SPAA 2016: 28TH ACM SYMPOSIUM ON PARALLELISM IN ALGORITHMS AND ARCHITECTURES

PROGRAM

Days: Monday, July 11th Tuesday, July 12th Wednesday, July 13th

Monday, July 11th

View this program: with abstracts session overview talk overview

09:00-10:20 Session 1: Parallel Algorithms

CHAIR: *Seth Gilbert*

09:00 *Tim Roughgarden*, *Sergei Vassilvitskii* and *Joshua Wang*
Shuffles and Circuits (On Lower Bounds for Modern Parallel Computation) (abstract **)**

09:20 *Michael Goodrich* and *Ahmed Eldawy*
Parallel Algorithms for Summing Floating-Point Numbers (abstract **)**

09:40 *Mingmou Liu*, *Xiaoyin Pan* and *Yitong Yin*
Randomized approximate nearest neighbor search with limited adaptivity (abstract **)**

10:00 *Anat Bremler-Barr*, *Yotam Harchol*, *David Hay* and *Yacov Hel-Or*
Encoding Short Ranges in TCAM Without Expansion: Efficient Algorithm and Applications (abstract **)**

11:00-12:00 Session 2: Keynote Talk: Michael I. Jordan. On Computational Thinking, Inferential Thinking and Data Science

CHAIR: *Guy Blelloch*

13:30-15:00 Session 3: Scheduling Parallel Computation

CHAIR: *Julian Shun*

13:30 *David Dinh*, *Harsha Vardhan Simhadri* and *Yuan Tang*
Extending the Nested Parallel Model to the Nested Dataflow Model with Provably Efficient Schedulers (abstract **)**

13:50 *Chaoran Yang* and *John Mellor-Crummey*
A Practical Solution to the Cactus Stack

problem (abstract)

14:10 *Stefan K. Muller* and *Umut A. Acar*
Latency-Hiding Work Stealing (abstract)

14:30 *Robert Utterback*, *Kunal Agrawal*, *Jeremy Fineman* and *I-Ting Angelina Lee*
Provably good and practically efficient parallel race detection for fork-join programs (abstract)

14:50 *Rishi Surendran* and *Vivek Sarkar*
Dynamic Determinacy Race Detection for Task Parallelism with Futures (abstract)

15:30-16:40 Session 4: Transactional Memory and Beyond

CHAIR: *Michael Scott*

15:30 *Amin Mohtasham* and *João Barreto*
RUBIC: Online Parallelism Tuning for Collocated Transactional Memory Applications (abstract)

15:50 *Mohamed M. Saad*, *Roberto Palmieri*, *Ahmed Hassan* and *Binoy Ravindran*
Extending TM Primitives using Low Level Semantics (abstract)

16:10 *Trevor Brown*, *Alex Kogan*, *Yossi Lev* and *Victor Luchangco*
Investigating the performance of hardware transactions on a multi-socket machine (abstract)

16:30 *Alexander Spiegelman*, *Guy Golan-Gueta* and *Idit Keidar*
Brief Announcement: Transactional Data Structure Libraries (abstract)

17:00-18:00 Session 5: Parallel Algorithms

CHAIR: *Ben Mosely*

17:00 *Michael Bender*, *Erik Demaine*, *Roozbeh Ebrahimi*, *Jeremy Fineman*, *Rob Johnson*, *Andrea Lincoln*, *Jayson Lynch* and *Samuel Mccauley*
Cache-Adaptive Analysis (abstract)

17:20 *Naama Ben David*, *Guy Blelloch*, *Jeremy Fineman*, *Phillip Gibbons*, *Yan Gu*, *Charles McGuffey* and *Julian Shun*
Parallel Algorithms for Asymmetric Read-Write Costs (abstract)

17:40 *Joseph Izraelevitz*, *Hammurabi Mendes* and *Michael Scott*
Brief Announcement: Preserving Happens-before in Persistent Memory (abstract)

