

SPAA 2009 Program

Monday, August 10, 2009

17:30-pm-20:30pm SPAA Reception (Rozsa Centre)

Tuesday, August 11, 2009

8:20am-10:00am: Multiprocessor Scheduling (ICT 122)

Session Chair: Cynthia Phillips

8:20am: Speed Scaling of Processes with Arbitrary Speedup Curves on a Multiprocessor

Ho-Leung Chan, Jeff Edmonds, and Kirk Pruhs

8:45am: The Bell is Ringing in Speed-Scaled Multiprocessor Scheduling

Gero Greiner, Tim Nonner, and Alexander Souza

9:10am: Mapping Filtering Streaming Applications With Communication Costs

Kunal Agrawal, Anne Benoit, Fanny Dufosse, and Yves Robert

9:35am: Scheduling to Minimize Staleness and Stretch in Real-Time Data Warehouses

Mohammad Hossein Bateni, Lukasz Golab, MohammadTaghi Hajiaghayi, and Howard Karloff

10:00am-10:30am: Coffee Break

10:30am-11:00am: Brief Announcements I (ICT 122)

Session Chair: Kirk Pruhs

10:30am: Brief Announcement: Parameterized Maximum and Average Degrees in Topic-Based Publish-Subscribe Overlay Network Design

Melih Onus and Andrea W. Richa

10:40am: Brief Announcement: Good Programming in Transactional Memory: Game Theory Meets Multicore Architecture

Raphael Eidenbenz and Roger Wattenhofer

10:50am: Brief Announcement: At-Most-Once Semantics in Asynchronous Shared Memory

Sotirios Kentros, Aggelos Kiayias, Nicolas Nicolaou, and Alexander Shvartsman

11:10am-12:10pm: Keynote Talk (ICT 102)

Session Chair: Maurice Herlihy

Memory Models: A Case for Rethinking Parallel Languages and Hardware
Sarita V. Adve

12:10pm-1:45pm: Lunch

12:20pm: Industry sponsored lunch for *students, postdocs, and employees of industrial sponsors* (Dining Centre, Alberta Room)
Lunch on your own for everyone else.

1:45pm-3:15pm: Invited Session on Industrial Applications of Algorithms (ICT 102)

Session Chair: Marcos Aguilera

1:45pm: The Life and Times of a ZooKeeper
Flavio Junqueira and Benjamin Reed
Yahoo! Research

2:15pm: Cassandra - Structured Storage System over a P2P Network
Avinash Lakshman and Prashant Malik
Facebook, Inc.

2:45pm: Pregel: A System for Large-Scale Graph Processing
Grzegorz Malewicz, Matthew H. Austern, Aart J. C. Bik, James C. Dehnert, Ilan Horn, Naty Leiser, and Grzegorz Czajkowski
Google

3:15pm-3:45pm: Coffee Break

3:45pm-5:00pm: Transactional Memory I (ICT 122)

Session Chair: Victor Luchangco

3:45pm: Towards Transactional Memory Semantics for C++
Tatiana Shpeisman, Ali-Reza Adl-Tabatabai, Robert Geva, Yang Ni, and Adam Welc

4:10pm: On Avoiding Spare Aborts in Transactional Memory
Dmitri Perelman and Idit Keidar

4:35pm: Inherent Limitations on Disjoint-Access Parallel Implementations of Transactional Memory
Hagit Attiya, Eshcar Hillel, and Alessia Milani

6:00pm: Banquet (Calgary Zoo)

Wednesday, August 12, 2009

8:20am-10:00am: Concurrency Mechanisms (ICT 122)

Session Chair: Jeremy Fineman

8:20am: Reducers and Other Cilk++ Hyperobjects

Matteo Frigo, Pablo Halpern, Charles E. Leiserson, and Stephen Lewin-Berlin

(SPAA Best Paper Award)

8:45am: Beyond Nested Parallelism: Tight Bounds on Work-Stealing

Overheads for Parallel Futures

Daniel Spoonhower, Guy E. Blelloch, Robert Harper, and Phillip B. Gibbons

9:10am: Scalable Reader-Writer Locks

Yossi Lev, Victor Luchangco, and Marek Olszewski

9:35am: The Weakest Failure Detector for Wait-free Dining Under Eventual

Weak Exclusion

Srikanth Sastry, Scott Pike, and Jennifer Welch

10:00am-10:30am: Coffee Break

10:30am-11:00am: Brief Announcements: Performance of Parallel Algorithm (ICT 122)

Session Chair: Jeremy Fineman

10:30am: Brief Announcement: Low-Depth Cache-Oblivious Algorithms

Guy Blelloch, Phillip Gibbons, and Harsha Vardhan Simhadri

10:40am: Brief Announcement: A Lower Bound on the Parallelism of Depth-

Restricted Work Stealing

Jim Sukha

10:50am: Brief Announcement: TeraByte TokuSampleSort Sorts 1TB in 197s

Bradley Kuszmaul

11:10am-12:10am: Keynote Talk (ICT 102)

Session Chair: Cynthia Phillips

Emerging Challenges and Opportunities in Parallel Computing: The Cretaceous Redux?

