

ICS 2017: International Conference on Supercomputing

June 14-16th 2017, Chicago

CONFERENCE PROGRAM

JUNE 14 (WEDNESDAY)

08:15-08:30 am : **OPENING REMARKS**

08:30-09:30 am : **KEYNOTE 1: Dr. Amir Khosrowshahi, CTO AI Products Group, Co-Founder of Nervana**

09:30-10:00 am : **COFFEE BREAK**

10:00-12:00 noon : **Session 1: Automata and Tree Mining Optimization;** Chair: V Krishna Nandivada (IIT, Madras)

- 10:00-10:30 am** : “Demystifying Automata Processing: GPUs, FPGAs or Micron’s AP?”, Marziyeh Nourian, Xiang Wang, Xiaodong Yu, Wu-Chun Feng and Michela Becchi
- 10:30-11:00 am** : “Enabling Scalability-Sensitive Speculative Parallelization for FSM Computations”, Junqiao Qiu, Zhijia Zhao, Bo Wu, Abhinav Vishnu and Shuaiwen Leon Song
- 11:00-11:30 am** : “SPIRIT: A Framework for Creating Distributed Recursive Tree Applications”, Nikhil Hegde, Jianqiao Liu and Milind Kulkarni
- 11:30-12:00 noon** : “Frequent Subtree Mining on the Automata Processor: Challenges and Opportunities”, Elaheh Sadredini, Reza Rahimi, Ke Wang and Kevin Skadron

12:00-13:30 pm : **LUNCH BREAK (ON YOUR OWN)**

13:30-15:00 pm : **Session 2: GPUs – Part 1;** Chair: Gagan Agrawal (Ohio State University)

- 13:30-14:00 pm** : “Novel HPC Techniques to Batch Execution of Many Variable Size BLAS Computations on GPUs”, Ahmad Abdelfattah, Azzam Haidar, Stanimire Tomov and Jack Dongarra
- 14:00-14:30 pm** : “Packet Coalescing Exploiting Data Redundancy in GPGPU Architectures”, Kyung Hoon Kim, Rahul Boyapati, Jiayi Huang, Yuho Jin, Ki Hwan Yum and Eun Jung Kim

3. **14:30-15:00 pm:** “Dynamic Scheduling for Efficient Hierarchical Sparse Matrix Operations on the GPU”, Andreas Derler, Rhaleb Zayer, Hans-Peter Seidel and Markus Steinberger

15:00-15:30 pm : COFFEE BREAK

15:30-17:30 pm : Session 3: Compilation Techniques; Chair: Kyle Hale (Illinois Institute of Technology)

1. **15:30-16:00 pm:** “Compile-Time Optimized and Statically Scheduled N-D ConvNet Primitives for Multi-Core and Many-Core (Xeon Phi) CPUs”, Aleksandar Zlateski and H Sebastian Seung
2. **16:00-16:30 pm:** “HPAT: High Performance Analytics with Scripting Ease-of-Use”, Ehsan Totoni, Todd A. Anderson and Tatiana Shpeisman
3. **16:30-17:00 pm:** “On Improving Performance of General Sparse Matrix-Matrix Multiplication on GPUs”, Rakshith Kunchum, Ankur Chaudhry, Aravind Sukumaran-Raj am, Qingpeng Niu, Israt Nisa and P Sadayappan
4. **17:00-17:30 pm:** “Optimizing Recursive Task Parallel Programs”, Suyash Gupta, Rahul Shrivastava and V. Krishna Nandivada

18:00-20:00 pm : RECEPTION

JUNE 15 (THURSDAY)

08:30-09:30 am : KEYNOTE 2: Dr. Long Wang, Baidu.