17:50 *Timothy Carpenter*, *Fabrice Rastello*, *P. Sadayappan* and *Anastasios Sidiropoulos*

Brief Announcement: Approximating the I/O Complexity of One-Shot Red-Blue Pebbling (abstract **)**

Tuesday, July 12th

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09:00-10:30 Session 6: Scheduling

CHAIR: *Phil Gibbons*

09:00 *Sungjin Im* and *Benjamin Moseley*
General Profit Scheduling and the Power of Migration on Heterogeneous Machines (abstract **)**

09:20 *Lin Chen*, *Nicole Megow* and *Kevin Schewior*
The Power of Migration in Online Machine Minimization (abstract **)**

09:40 *Sungjin Im* and *Janardhan Kulkarni*
Fair Online Scheduling for Selfish Jobs on Heterogeneous Machines (abstract **)**

10:00 *Kunal Agrawal*, *Jing Li*, *Kefu Lu* and *Benjamin Moseley*
Scheduling Parallelizable Jobs Online to Minimize Maximum Flow Time (abstract **)**

10:20 *Sungjin Im* and *Maryam Shadloo*
A QPTAS for Non-preemptive Speed-scaling (abstract **)**

11:00-12:00 Session 7: Keynote Talk: Nir Shavit. A Multicore Path to Connectomics-on-Demand

CHAIR: *Charles Leiserson*

13:30-15:00 Session 8: Scheduling and Resource Allocation

CHAIR: *Michael Bender*

13:30 *Madhukar Korupolu* and *Rajmohan Rajaraman*
Robust and Probabilistic Failure-Aware Placement (abstract **)**

13:50 *Dmitry Katz*, *Baruch Schieber* and *Hadas Shachnai*
Brief Announcement: Flexible Resource Allocation for Clouds and All-Optical Networks (abstract **)**

14:00 *Runtian Ren* and *Xueyan Tang*
Clairvoyant Dynamic Bin Packing for Job Scheduling with Minimum Server Usage Time (abstract **)**

14:20 *Samir Khuller* and *Manish Purohit*
Improved Approximation Algorithms for

Scheduling Co-Flows (abstract)

14:30 *Guy Blelloch*, *Yan Gu*, *Julian Shun* and *Yihan Sun*
Parallelism in Randomized Incremental Algorithms (abstract)

14:50 *Chhaya Trehan*, *Georgios Karakonstantis*, *Dimitrios Nikolopoulos* and *Hans Vandierendonck*
Energy optimization of memory intensive parallel workloads (abstract)

15:30-16:40 Session 9: Parallel Algorithms

CHAIR: *Jeremy Fineman*

15:30 *Guy Blelloch*, *Daniel Ferizovic* and *Yihan Sun*
Just Join for Parallel Ordered Sets and Maps (abstract)

15:50 *William E. Devanny*, *Michael Goodrich* and *Kristopher Jetviroj*
Parallel Equivalence Class Sorting: Algorithms, Lower Bounds, and Distribution-Based Analysis (abstract)

16:10 *Saman Ashkiani*, *Nina Amenta* and *John D. Owens*
Parallel Approaches to the String Matching Problem on the GPU (abstract)

16:30 *Chao Wang*, *Xi Li*, *Aili Wang* and *Xuehai Zhou*
Brief Announcement: MIC++: Accelerating Maximal Information Coefficient Calculation with GPUs and FPGAs (abstract)

17:00-18:00 Session 10: Robots, Amoebots, and Cobras (Oh my!)

