT
- Advanced Computer Graphics, Tsinghua University
- Computer Networks, Tsinghua University
- Software Engineering, Tsinghua University
- Computer Graphics (5.25/6), ETH Zurich
- Computer Vision (5.5/6), ETH Zurich

Children Education Program Volunteer, *Dream a Dream, Bangalore, India*

Jul. 2013 - Sept. 2013