

AASHEESH KOLLI

Curriculum Vitae – July 2019

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Email: akolli@psu.edu – [Website](#) – [Google Scholar](#) – [DBLP](#)

RESEARCH INTERESTS

Computer architecture, multiprocessor systems, systems software, persistent memories, FPGAs

EDUCATION

PhD, Computer Science and Engineering *Univ. of Michigan, Ann Arbor, May 2017*
Advisor: Prof. Thomas F. Wenisch
Dissertation Title: Architecting Persistent Memory Systems

MSc, Computer Science and Engineering *Univ. of Michigan, Ann Arbor, May 2013*

BE, Electrical and Electronics + MSc, Economics *BITS-Pilani, India, May 2011*
Thesis Advisor: Prof. Rajeev Balasubramonian, University of Utah

PROFESSIONAL EXPERIENCE

Pennsylvania State University, State College, PA *Aug 2018 – Present*
Assistant Professor, Computer Science and Engineering

VMware Research, Palo Alto, CA *Jan 2019 – Present*
Affiliate Researcher

Pennsylvania State University, State College, PA *Aug 2017 – Aug 2018*
Adjunct Assistant Professor

VMware Research, Palo Alto, CA *Aug 2017 – Aug 2018*
Post-doc Researcher

Parabricks, Ann Arbor, MI *May 2017 – Aug 2017*
Software Engineer

Google, Madison, WI *May 2016 – Aug 2016*
Software Engineering Intern

HP Labs, Palo Alto, CA *May 2015 – May 2016*
Research Intern

ARM, Cambridge, UK *May 2013 – Dec 2013*
Research Intern

HONORS AND AWARDS

1. Best Paper Award - SYSTOR [[Link](#)] 2019
2. BITS Pilani Alumni Association Global 30 Under 30 Award [[Link](#)] 2019
3. Paper selected as IEEE Micro Top Picks in Computer Architecture [[Link](#)] 2018
4. ACM SIGARCH/IEEE CS TCCA Outstanding Dissertation Award [[Link](#)] 2018
5. Best Paper Award Nomination - MICRO [[Link](#)] 2016
6. Rackham Graduate Fellowship, University of Michigan 2011

CONFERENCE PUBLICATIONS

1. R. Kadekodi, S.K. Lee, S. Kashyap, T. Kim, [A. Kolli](#), V. Chidambaram. “SplitFS: Reducing Software Overhead in File Systems for Persistent Memory” Symposium on Operating System Principles (**SOSP**), Oct 2019. [**To Appear**]
2. S. Novakovic, Y. Shan, [A. Kolli](#), M. Cui, Y. Zhang, H. Eran, L. Liss, M. Wei, D. Tsafir, M. Aguilera. “Storm: a fast transactional dataplane for remote data structures” International Systems and Storage Conference (**SYSTOR**), Jun 2019.
***Received best paper award.**
3. S. Liu, K. Seemakhupt, G. Pekhimenko, [A. Kolli](#), S. Khan. “Janus: Optimizing Memory and Storage Support for Non-Volatile Memory Systems” International Symposium on Computer Architecture (**ISCA**), Jun 2019.
4. S. Liu, Y. Wei, J. Zhao, [A. Kolli](#), S. Khan. “PMTTest: A Fast and Flexible Testing Framework for Persistent Memory Programs” International Conference on Architectural Support for Programming Languages and Operating Systems (**ASPLOS**), Apr 2019.
5. V. Gogte, [A. Kolli](#), S. Diestelhorst, W. Wang, P. M. Chen, S. Narayanasamy, T. F. Wenisch. “Software Wear Management for Persistent Memories” Usenix Conference on File and Storage Technologies (**FAST**), Feb 2019.
6. S. Liu, [A. Kolli](#), J. Ren, S. Khan. “Crash Consistency in Encrypted Non-Volatile Main Memory Systems” International Symposium on High Performance Computer Architecture (**HPCA**), Feb 2018.
7. [A. Kolli](#), V. Gogte, A. Saidi, S. Diestelhorst, P. M. Chen, S. Narayanasamy, T. F. Wenisch. “Language-level persistency” International Symposium on Computer Architecture (**ISCA**), Jun 2017.
***Selected as an IEEE Micro Top Picks in Computer Architecture 2018 paper.**
8. [A. Kolli](#), J. Rosen, S. Diestelhorst, A. Saidi, S. Pelley, S. Liu, P. M. Chen, T. F. Wenisch. “Delegated Persist Ordering”. International Symposium on Microarchitecture (**MICRO**), Oct 2016.
***Nominated for best paper award.**
9. V. Gogte, [A. Kolli](#), M. J. Cafarella, L. D’Antoni, T.F. Wenisch. “HARE: Hardware acceleration for regular expressions”. International Symposium on Microarchitecture (**MICRO**), Oct 2016.
10. [A. Kolli](#), S. Pelley, A. Saidi, P. M. Chen, T.F. Wenisch. “High-performance Transactions for Persistent Memories”. International Conference on Architectural Support for Programming Languages and Operating Systems (**ASPLOS**), Apr 2016.