CHAIR: *Kunal Agrawal*

17:00 *Zahra Derakhshandeh*, *Robert Gmyr*, *Andréa W. Richa*, *Christian Scheideler* and *Thim Strothmann*
Universal Shape Formation for Programmable Matter (abstract)

17:20 *Daniel Jung*, *Friedhelm Meyer Auf der Heide*, *Andreas Cord-Landwehr* and *Matthias Fischer*
Asymptotically Optimal Gathering on a Grid (abstract)

17:40 *Michael Mitzenmacher*, *Rajmohan Rajaraman* and *Scott Roche*
Better bounds for coalescing-branching random walks on graphs (abstract)

Wednesday, July 13th

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09:00-10:20 Session 11: Concurrent Data Structures

CHAIR: *Yossi Lev*

09:00 *Deli Zhang* and *Damian Dechev*
Lock-free Transactions without Aborts for Linked Data Structures (abstract **)**

09:20 *Tudor David* and *Rachid Guerraoui*
Concurrent Search Data Structures Can Be Blocking and Practically Wait-Free (abstract **)**

09:40 *Oana Balmau*, *Rachid Guerraoui*, *Maurice Herlihy* and *Igor Zablotchi*
Fast and Robust Memory Reclamation for Concurrent Data Structures (abstract **)**

10:00 *Jakob Gruber*, *Jesper Larsson Träff* and *Martin Wimmer*
Benchmarking Concurrent Priority Queues: Performance of k-LSM and Related Data Structures (abstract **)**

10:10 *William Kuszmaul*
Fast Concurrent Cuckoo Kick-out Eviction Schemes for High-Density Tables (abstract **)**

10:40-12:00 Session 12: Graph Algorithms

CHAIR: *Peter Robinson*

10:40 *Amihood Amir*, *Oren Kapah*, *Tsvi Kopelowitz*, *Moni Naor* and *Ely Porat*
The Family Holiday Gathering Problem or Fair and Periodic Scheduling of Independent Sets (abstract **)**

11:00 *Avery Miller* and *Andrzej Pelc*
Election vs. Selection: How Much Advice is Needed to Find the Largest Node in a Graph? (abstract **)**

11:20 *Mohsen Ghaffari* and *Merav Parter*
Near-Optimal Distributed Algorithms for Fault-Tolerant Tree Structures (abstract **)**

11:40 *Hossein Esfandiari*, *Mohammadtaghi Hajiaghayi* and *David Woodruff*
Applications of Uniform Sampling: Densest Subgraph and Beyond (abstract **)**

11:50 *Zhuolun Xiang* and *Nitin Vaidya*
Brief Announcement: Relaxed Byzantine Vector Consensus (abstract **)**

13:30-14:40 Session 13: Distributed Algorithms

CHAIR: *Nodari Sitchinava*

13:30 *Haifeng Yu*, *Yuda Zhao* and *Irvan Jahja*
The Cost of Unknown Diameter in Dynamic Networks (abstract **)**

13:50 *Maximilian Drees*, *Robert Gmyr* and *Christian Scheideler*
Churn- and DoS-resistant Overlay Networks Based on Network Reconfiguration (abstract **)**

14:10 *Gopal Pandurangan*, *Peter Robinson* and *Michele Scquizzato*
Fast Distributed Algorithms for Connectivity and MST in Large Graphs (abstract **)**

14:30 *Qiang-Sheng Hua*, *Haoqiang Fan*, *Lixiang Qian*, *Ming Ai*, *Yangyang Li*, *Xuanhua Shi* and *Hai Jin*
A Tight Distributed Algorithm for All Pairs Shortest Paths and Applications (abstract **)**

15:00-16:00 Session 14: Parallel Graph Algorithms

CHAIR: *Merav Parter*

15:00 *Guy Blelloch*, *Yan Gu*, *Yihan Sun* and *Kanat Tangwongsan*
Parallel Shortest-Paths Using Radius Stepping (abstract **)**

15:20 *Stephan Friedrichs* and *Christoph Lenzen*
Parallel Metric Tree Embedding based on an Algebraic View on Moore-Bellman-Ford (abstract **)**

15:40 *Kamal Al-Bawani*, *Matthias Englert* and *Matthias Westermann*
Online Packet Scheduling for CIOQ and Buffered Crossbar Switches (abstract **)**

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