SPAA 2018 Preliminary Schedule

Sunday, July 15

18:00-22:00 **Welcome reception**

Monday, July 16

8:55-9:05 **Opening Remarks**

9:05-11:00 **Session 1. Graphs.** Session chair: Kunal Agrawal

9:05-9:28 (Best Paper) Barbara Geissmann and Lukas Gianinazzi.
Minimum Cuts in Near-Linear work and Low Depth.

9:28-9:51 Shirel Attali, Merav Parter, David Peleg, and Shay Solomon.
Wireless Expanders.

9:51-10:14 Harald Räcke, Roy Schwartz, and Richard Stotz.
Trees for Vertex Cuts, Hypergraph Cuts and Minimum Hypergraph Bisection.

10:14-10:37 Haim Kaplan and Shay Solomon.
Dynamic Representations of Sparse Distributed Networks: A locality-sensitive approach.

10:37-11:00 Nicholas Harvey, Christopher Liaw, and Paul Liu.
Greedy and Local Ratio Algorithms in the MapReduce Model.

11:00-11:30 **BREAK**

11:30-12:30 **Keynote 1.** Session chair: Christian Scheideler

Charles E. Leiserson. *The Resurgence of Software Performance Engineering*

12:30-14:00 **LUNCH**

14:00-15:09 **Session 2a. Matrix and Matrix-Based Algorithms.** Session chair: Oded Schwartz

14:00-14:23 Grey Ballard, James Demmel, Laura Grigori, Mathias Jacquelin, and Nicholas Knight.
A 3D Parallel Algorithm for QR Decomposition.

14:23-14:46 Ojas Parekh, Cynthia A. Phillips, Conrad D. James, and James B. Aimone.
Constant-Depth and Subcubic-Size Threshold Circuits for Matrix Multiplication.

14:46-15:09 Amir Gholami, Ariful Azad, Peter Jin, Kurt Keutzer, and Aydin Buluc.
Integrated Model, Batch and Domain Parallelism in Training Neural Networks.

15:09-15:36 **Session 2b. Brief Announcements.** Session chair: Oded Schwartz

15:09-15:18 Marco Bressan, Enoch Peserico, and Luca Pretto.
Brief Announcement: On Approximating PageRank Locally with Sublinear Query Complexity.

15:18-15:27 Ink Chinavinijkul, Jacob Newcomb, Lingzhi Xi, and David P. Bunde.
Brief Announcement: Coloring-based task mapping for Dragonfly systems.

15:27-15:36 Alvaro Velasquez and Sumit Kumar Jha.
Brief Announcement: Parallel Transitive Closure Within 3D Crosspoint Memory.

15:36-16:05 **BREAK**

16:05-17:37 **Session 3. Concurrent Data Structures.** Session chair: Aydın Buluç

16:05-16:28 Gal Milman, Alex Kogan, Yossi Lev, Victor Luchangco, and Erez Petrank.
BQ: A Lock-Free Queue with Batching.

16:28-16:51 Panagiota Fatourou, Nikolaos D. Kallimanis, and Thomas Ropars.
An Efficient Wait-free Resizable Hash Table.

16:51-17:14 Kjell Winblad, Konstantinos Sagonas, and Bengt Jonsson.
Lock-free Contention Adapting Search Trees.

17:14-17:37 Dan Alistarh, Trevor Brown, Justin Kopinsky, Giorgi Nadiradze, and Jerry Li.
Distributionally Linearizable Data Structures.

18:00-19:00 **Business Meeting**

Tuesday, July 17

9:05-11:00 **Session 4. Distributed Algorithms.** Session chair: Seth Gilbert

9:05-9:28 Saeed Akhoondian Amiri, Patrice Ossona de Mendez, Roman Rabinovich and Sebastian Siebertz.
Distributed Domination on Graph Classes of Bounded Expansion.

9:28-9:51 Orr Fischer, Tzlil Gonen, Fabian Kuhn and Rotem Oshman.
Possibilities and Impossibilities for Distributed Subgraph Detection.

9:51-10:14 Janne H. Korhonen and Jukka Suomela.
Towards a Complexity Theory for the Congested Clique.

10:14-10:37 Peter Robinson, Christian Scheideler and Alexander Setzer.
Breaking the Ω(√n) Barrier: Fast Consensus under a Late Adversary.

10:37-11:00 Simon Collet and Amos Korman.
Intense Competition can Drive Selfish Explorers to Optimize Coverage.

11:00-11:30 BREAK

11:30-12:30 Keynote 2. Session chair: Guy Blelloch.
David A. Bader. *Massive-Scale Streaming Analytics: Models, Parallelsim, and Real-World Applications*

12:30-14:00 LUNCH

14:00-15:09 Session 5a. Caching. Session chair: Vijaya Ramachandran.

14:00-14:23 Erik D. Demaine and Quanquan C. Liu.
Red-Blue Pebble Game: Complexity of Computing the Trade-Off between Cache Size and Memory Transfers.

14:23-14:46 Guy Even, Moti Medina and Dror Rawitz.
Online Generalized Caching with Varying Weights and Costs.

