

# Daniel Lustig

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## Education

- **Princeton University**  
Ph.D. in Electrical Engineering, November 2015  
M.A. in Electrical Engineering, September 2011  
Advisor: Margaret Martonosi
- **University of Pennsylvania**  
B.S.E., *summa cum laude*, May 2009

## Professional Experience

- **NVIDIA**, Santa Clara, CA  
Oct. 2017 – Present Senior Research Scientist, NVIDIA Research  
Dec. 2015 – Sep. 2017 Research Scientist, NVIDIA Research
- **Princeton University**, Princeton, NJ  
Sep. 2009 – Nov. 2015 Graduate Student, Dept. of Electrical Engineering
- **Intel**, Hudson, MA  
Summer 2011, 2012, 2013 Graduate Technical Intern, VSSAD Group
- **Intel**, Hillsboro, OR  
Fall 2010 Graduate Technical Intern, Digital Enterprise Group
- **University of Pennsylvania**, Philadelphia, PA  
Jun. 2008 – Aug. 2009 Undergraduate Research Assistant

## Awards and Honors

- Named chair of the RISC-V Memory Consistency Model Task Group, April 2017
- COATCheck chosen as an IEEE Micro Top Pick of 2016
- CCICheck nominated for Best Paper at MICRO 2015 (one of three nominees)
- PipeCheck chosen as an IEEE Micro Top Pick of 2014
- PipeCheck nominated for Best Paper at MICRO 2014 (one of five nominees)
- Best in Session at SRC TECHCON 2014
- Intel PhD Fellowship, Fall 2013 – Spring 2014

- Triggered Instructions paper chosen as an IEEE Micro Top Pick of 2013
- Featured Inventor, Celebrate Princeton Invention 2012
- Francis Upton Fellowship, Princeton University, Fall 2009 – Present
- William L. Everitt Student Award of Excellence, University of Pennsylvania, Spring 2009
- Faculty Appreciation Award, University of Pennsylvania, Spring 2009
- Honorable Harold Berger Award, University of Pennsylvania, Spring 2009
- Tau Beta Pi membership, Fall 2007
- Eta Kappa Nu membership, Fall 2007
- National Science Foundation LS/AMP Research Fellowship, Summer 2007

## Publications

### *Textbooks*

- Abhishek Bhattacharjee and **Daniel Lustig**, “Architectural and Operating System Support for Virtual Memory”, Synthesis Lectures in Computer Architecture, Morgan & Claypool Publishers, September 2017.

### *Dissertations*

- **Daniel Lustig**, “Specifying, Verifying, and Translating Between Memory Consistency Models”, *Ph.D. Dissertation, Princeton University*, November 2015.

### *Conference Proceedings (refereed)*

- Yatin A. Manerkar, **Daniel Lustig**, and Margaret Martonosi, “RTLCheck: Verifying the Memory Consistency of RTL Designs”, *50th International Symposium on Microarchitecture (MICRO)*, Cambridge, MA, October 2017.
- **Daniel Lustig**, Andrew Wright, Alexandros Papakonstantinou, and Olivier Giroux, “Automatic Synthesis of Comprehensive Memory Model Litmus Test Suites”, *22nd International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, Xi’an, China, April 2017.
- Caroline Trippel, Yatin A. Manerkar, **Daniel Lustig**, Michael Pellauer, and Margaret Martonosi, “TriCheck: Memory Model Verification at the Trisection of Software, Hardware, and ISA”, *22nd International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, Xi’an, China, April 2017.
- **Daniel Lustig\***, Geet Sethi\*, Margaret Martonosi, and Abhishek Bhattacharjee, “COATCheck: Verifying Memory Ordering at the Hardware-OS Interface”, *21st International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)*, Atlanta, GA, April 2016.
- Yatin A. Manerkar, **Daniel Lustig**, Michael Pellauer, and Margaret Martonosi, “CCICheck: Using  $\mu$ hb Graphs to Verify the Coherence-Consistency Interface”, *48th International Symposium on Microarchitecture (MICRO)*, Honolulu, HI, December 2015. **One of three nominees for Best Paper.**

