

ICPP-2014 PROGRAM

September 9, 2014

7:30 AM Continental Breakfast

8:00 AM Registration

8:45-9:00 Opening Remarks (Meridian Ballroom)

9:00 -10:00 Keynote Lecture (Meridian Ballroom)

Keynote Speaker: [Dr. Tilak Agerwala](#), Vice President, Data Centric Systems, IBM T. J. Watson Research Center

Lecture Title: "Data Centric Systems: The Next Paradigm in Computing"

[More information](#)

10:00-10:30 Coffee Break

TRACK A (Meridian 1&2)

10:30 -12:00 Session 1A: Heterogeneous Processing

Session Chair: Wang-Chien Lee, Pennsylvania State University, USA

[A Hybrid CPU-GPU System for Stitching of Large Scale Optical Microscopy Images](#)

Timothy Blattner, Walid Keyrouz, Joe Chalfoun, Bertrand Stivalet, Mary Brady and Shujia Zhou

[CUDA-Accelerated Alignment of Subsequences in Streamed Time Series Data](#)

Christian Hundt, Bertil Schmidt and Elmar Schömer

[FEVES: Framework for Efficient Parallel Video Encoding on Heterogeneous Systems](#)

Aleksandar Ilic, Svetislav Momcilovic, Nuno Roma and Leonel Sousa

12:00-1:30 Lunch - Pinnacle Room

1:30-3:00 Session 2A: Algorithms I

Session Chair: George Karypis, University of Minnesota,, USA

[Fast Parallel Algorithms for Edge-Switching to Achieve a Target Visit Rate in Heterogeneous Graphs](#)

Hasanuzzaman Bhuiyan, Jiangzhuo Chen, Maleq Khan and Madhav Marathe

[Designing a Heuristic Cross-Architecture Combination for Graph Traversal](#)

Yang You, David Bader and Maryam Mehri Dehnavi

[An Infrastructure-less Vehicle Counting without Disruption](#)

Jie Wu, Paul Sabatino, Jennifer Tsan and Zhen Jiang

3:00-3:30 Coffee Break

3:30-5:00 Session 3A: Scheduling

Session Chair: Jie Wu, Temple University, Philadelphia, USA

[Parallel Simulation of Superscalar Scheduling](#)

Blake Haugen, Jakub Kurzak, Asim YarKhan, Piotr Luszczek and Jack Dongarra

[Improving Multisite Workflow Performance using Model-based Scheduling](#)

Ketan Maheshwari, Eun-Sung Jung, Jiayuan Meng, Venkatram Vishwanath and Rajkumar Kettimuthu

[Measuring Effective Work to Reward Success in Dynamic Transaction Scheduling](#)

Marcio Pereira, José Nelson Amaral and Guido Araújo

TRACK B (Meridian 3&4)

Session 1B: Hadoop and MapReduce

Session Chair: Abhishek Chandra, University of Minnesota, USA

[SMARTH: Enabling Multi-pipeline Data Transfer in HDFS](#)

Hong Zhang, Liqiang Wang and Hai Huang

[Reducing MapReduce Abstraction Costs for Text-Centric Applications](#)

Chun-Hung Hsiao, Michael Cafarella and Satish Narayanasamy

[Performance Modeling for RDMA-Enhanced Hadoop MapReduce](#)

Md Wasi-ur Rahman, Xiaoyi Lu, Nusrat Sharmin Islam and Dhabaleswar K. Panda

Session 2B: Architecture I

Session Chair: Antonia Zhai, University of Minnesota, Minneapolis, USA

[Crystal: A Design-Time Resource Partitioning Method for Hybrid Main Memory](#)

Dmitry Knyagin, Georgi Gaydadjiev and Per Stenstrom

[A Case for Resource Efficient Prefetching in Multicores](#)

Muneeb Khan, Andreas Sandberg and Erik Hagersten

[R-Dedup: Content Aware Redundancy Management for SSD-based RAID Systems](#)

Yimo Du, Youtao Zhang and Nong Xiao

Session 3B: Compiler Optimization I

Session Chair: Eric Van Wyk, University of Minnesota, USA

[Code Layout Optimization for Defensiveness and Politeness in Shared Cache](#)