09:30-10:00 am : COFFEE BREAK

10:00 -12:00 noon : Session 4: GPUs – Part 2; Chair: Woongki Baek (UNIST)

1. **10:00-10:30 am:** “Fast Segmented Sort on GPUs”, Kaixi Hou, Weifeng Liu, Hao Wang and Wu-Chun Feng
2. **10:30-11:00 am:** “Globally Homogeneous, Locally Adaptive Sparse Matrix-Vector Multiplication on the GPU”, Markus Steinberger, Rhaleb Zayer and Hans-Peter Seidel
3. **11:00-11:30 am:** “Simplification and Run-time Resolution of Data Dependence Constraints for Loop Transformations”, Diogo Sampaio, Louis-Noël Pouchet and Fabrice Rastello

4. **11:30-12:00 noon:** “A Performance Analysis Framework for Exploiting GPU Microarchitectural Capability”, Keren Zhou, Guangming Tan, Xiuxia Zhang, Chaowei Wang and Ninghui Sun

12:00-13:30 pm : **LUNCH BREAK (ON YOUR OWN)**

13:30-15:00 pm : **Session 5: Application Load Imbalance, Task and Data Mapping**, Chair: Lei Liu (ICT, Chinese Academy of Sciences)

1. **13:30-14:00 pm:** “GraphGrind: Addressing Load Imbalance of Graph Partitioning”, Jiawen Sun, Hans Vandierendonck and Dimitrios Nikolopoulos
2. **14:00-14:30 pm:** “Automatic Topology Mapping of Diverse Large-scale Parallel Applications”, Juan J Galvez, Nikhil Jain and Laxmikant V. Kale
3. **14:30-15:00 pm:** “Design and Implementation of Bandwidth-Aware Memory Placement and Migration Policies for Heterogeneous Memory Systems”, Seongdae Yu, Seongbeom Park and Woongki Baek

15:00-15:30 pm : **COFFEE BREAK**

15:30-16:30 pm : **Session 6: Hardware Design**; Chair: Michela Becchi (North Carolina State University)

1. **15:30-16:00 pm:** “Carpool: A Bufferless On-Chip Network Supporting Adaptive Multicast and Hotspot Alleviation”, Xiyue Xiang, Wentao Shi, Saugata Ghose, Lu Peng, Onur Mutlu and Nian-Feng Tzeng
2. **16:00-16:30 pm:** “Way-Combining Directory: An Adaptive and Scalable Low-Cost Coherence Directory”, Rubén Titos-Gil, Antonio Flores, Ricardo Fernández-Pascual, Alberto Ros and Manuel E. Acacio

17:30-20:00 pm : **SOCIAL EVENT (NAVY PIER CRUISE)**

JUNE 16 (FRIDAY)

08:30 am -10:00 am : **Session 7 : Runtimes and algorithms for parallel-application performance and reliability support**, Chair: Markus Steinberger (Max Planck Institute for Informatics)

1. **08:30-09:00 am:** “Iteration-Fusing Conjugate Gradient”, Sicong Zhuang and Marc Casas

2. **09:00-09:30 am:** “Supporting Automatic Recovery in Offloaded Distributed Programming Models Through MPI-3 Techniques”, Antonio J. Peña, Vicenç Beltran, Carsten Clauss and Thomas Moschn
3. **09:30-10:00 am:** “HiPA: History-based Piecewise Approximation for Functions”, Aurangzeb and Rudolf Eigenmann

10:00-10:30 am : COFFEE BREAK

10:30-13:00 pm : Session 8: Data Aggregation and Hardware/Software Co-design Approaches;
Chair: Manuel Acacio (Universidad de Murcia)

1. **10:30-11:00 am:** “Efficient SIMD and MIMD Parallelization of Hash-based Aggregation by Conflict Mitigation”, Peng Jiang and Gagan Agrawal
 2. **11:00-11:30 am:** “Revisiting Phased Transactional Memory”, João P. L. de Carvalho, Alexandro Baldassin and Guido Araujo
 3. **11:30-12:00 noon:** “Hardware/Software Cooperative Caching for Hybrid DRAM/NVM Memory Architectures”, Haikun Liu, Yujie Chen, Xiaofei Liao, Hai Jin, Bingsheng He, Long Zheng and Rentong Guo
 4. **12:00-12:30 pm:** “SSDUP: A Traffic-Aware SSD Burst Buffer for HPC Systems”, Xuanhua Shi, Ming Li, Wei Liu, Hai Jin, Chen Yu and Yong Chen
 5. **12:30-13:00 pm:** “libPRISM: An Intelligent Adaption of Prefetch and SMT Levels”, Cristobal Ortega, Miquel Moretó, Marc Casas, Ramon Bertran, Alper Buyuktosunoglu, Alexandre Eichenberger and Pradip Bose
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