Xuhao Chen **Curriculum Vitae, February 2017**

CONTACT INFORMATION

Institute of Software, College of Computer,
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RESEARCH INTEREST

Computer architecture and computer systems, with an emphasis on massively parallel accelerators. Recent work focuses on algorithmic, compiler, and architectural support for irregular parallelism, especially the memory irregularity in manycore processors. PhD work focuses on cache architecture design and management for graphics processing units (GPUs).

CURRENT POSITION

Assistant Research Scientist at the Institute of Software **Jan. 2015 - present**
National University of Defense Technology (NUDT)
Research Area: Computer Architecture

EDUCATION

Ph.D. in Computer Science **Dec. 2014**
National University of Defense Technology
Advisor: Professor Zhiying Wang
ThesisTitle: Cache Management for Manycore Accelerators

Visiting Student in Electrical and Computer Engineering **2012 - 2014**
University of Illinois at Urbana-Champaign
Advisor: Professor Wen-Mei Hwu
Research Project: Architectural Support for GPU Computing

B.S. in Computer Science **Jun. 2009**
National University of Defense Technology
Rank: 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 Yun-Gui Computer Technology Scholarship for Undergraduates, NUDT, 2008
- China Undergraduate Mathematical Contest in Modeling, First-rank Prize, 2007
- The YinHe First-rank Scholarship, NUDT, 2007

SELECTED RESEARCH PROJECTS

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

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

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

SELECTED PUBLICATIONS

[1] Pingfan Li, **Xuhao Chen**, Jie Shen, Jianbin Fang, Tao Tang, Canqun Yang, *High Performance Detection of Strongly Connected Components in Sparse Graphs on GPUs*,

In the Proceedings of the International Workshop on Programming Models and Applications for Multicores and Manycores (PMAM), in conjunction with PPoPP-22, Feb 4-8, 2017

[2] **Xuhao Chen**, Pingfan Li, Jianbin Fang, Tao Tang, Zhiying Wang, Canqun Yang, *Efficient and High-quality Sparse Graph Coloring on the GPU*, Concurrency and Computation: Practice and Experience, to appear

[3] 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

[4] Pingfan Li, **Xuhao Chen**, Zhe Quan, Jianbin Fang, Huayou Su, Tao Tang, Canqun Yang, *High Performance Parallel Graph Coloring on GPGPUs*, In Proceeding of the 30th IEEE International Parallel & Distributed Processing Symposium Workshop (IPDPSW), May 23-27, 2016

[5] 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

[6] **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

[7] **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

[8] **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

[9] **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

Professional Skills

- Programming Languages: C, C++, Python, OpenMP, CUDA, OpenCL and MPI
- Architectural simulators and tools: GPGPU-Sim and gem5
- EDA tools and HDLs: Xilinx ISE, ModelSim, Verilog
- Compilation tools: GCC, LLVM and NVCC

Service

- Invited reviewer for Microprocessors and Microsystems: Embedded Hardware Design

Languages

- English: IELTS score is 7 (Reading 8, Writing 6.5, Listening 6.5, Speaking 7.5)
- Chinese: Native language