Pengcheng Li, Chen Ding, Hao Luo, Ziang Hu and Handong Ye

[Grover: Looking for Performance Improvement by Disabling Local Memory Usage in OpenCL Kernels](#)

Jianbin Fang, Henk Sips, Pekka Jaaskelainen and Ana Lucia Varbanescu

[HERCULES: Strong Patterns Towards More Intelligent Predictive Modeling](#)

Eunjung Park, Christos Kartsaklis and John Cavazos

WORKSHOP (Summit Room)

[10th International Workshop on Scheduling and Resource Management for Parallel and Distributed Systems \(SRMPDS\)](#)

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[6th Workshop on Interfaces and Architectures for Scientific Data Storage \(IASDS\)](#)

5:30-7:30

RECEPTION -- Pinnacle Room

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September 10, 2014

7:30 AM Continental Breakfast

8:00 AM Registration

9:00 -10:00 Keynote Lecture (Meridian Ballroom)

9:00 -10:00 **Keynote Speaker: Prof. Jack Dongarra, University of Tennessee, Knoxville**

Lecture Title: High Performance Computing - Future Directions

10:00-10:30 Coffee Break

TRACK A (Meridian 1&2)

10:30-12:00 **Session 4A: GPU Applications**

Session Chair: Koji Nakano, University of Hiroshima, Japan

[A GPU-based Algorithm-specific Optimization for High-performance Background Subtraction](#)

Chulian Zhang, Hamed Tabkhi and Gunar Schirner

[CASTA: CUDA-Accelerated Static Timing Analysis for VLSI Designs](#)

Hunta H.-W. Wang, Louis Y.-Z. Lin, Ryan H.-M. Huang and Charles H.-P. Wen

[High-Performance Inverse Modeling with Reverse Monte Carlo Simulations](#)

12:00-1:30

Lunch -- Pinnacle Room

1:30-3:00 **Session 5A: Algorithms II**

Session Chair: John Sartori, University of Minnesota, Minneapolis, USA

[Output-Sensitive Parallel Algorithm for Polygon Clipping](#)

Satish Puri and Sushil Prasad

[Parallel Algorithms for the Summed Area Table on the Asynchronous Hierarchical Memory Machine, with GPU implementations](#)

Akihiko Kasagi, Koji Nakano and Yasuaki Ito

[CAST: Contraction Algorithm for Symmetric Tensors](#)

Samyam Rajbhandari, Akshay Nikam, Pai-Wei Lai, Kevin Stock, Sriram Krishnamoorthy and P Sadayappan

3:00-3:30

Coffee Break

3:30-5:00

Session 6A: Energy Aware Computing I

Session Chair: Holger Fröning, University of Heidelberg, Germany

[NetMaster: Taming Energy Devourers on Smartphones](#)

Yi Zhang, Yuan He, Xiaopei Wu, Yunhao Liu, and Wenbo He

[Software-Managed Power Reduction in Infiniband Links](#)

Branimir Dickov, Miquel Pericàs, Paul Carpenter, Nacho Navarro and Eduard Ayguadé

[Modeling the Energy Efficiency of Heterogeneous Clusters](#)

Lavanya Ramapantulu, Bogdan Marius Tudor, Dumitrel Loghin, Trang Vu and Yong Meng Teo

5:30-6:30

Reception -- Pinnacle Room

6:30-9:00

BANQUET -- Pinnacle Room

TRACK B (Meridian 3&4)

Session 4B: Data Communication

Session Chair: Pavan Balaji, Argonne National Lab, USA

[TRAM: Optimizing Fine-grained Communication with Topological Routing and Aggregation of Messages](#)

Lukasz Wesolowski, Ramprasad Venkataraman, Abhishek Gupta, Jae-seung Yeom, Keith Bisset, Yanhua Sun, Pritish Jetley, Thomas Quinn and Laxmikant Kale

[HAND: A Hybrid Approach to Accelerate Non-contiguous Data Movement using MPI Datatypes on GPU Clusters](#)