11. J. Izraelevitz, T. Kelly, [A. Kolli](#). “Failure-Atomic Persistent Memory Updates via JUSTDO Logging”. International Conference on Architectural Support for Programming Languages and Operating Systems (**ASPLOS**), Apr 2016.
12. A. Hansson, N. Agarwal, [A. Kolli](#), A. N. Udipi, T. F. Wenisch. “Simulating DRAM controllers for future system architecture exploration”. International Symposium on Performance Analysis of Systems and Software (**ISPASS**), Mar 2014.
13. [A. Kolli](#), A. Saidi, T. F. Wenisch. “RDIP: Return-address-stack Directed Instruction Prefetching”. International Symposium on Microarchitecture (**MICRO**), Dec 2013.

JOURNAL PUBLICATIONS

1. [A. Kolli](#), V. Gogte, A. Saidi, S. Diestelhorst, W. Wang, P. M. Chen, S. Narayanasamy, T. F. Wenisch. “Language Support for Memory Persistency”. IEEE Micros Top Picks in Computer Architecture journal (**Top Picks**), May 2019.

REFEREED WORKSHOP PUBLICATIONS

1. I. Calciu, I. Puddu, [A. Kolli](#), A. Nowatzky, J. Gandhi, O. Mutlu, P. Subrahmanyam. “Project PBerry: FPGA Acceleration for Remote Memory”. Workshop on Hot Topics in Operating Systems (**HotOS**), May 2019.
2. I. Calciu, [A. Kolli](#), J. Gandhi, S. Novakovic, M. Aguilera, R. Venkatasubramanian and P. Subrahmanyam. “Resource Disaggregation for the 99%”. Workshop on Warehouse-scale Memory Systems (**WAMS**), Mar 2018.
3. [A. Kolli](#), J. Gandhi, I. Calciu, S. Novakovic. “Remote Memory Persistency”. Workshop on Warehouse-scale Memory Systems (**WAMS**), Mar 2018.
4. [A. Kolli](#), V. Gogte, A. Saidi, S. Diestelhorst, P. M. Chen, S. Narayanasamy, T. F. Wenisch. “TARP: Translating Acquire-Release Persistency”. Non-Volatile Memory Workshop (**NVMW**), Mar 2017.
5. [A. Kolli](#), S. Pelley, A. Saidi, P. M. Chen, T. F. Wenisch. “Persistency programming 101”. Non-Volatile Memory Workshop (**NVMW**), Mar 2015.

NON-REFEREED PUBLICATIONS

1. A. Tavakkol, [A. Kolli](#), S. Novakovic, K. Razavi, J. Gomez-Luna, H. Hassan, C. Barthels, Y. Wang, M. Sadrosadati, S. Ghose, A. Singla, P. Subrahmanyam, O. Mutlu. “Enabling Efficient RDMA-based Synchronous Mirroring of Persistent Memory Transactions”. arXiv:1810.09360 [[Link](#)], Oct 2018.

POSTERS

1. R. Kadekodi, S. K. Lee, [A. Kolli](#), V. Chidambaram. “Ledger: Increasing Performance of POSIX Applications on Persistent Memory”. Symposium on Operating Systems Design and Implementation (**OSDI**), Oct 2018.
2. P. Fernando, I. Calciu, J. Gandhi, A. Gavriloska, [A. Kolli](#). “Persistence and Synchronization: Friends or Foes?”. Symposium on Operating Systems Principles (**SOSP**), Oct 2017.

