

JASON JONG KYU PARK

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WORK INTERESTS

My research interests are focused on how to build low-power, high-performance computer architectures with the help of compiler techniques. I am also interested in compiler techniques to optimize the codes running on existing GPUs or application-specific accelerators. I worked on application-specific accelerators and compiler optimizations for them. My recent work is more focused on efficient management of multitasking GPUs.

EDUCATION

- 09/2011 – 08/2016 **University of Michigan, Ann Arbor, MI**
- Ph.D. in Computer Science and Engineering (4.00 / 4.00 GPA)
- Advised by Prof. Scott Mahlke
- 09/2009 – 08/2011 **Seoul National University, Seoul, Korea**
- M.S in Electrical Engineering and Computer Science (4.07 / 4.30 GPA)
- Advised by Prof. Soo-Ik Chae
- 03/2005 – 08/2009 **Seoul National University, Seoul, Korea**
- B.S. in Electrical Engineering, Summa Cum Laude (3.98 / 4.30 GPA)
- Studied at National University of Singapore during Fall, 2008

WORK AND OTHER EXPERIENCE

- 08/2016 - Present **Google, Mountain View, CA**
- *Software Engineer*
- 09/2011 - 08/2016 **CCCP Research Group, University of Michigan, Ann Arbor, MI**
- *Graduate Student Research Assistant*
- 06/2015 - 09/2015 **Google, Mountain View, CA**
- *Software Engineering Intern*
- Accelerated DNN kernels on GPUs by 15% over cuDNN
- 06/2014 - 08/2014 **FutureWei Technologies, Plano, TX**
- *Research Intern*
- Suggested new custom instructions by automatic analysis of applications through compiler
- 06/2013 - 08/2013 **Intel Labs, Santa Clara, CA**
- *Research Intern*
- Explored the performance impact on dynamic binary translation when multiple threads are sharing code segment in the multicore environment

- 06/2012 - 08/2012 **Samsung Advanced Institute of Technology, Giheung, Korea**
 - *Research Intern*
 - Explored faster (both in compilation time and the resultant code execution time) compiler optimization passes for Coarse-Grained Reconfigurable Architecture
- 08/2009 - 07/2011 **Seoul National University, Seoul, Korea**
 - *Research Assistant*
- 03/2010 - 06/2010 **Seoul National University, Seoul, Korea**
 - *Teaching Assistant*
 - Designed new Verilog labs for Digital Systems Design and Experiments
- 07/2007 - 08/2007 **NCSOFT, Bundang, Korea**
 - *Summer Intern*
 - Application Testing and Debugging

PUBLICATIONS

- ASPLOS'17 **Dynamic Resource Management for Efficient Utilization of Multitasking GPUs**
 - *Jason Jong Kyu Park*, Yongjun Park, and Scott Mahlke
 - 22nd International Conference on Architectural Support for Programming Languages and Operating Systems, April, 2017
- SAMOS'16 **A Bypass First Policy for Energy-Efficient Last Level Caches**
 - *Jason Jong Kyu Park*, Yongjun Park, and Scott Mahlke
 - International Conference on Embedded Computer Systems: Architectures, Modeling, and Simulation, July, 2016
- SC'15 **ELF: Maximizing Memory-level Parallelism for GPUs with Coordinated Warp and Fetch Scheduling**
 - *Jason Jong Kyu Park*, Yongjun Park, and Scott Mahlke
 - The International Conference for High Performance Computing, Networking, Storage, and Analysis, Nov., 2015
- PACT'15 **Fine Grain Cache Partitioning using Per-Instruction Working Blocks**
 - *Jason Jong Kyu Park*, Yongjun Park, and Scott Mahlke
 - The 24th International Conference on Parallel Architectures and Compilation Techniques, Oct., 2015
- ASPLOS'15 **Chimera: Collaborative Preemption for Multitasking on a Shared GPU**
 - *Jason Jong Kyu Park*, Yongjun Park, and Scott Mahlke
 - 20th International Conference on Architectural Support for Programming Languages and Operating Systems, March, 2015
- ICFPT'13 **Efficient Execution of Augmented Reality Applications on Mobile Programmable Accelerators**
 - *Jason Jong Kyu Park*, Yongjun Park, and Scott Mahlke
 - The 2013 International Conference on Field-Programmable Technology
- ICFPT'12 **Efficient Performance Scaling of Future CGRAs for Mobile Applications**

- Yongjun Park, **Jason Jong Kyu Park**, and Scott Mahlke
- The 2012 International Conference on Field-Programmable Technology
- MICRO'12 **Libra: Tailoring SIMD Execution using Heterogeneous Hardware and Dynamic Configurability**
- Yongjun Park, **Jason Jong Kyu Park**, Hyunchul Park, and Scott Mahlke
- MICRO-45, Dec., 2012
- SOCC'10 **A 40 Mbps H.264/AVC CAVLC Decoder using A 64-bit Multiple-Issue Video Parsing Coprocessor**
- Soonwoo Choi, **Jason Jong Kyu Park**, Moonmo Koo, Daewoong Kim, and Soo-Ik Chae
- 23rd IEEE Intl. SoC Conference (SOCC), Sept., 2010

HONORS AND AWARDS

- 09/2008 - 12/2008 **Global Leadership Program - Overseas Study Scholarship, Seoul National University**
- A scholarship awarded to support study at National University of Singapore for one semester
- 03/2006 - 02/2009 **Kwanjeong Domestic Scholarship, Kwanjeong Educational Foundation**
- 08/2005 **Kkumnamu Scholarship, Seoul National University**
- A scholarship awarded to the top 30 first-year engineering students.

SELECTED COURSEWORKS

- Univ. of Michigan - EECS 470 : Computer Architecture (Fall 2011, A+)
- EECS 570 : Parallel Computer Architecture (Winter 2012, A+)
- EECS 573 : Microarchitecture (Fall 2012, A)
- EECS 583 : Advanced Compilers (Fall 2011, A+)
- SNU - Digital Logic Design and Labs, Digital Systems Design and Experiments
- Computer Organization, Embedded System Design, Digital Integrated Circuit Design
- Introduction to Operating System, Introduction to Compilers
- Introduction to Computer-Aided Design, SoC Design Automation

SKILLS

Programming Languages

- C, C++, Java, Python
- VHDL, Verilog HDL, Bluespec

Tools

- LLVM, Pin
- Synopsys Tools