



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

### IAP Newsletter Q2 2016

#### IAP Workshops

##### **Carnegie Mellon Cloud Workshop - April 8, 2016**

“The best seminar I attended in recent times... it covered topics in cloud computing, big data, wireless networks, software defined networking and storage. It was great to know the latest trends of research in these fields. I would definitely like to have more such seminars at Carnegie Mellon in the future.” – Udit Gupta, CS grad student, CMU

- Participating professors and students were from the CMU School of Computer Science and the Department of Electrical and Computer Engineering, comprising members from many of the research centers, groups and labs including **CyLab, Data Storage Systems Center, IoT Expedition, and Parallel Data Lab.**
- There were 13 technical presentations during the day by professors and industry engineers. Companies presenting technical work included **CAVIUM, CISCO, GOOGLE, HP ENTERPRISE, SAMSUNG, and SANDISK.** Several research posters were presented by CMU students.
- For more info, please see <http://www.industry-academia.org/event-carnegie-mellon-cloud-workshop-2016.html>

##### **OpenStack Training Workshop for Professionals at CMU-Si Valley**

- Earn a CMU Certificate at our next OpenStack workshop on Aug 15-18 <http://www.ini.cmu.edu/degrees/openstack/index.html>
- For info, please contact [exec-ed-openstack@sv.cmu.edu](mailto:exec-ed-openstack@sv.cmu.edu)

##### **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. Expect a day of talks and posters from IAP members and Stanford leaders in both EE and CS including the Stanford Secure Internet of Things Project, the Platform Lab, and many others <http://www.industry-academia.org/event-stanford-cloud-workshop-2016.html>

## Other Upcoming Events

### Cornell Workshop on Blockchains and Smart Contracts, Ithaca, NY, July 28-29, 2016

- This is co-hosted by the UC Berkeley-Cornell Initiative for Crypto-currencies and Contracts (IC3) and the Ethereum Foundation (Vitalik Buterin). Prof. Emin Gün Sirer who spoke at our Cornell Cloud Workshop last October is one of the IC3 Directors.
- For more info: <http://www.initc3.org/events-eth-workshop.php>

## Recent Events and Papers

- ISCA, Seoul, Korea, June 18-22, 2016
  - Kevin Hsieh, Eiman Ebrahimi, Gwangsun Kim, Niladrish Chatterjee, Mike O'Connor, Nandita Vijaykumar, Onur Mutlu, and Stephen W. Keckler, "[Transparent Offloading and Mapping \(TOM\): Enabling Programmer-Transparent Near-Data Processing in GPU Systems](#)"
  - Milad Hashemi, Khubaib, Eiman Ebrahimi, Onur Mutlu, and Yale N. Patt, "[Accelerating Dependent Cache Misses with an Enhanced Memory Controller](#)"
  - Adam Izraelevitz, Christopher Celio, Hokeum Kim, Brian Zimmer, Krste Asanovic, "Strober: Fast and Accurate Sample-Based Energy Simulation for Arbitrary RTL"
  - David Koeplinger, Raghu Prabhakar, Yaqi Zhang, Christina Delimitrou, Christos Kozyrakis, Kunle Olukotun, "Automatic Generation of Efficient Accelerators for Reconfigurable Hardware"
  - Brandon Reagan, Paul Whatmough, Robert Adolph, Gu-Yeon Wu, David Brooks, "Minerva: Enabling Low-Power, High-Accuracy Deep Neural Network Accelerators"
- DAC, Austin, Texas, June 5-9, 2016
  - Wayne Burlison, Onur Mutlu, and Mohit Tiwari, "[Who Is the Major Threat to Tomorrow's Security? You, the Hardware Designer](#)" *Invited Paper in Proceedings of the 53rd Design Automation Conference (DAC)*, Austin, TX, June 2016.
  - Krste Asanovic, DAC Sky Talk, "RISC-V: Instruction Sets Want to Be Free" <http://semiengineering.com/an-alternative-to-x86-arm-architectures/>
- 21st ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), Atlanta, GA, April 2-6, 2016
  - Xiaodong Wang and José Martínez, "ReBudget: Trading Off Efficiency vs. Fairness in Market-Based Multicore Resource Allocation via Runtime Budget Reassignment" -

<http://csl.cornell.edu/~martinez/publications.html>

- Anurag Mukkara, Nathan Beckmann, Daniel Sanchez, “Whirlpool: Improving Dynamic Cache Management with Static Data Classification”
  - Christina Delimitrou and Christos Kozyrakis, “HCloud: Resource-Efficient Provisioning in Shared Cloud Systems” - How to select between reserved and on-demand instances on cloud platforms.
  - Raghu Prabhakar, David Koeplinger, Kevin Brown, HyoukJoong Lee, Christopher De Sa, Christos Kozyrakis, Kunle Olukotun “Generating Configurable Hardware from Parallel Patterns” - How to generate optimized accelerators from domain specific languages.
- Open Server Summit, Santa Clara, April 13-14, 2016. See Keynotes and talks by IAP members including Cavium (Gopal Hegde), Cisco (Mark Nowell), and Samsung (Gunna Marripudi). <http://www.openserversummit.com>

### **Best Paper Awards**

- Krste Asanovic, “RISC-V: Instruction Sets Want to Be Free”, USENIX Vail Computer Elements Workshop, “Best Presentation” Award, Vail, Colorado, June 19-22, 2016

### **IAP Open Source Projects**

#### **Cornell Grad Students Contribute to OpenStack**

- Prof Robbert van Renesse, Prof Hakim Weatherspoon, Dr. Weijia Song and several Cornell grad students in CS and ECE contributed to the new cloud monitoring solution Kiloeyes (analogous to AWS Cloudwatch). The students collaborated with Tong Li at IBM to add security features and agents to gather metrics from OpenStack Nova and Neutron, plus data visualization of metrics stored in Elastic Search using Kibana. This builds on the fine work by CMU grad students last year in the Liberty release - <http://www.industry-academia.org/student-projects.html>
- Let us know if you are interested to participate in an open source project next semester.

### **Milestones**

#### **“40 Years of Patterson” – Thank you Dave!**

- After 40 amazingly productive years at Berkeley, the “40 Years of Patterson” celebration was conducted May 6-7 at UC Berkeley with several excellent talks by luminaries in computer science, including Dave’s Final Lecture “My Last Lecture: How To Be a Bad Professor”  
<http://www.eecs.berkeley.edu/XRG/patterson2016/>

- The new “David A. Patterson Computer Science Education and Research Fund” is dedicated to supporting the efforts of Berkeley Computer Science faculty and students to advance instruction and curriculum development in computing:  
“The endowed fund honors our distinguished colleague, Professor David A. Patterson, who has dedicated the last four decades to advancing the field of computer architecture, through highly visible research projects that have revolutionized the industry and a landmark series of textbooks that has transformed how computer architecture is taught throughout the world. Professor Patterson has personally taught thousands of students at Berkeley, and many more through his books and on-line courses. In addition, Professor Patterson has mentored more than 30 graduate students, many of whom are now leaders in academia and industry.” To make a donation online, please go to [give.berkeley.edu](http://give.berkeley.edu). Go Bears!

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