

JOSEPH LEE GREATHOUSE

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Experience

Advanced Micro Devices, Inc.	Fellow	Aug. 2012 – Present
<ul style="list-style-type: none">• Software architect for AMD's Instinct GPUs, handling the design of HW, FW, and SW interactions<ul style="list-style-type: none">• Co-designed multiple HW features, including coherence, performance monitors, TLBs, and RAS• Led debug, workaround development, and customer communication for multiple hardware issues• Created training materials on AMD HW & SW; delivered training to internal and external customers• Performance engineer responsible for optimizing SW, HW, and FW for GPU compute solutions<ul style="list-style-type: none">• Designed, implemented, and published new GPGPU algorithms, including for sparse linear algebra• Previously researched topics in performance and power monitoring and management in AMD Research<ul style="list-style-type: none">• Technical lead for a team of 10 engineers and multiple interns, focusing on HW/SW interaction topics• Created a new simulator for AMD's exascale program based on hardware performance monitoring• Awarded 22 US patents; 12 patent submissions pending; 24 conference and 7 workshop publications		
University of Michigan	Research Assistant	May 2007 – Aug. 2012
<ul style="list-style-type: none">• Identified methods of distributing security and correctness analyses to many users to reduce slowdown• Managed graduate and undergraduate students through the development of prototype systems		
University of Michigan	Teaching Assistant	Jan. 2012 – Apr. 2012
<ul style="list-style-type: none">• Led discussions and evaluated projects for graduate level parallel computer architecture course		
Kelly Services / Intel Corp.	Research Contractor	May 2010 – Oct. 2010
<ul style="list-style-type: none">• Researched HW & SW approaches for improving the speed of the Intel Inspector XE data race detector		
International Business Machines Corp.	Speed Team Intern	May 2008 – Aug. 2008
<ul style="list-style-type: none">• Designed and built an InfiniBand verification suite that caught multiple bugs in IBM PowerVM firmware		
University of Illinois	Teaching Assistant	Jan. 2005 – Aug. 2006
<ul style="list-style-type: none">• Taught discussion sections and graded for undergraduate computer architecture and digital logic courses		

Education

University of Michigan, Ann Arbor	
Ph.D. Computer Science and Engineering	May 2012
Advisor: Prof. Todd Austin	
Dissertation topic: Hardware Mechanisms for Distributed Dynamic Software Analysis	
University of Michigan, Ann Arbor	
M.S.E. Computer Science and Engineering	May 2008
University of Illinois at Urbana-Champaign	
B.S. Computer Engineering with Honors	May 2006

Computer Languages and Software Experience

Languages: C, C++, HIP, CUDA, OpenCL, x86 assembly, AMD GCN, CDNA, and RDNA assembly, Python
Software Systems: Linux kernel, multiple AMD-internal simulation, firmware, and hardware analysis tools

Honors and Associations

Association for Computing Machinery, Sr. Member	2016 IISWC Best Paper Award
Institute of Electrical and Electronics Engineers, Sr. Member	2011 CGO Best Student Presentation Award
Eta Kappa Nu Electrical & Computer Eng. Honor Society	Tau Beta Pi Engineering Honor Society