PATENTS

1. I. Calciu, J. Gandhi, P. Fernando, [A. Kolli](#) “Using TSX to speedup transactions in NVM”
US Patent Filed.
2. I. Calciu, [A. Kolli](#) “Cacheline persistence indicator for NVM using coherence states”
US Patent Filed.
3. T.P. Kelly, C.B. Morrey III, D. Chakrabarti, [A. Kolli](#), Q. Cai, A.C. Walton, J. Izraelevitz, “Register store”
US Patent Filed.
4. J. Izraelevitz, [A. Kolli](#), T.P. Kelly, C.B. Morrey III, “Resuming execution in response to a failure”
US Patent Filed.
5. S. Diestelhorst, [A. Kolli](#), A. Saidi, P.M. Chen, T.F. Wenisch. “Controlling memory access to non-volatile memory”
US Patent Filed.
6. A. Saidi, T.F. Wenisch and [A. Kolli](#). “Prefetching based upon return addresses”
US Patent Filed.

PRESS

1. Baking Specialization into Hardware Cools CPU Concerns [[Link](#)] *Next Platform, Sep 2016*

GRADUATE ADVISING

1. Muhammad Talha Imran, PhD candidate, Pennsylvania State University *Fall 2018 - Present*
2. Sara Mahdizadeh Shahri, PhD candidate, Pennsylvania State University *Fall 2018 - Present*
3. Yi Zheng, PhD candidate, Pennsylvania State University *Winter 2019 - Present*

UNDERGRADUATE ADVISING

1. Lukas Marcelis, Pennsylvania State University *Winter 2019 - Present*

TEACHING

1. Fundamentals of Computer Architecture (CSE 530, [G]) *Fall 2019*
Pennsylvania State University
2. Introduction to Computer Architecture (CMPEN 431, [UG]) *Winter 2019*
Pennsylvania State University
3. Fundamentals of Computer Architecture (CSE 530, [G]) *Fall 2018*
Pennsylvania State University (Score: 6.07/7)
4. Introduction to Computer Organization (EECS 370, [UG]) *Fall 2016*
Instructor, University of Michigan (Score: 4.6/5)
5. Parallel Computer Architectures (EECS 570, [G]) *Winter 2016*
Graduate Student Instructor, University of Michigan

SERVICE

Conference Program Committee Member

- HPCA *2020*
- HPCA, ICDCS, USENIX ATC, MICRO, ICCD *2019*
- ISPASS *2018*

Journal Reviewer

- CAL *2019*
- CAL *2018*
- CAL *2017*
- CAL *2016*

Finance Chair

- IISWC *2018*

Workshop Organizer

- Young Architect Workshop (YArch) – **Initiated a new mentoring workshop** [[Link](#)] *2019*

OUTREACH ACTIVITIES

- Why should one do a PhD?** *Nov 2017*
Alumni seminar, BITS-Pilani
- CS KickStart Hardware Lab, Organizer** *Sep 2016*
Workshop aimed at improving female enrollments in CS at the Univ. of Michigan
- CELAB Reading Group, Moderator** *2015-2016*
University of Michigan

PRESENTATIONS

Remote Memory Persistency

- Workshop on Warehouse-scale Memory Systems (WAMS) *Mar 2018*

Language-level Persistency

- International Symposium on Computer Architecture (ISCA) *Jun 2017*

Architecting Persistent Memory Systems

- VMware Research *May 2017*
- University of Pennsylvania *Apr 2017*
- University of Rochester *Apr 2017*
- Stony Brook University *Mar 2017*
- Pennsylvania State University *Mar 2017*
- Virginia Tech *Mar 2017*
- Simon Fraser University *Mar 2017*
- Microsoft Research, Redmond *Feb 2017*
- North Carolina State University *Feb 2017*
- Snowflake Computing *Jan 2017*
- University of Utah *Jan 2017*

Invited guest lecture on Persistent Memory Systems

- Data Centric Systems (EECS 598 at Univ. of Michigan) by Prof. Reetuparna Das *Oct 2016*

Delegated Persist Ordering

- International Symposium on Microarchitecture (MICRO)

Oct 2016

Gearing up for the advent of persistent memory

- Google, Madison

July 2016

High-performance transactions for persistent memories

- International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS)

Apr 2016

- Non-Volatile Memories Workshop (NVMW)

Mar 2016

Persistency programming 101

- Non-Volatile Memories Workshop (NVMW)

Mar 2015

RDIP: Return-address-stack Directed Instruction Prefetching

- International Symposium on Microarchitecture (MICRO)

Dec 2013