BPOE-9 workshop

The ninth workshop on **B**ig Data Benchmarks, **P**erformance **O**ptimization, and **E**merging Hardware

Williamsburg, 2018.3.25

http://prof.ict.ac.cn/bpoe-9

BPOE-9 Opening Remark

Jianfeng Zhan
ICT, Chinese Academy of Sciences
Williamsburg, 2018. 3. 25

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BPOE Workshop Motivation

- Big data (AI): multi-discipline research fields
  - System, architecture, data management, machine learning

- The benchmarks should be consistent across different communities.
  - A bad idea: a hardware accelerator for a naïve deep learning algorithm.

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Main Themes

Optimize
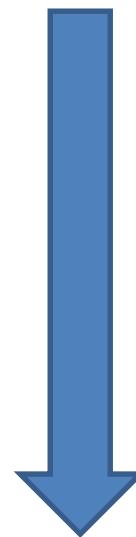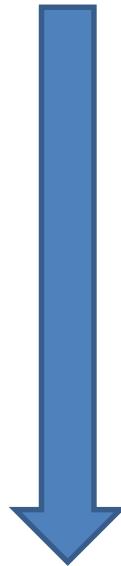
Big Data (AI) Benchmarks

Guide

Software systems	Emerging software
Commodity Hardware	Emerging Hardware

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Nine versions

BPOE-1	October 7, 2013	IEEE BigData Conference, San Jose, CA
BPOE-2	October 31,2013	CCF HPC China, Guilin, China
BPOE-3	December 5,2013	CCF Big Data Technology Conference 2013, BeiJing, China
BPOE-4	March 1, 2014	ASPLOS 2014, Salt Lake City, Utah, USA
BPOE-5	September 5, 2014	VLDB 2014, Hangzhou, Zhejiang Province, China
BPOE-6	Spetember 4th, 2015	VLDB 2015, Hilton, Waikoloa hotel·Kohala Coast, Hawai'i
BPOE-7	April 3, 2016	ASPLOS 2016, Atlanta, Georgia, USA
BPOE-8	April 9, 2017	ASPLOS 2017, Xi'an, China
BPOE-9	March 25, 2018	ASPLOS 2018, Williamsburg, VA, USA

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Many wonderful speakers

- Professor Lizy K John, University of Texas at Austin
- Professor Dhabaleswar K. (DK) Panda, OSU
- Professor Christos Kozyrakis, Stanford
- Dr. Jeff Stuecheli, IBM
- Prof. Ling Liu, Georgia Institute of Technology
- Prof. Josep Torrellas, UIUC
- Prof. Jason Mars, University of Michigan
- Prof. Haibo Chen, Shanghai Jiaotong University

The challenges are remain…

- The modern data center workloads are in Google, Alibaba, Tencent, Facebook….
  - Take-away
    - NO！
    - Only performance model

- What are frequent-appearing units of computation
  - DB: relation algebra

- What is the metric for data-center computing?

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BigDataBench 4.0

- http://prof.ict.ac.cn/BigDataBench
- Dwarf-based big data and AI benchmarks

  – Identify eight dwarfs
    - Then build big data and AI benchmarks on the basis of eight dwarfs.

  – Simulation benchmarks
    - Speed up the runtime 100X

BPOE-9 program

- **Keynote I: Architecting for Big Data Analytics: Think Dubai rather than Venice. Prof. Vijay Janapa Reddi**, The University of Texas at Austin
- **Talk I: BigDataBench: A Dwarf-based Big Data and AI Benchmark Suite. Speaker: Ms. Wanling Gao**, ICT, CAS
- **Talk II: Benchmarking and Characterizing Deep Learning over Big Data (DLoBD) Stacks. Speaker: Dr. Xiaoyi Lu**, Ohio State University.
- **Keynote II: The OS scheduler: a performance-critical component in Linux cluster environments. Speaker: Dr. Jean-Pierre Lozi, Oracle Labs Zurich**
- **Keynote III: Farewell to Servers: Hardware, Software, and Network Approaches towards Datacenter Resource Disaggregation. Speaker: Prof. Yiying Zhang, Purdue University.**
- **Talk III: BOPS, Not FLOPS! A New Metric, Measuring Tool, and Roofline Performance Model For Datacenter Computing. Speaker: Dr. Chen Zheng, ICT, CAS**
- **Two regular papers from OSU and University of Florida, DELL EMC, Intel Corporation**

Live broadcast

- 欣秀APP

- Light-weight
  - Slides and audio
  - Excluding video.

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Next event

- This is the final version.

- Symposium on Benchmarking, Measuring, and Optimizing (**Bench 2018**)
  - co-located with IEEE Big Data. *December 10-13, 2018, Seattle, WA, USA*
  - multi-discipline symposium.
    - Big data, AI, chain-block, mobile robot, IoT
  - Publish benchmarks
  - Verified system ranking.

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Thanks

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