

**32nd ACM Symposium on
PARALLELISM IN ALGORITHMS AND ARCHITECTURES (SPAA)
VIRTUAL CONFERENCE
14-17 July, 2020
<https://spaa.acm.org>**

July 14, 2020 (Workshops and Tutorials)

1:00 – 4:00	Research and Teaching with OpenCilk Dorothy Curtis, I-Ting Angelina Lee, Charles E. Leiserson, Tao B. Schardl
4:00 – 5:30	Implementing Parallel Tree Structure in Shared-Memory Yihan Sun

July 15, 2020

9:00 – 9:05	Opening Remarks
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Best Paper Session

9:05 – 9:30	A Unified Sparsification Approach for Matching Problems in Graphs of Bounded Neighborhood Independence Lazar Milenkovic and Shay Solomon
9:30 – 9:55	Parallel Planar Subgraph Isomorphism and Vertex Connectivity Lukas Gianinazzi and Torsten Hoefler
9:55 – 10:20	Sublinear Algorithms in T-interval Dynamic Networks Irvan Jahja and Haifeng Yu
10:20 – 10:45	Faster Deterministic All Pairs Shortest Paths in Congest Model Udit Agarwal and Vijaya Ramachandran
10:45 – 11:10	Optimal Parallel Algorithms in the Binary-Forking Model Guy Blelloch, Jeremy Fineman, Yan Gu and Yihan Sun

Virtual Session 1

11:30 – 11:40	Bandwidth-Optimized Parallel Algorithms for Sparse Matrix-Matrix Multiplication using Propagation Blocking Zhixiang Gu, Jose Moreira, David Edelhoen and Ariful Azad
11:40 – 11:50	Randomized Incremental Convex Hull is Highly Parallel Guy Blelloch, Yan Gu, Julian Shun and Yihan Shun
11:50 – 12:00	On the Hardness of Massively Parallel Computation Kai-Min Chung, Kuan-Yi Ho and Xiaorui Sun
12:00 – 12:10	Brief Announcement: ParlayLib – A toolkit for parallel programming on shared-memory multicore machines Guy Blelloch, Daniel Anderson and Laxman Dhulipala
12:10 – 12:20	Brief Announcement: Communication-Optimal Tilings for Projective Nested Loops with Arbitrary Bounds Grace Dinh and James Demmel
12:20 – 12:30	Brief Announcement: A Discrete and Continuous Study of the Max-Chain-Formation Problem Jannik Castenow, Peter Kling, Till Knollmann and Friedhelm Meyer Auf der Heide

Virtual Session 2

1:00 – 1:10	Closing the Gap Between Cache-oblivious and Cache-adaptive Analysis Michael Bender, Rezaul Chowdhury, Rathish Das, Rob Johnson, William Kuszmaul, Andrea Lincoln, Quanquan Liu, Jayson Lynch and Helen Xu
1:10 – 1:20	How to Manage High-Bandwidth Memory Automatically Rathish Das, Kunal Agrawal, Michael Bender, Jonathan Berry, Benjamin Moseley and Cynthia Phillips
1:20 – 1:30	Brief Announcement: Cache-Efficient Parallel-Partition Algorithms using Exclusive-Read-and-Write Memory Alek Westover and William Kuszmaul
1:30 – 1:40	Brief Announcement: Green Paging and Parallel Paging Enoch Peserico and Michele Scquizzato
1:40 – 1:50	Brief Announcement: Paging for Multicore Architectures: Lower Bounds and Separation of Paging Strategies Helen Xu and Shahin Kamali
1:50 – 2:00	Brief Announcement: Balanced Partitioning of several Cache-Oblivious Algorithms Yuan Tang

Virtual Session 3

2:10 – 2:20	The Append Memory Model: Why BlockDAGs Excel Blockchains Darya Melnyk and Roger Wattenhofer
2:20 – 2:30	Fast Byzantine Agreement for Permissioned Distributed Ledgers Thomas Locher
2:30 – 2:40	Brief Announcement: Cross-Chain Payment Protocols with Success Guarantees Rob van Glabbeek, Vincent Gramoli and Pierre Tholoniati
2:40 – 2:50	Brief Announcement: A Closer Look at Quantum Distributed Consensus Wojciech Golab and Hao Tan