Bruce Hendrickson

12:10pm-1:45pm: Lunch BBQ (Dining Centre Patio)

1:45pm-3:25pm: Graph Labeling/Coloring (ICT 122)

Session Chair: Kirk Pruhs

1:45pm: Weak Graph Coloring: Distributed Algorithms and Applications

Fabian Kuhn

2:10pm: On Randomized Representations of Graphs Using Short Labels

Pierre Fraigniaud and Amos Korman

2:35pm: Routing without Ordering

Bernadette Charron-Bost, Antoine Gaillard, Jennifer Welch, and Josef Widder

3:00pm: On the Complexity of the Regenerator Placement Problem in Optical Networks

Michele Flammini, Alberto Marchetti Spaccamela, Gianpiero Monaco, Luca Moscardelli, and Shmuel Zaks

3:25pm-3:55pm: Coffee Break

3:55pm-4:15pm: Brief Announcements: Algorithms Meets Hardware (ICT 122)

Session Chair: Tatiana Shpeisman

3:55pm: Brief Announcement: Performance Potential of an Easy-to-Program PRAM-On-Chip Prototype Versus State-of-the-Art Processor

George Caragea, A. Beliz Saybasili, Xingzhi Wen, and Uzi Vishkin

4:05pm: Brief Announcement: The Impact of Classical Electronics Constraints on a Solid-State Logical Qubit Memory

James Levy, Anand Ganti, Cynthia Phillips, Benjamin Hamlet, Malcolm Carroll, Andrew Landahl, Thomas Gurrieri, and Robert Carr

4:15pm-5:55 pm: Network Organization and Design (ICT 122)

Session Chair: Christian Scheideler

4:15pm: Finding Similar Users in Social Networks

Aviv Nisgav and Boaz Patt-Shamir

4:40pm: A Randomized, $O(\log w)$ -Depth 2-Smoothing Network

Marios Mavronicolas and Thomas Sauerwald

5:05pm: Field-Split Parallel Architecture for High Performance Multi-Match Packet Classification Using FPGAs
Weirong Jiang and Viktor Prasanna

5:30pm: Distributed Algorithms for QoS Load Balancing
Heiner Ackermann, Simon Fischer, Martin Hoefer, and Marcel Schöngens

20:30 Business Meeting (ICT 116)

Thursday, August 13, 2009

8:20am-9:35am: Transactional Memory II (ICT 122)

Session Chair: Tatiana Shpeisman

8:20am: NZTM: Nonblocking Zero-indirection Transactional Memory
Fuad Tabba, Mark Moir, James Goodman, Andrew Hay, and Cong Wang

8:45am: Optimizing Transactions for Captured Memory
Aleksandar Dragojevic, Yang Ni, and Ali-Reza Adl-Tabatabai

9:10am: A Lightweight In-Place Implementation for Software Thread-Level Speculation
Cosmin E. Oancea, Alan Mycroft, and Tim Harris

9:35am-10:05am: Coffee Break

10:05am-11:20am: High-Performance Parallel Computation (ICT 122)

Session Chair: Vitus Leung

10:05am: Parallel Sparse Matrix-Vector and Matrix-Transpose-Vector Multiplication Using Compressed Sparse Blocks
Aydin Buluç, Jeremy T. Fineman, Matteo Frigo, John R. Gilbert, and Charles E. Leiserson

10:30am: Communication-Optimal Parallel and Sequential Cholesky Decomposition
Grey Ballard, James Demmel, Olga Holtz, and Oded Schwartz

10:55am: Dynamic External Hashing: The Limit of Buffering
Zhewei Wei, Ke Yi, and Qin Zhang

11:25am-12:15pm: Local Distributed Computation (ICT 122)

Session Chair: Victor Luchangco

11:25am: An Optimal Local Approximation Algorithm for Max-Min Linear Programs

Patrik Floreen, Joel Kaasinen, Petteri Kaski, and Jukka Suomela

11:50am: Gradient Clock Synchronization in Dynamic Networks

Fabian Kuhn, Thomas Locher, and Rotem Oshman

12:15pm-2:00pm: Lunch (Dining Centre, Alberta Room)

2:00pm-3:40pm: Fault Tolerance and Reliability (ICT 122)

Session Chair: Fabian Kuhn

2:00pm: Remote Storage with Byzantine Servers

Marcos Aguilera and Ram Swaminathan

2:25pm: Locally Scalable Randomized Consensus for Synchronous Crash Failures

Bogdan Chlebus and Dariusz R. Kowalski

2:50pm: A DoS-Resilient Information System for Dynamic Data Management

Matthias Baumgart, Christian Scheideler, and Stefan Schmid

3:15pm: Classifying Peer-to-Peer Networking Coding Schemes

Arne Vater, Christian Schindelhauer, and Christian Ortloff

3:40pm-4:10pm: Coffee Break

4:10pm-5:50pm: Scheduling and Resource Management (ICT 122)

Session Chair: Vitus Leung

4:10pm: Buffer Management for Colored Packets with Deadlines

Yossi Azar, Uriel Feige, Iftah Gamzu, Thomas Moscibroda, and Prasad Raghavendra

4:35pm: Competitive Buffer Management for Multi-Queue Switches in QoS Networks using Packet Buffering Algorithms

Koji Kobayashi, Shuichi Miyazaki and Yasuo Okabe

5:00pm: Approximation Algorithms for Time-Constrained Scheduling on Line Networks

Harald Raecke and Adi Rosen

5:25pm: Power-Aware Online File Allocation in Mobile Ad Hoc Networks

Jan Mehler and Friedhelm Meyer auf der Heide