Xia Zhao, PhD

Artificial Intelligence Research Center   Email: zhaoxiahust@gmail.com
Academy of Military Science
Beijing, China

Education

Ph.D. in Electronics and Information Systems Department, Ghent University, 2019

Dissertation: "Exploiting Application Diversity in Throughput Processors".

Supervisor: Prof. Lieven Eeckhout

M.S. Computer Science and Technology, National University of Defense Technology, 2014.

> *GPA:* Top 2% All Core Courses are A.

B.S. Computer Science and Technology, Huazhong University of Science and Technology, 2012.

> *GPA:* Top 5%

Research Interest

My research interests focus on computer architecture with an emphasis on GPU system design, including Network-on-Chip, Warp Scheduling and Cache Design. Currently, I am working on how to effectively exploit application diversity in GPUs.

Work Experience

Artificial Intelligence Research Center

> Research Assistant, December 2019–Now.

Ghent University, System Performance Lab

> Research Assistant, September 2015–2019.

National University of Defense Technology, Computer Architecture Group

> Research Assistant, September 2012– May 2015.

Huazhong University of Science and Technology, SCTS Lab

> Research Assistant, September 2011–May 2012.

Research

Conference Publications

1. **Xia Zhao**, Jahre Magnus, Lieven Eeckhout. Selective Replication in Memory-Side GPU Caches. *53rd International Symposium on Microarchitecture (MICRO)*, 2020 (HiPEAC Paper Award), CCF-A class

2. **Xia Zhao**, Jahre Magnus, Lieven Eeckhout. HSM: A Hybrid Slowdown Model for Multitasking GPUs. *25th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, 2020 (HiPEAC Paper Award), CCF-A class

3. **Xia Zhao**, Almutaz Adileh, Zhibin Yu, Zhiying Wang, Aamer Jaleel, Lieven Eeckhout. Adaptive Memory-Side Last-Level GPU Caching. *46th International Symposium on Computer Architecture (ISCA)*, 2019 (HiPEAC Paper Award), CCF-A class

4. **Xia Zhao**, Zhiying Wang, Lieven Eeckhout. Classification-Driven Search for Effective SM Partitioning in GPU Multitasking. *32nd ACM International Conference on Supercomputing (ICS)*, 2018, CCF-B class

5. Yuxi Liu, **Xia Zhao**, Magnus Jahre, Zhenlin Wang, Xiaolin Wang, Yingwei Luo, Lieven Eeckhout. Get Out of the Valley: Power-Efficient Address Mapping for GPUs. *45th International Symposium on Computer Architecture (ISCA)*, 2018 (HiPEAC Paper Award), CCF-A class

6. Lu Wang, **Xia Zhao**, David Kaeli, Zhiying Wang, Lieven Eeckhout. Intra-Cluster Coalescing to Reduce GPU NoC Pressure. *32nd IEEE International Parallel & Distributed Processing Symposium (IPDPS)*, 2018, CCF-B class

7. Yuxi Liu, **Xia Zhao**, Zhibin Yu, Zhenlin Wang, Xiaolin Wang, Yingwei Luo, Lieven Eeckhout. BACM: Barrier-Aware Cache Management for Irregular Memory-Intensive GPGPU Workloads. *35th IEEE International Conference on Computer Design (ICCD)*, 2017, CCF-B class

8. Yuxi Liu, **Xia Zhao**, Zhibin Yu, Zhenlin Wang, Xiaolin Wang, Yingwei Luo, Lieven Eeckhout. BACM: Barrier-Aware Cache Management for Irregular Memory-Intensive GPGPU Workloads. *26th IEEE International Conference on Parallel Architectures and Compilation Techniques (PACT)*, 2017 (Poster), CCF-B class

9. Chen Li, Sheng Ma, Lu Wang, Zicong Wang, **Xia Zhao**, Yang Guo. DLL: A Dynamic Latency-Aware Load-Balancing Strategy in 2.5D NoC Architecture. *34th IEEE International Conference on Computer Design (ICCD)*, 2016, CCF-B class

