

22nd International Conference on
**Parallel and Distributed
Computing and Communication
Systems**
(PDCCS-2009)

PROGRAM

September 24 - 26, 2009

Marriott Louisville Downtown
Louisville, Kentucky USA

Sponsored by



**International Society for
Computers and Their Applications**

975 Walnut Street, Suite 132
Cary, NC 27511-4216

Phone: (919) 467-5559; Fax: (919) 467-3430; E-mail: isca@ipass.net

**22nd International Conference on
Parallel and Distributed Computing
and Communication Systems
(PDCCS-2009)**

SPONSOR

International Society for Computers and Their Applications (ISCA)

Conference Chair

Adel S. Elmaghraby
University of Louisville, USA

Program Co-Chairs

James H. Graham
University of Louisville, USA

Anthony Skjellum
University of Alabama at Birmingham, USA

Program Committee

Reda A. Ammar, U. of Connecticut
Adel S. Elmaghraby, U. of Louisville
Chris Foreman, U. of Louisville
James H. Graham, U. of Louisville
Jeffry Hieb, U. of Louisville
Kris Kimmer, U. of Louisville
Sandip Patel, Morgan State University
Anthony Skjellum, U. Alabama at Birmingham

Thursday, September 24, 2009

MEETING ROOM LOCATED ON 2ND FLOOR

7:30 a.m. - 5:00 p.m. REGISTRATION – Coffee/tea/pastries – Rose Foyer

8:30 a.m. - 8:45 a.m. WELCOME

**Adel S. Elmaghraby, University of Louisville, USA
James H. Graham, University of Louisville, USA**

SESSION 1:

ALGORITHMS I

Thursday, September 24, 8:45 a.m. – 10:00 a.m., Rose Room
Session Chair: Dr. Ming Ouyang, University of Louisville

- 1. Heuristics for Distributed Systems Clustering and Mapping under Network Restrictions**
Noha S. Nabawi, Mohamed F. Ahmed (University of Connecticut, USA), Ahmed Atwan (Mansoura University, Egypt) and Reda A. Ammar (University of Connecticut, USA)
- 2. Hierarchical Clustering with CUDA/GPU**
Dar-Jen Chang, Mehmed Kantardzic and Ming Ouyang (University of Louisville, USA)
- 3. A Self-adaptive Weighted Sum Technique for the Joint Optimization of Performance and Power Consumption in Data Centers**
Samee Ullah Khan (North Dakota State University, USA)

10:00 a.m. – 10:20 a.m. COFFEE BREAK

SESSION 2:

APPLICATIONS I

Thursday, September 24, 10:20 a.m. – 12:00 p.m., Rose Room
Session Chair: Dr. Christopher Kimmer, University of Louisville

- 1. Resource Discovery for Query Processing in Data Grids**
Mahmoud El Samad, Franck Morvan, Abdelkader Hameurlain (University Paul Sabatier, France)
- 2. Parallel ICA Using SCILAB and PVM**
Amr E. Mohamed, Reda A. Ammar, Saleh Ibrahim (University of Connecticut, USA), Medhat Hussien and Mohamed I. Eladawy (Helwan University, Egypt)
- 3. The Pocket Algorithm Revisited**
Bernd-Jurgen Falkowski (University of Applied Sciences Stralsund, Germany)
- 4. Parallel Molecular Dynamics on the Cell Architecture**
Christopher Kimmer (University of Louisville, USA)

12:00 p.m. – 1:20 p.m. LUNCH ON YOUR OWN

SESSION 3:**SOFTWARE**

Thursday, September 24, 1:20 p.m. – 3:00 p.m., Rose Room
Session Chair: Dr. Peiyi Tang, University of Arkansas at Little Rock