14:46-15:09 Andrea Lincoln, Quanquan C. Liu, Jayson Lynch and Helen Xu.
Cache Adaptive Exploration.

15:09-15:36 Session 5b. Brief Announcements. Session chair: Vijaya Ramachandran.

15:09-15:18 Leonid Barenboim and Yaniv Tzur.
Brief Announcement: Distributed Symmetry-Breaking with Improved Vertex-Averaged Complexity.

15:18-15:27 Ellis Giles, Kshitij Doshi, and Peter Varman.
Brief Announcement: Hardware Transactional Persistent Memory.

15:27-15:36 Christina Kolb, Daniel Jung, Jannik Sundermeier, and Christian Scheideler.

Brief Announcement: Competitive Routing in Hybrid Communication Networks

15:36-16:05 **BREAK**

16:05-17:37 **Session 6. Non-Volatile Memories.** Session chair: TB Schardl

16:05-16:28 Guy Blelloch, Yan Gu, Julian Shun and Yihan Sun.
Parallel Write-Efficient Geometry Algorithms.

16:28-16:51 Guy E. Blelloch, Phillip B. Gibbons, Yan Gu, Charles McGuffey and Julian Shun.
The Parallel Persistent Memory Model.

16:51-17:14 Nachshon Cohen, Rachid Guerraoui and Igor Zablotchi.
The Inherent Cost of Remembering Consistently.

17:14-17:37 Andreia Correia, Pascal Felber and Pedro Ramalhete.
Romulus: Efficient Algorithms for Persistent Transactional Memory

17:45-19:30 **Guided tour** through Vienna inner city (optional)

19:30+ **Banquet** at the Rathaus

Wednesday, July 18

9:00-10:32 **Session 7. Scheduling and Load Balancing.** Session Chair: Jeremy Fineman.

9:00-9:23 Nikhil Devanur and Janardhan Kulkarni.
A Unified Rounding Algorithm For Unrelated Machines Scheduling Problem.

9:23-9:46 Giorgio Lucarelli, Benjamin Moseley, Nguyen Kim Thang, Abhinav Srivastav and Denis Trystram.
Online Non-preemptive Scheduling on Unrelated Machines with Rejections.

9:46-10:09 Noga Alon, Yossi Azar and Mark Berlin.
The Price of Bounded Preemption.

10:09-10:32 Ori Rottenstreich, Yossi Kanizo, Haim Kaplan and Jennifer Rexford.
Accurate Traffic Splitting on Commodity Switches.

10:32-11:00 **BREAK**

11:00-11:46 **Session 8a. Parallel Data Structures.** Session chair: Julian Shun

11:00-11:23 Wei Quan Lim, Seth Gilbert and Kunal Agrawal.
Parallel Working-Set Search Structures.

11:23-11:46 Tsvi Kopelowitz, Ely Porat and Yair Rosenmutter.
Improved Worst-Case Deterministic Parallel Dynamic Minimum Spanning Forest.

11:46-12:31 **Session 8b. Brief Announcements.** Session chair: Julian Shun

11:46-11:55 Kanthi Sarpatwar, Baruch Schieber, and Hadas Shachnai.
Brief Announcement: Approximation Algorithms for Preemptive Resource Allocation.

11:55-12:04 Saurabh Kumar and Samir Khuller.
Brief Announcement: A Greedy 2 Approximation to the Active Time Problem.

12:04-12:13 Tao B. Schardl, I-Ting Angelina Lee, and Charles E. Leiserson.
Brief Announcement: Open Cilk.

12:13-12:22 Manuel Pöter and Jesper Larsson Träff.
Brief Announcement: Stamp-it: A more Thread-efficient, Concurrent Memory Reclamation Scheme in the C++ Memory Model.

12:22-12:31 Johannes Schaefer and Friedhelm Meyer auf der Heide.
Brief Announcement: Communication in Systems of Home Based Mobile Agents.

12:31-14:00 **LUNCH**

14:00-15:09 **Session 9. Online Algorithms.** Session chair: Michael Bender

14:00-14:23 Susanne Albers and Jens Quedenfeld.
Optimal Algorithms for Right-Sizing Data Centers.

14:23-14:46 Björn Feldkord and Friedhelm Meyer auf der Heide.
Online Facility Location with Mobile Facilities.

14:46-15:09 Dan Alistarh, Syed Kamran Haider, Raphael Kübler and Giorgi Nadiradze.
The Transactional Conflict Problem.

15:09-15:45 **BREAK**

15:45-16:54 **Session 10. Graph and Mesh Computations.** Session chair: Michael Bender

15:45-16:08 (Best Paper) Laxman Dhulipala, Guy Blelloch and Julian Shun.
Theoretically Efficient Parallel Graph Algorithms Can Be Fast and Scalable.

16:08-16:31 Gopal Pandurangan, Peter Robinson and Michele Scquizzato.
On the Distributed Complexity of Large-Scale Graph Computations.

16:31-16:54 Predrag Gruevski, William Hasenplaugh, David Lugato and James Thomas.
Laika: Efficient In-Place Scheduling for 3D Mesh Graph Computations.