Virtual Session 4

3:00 – 3:10	Memory Tagging: Minimalist Synchronization for Scalable Concurrent Data Structures Dan Alistarh, Trevor Brown and Nandini Singhal
3:10 – 3:20	Functional Faults Gali Sheffi and Erez Petrank
3:20 – 3:30	Brief Announcement: Tracking in Order to Recover: Detectable Recovery of Lock-Free Data Structures Hagit Attiya, Ohad Ben-Baruch, Panagiota Fatourou, Danny Hendler and Eleftherios Kosmas
3:30 – 3:40	Brief Announcement: Benchmarking Recoverable Mutex Locks Jeffrey Xiao, Zheng Zhang and Wojciech Golab
3:40 – 3:50	Brief Announcement: Investigating the Semantics of Futures in Transactional Memory Systems Jingna Zeng, Shady Issa, Seif Haridi, Luis Rodrigues and Paolo Romano
3:50 – 4:00	Brief Announcement: Efficient Concurrent Range Queries in B+-trees using RCU-HTM Dimitrios Siakavaras, Panagiotis Billis, Konstantinos Nikas, Georgios Goumas and Nectarios Koziris

Virtual Session 5

4:10 – 4:20	Contention Resolution with Message Deadlines Kunal Agrawal, Michael Bender, Jeremy Fineman, Seth Gilbert and Maxwell Young
4:20 – 4:30	The Recoverable Consensus Hierarchy Wojciech Golab
4:30 – 4:40	pTrans: A Scalable Algorithm for Reservation Guarantees in Distributed Systems Yuhan Peng and Peter Varman
4:40 – 4:50	On the hardness of red-blue pebble games Pál András Papp and Roger Wattenhofer
4:50 – 5:00	Almost Universal Anonymous Rendezvous in the Plane Sébastien Bouchard, Yoann Dieudonne, Andrzej Pelc and Franck Petit
5:00 – 5:10	Non-Linear Ski Rental Boaz Patt-Shamir and Evyatar Yadai
5:10 – 5:20	Spectral Lower Bounds on the I/O Complexity of Computation Graphs Saachi Jain and Matei Zaharia

July 16, 2020

Virtual Session 6

9:00 – 9:10	Connected Components on a PRAM in Log Diameter Time Sixue Liu, Robert Tarjan and Peilin Zhong
9:10 – 9:20	Graph Sparsification for Derandomizing Massively Parallel Computation with Low Space Artur Czumaj, Peter Davies and Merav Parter
9:20 – 9:30	Communication vs synchronisation in parallel string comparison Alexander Tiskin
9:30 – 9:40	A Massively Parallel Algorithm for Minimum Weight Vertex Cover Mohsen Ghaffari, Ce Jin and Daan Nilis
9:40 – 9:50	Brief Announcement: Communication-Efficient Weighted Reservoir Sampling from Fully Distributed Data Streams Lorenz Hübschle-Schneider and Peter Sanders
9:50 – 10:00	Brief Announcement: Improved Work Span Tradeoff for Single Source Reachability and Approximate Shortest Paths Nairen Cao, Jeremy Fineman and Katina Russell
10:00 – 10:10	Brief Announcement: Efficient Distributed Algorithms for the K-Nearest Neighbors Problem Reza Fathi, Anisur Rahaman Molla and Gopal Pandurangan
10:10 – 10:20	Brief Announcement: A local constant approximation factor algorithm for minimum dominating set of certain planar graphs Sharareh Alipour and Amir Jafari
10:20 – 10:30	Brief Announcement: Provable neuromorphic advantages for constrained shortest paths James Bradley Aimone, Yang Ho, Ojas D. Parekh, Cynthia Phillips, Ali Pinar, William M. Severa and Yipu Wang