1. **Dynamic Storage Cache Partitioning Using Feedback Control Theory**
Rajat Garg, Christina Patrick and Mahmut Kandemir (Pennsylvania State University, USA)
2. **Measuring the Speedup of a Commercial Application on a Computer Grid**
Timothy D. Hoehn and Robert Zeidman (SAFE Corporation, USA)
3. **Digital Object Abstraction Layer: A Middleware for Building Federated Digital Libraries**
George Pyrounakis (University of Athens, Greece), Mara Nikolaidou (Harokopio University of Athens, Greece) and Michael Hatzopoulos (University of Athens, Greece)
4. **Programming Data and Task Parallelism with Chapel**
Peiyi Tang (University of Arkansas at Little Rock, USA)

3:00 p.m. – 3:20 p.m. COFFEE BREAK

SESSION 4:**COMMUNICATIONS and NETWORKING**

Thursday, September 24, 3:20 p.m. – 5:00 p.m., Rose Room
Session Chair: Dr. James Graham, University of Louisville

1. **Tree-based Burst Aggregation in Optical Burst Switching Networks**
Xiaojun Cao, Yichuan Wang, Yang Wang (Georgia State University, USA) and Chunsheng Xin (Norfolk State University, USA)
2. **An Analytical Model for Multiple Sink Underwater Acoustic Sensor Network**
Ziping Liu, Xuesong Zhang (Southeast Missouri State University, USA), and Bidyut Gupta, S. Shih (Southern Illinois University Carbondale, USA) and Z. Q. Liu (SUNY Maritime College, USA)
3. **A Protocol for Realtime Communication for FPGA Clusters using Multigigabit Transceivers**
Richard D. Anderson and Yoginder S. Dandass (Mississippi State University, USA)
4. **FAROE: Fairness And Reliability using Overlay Expenseless Set-out for Duty-cycle Optimization in WSN**
Silvia Bonomi, Yann Busnel, Roberto Baldoni (University of Rome, Italy) and Ravi Prakash (University of Texas at Dallas, USA)

Friday, September 25, 2009

8:30 a.m. – 5:00 p.m. REGISTRATION – Coffee/tea/pastries – Rose Foyer

SESSION 5:

ARCHITECTURES and SYSTEMS

Friday, September 25, 9:00 a.m. – 10:40 a.m., Rose Room
Session Chair: Dr. J. Robert Heath, University of Kentucky

- 1. Power Aware Disk Allocation**
Rajat Garg, Ramya Prabhakar and Mahmut Kandemir (Pennsylvania State University, USA)
- 2. A New Reconfigurable Network Node Processor Architecture for Distributed Implementation of Ephemeral State Processing**
J. Robert Heath, Nien Y. Lim, Kenneth L. Calvert and James Griffioen (University of Kentucky, USA)
- 3. Optimal Micro-Threading Scheduling for Multi-Core Processors to Hide Memory Latency**
Mohamed F. Ahmed, Reda A. Ammar and Sanguthevar Rajasekaran (University of Connecticut, USA)
- 4. Development and Validation of a Load Balancing and Control Mechanism for a Reconfigurable Single-Chip Heterogenous and Hybrid Multiprocessor Architecture Platform**
J. Robert Heath, Sridhar Hegde and Kanchan Bhide (University of Kentucky, USA)

11:00 a.m. – 12:00 p.m. KEYNOTE SPEAKER

Rami Melhem

The University of Pittsburgh

“Managing Power and Resilience in Multi-core Systems”

Location: Rose Room, 2nd Floor

12:00 p.m. – 1:30 p.m. CONFERENCE LUNCHEON

LOCATION: Skybox Room

SESSION 6:**APPLICATIONS II**

Friday, September 25, 1:30 p.m. – 3:10 p.m., Rose Room
Session Chair: Dr. James Graham, University of Louisville