- **Daniel Lustig**, Caroline Trippel, Michael Pellauer, and Margaret Martonosi, “ArMOR:Defending Against Consistency Model Mismatches in Heterogeneous Architectures”, *42nd International Symposium on Computer Architecture (ISCA)*, Portland, OR, June 2015.
- **Daniel Lustig**, Michael Pellauer, and Margaret Martonosi, “PipeCheck: Specifying and Verifying Microarchitectural Enforcement of Memory Consistency Models”, *47th International Symposium on Microarchitecture (MICRO)*, Cambridge, UK, December 2014. **One of five nominees for Best Paper.**
- Angshuman Parashar, Michael Pellauer, Michael Adler, Bushra Ahsan, Neal Crago, **Daniel Lustig**, Vladimir Pavlov, Antonia Zhai, Mohit Gambhir, Aamer Jaleel, Randy Allmon, Rachid Rayess, Stephen Maresh, and Joel Emer, “Triggered Instructions: A Control Paradigm for Spatially-Programmed Architectures”, *40th International Symposium on Computer Architecture (ISCA)*, Tel Aviv, Israel, June 2013.
- **Daniel Lustig**, Margaret Martonosi, “Reducing GPU Offload Latency via Fine-Grained CPU-GPU Synchronization”, *19th International Symposium on High Performance Computer Architecture (HPCA)*, Shenzhen, China, February 2013.
- Abhishek Bhattacharjee, **Daniel Lustig**, and Margaret Martonosi, “Shared Last-Level TLBs for Chip Multiprocessors”, *17th International Symposium on High Performance Computer Architecture (HPCA)*, San Antonio, TX, USA, February 2011.

### *Journal Articles (refereed)*

- **Daniel Lustig**, Geet Sethi, Abhishek Bhattacharjee, and Margaret Martonosi, “Transistency Models: Memory Ordering at the Hardware-OS Interface”, *IEEE Micro*, 37 (3), May-June 2017. Issue: Top Picks from the Computer Architecture Conferences of 2014.
- Michael Pellauer, Angshuman Parashar, Michael Adler, Bushra Ahsan, Randy Allmon, Neal Crago, Kermin Fleming, Mohit Gambhir, Aamer Jaleel, Tushar Krishna, **Daniel Lustig**, Stephen Maresh, Vladimir Pavlov, Rachid Rayess, Antonia Zhai, Joel Emer, “Efficient Control and Communication Paradigms for Coarse-Grained Spatial Architectures”, *ACM Transactions on Computer Systems (TOCS)*, 33(3), September 2015.
- **Daniel Lustig**, Michael Pellauer, and Margaret Martonosi, “Verifying Correct Microarchitectural Enforcement of Memory Consistency Models”. *IEEE Micro*, 35 (3), May-June 2015. Issue: Top Picks from the Computer Architecture Conferences of 2014.
- Angshuman Parashar, Michael Pellauer, Michael Adler, Bushra Ahsan, Neal Crago, **Daniel Lustig**, Vladimir Pavlov, Antonia Zhai, Mohit Gambhir, Aamer Jaleel, Randy Allmon, Rachid Rayess, Stephen Maresh, and Joel Emer, “Efficient Spatial Processing Element Control via Triggered Instructions”, *IEEE MICRO*, 34 (3), May-June 2014. Issue: Top Picks of the Computer Architecture Conferences of 2013.
- **Daniel Lustig**, Abhishek Bhattacharjee, and Margaret Martonosi, “TLB Improvements for Chip Multiprocessors: Inter-Core Cooperative Prefetchers and Shared Last-Level TLBs”, *ACM Transactions on Architecture and Code Optimization (TACO)*, 10(1), April 2013.
- **Daniel Lustig**, “The Algebraic Independence of the Sum of Divisors Functions”, *Journal of Number Theory*, 130 (11), 2010.

### *Patents*

- **Daniel Lustig**, Margaret Martonosi, “Fine-Grained CPU-GPU Synchronization Using Full/Empty Bits”, pending

### *Other Selected Talks and Presentations*

- “RISC-V Memory Consistency Model Status Update”, 7th RISC-V Workshop, Milpitas, CA, December 2017
- “Status of the RISC-V Memory Consistency Model”, 6th RISC-V Workshop, Shanghai, China, May 2017
- 2nd Career Workshop for Women and Minorities in Computer Architecture (CWWMCA), Honolulu, HI, December 2015

### Professional Service

- Chair of the RISC-V Memory Consistency Model Task Group
- Program Committee, IISWC 2016, 2017
- External Reviewer, ASPLOS 2018
- External Reviewer, ISCA 2014, 2017
- External Reviewer, MICRO 2016
- External Reviewer, PLDI 2016
- Reviewer, IEEE CAL, 2013, 2015
- Reviewer, IEEE Micro, 2012, 2013, 2017

### Teaching Experience

- Spring 2012      Teaching Assistant, Princeton University  
ELE/COS 475: Advanced Computer Architecture (Instructor: David Wentzlaff)
- Spring 2009      Teaching Assistant, University of Pennsylvania  
ESE 350: Microcontrollers and Embedded Systems (Instructor: Lunal Khuon)
- Fall 2008, Fall 2007      Teaching Assistant, University of Pennsylvania  
ESE 350: Principles of Digital Design (Instructor: Jan van der Spiegel)

Last updated: December 10, 2017

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