Virtual Session 7

10:45 – 10:55	Deterministic Leader Election in Anonymous Radio Networks Avery Miller, Andrzej Pelc and Ram Narayan Yadav
10:55 – 11:05	Time- and Space-Optimal Discrete Clock Synchronization in the Beeping Model Michael Feldmann, Ardalan Khazraei and Christian Scheideler
11:05 – 11:15	Efficient Local Medium Access Paweł Garncarek, Tomasz Jurdziński and Dariusz Kowalski
11:15 – 11:25	Constant-Length Labelling Schemes for Faster Deterministic Radio Broadcast Faith Ellen and Seth Gilbert
11:25 – 11:35	Brief Announcement: Network Partitioning and Avoidable Contention Yishai Oltchik and Oded Schwartz
11:35 – 11:45	Brief Announcement: A Queueing Network Based Distributed Laplacian Solver Iqra Altaf Gillani and Amitabha Bagchi

12:00 – 1:00	SPAA Business Meeting
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Virtual Session 8

1:00 – 1:10	Brief Announcement: Sparse Tensor Transpositions Suzanne Mueller, Peter Ahrens, Stephen Chou, Fredrik Kjolstad and Saman Amarasinghe
1:10 – 1:20	Brief Announcement: Communication Lower Bounds of Convolutions in CNNs Xiaoyang Zhang, Junmin Xiao and Guangming Tan
1:20 – 1:30	Brief Announcement: On the Limits of Parallelizing Convolutional Neural Networks on GPUs Behnam Pourghassemi, Chenghao Zhang, Joo Hwan Lee and Aparna Chandramowlishwaran
1:30 – 1:40	Brief Announcement: A Computational Model for Tensor Core Units Rezaul Chowdhury, Francesco Silvestri and Flavio Vella

Virtual Session 9

1:55 – 2:05	Commitment and slack for online load maximization Samin Jamalabadi, Chris Schwiegelshohn and Uwe Schwiegelshohn
2:05 – 2:15	Predicate Detection to Solve Combinatorial Optimization Problems Vijay Garg
2:15 – 2:25	Optimal Resource Allocation for Elastic and Inelastic Jobs Benjamin Berg, Mor Harchol, Justin Whitehouse, Weina Wang and Benjamin Moseley
2:25 – 2:35	Scheduling Flows on a Switch to Optimize Response Times Hamidreza Jahanjou, Rajmohan Rajaraman and David Stalfa
2:35 – 2:45	The Online Multi-Commodity Facility Location Problem Jannik Castenow, Björn Feldkord, Till Knollmann, Manuel Malatyali and Friedhelm Meyer Auf der Heide

Virtual Session 10

3:00 – 3:10	Unconditional lower bounds for Adaptive Massively Parallel Computation Moses Charikar, Weiyun Ma and Li-Yang Tan
3:10 – 3:20	Work-efficient Batch-incremental Minimum Spanning Trees with Applications to the Sliding Window Model Daniel Anderson, Guy Blelloch and Kanat Tangwongsan
3:20 – 3:30	Simple Local Computation Algorithms for the General Lovasz Local Lemma Dimitris Achlioptas, Themis Gouleakis and Fotis Iliopoulos
3:30 – 3:40	Brief Announcement: Lockfree Persistent Homology Dmitriy Morozov and Arnur Nigmatov
3:40 – 3:50	Brief Announcement: Reconstructing Trees in Parallel Ramtin Afshar, Michael Goodrich, Pedro Matias and Martha Osegueda
3:50 – 4:00	Brief Announcement: How fast can you update your MST? (Dynamic algorithms for cluster computing) Lawrence Li and Seth Gilbert

Virtual Session 11

4:15 – 4:25	Approximation Algorithms for Scheduling with Class Constraints Klaus Jansen, Alexandra Lassota and Marten Maack
4:25 – 4:35	Priority Scheduling for Interactive Applications Kyle Singer, Noah Goldstein, Stefan Muller, Kunal Agrawal, I-Ting Lee and Umut Acar
4:35 – 4:45	Parallel Load Balancing on Constrained Client-Server Topologies Andrea Clementi, Emanuele Natale and Isabella Ziccardi
4:45 – 4:55	Self-Stabilizing Task Allocation In Spite of Noise Anna Dornhaus, Nancy Lynch, Frederik Mallmann-Trenn, Dominik Pajak and Tsvetomira Radeva