1. **AES and DES Encryption with GPU**
Brandon P. Luken, Ming Ouyang and Ahmed H. Desoky (University of Louisville, USA)
2. **Scheduling Real Time Tasks on Heterogeneous Reconfigurable Devices**
Mostafa Elbidweihy and Jerry L. Trahan (Louisiana State University, USA)
3. **Concurrent Data Processing for Fusion Simulation Through Distributed CCA Component**
Fang Liu (Indiana University, USA), Nanbor Wang, Roopa Pundaleeka (Tech-X Corporation, USA) and Randall Bramley (Indiana University, USA)
4. **Reliability through Replication and Permutation on Desktop Grids**
Nathan P. Johnson and James H. Graham (University of Louisville, USA)

3:10 p.m. – 3:30 p.m. COFFEE BREAK

SESSION 7:**ALGORITHMS II**

Friday, September 25, 3:30 p.m. – 5:10 p.m., Rose Room
Session Chair: Dr. Yanyan Sheng, Southern Illinois University

1. **Static Load Balancing for Cost Minimization in Distributed Computing Systems**
Satish Penmatsa (Southern Arkansas University, USA) and V. P. Mantena (Omnisoft, Inc., USA)
2. **Minimizing Inter-Iteration Dependencies in Multi-Dimensional Loops**
Krishna Chaitanya Chakilam, Sukumar Reddy Anapalli and Timothy W. O'Neil (The University of Akron, USA)
3. **A High Performance Gibbs Sampling Algorithm for Item Response Theory**
Kyriakos Patsias, Yanyan Sheng and Shahram Rahimi (Southern Illinois University, USA)
4. **A Disk Scheduling Algorithm Based on ANT Colony Optimization**
Hossein Rahmani, Sajjad Arshad and Mohsen Ebrahimi Moghaddam (Shahid Beheshti University, Iran)

Saturday, September 26, 2009

8:00 a.m.

REGISTRATION – Coffee/tea/pastries – Rose Foyer

SESSION 8:

APPLICATIONS III

Saturday, September 26, 8:30 a.m. – 10:10 a.m., Rose Room
Session Chair: Dr. Edward Luke, Mississippi State University

1. **An Energy-efficient Disjoint Path Routing Approach for Wireless Ad-hoc Networks**
Xiaojun Cao, Barnali Chakrabarty, Yang Wang (Georgia State University, USA) and Fei Hu (The University of Alabama Tuscaroras, USA)
2. **iSCSI on a Converged Data Center Network**
Mikkel Hagen and Elizabeth Varki (University of New Hampshire, USA)
3. **VoIP Call Performance Over IPv6 During HTTP and Bittorrent Downloads**
Roman Yasinovskyy, Alexander L. Wijesinha and Ramesh Karne (Towson University, USA)
4. **Verification of a Loop Scheduling Protocol using Finite State Verification**
Pooja Adhikari, Edward A. Luke and Edward B. Allen (Mississippi State University, USA)

10:10 a.m. – 10:30 a.m. COFFEE BREAK

SESSION 9:

APPLICATIONS IV

Saturday, September 26, 10:30 a.m. – 12:30 p.m., Rose Room
Session Chair: Dr. Afrin Naz, University of North Texas

1. **Design and Implement Dynamic Irregular Parallel Computation using the Key-value-reference Model**
Yang Zhang and Edward A. Luke (Mississippi State University, USA)
2. **Improving Memory Access Locality for Large-Scale Graph Analysis Applications**
Guojing Cong and Konstantin Makarychev (IBM TJ Watson Research Center, USA)
3. **Improving Uniformity of Cache Access Pattern using Split Data Caches**
Afrin Naz, Oluwayomi Adamo, Krishna Kavi and Tomislav Janjusic (University of North Texas, USA)
4. **Matching Heterogeneous Schemas in a Large-Scale Peer-to-Peer Database Environment**
Raddad Al King, Abdelkader Hameurlain and Franck Morvan (Paul Sabatier University, France)
5. **Topology-Aware I/O Caching for Shared Storage Systems**
Seung Woo Son (Argonne National Laboratory, USA), Mahmut Kandemir, Yuanrui Zhang and Rajat Garg (The Pennsylvania State University, USA)