



## Updates from our University Partners @ Berkeley, CMU, Cornell, Harvard, MIT, Stanford

### IAP Newsletter Q3 2016

#### IAP Workshops

##### Stanford Cloud Workshop - October 28, 2016

- The Stanford Cloud Workshop is scheduled for Friday October 28, 2016 on the Stanford campus. We have a great space reserved, the Oak Room in Tresidder Union on Lagunita Drive, adjacent to an expansive parking lot, and ~10 min walk from Gates Hall. Expect a day of talks and posters from IAP members and Stanford leaders in both EE and CS <http://www.industry-academia.org/event-stanford-cloud-workshop-2016.html>

##### Confirmed Speaker List (alphabetical order; please check the event page above for updates - additional speakers, abstracts, and schedule)

- Dr. Derek Chiou, Microsoft, "Microsoft's Production Configurable Cloud"
- Song Han, Prof. Bill Dally, and Prof. Mark Horowitz, "Deep Compression and Efficient Inference Engine: Deep Neural Network Model Compression and Hardware Acceleration"
- Dr. Qi Huang, Facebook, "A Streaming Video Engine for Distributed Encoding at Scale"
- Ana Klimovic, Dr. Heiner Litz, Prof. Christos Kozyrakis, Stanford, "ReFlex: Remote Flash  $\approx$  Local Flash"
- Prof. Phil Levis, Stanford, "Securing the Internet of Things"
- Prof. José Martínez, Cornell, "Fine-grain Management of Last-level Caches in Multicores with Minimal Hardware Support"
- Jan Medved, Cisco, "Overcoming Performance Challenges for a Massive Distributed Data Store: Network and IoT Data Management using the OpenDaylight SDN Controller"
- Dr. Pankaj Mehra, Sandisk, "Evolutionary Changes with Revolutionary Implications: Persistent Memory in the Data Center"
- Dr. Shubu Mukherjee, Cavium, "The Cavium Super Models"

- Prof. Timothy Roscoe, ETH Zurich, "Barrelfish: An OS for Real, Modern Hardware"
- Dr. Amin Vahdat, Google, "Cloud 3.0 and Software Defined Networking"

## Other Upcoming Events

### Cornell IoT Forum, Ithaca, NY - Nov 17, 2016

- 'Opportunities and Challenges in the Connected World': the event is focused on issues related to the issues of sensors and data (security, management, analytics, applications) in the IOT space. The target audience will be comprised of industrial technologists and executives, aspiring graduate student entrepreneurs looking to understand market opportunities, local and regional investors, faculty with a track record of collaboration and/or entrepreneurship. <http://wwwctl.cornell.edu/events/ocw>

## Recent Papers

- PACT, Haifa, Israel, September 11-15, 2016 – see *Proceedings of the 25th International Conference on Parallel Architectures and Compilation Techniques (PACT)*, Haifa, Israel, September 2016.
  - Ashutosh Pattnaik, Xulong Tang, Adwait Jog, Onur Kayiran, Asit K. Mishra, Mahmut T. Kandemir, Onur Mutlu, and Chita R. Das, "Scheduling Techniques for GPU Architectures with Processing-In-Memory Capabilities"
  - Heiner Litz, Benjamin Braun, David Cheriton, "EXCITE-VM: Extending the Virtual Memory System to Support Snapshot Isolation"
- MICRO 49, Taipei, Taiwan, October 15-19, 2016 - see *Proceedings of the 49th annual IEEE/ACM international symposium on Microarchitecture (MICRO-49), October 2016 (to appear)*
  - Mark C. Jeffrey, Suvinay Subramanian, Maleen Abeydeera, Joel Emer, Daniel Sanchez (MIT), "Data-Centric Execution of Speculative Parallel Programs"
  - Guowei Zhang, Virginia Chiu, Daniel Sanchez (MIT), "Exploiting Semantic Commutativity in Hardware Speculation"
  - Nandita Vijaykumar (Carnegie Mellon University), Kevin Hsieh (Carnegie Mellon University), Gennady Pekhimenko (Microsoft and Carnegie Mellon University), Samira Khan (University of Virginia), Ashish Shrestha (Carnegie Mellon University), Saugata Ghose (Carnegie Mellon University), Adwait Jog (College of William and Mary), Phillip B. Gibbons (Carnegie Mellon University), Onur Mutlu (ETH Zürich and Carnegie Mellon University), "Zorua: A Holistic Approach to Resource Virtualization in GPUs"
  - Yakun Sophia Shao (NVIDIA), Sam (Likun) Xi (Harvard University), Vijayalakshmi Srinivasan (IBM), Gu-Yeon Wei (Harvard University), David Brooks (Harvard University), "Co-Designing Accelerators and SoC Interfaces using gem5-Aladdin"
- ODSI, Savannah, GA, November 2-4, 2016 in *Proceedings of the 12th USENIX Symposium on Operating Systems Design and Implementation (OSDI)*, Savannah, GA, USA, November 2016.

- Khanh Nguyen, Lu Fang, Guoqing Xu, Brian Demsky, Shan Lu, Sanazsadat Alamian, and Onur Mutlu, "Yak: A High-Performance Big-Data-Friendly Garbage Collector"
- K V Rashmi, *University of California, Berkeley*; Mosharaf Chowdhury and Jack Kosaian, *University of Michigan*; Ion Stoica and Kannan Ramchandran, *University of California, Berkeley*, "EC-Cache: Load-Balanced, Low-Latency Cluster Caching with Online Erasure Coding"

### **Best Paper Nominees**

- Harshad Kasture, Daniel Sanchez (MIT), "TailBench: A Benchmark Suite and Evaluation Methodology for Latency-Critical Applications", in *Proceedings of the IEEE International Symposium on Workload Characterization (IISWC), September 2016 (Best Paper Nominee)*
- Milad Hashemi, Onur Mutlu, and Yale N. Patt, "Continuous Runahead: Transparent Hardware Acceleration for Memory Intensive Workloads", in *Proceedings of the 49th International Symposium on Microarchitecture (MICRO), Taipei, Taiwan, October 2016 (Best Paper Nominee)*

### **Milestones**

#### **SiFive: RISC-V Startup Debuts in July 2016**

SiFive was founded by the creators of the free and open RISC-V architecture as a reaction to the end of conventional transistor scaling and escalating chip design costs. RISC-V received the Graduate Best Poster Award at our Berkeley Workshop in 2015, authored by Andrew Waterman and his collaborators. <http://industry-academia.org/event-berkeley-cloud-workshop.html> SiFive co-founders include Andrew, Yunsup Lee, and Prof. Krste Asanović. For more info, see <https://www.sifive.com/about/>