10. **Xia Zhao**, Sheng Ma, Chen Li, Lieven Eeckhout, Zhiying Wang. (2016). A Heterogeneous Low-Cost and Low-Latency Ring-Chain Network for GPGPUs. *34th IEEE International Conference on Computer Design (ICCD)*, 2016, CCF-B class

11. **Xia Zhao**, Sheng Ma, Yuxi Liu, Lieven Eeckhout, Zhiying Wang. (2016). A Low-Cost Conflict-Free NoC for GPGPUs. *53rd Design Automation Conference (DAC)*, 2016 (HiPEAC Paper Award), CCF-A class

12. **Xia Zhao**, Li Shen, Xin Liu, Zhiying Wang. (2014). Parallelization of GPU Simulator on Multi-core Platforms. *Advanced Computer Architecture (ACA)*, 2014 (Best Student Paper Award).

Journal Publications

13. **Xia Zhao**, Sheng Ma, Zhiying Wang, Natalie Enright Jerger, Lieven Eeckhout. CD-Xbar: A Converge-Diverge Crossbar Network for High-Performance GPUs. *IEEE Transactions on Computers (TC)*, 2019 (Featured Paper of the month), CCF-A class

14. Lu Wang, **Xia Zhao**, David Kaeli, Zhiying Wang, Lieven Eeckhout. Intra-Cluster Coalescing to Reduce GPU NoC Pressure. *IEEE Transactions on Computers (TC)*, 2019, CCF-A class

15. **Xia Zhao**, Zhiying Wang, Lieven Eeckhout. HeteroCore GPU to Exploit TLP-Resource Diversity. *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, 2019, CCF-A class

16. Zhen Xu, **Xia Zhao**, Zhiying Wang, Canqun Yang. Application-aware NoC management in GPUs multitasking. *The Journal of Supercomputing*, 2019, CCF-C class

17. **Xia Zhao**, Yuxi Liu, Almutaz Adileh, Lieven Eeckhout. LA-LLC: Inter-Core Locality-Aware Last-Level Cache To Exploit Many-to-Many Traffic in GPGPUs. *IEEE Computer Architecture Letters (CALs)*, 2017

18. **Xia Zhao**, Sheng Ma, Wei Chen and Zhiying Wang. Exploiting Parallelism in the Simulation of GPGPU Program. *Journal of shanghai Jiaotong University (Science)*, 2015

Academic Service

Reviewer of ISCA, MICRO, GPGPU, TACO, CALs et.al.

Grants, Fellowships, & Awards

ACACES Summer School Grant, HiPEAC, 2019

HiPEAC Paper Award, HiPEAC, 2019

Featured Paper in the September, IEEE Transactions on Computers, 2019

HiPEAC Paper Award, HiPEAC, 2018

ACACES Summer School Grant, HiPEAC, 2017

HiPEAC Paper Award, HiPEAC, 2016

Special Research Fund, Ghent University, 2016

CSC scholarship, China Scholarship Council, 2015

Best Student Paper, Advanced Computer Architecture, 2014 (2/67)

National Second Award, National Postgraduate Mathmatic Contest in Modeling, 2013

The Excellent Graduate, HuaZhong University of Science and Technology, 2012

National Encouragement scholarship, HuaZhong University of Science and Technology, 2012 (2%)

National Scholarship, HuaZhong University of Science and Technology, 2011 (1%)

Merit Student, HuaZhong University of Science and Technology, 2011

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Prof. Lieven Eeckout
Professor at Ghent University. IEEE Fellow.

Prof. David Kaeli
Professor at Northeastern University. IEEE Fellow.

Prof. Koen De Bosschere
Professor and Head of Department at Ghent University.

Dr. Aamer Jaleel
Principal Research Scientist at Nvidia.