Cao Gao

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Research Interests

I am interested in computer architecture, hardware/software interface, and mobile systems in general. Currently working on designing mobile architecture for future machine learning algorithms.

Education

- **Ph.D. , *Computer Science and Engineering, University of Michigan, Ann Arbor, MI*** *2014.1 – Present*
  Area of Specialization: Computer Engineering --- Hardware Advisor: Prof. Trevor Mudge
- **M.S., *Computer Science and Engineering, University of Michigan, Ann Arbor, MI*** *2012.9 – 2013.12*
  Overall GPA: 4.0/4.0
- **B.Eng. , *College of Electrical Engineering, Zhejiang University, Hangzhou, Zhejiang, China*** *2008.9 – 2012.6*
  Major: Electronic and Information Engineering Minor: English
  Member of Chu Kochen Honors College Overall GPA: 3.91/4.0
- ***National Cheng Kung University, Tainan, Taiwan, R.O.C*** *2010.9 – 2011.1*
  Exchange student in College of Electrical Engineering and Computer Science Overall GPA: 93.7/100

Employment

- ***ARM Ltd., Austin, TX*** *2014.6 – 2014.8*
  R&D Intern at the Mobile System Group

Publications

- Q. Zheng, C. Gao, T. Mudge, and R.G. Dreslinski. *Leveraging Mobile GPUs for Flexible High-speed Wireless Communication.* The 3rd International Workshop on Parallelism in Mobile Platforms (PRISM-3), June 2016.
- C. Gao, A. Gutierrez, M. Rajan, R.G. Dreslinski, T. Mudge, and C.J. Wu. *A Study of Mobile Device Utilization*. 2015 IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS), March 2015.
- C. Gao, A. Gutierrez, R.G. Dreslinski, T. Mudge, K. Flautner, and G. Blake. *A Study of Thread Level Parallelism on Mobile Devices.* 2014 IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS), March 2014.

Major Projects and Courses

- Accelerating Deep Learning Algorithms on Mobile Devices
  Analyze the characteristics of *Deep Neural Network* on mobile GPUs
- A micro-Joule deep learning inference accelerator for IoT devices
  Design an ultra-low power accelerator for machine learning related applications such as keyword spotting
  Develop the overall architecture, ISA, and compiler for the accelerator
- User Quality-of-Experience Metrics for Android Applications
  Develop a set of user responsiveness and experience metrics for a set of Android applications
  Implement a framework to automate workload execution and metrics collection
- A Study of Mobile Device Utilization
  Analyze the CPU and GPU utilization of a wide range of commonly used mobile applications
- *EECS 583 – Advanced Compilers* Grade: A *Fall 2013*
  Design of a loop-distribution compiler optimization technique in LLVM
- *EECS 570 – Parallel Computer Architecture* Grade: A *Winter 2013*
- *EECS 470 – Computer Architecture* Grade: A *Fall 2012*
  Design of a 2-way superscalar, out-of-order processor. Ranked 2nd among all groups, 1st in clock frequency
- *EECS 578 – Computer-Aided Design Verification of Digital Systems* Grade: A+ *Fall 2012*

Skills

Programming: C/C++, Python, Matlab, Verilog, CUDA
Environments: Linux, Android, Windows and Mac development, shell scripting, ARM streamline
Languages: Fluent in English, native Mandarin speaker