Rong Shi, Xiaoyi Lu, Sreeram Potluri, Khaled Hamidouche, Jie Zhang and Dhabaleswar K. Panda

[Designing Topology-Aware Communication Schedules for Alltoall Operations in Large InfiniBand Clusters](#)

Lunch -- Pinnacle Room

Session 5B: Cloud Computing

Session Chair: Howie Huang, George Washington University, USA

[Kylix: A Sparse Allreduce for Commodity Clusters](#)

Huasha Zhao and John Canny

[A Framework for Data Protection in Cloud Federations](#)

Lena Mashayekhy, Mahyar Movahed Nejad and Daniel Grosu

[A Sampling-based Hybrid Approximate Query Processing System in the Cloud](#)

Yuxiang Wang, Junzhou Luo, Aibo Song and Fang Dong

Coffee Break

Session 6B: Architecture II

Session Chair: Patrick Bridges, University of New Mexico, USA

[Hydra: Efficient Detection of Multiple Concurrency Bugs on Fused CPU-GPU Architecture](#)

Zhuofang Dai, Haojun Wang, Weihua Zhang, Haibo Chen and Binyu Zang

[Xentry: Hypervisor-Level Soft Error Detection](#)

Xin Xu, Ron Chiang and Howie Huang

[A Batch System with Fair Scheduling for Evolving Applications](#)

Suraj Prabhakaran, Mohsin Iqbal, Sebastian Rinke, Christian Windisch and Felix Wolf

Reception -- Pinnacle Room

BANQUET -- Pinnacle Room

WORKSHOP (Summit Room)

[International Workshop on High Performance Computing for Big Data \(HPC4BD\)](#)

Lunch -- Pinnacle Room

[Power-aware Algorithms, Systems, and Architectures \(PASA\)](#)

Coffee Break

[Power-aware Algorithms, Systems, and Architectures \(PASA\)](#)

Reception -- Pinnacle Room

BANQUET -- Pinnacle Room

[More information](#)

September 11, 2014

7:30 AM Continental Breakfast

8:00 AM Registration

9:00 -10:00 Keynote Lecture (Meridian Ballroom)

9:00 -10:00 **Keynote Speaker: Farid Yavari, Sr. Storage Architect - Global Platform & Infrastructure (GPI), eBay Inc.**
Lecture Title: eBay Storage from Good to Great [More information](#)

10:00-10:30 Coffee Break

10:30-12:00 **TRACK A (Meridian 1&2)**

Session 7A: Energy Aware Computing II

Session Chair: Chen Liu, Clarkson University, USA

[Energy-Aware Scheduling for Aperiodic Tasks on Multi-core Processors](#)

Dawei Li and Jie Wu

[Adaptive Configuration Selection for Power-Constrained Heterogeneous Systems](#)

Peter E Bailey, David K Lowenthal, Vignesh Ravi, Barry Rountree, Martin Schulz and Bronis R de Supinski

[An Energy-efficient Task Scheduler for Multi-core Platforms with per-core DVFS Based on Task Characteristics](#)

Ching-Chi Lin, Chao-Jui Chang, You-Cheng Syu, Jan-Jan Wu, Pangfeng Liu, Po-Wen Cheng and Wei-Te Hsu

10:30-12:00 **TRACK B (Meridian 3&4)**

Session 7B: Large Scale Systems

Session Chair: Yong Chen, Texas Tech University, USA

[Simulating Big Data Clusters for System Planning, Evaluation and Optimization](#)

Zhaojuan Bian, Kebing Wang, Zhihong Wang, Gene Munce, Illia Cremer, Wei Zhou, Qian Chen and Gen Xu

[Characterizing the Impact of Rollback Avoidance at Extreme-Scale: A Modeling Approach](#)

Scott Levy, Kurt B. Ferreira and Patrick G. Bridges

[A Constraint Programming-Based Resource Management Technique for Processing MapReduce Jobs with SLAs on Clouds](#)

Norman Lim, Shikharesh Majumdar and Peter Ashwood-Smith

WORKSHOP (Summit Room)

[International Workshop on Parallel Software Tools and Tool Infrastructures \(PSTI\)](#)

