John Alsop

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RESEARCH INTERESTS

My research focuses on making emerging heterogeneous memory systems more efficient. In particular, I have targeted the unique storage, coherence, and consistency challenges that arise when GPUs are tightly coupled with CPUs in a heterogeneous system.

EDUCATION

University of Wisconsin-Madison (Sep 2007 - Dec 2011) GPA 3.84/4.0
B.S. Computer Engineering, Computer Science

Technical University of Munich (Oct 2009 - Aug 2010)
Exchange Student: Electrical and Computer Engineering

University of Illinois at Urbana-Champaign (Sep 2013 - present) GPA 3.95/4.0
PhD Candidate: Electrical and Computer Engineering

ACADEMIC EXPERIENCE

Graduate Research Assistant, University of Illinois (Jan 2014 - present)

- *Heterogeneous relaxed atomics project: defining semantics and evaluating implementations for relaxed atomics in a CPU-GPU system*
- *GPU stall profiling project: identifying sources of GPU stalls in a CPU-GPU system* ***[ISPASS'16]***
- *GPU smart scheduling project: scheduling GPU thread blocks to maximize locality*
- *DeNovo for GPU project: achieving efficient synchronization in GPUs without the need for scopes* ***[MICRO'15]***
- *Stash project: combining the benefits of GPU scratchpad and cache in one specialized memory* ***[ISCA'15]***

Teaching Assistant, University of Illinois (Sep 2013 - Dec 2013)

- *Supervised and assisted undergraduate students in ECE385: Digital Systems Laboratory*
- *Evaluated lab projects and coursework*
- *Provided additional technical support and guidance during office hours*
- *Earned* ***Outstanding Teaching Assistant*** *award*

AWARDS AND SIGNIFICANT RECOGNITION

- Dan Vivoli Endowed Fellowship 2016
- Stash work [ISCA'15] selected as an IEEE Micro Top Picks 2016 Honorable Mention.
- GPU consistency work [MICRO'15] selected as an IEEE Micro Top Picks 2016 Honorable Mention
- Stash work [ISCA'15] featured in Computing Community Consortium (CCC) blog: http://www.cccblog.org/2015/09/08/cache-or-scratchpad-why-choose/
- Fall 2013 Outstanding Teaching Assistant as TA for ECE 385: Digital Systems Laboratory (top 10% of TAs based on student evaluations)
- Graduate with distinction from the University of Wisconsin
- Richardson Engineering Scholarship 2009
- Grainger Engineering Textbook Scholarship 2008, 2010
- Dean's Honor List each semester attended at University of Wisconsin
- National Merit Scholar

PUBLICATIONS

- **J. Alsop**, M. Orr, B. Beckmann, D. Wood, "Lazy Release Consistency for GPUs," to appear in *49th Annual IEEE/ACM International Symposium on Microarchitecture (MICRO)*, IEEE, 2016.

- **J. Alsop**, M. D. Sinclair, R. Komuravelli, and S. V. Adve, "Characterizing the sources of memory stalls for tightly coupled GPUs," in *IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS)*, IEEE, 2016.

- M. D. Sinclair, **J. Alsop**, and S. V. Adve, "Efficient GPU synchronization without scopes: Saying no to complex consistency models," in *48th Annual IEEE/ACM International Symposium on Microarchitecture (MICRO)*, IEEE, 2015. **IEEE Micro Top Picks 2016 Honorable Mention**

- R. Komuravelli, M. D. Sinclair, **J. Alsop**, M. Huzaifa, M. Kotsifakou, P. Srivastava, S. V. Adve, and V. S. Adve, "Stash: Have your scratchpad and cache it too," in *Proceedings of the 42nd Annual International Symposium on Computer Architecture (ISCA)*, pp. 707–719, ACM, 2015. **IEEE Micro Top Picks 2016 Honorable Mention**, featured in **Computing Community Consortium** (CCC) blog

INDUSTRY EXPERIENCE

AMD Research – Bellevue, WA
Co-op Engineer (Jun 2015 - Apr 2016)
*Investigated ways to improve coherence and consistency in tightly coupled CPU-GPU systems in order to enable efficient fine-grained synchronization **[MICRO'16]**. Contributed to GEM5 and the AMD GPU architectural simulator.*

Ikaria/INO Therapeutics – Madison, WI
Software Engineer (Jan 2012 - Dec 2013)
Developed and tested software for medical devices

Software Engineering Co-op (Jan 2011 - Dec 2011)
Developed software for medical devices, drafted software specification and verification testing documents, performed integration and unit testing of the software

UW Computer Systems Lab – Madison, WI
Student Worker (Oct 2010 - Dec 2011)
Developed administrative software, performed backups, installed and maintained machines on the network, troubleshot user problems

ADDITIONAL SKILLS

Software: Multifacet GEMS, GEM5, GPGPU-Sim, Modelsim, Quartus, Xilinx, git, mercurial, svn, vim, eclipse

Programming: C, C++, C#, Python, Verilog, VHDL, Java, Perl, PHP, Matlab, Javascript, HTML/CSS, SQL, VBA, Labview

Foreign Language: German