Xuhao Chen

Curriculum Vitae
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Affiliation: Institute of Software,
College of Computer,
National University of Defense Technology (NUDT)
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Research Interests

Computer architecture and computer systems, with an emphasis on heterogeneous processors and massively parallel accelerators. Recent work focuses on algorithmic, compiler, runtime, and architectural support for irregular parallelism, especially the memory irregularity in modern parallel processors. PhD work focuses on cache architecture design and management for GPGPUs.

Current Position

Assistant Research Scientist at the Institute of Software
2015.01∼now
National University of Defense Technology, P.R.China
Research Area: Computer System Architecture

Education

Ph.D. in Computer Science
2009.09∼2014.12
National University of Defense Technology, P.R.China
Advisor: Professor Zhiying Wang
ThesisTitle: Cache Management for Manycore Accelerators
Visiting Student in Electrical and Computer Engineering
2012.10∼2014.10
University of Illinois at Urbana-Champaign
Supervisor: Professor Wen-Mei Hwu
Research Project: Architectural Support for GPU Computing
B.S. in Computer Science
2005.09∼2009.06
National University of Defense Technology, P.R.China
Ranking: 1/144

Honors and Awards

◇ The CCF Distinguished PhD Dissertation Award Nominee, 2015
◇ The Ci Yun-gui Computer Technology Scholarship for Graduates, NUDT, 2010
◇ **Mathematical Contest In Modeling (MCM), Meritorious Winner, COMAP, USA, 2009**
◇ Distinguished Graduate of NUDT, NUDT, 2009
◇ Outstanding Student Award, NUDT, 2009
◇ The Ci YunGui Computer Technology Scholarship for Undergraduates, NUDT, 2008
◇ China Undergraduate Mathematical Contest in Modeling (CUMCM), First Prize Winner, China, 2007
◇ The YinHe First-rank Scholarship, NUDT, 2007

Research Experience

◇ 2016.01∼2018.12 The National Natural Science Foundation of China Grant No. 61502514, `Memory Hierarchy Design and Management for Energy-efficient Heterogeneous Processors`

◇ 2012.01∼2015.12 The National High-Tech Research & Development Program of China (863 Program) Grant No. 2012AA010905, `Programming and Runtime Environment for Novel Multicore and Manycore Processors`

◇ 2011.01∼2013.12 The National Natural Science Foundation of China Grant No. 61070037, `On-Chip Manycore Cluster Architecture`

◇ 2007.07∼2011.06 The National Basic Research Program of China (973 Project) Grant No.2007CB310901, `Fundamental Theory and Method Study on Computer System Virtualization`

◇ 2007.07∼2011.06 The National Natural Science Foundation of China Grant No.60803041, `Multicore Architectural Support for Efficient and Transparent Virtualization`

◇ 2009.09∼2010.06 Outstanding Graduate Fund of Innovation in NUDT

◇ 2011.09∼2013.06 Outstanding Ph.D. Student Fund of Innovation in NUDT

Publications

◇ Hang Zhang, Xuhao Chen, Nong Xiao, Fang Liu, Optimizing STT-RAM Based Register File Energy Consumption on GPGPU with Delta Compression, `In Proceeding of the 53rd Design Automation Conference` (**DAC-53**), June 5-9, 2016. Austin, TX

◇ Hang Zhang, Xuhao Chen, Nong Xiao, Fang Liu, Red-Shield: Shielding Read Disturbance for STT-RAM Based Register files on GPUs, `In Proceeding of the 26th Great Lakes Symposium on VLSI` (**GLSVLSI-26**), May 18-20, 2016. Boston, MA

◇ Xuhao Chen, Li-Wen Chang, Christopher I. Rodrigues, Jie Lv, Zhiying Wang, Wen-Mei W. Hwu. Adaptive Cache Management for Energy-efficient GPU Computing. `In Proceeding of the 47th Annual IEEE/ACM International Symposium on Microarchitecture` (**MICRO-47**), December 13-17, 2014. Cambridge, UK

◇ Xuhao Chen, Shengzhao Wu, Li-Wen Chang, Wei-Sheng Huang, Carl Pearson, Zhiying Wang, Wen-Mei W. Hwu. Adaptive Cache Bypass and Insertion for Many-core Accelerators. `In Proceeding of the Second ACM International Workshop on Many-core embedded systems` (MES '14), in conjunction with ISCA-41, June 15, 2014. Minneapolis, MN

◇ Xuhao Chen, Li Shen, Zhiying Wang, Zhong Zheng, Wei Chen, Binary Compatibility for Embedded Systems using Greedy Subgraph Mapping, `SCIENCE CHINA Information Sciences`, July 2014, Volume 57, Issue 7, pp 1-16

◇ Xuhao Chen, Wei Chen, Jiawen Li, Zhong Zheng, Li Shen, Zhiying Wang, Characterizing Fine-Grain Parallelism on Modern Multicore Platform, `In Proceeding of the 17th IEEE International Conference on Parallel and Distributed Systems` (**ICPADS-17**), December 7-9, 2011. Tainan, Taiwan

Professional Skills

◇ Programming Languages: C, C++, OpenMP, CUDA, OpenCL and MPI

◇ Architectural simulators and tools: GPGPU-Sim and gem5

◇ EDA tools and HDLs: Xilinx ISE, ModelSim, Verilog

◇ Familiar with Linux kernel programming, LLVM and GCC

◇ Have strong ability on algorithm design and analysis

◇ Have abundant knowledge and experience in mathematical modeling

◇ Have strong ability to work collaboratively in a group environment

Languages

◇ English: IELTS score is 7 (Reading 8, Writing 6.5, Listening 6.5, Speaking 7.5)

◇ Chinese: Native language