12:00-1:30 Lunch -- Pinnacle Room

Lunch -- Pinnacle Room

Lunch -- Pinnacle Room

1:30-3:00 **Session 8A: Scientific Applications and Scaling**

Session Chair: Ananth Grama, Purdue University

[Scaling the ISAM Land Surface Model Through Parallelization of Inter-Component Data Transfer](#)

Phil Miller, Michael Robson, Bassil El Masri, Rahul Barman, Gengbin Zheng, Atul Jain and Laxmikant Kale

[A Fast Batched Cholesky Factorization on a GPU](#)

Tingxing Dong, Azzam Haidar, Stanimire Tomov and Jack Dongarra

[MiCA: Real-time Mixed Compression Scheme for Large-Scale Distributed Monitoring](#)

Bo Wang, Ying Song, Yuzhong Sun and Jun Liu

1:30-3:00 **Session 8B: Compiler Optimization II**

Session Chair: Ketan Meheshwari, Argonne National Lab, USA

[Parallel Pointer Analysis with CFL-Reachability](#)

Yu Su, Ding Ye and Jingling Xue

[Lightweight Software Transactions on GPUs](#)

Anup Holey and Antonia Zhai

[A Compiler Extension for Parallel Matrix Programming](#)

Kevin Williams, Matt Le, Ted Kaminski and Eric Van Wyk

[International Workshop on Parallel Software Tools and Tool Infrastructures \(PSTI\)](#)

3:00-3:30 Coffee Break

Coffee Break

Coffee Break

3:30-5:00 **Session 9A: Scheduling and Runtime Systems**

Session Chair: Dong Ahn, Lawrence Livermore National Lab, USA

[A runtime approach to dynamic resource allocation for sparse direct solvers](#)

Andra Hugo, Abdou Guermouche, Pierre-Andre Wacrenier and Raymond Namyst

[Analysis and Design of Fault-Tolerant Scheduling for Real-Time Tasks on Earth-Observation Satellites](#)

Xiaomin Zhu, Jiangjiang Wang, Ji Wang and Xiao Qin

[Fast Biological Sequence comparison on Hybrid Platforms](#)

Safia Kedad-Sidhoum, Fernando Mendonca, Florence Monna, Gregory Mounié and Denis Trystram

3:30-5:00 **Session 9B: Networking**

Session Chair: Tomotaka Wada, Kansai University, Japan

[NEO: A Nonblocking Hybrid Switch Architecture for Large Scale Data Centers](#)

Zheming Zhang and Yuanyuan Yang

[Towards Perpetual Sensor Networks via Deploying Multiple Mobile Wireless Chargers](#)

Wenzheng Xu, Weifa Liang, Xiaola Lin, Guoqiang Mao and Xiaojiang Ren

[Double Free: Measurement-free Localization for Transceiver-free Object](#)

Dian Zhang, Xiaoyan Jiang and Lionel M Ni

[International Workshop on Parallel Software Tools and Tool Infrastructures \(PSTI\)](#)

September 12, 2014

7:30 AM	Continental Breakfast		
8:00 AM	Registration		
	WORKSHOP (Meridian 1&2)	WORKSHOP (Meridian 3&4)	WORKSHOP (Summit Room)
8:00 AM-6:00PM	Seventh International Workshop on Parallel Programming Models and Systems Software for High-End Computing (P2S2)	Applications of Wireless Ad-hoc and Sensor Networks (AWASN)	
		Ends at noon	
12:00-1:30	Coffee Break between 10:00-11:00 Lunch -- Pinnacle Room	Coffee Break Lunch -- Pinnacle Room	Lunch -- Pinnacle Room
1:30 AM	Seventh International Workshop on Parallel Programming Models and Systems Software for High-End Computing (P2S2)	Heterogeneous and Unconventional Cluster Architectures and Applications (HUCAA)	International Workshop on Embedded Multicore Systems (EMS)
	Coffee break between 3:00-4:00	Coffee break between 3:00-4:00	Coffee break between 3:00-4:00
	Ends at 6:00 PM	Ends at 5:00 PM	Ends at 5:00 PM