IPDPS 2015 Technical Program
May 25-29 – Hyderabad, India

Note that for IPDPS 2015, the conference proceedings will be submitted for publication in the IEEE Digital Library under two separate ISBN's, one for regular conference papers and the other for the workshops papers. This will not change the format of the program from previous years; proceedings will be distributed at the conference online and will contain the two separate volumes of papers.

MONDAY, May 25, 2015
IPDPS 2015 Monday Workshops

TUESDAY, May 26, 2015

Keynote Speech: Big Data: Scale Down, Scale Up, Scale Out
Phillip B. Gibbons, Intel Labs & Carnegie Mellon University

Abstract: The Big Data performance challenge arises whenever the volume or velocity of data overwhelms current processing systems and techniques, resulting in performance that falls far short of desired. Three approaches to improving the performance by orders of magnitude are: 1) Scale down the amount of data processed or the resources needed to perform the processing; 2) Scale up the computing resources on a node, via parallel processing and faster memory/storage technologies; and 3) Scale out the computing to distributed nodes in a cluster/cloud or at the edge where the data resides. This talk will highlight our research tackling all three of these approaches, discussing the key challenges, our solutions, and promising future directions.

Session 1: Graph and Social Analytics
Session 2: Numerical Linear Algebra
Session 3: High Performance Networks and Congestion Management
Session 4: Software for Heterogeneous Many-core Systems

PhD Forum - Posters on display Tuesday and Wednesday
Poster presentations by nineteen selected graduate students describing their proposed and/or partially completed dissertation work will be available starting Tuesday morning. The students will be available during most breaks to answer questions, and a special PhD Forum hour with all students available will be held Wednesday during the pre-banquet reception. The objective of the PhD Forum is to help students receive expert feedback on their research thrusts, establish contacts for entering the job market, and at the same time give representatives from industry and academia a preview of the upcoming developments in parallel and distributed processing and related technologies.

Session 5: Scheduling Algorithms
Session 6: Concurrency in Memory Systems
Session 7: MapReduce Advances
Session 8: Performance and Energy Optimizations

Session 9: Dynamic Networks
Session 10: Applications on GPUs
Session 11: Scheduling on Clusters
Session 12: Debugging and Verification

WEDNESDAY, May 27, 2015

Keynote Speech: Julia: A Fresh Approach to Parallel Programming
Alan Edelman, Massachusetts Institute of Technology

Abstract: The Julia programming language is gaining enormous popularity. Julia was designed to be easy and fast. Most importantly, Julia shatters deeply established notions widely held in the applied community: 1) High-level, dynamic code has to be slow by some sort of law of nature; 2) It is sensible to prototype in one language and then recode in another language for speed or deployment; 3) There are parts of a system for the programmer, and other parts best left untouched as they are built by the experts.

Session 13: Randomized Algorithms
Session 14: Scientific Applications I
Session 15: Storage Systems Architecture
Session 16: MPI and Charm++ Advances

Session 17: Combinatorial Algorithms and Optimization
Session 18: Scientific Applications II
Session 19: Resilience
Session 20: Graph Analytics
Keynote Speech:
Assisting H1N1 and Ebola Outbreak Response through High Performance Networked Epidemiology
Madhav Marathe, Virginia Tech

Abstract: The H1N1 pandemic of 2009 and the ongoing Ebola outbreak in West Africa serve as a reminder of the social, economic and health burden of infectious diseases. The ongoing trends towards urbanization, global travel, climate change and a generally older and immuno-compromised population continue to make epidemic planning and control challenging.

Plenary Session – Best Papers
The technical program committee has selected one best paper in each of the four conference technical tracks – algorithms, applications, architectures, and software – for presentation in a special plenary session.

Session 21: Algorithms for Fault Tolerance
Session 22: Scheduling and Load Balancing
Session 23: Heterogeneous Systems
Session 24: I/O Optimizations
Session 25: Graph Algorithms
Session 26: Resource Management
Session 27: Architectural Support for Runtime and Thermal Management
Session 28: Performance Monitoring and Prediction

FRIDAY, May 29, 2015
IPDPS 2015 Friday Workshops