

SUMMARY	Compute architecture researcher working on hardware-software co-design to improve system performance and energy efficiency.	
EDUCATION	Ph.D. in Computer Science Aug 2011 - Jul 2017 University of Pittsburgh, Pittsburgh, USA • Thesis: <i>"Addressing Prolonged Restore Challenges in Further Scaling DRAMs"</i> B.E. in Software Engineering Sep 2007 - Jun 2011 Northwestern Polytechnical University (NPU), Xi'an, China • Thesis: <i>"DNA Cryptography based on DNA Fragment Assembly"</i> (pub in ICIDT'2012)	
EXPERIENCES		
[Work]	AMD® Inc Seattle, USA Postdoctoral Researcher, AMD Research Aug 2017 - Present - Optimize GPU architectures to improve performance and save energy for future Exascale computing	
[Intern]	NVIDIA® Corporation Austin, USA Research Intern, Architecture Research Group May 2016 - Aug 2016 • Mentor: Niladrish Chatterjee Manager: Mike O'Connor - Design memory system for next generation GPUs to achieve better latency tolerance	
[GSR]	University of Pittsburgh Pittsburgh, USA Graduate Student Researcher, CS Department May 2013 - Apr 2016 • Advisors: Prof. Youtao Zhang, Prof. Bruce Childers and Prof. Jun Yang (ECE) - Improve system performance and energy efficiency via hardware-software co-designs	
[Intern]	Alipay® Technology Inc., Alibaba Hangzhou, China Java Developer Intern, Group Products Division Aug 2010 - Dec 2010 - Implement a source management system based on SOFA/Spring framework	
PROJECTS	(Selected research projects during work and Phd study)	
[Exascale]	Optimize GPU Computation for Future Exascale Supercomputing 2017.08- PathForward program of Department of Energy (DOE).	
[GPU]	Design Memory System for Next Generation GPUs 2016.05-2016.08 Envision the memory system requirements on future generation GPUs after Pascal; characterize and understand latency tolerance of GPU applications, and adapt cache designs to mitigate performance degradation of relaxed memory access latency. [Internal Reports & Presentations]	
[Approx]	Apply Approximate Computing to Improve Memory Performance 2015.10-2016.08 Write Pintool to annotate variables in source codes and dynamically alter register and memory values to inject runtime errors; implement cache and virtual memory to collect memory access traces, and adapt memory simulator to report performance and energy results. [PACT'2017, MemSys'2016]	
[Memory]	Improve performance and energy in DRAM and NVM 2013.2-2015.9 Perform pioneering studies on DRAM further scaling issues via modeling and simulation [HPCA'2016, TO-DAES'2017, DATE'2015]; propose encodings to shorten PCM write latency, and re-organize <i>Domain Wall Memory</i> (DWM) to reduce cache access energy [ISLPED'2013, ICCD'2015].	
RESEARCH	Memory System, GPU, Computer Architecture and Systems, Software-Hardware Co-design	
Publications	9 conference, 1 journal and 1 poster papers (full-list, Google Citation, DBLP)	
[C9]	Anthony Gutierrez, Bradford Beckmann, ...(11), Xianwei Zhang, Matt Sinclair HPCA'2018 - Lost in Abstraction: Pitfalls of Analyzing GPUs at the Intermediate Language Level. The 24th IEEE International Symposium on High-Performance Computer Architecture, Vienna, Austria, 2018.	
[C8]	Xianwei Zhang, Youtao Zhang, Bruce R. Childers and Jun Yang PACT'2017 - DrMP: Mixed Precision-Guided DRAM Restore for High Performance Approximate and Precise Computing. The 26th International Conference on Parallel Architectures and Compilation Techniques, Portland, Oregon, USA, 2017.	

- [J1] Xianwei Zhang, Youtao Zhang, Bruce R. Childers and Jun Yang TODAES'2017
- On the Restore Time Variations of Future DRAM Memory. ACM Trans. on Design Automation of Electronic Systems, Vol. 22(2), 26:1-26:24.
- [C7] Xianwei Zhang, Youtao Zhang, Bruce R. Childers and Jun Yang HPCA'2016
- Restore Truncation for Performance Improvement in Future DRAM Systems. The 22nd IEEE Symp. on High Performance Computer Architecture, Barcelona, Spain, 2016.
- [C6] Xianwei Zhang, Youtao Zhang, Bruce R. Childers and Jun Yang MemSys'2016
- AWARD: Approximation-aWare Restore in Further Scaling DRAM. The International Symposium on Memory Systems, Washington D.C., USA, October 2016.
- [C5] Xianwei Zhang, Youtao Zhang, Bruce R. Childers and Jun Yang DATE'2015
- Exploiting DRAM Restore Time Variations in Deep Sub-micron Scaling. The IEEE conference on Design, Automation and Test in Europe, Grenoble, France, 2015.
- [C4] Xianwei Zhang, Youtao Zhang and Jun Yang ICCD'2015
- DLB: Dynamic Lane Borrowing for Improving Bandwidth and Performance in Hybrid Memory Cube. The 33rd IEEE Int'l Conf. on Computer Design, New York City, USA, 2015.
- [C3] Xianwei Zhang, Youtao Zhang and Jun Yang ICCD'2015
- TriState-SET: Proactive SET for Improved Performance in MLC Phase Change Memories. The 33rd IEEE Int'l Conf. on Computer Design, New York City, USA, 2015.
- [C2] Xianwei Zhang, Youtao Zhang and Jun Yang ICCD'2015
- Exploit Common Source-Line to Construct Energy Efficient Domain Wall Memory based Caches. The 33rd IEEE Int'l Conf. on Computer Design, New York City, USA, 2015.
- [W1] Xianwei Zhang, Youtao Zhang and Jun Yang DAC'2015
- Adaptive Lane Borrowing of Hybrid Memory Cube. The 52nd ACM/IEEE Design Automation Conference (DAC), San Francisco, USA, 2015.
- [C1] Xianwei Zhang, Lei Jiang, Youtao Zhang, Chuanjun Zhang and Jun Yang ISLPED'2013
- WoM-SET: Lowering Write Power of Proactive-SET based PCM Write Strategy Using WoM Code. The 19th Int'l Symp. on Low Power Electronics and Design, Beijing, China, 2013.
*** Best Paper Award ***

COMP SKILLS **Programming:** C/C++, JAVA, Linux/Shell/AWK, Python, Android, SQL, R
Tools: Makefile, gcc/g++, GDB, Varius, Vim, Git, gem5, Intel Pin, L^AT_EX
Artifacts: *Framework of DRAM scaling study, Pin tool of assembly operation*
 Real-time Twitter posts using Arduino and sensors
 Python pub-quality plotting tool, Motion-based Android App, etc.

HONORS & AWARDS **Andrew Mellon Predoctoral Fellowship** *University of Pittsburgh*'2016
 - awarded to Phd students of exceptional achievement and promise
 Student Travel Awards *HPCA'2016, SPAA'2015, CS Dept.'*2016&2015
 Best Paper Award *ISLPED'2013*
 - based on the rating of anonymous reviewers and a panel of judges
 Recipient of 2011 graduation design (Thesis) key support fund *NPU'2011*
 - small research grant for undergraduate thesis project, 2.5% funding rate
 Tencent[®] Technology Excellence Scholarship *Tencent Inc.'*2009
 - top grade, 3 winners NPU-wide

MISC **Homepage:** <https://xianweiz.github.io>
Github: <https://github.com/xianweiz>
Blog: <http://iarchsyst.com>
Linkedin: <https://www.linkedin.com/in/xianweizhang/>