Xuhao Chen

Curriculum Vitae, February 2017

CONTACT INFORMATION

College of Computer,
National University of Defense Technology
NO.109 Deya Road,
Changsha, Hunan, China 410073

Mobile: +86-13786170600
E-mail: cxh@illinois.edu
Website: https://chenxuhao.github.io

RESEARCH INTEREST

Computer architecture and computer systems, with an emphasis on massively parallel accelerators. Recent work focuses on efficient processing of emerging irregular algorithms (big-data analytics and machine learning).

CURRENT POSITION

Assistant Research Scientist at College of Computer **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
Thesis Title: 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] **Xuhao Chen**, Cheng Chen, Jie Shen, Jianbin Fang, Tao Tang, Canqun Yang, Zhiying Wang, *Orchestrating Parallel Detection of Strongly Connected Components on GPUs*, Parallel Computing, to appear

[2] 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, in conjunction with PPoPP-22, 2017

[3] **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, Volume 29, Issue 10, 2017

[4] Jianbin Fang, Peng Zhang, Zhaokui Li, Tao Tang, **Xuhao Chen**, Cheng Chen, Canqun Yang, *Evaluating Multiple Streams on Heterogeneous Platforms*, Parallel Processing Letters, Volume 26, Issue 4, 2016

[5] Hang Zhang, **Xuhao Chen**, Nong Xiao, Lei Wang, Fang Liu, Wei Chen, Zhiguang Chen, *Shielding STT-RAM Based Register files on GPUs Against Read Disturbance*, ACM Journal on Emerging Technologies in Computing Systems, Volume 10, Issue 5, 2016

[6] 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), 2016

[7] 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), 2016

[8] 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), 2016

[9] **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), 2014

[10] **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, 2014

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

[12] **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 International Conference on Parallel and Distributed Systems (ICPADS-17), 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