SPAA 2008

The 20th ACM Symposium on Parallelism in Algorithms and Architectures

June 13-16, 2008
Technische Universität München
Munich, Germany

Program

SPAA 2008 Conference Organization

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Program Chair: Nir Shavit, *Tel-Aviv University and Sun*

Special Track Chair: Jim Larus, *Microsoft*

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Larry Rudolph, *Massachusetts Institute of Technology*
Vivek Sarkar, *Rice University*
Assaf Schuster, *Technion*
Nir Shavit (chair), *Tel-Aviv University and Sun*

SPAA 2008 Invited Speakers

- Kunle Olukotun, Stanford University
- Arnold Rosenberg, University of Massachusetts at Amherst
- Leslie Valiant, Harvard University
- Hagit Attiya, Technion
- Charles Leiserson, MIT and Cilk Arts Inc.
- Burton Smith, Microsoft Research

SPAA 2008 Conference Awards

The SPAA 2008 Program Committee awards the SPAA 2008 best paper award to

Zvika Guz, Idit Keidar, Avinoam Kolodny and Uri C. Weiser
Utilizing Shared Data in Chip Multiprocessors with the Nahalal Architecture

SPAA 2008 Sponsors & Supporters

SPAA '08 is sponsored by the ACM Special Interest Groups on Algorithms and Computation Theory (SIGACT) and Computer Architecture (SIGARCH) and organized in cooperation with the European Association for Theoretical Computer Science.
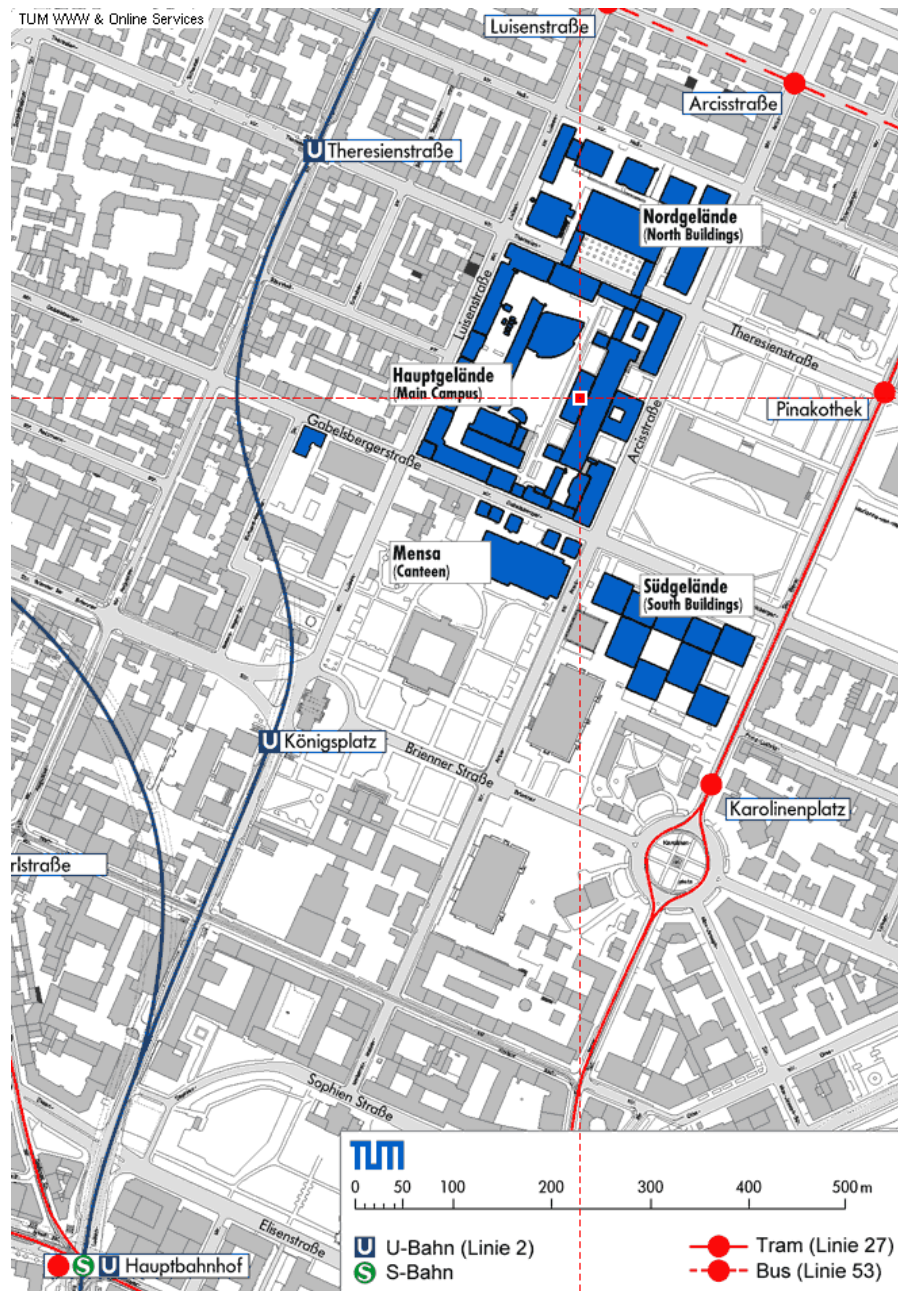
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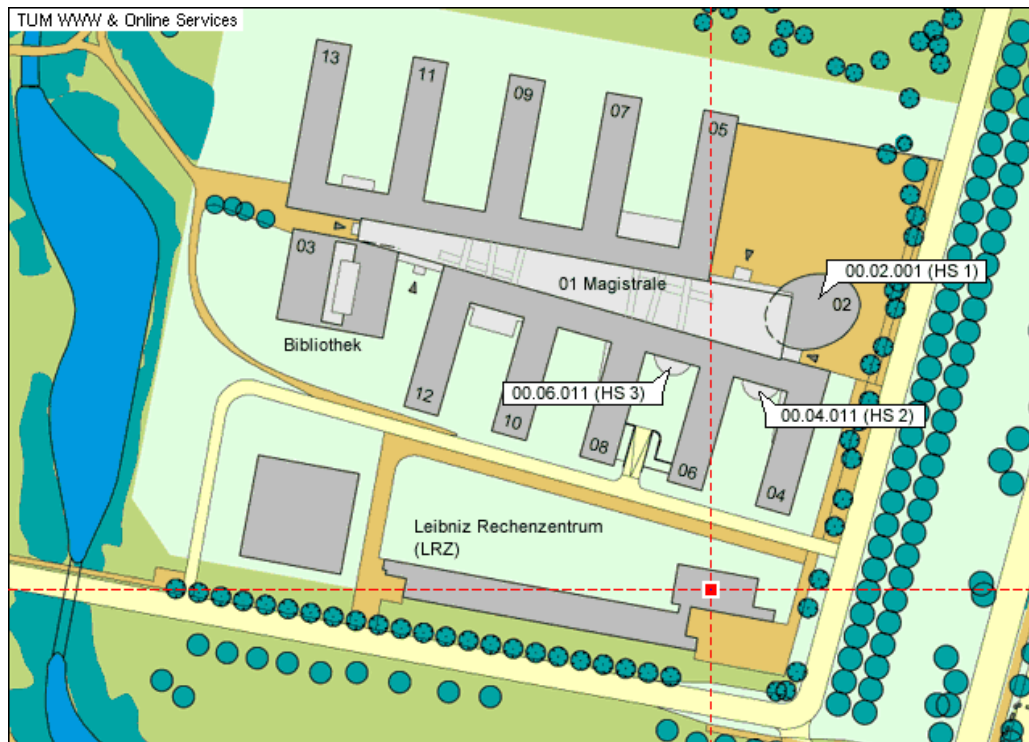
SPAA 2008 Locations

June 13-15: TUM Main Campus

Reception (June 13) and registration desk: Immatrikulationshalle (see the red marker)

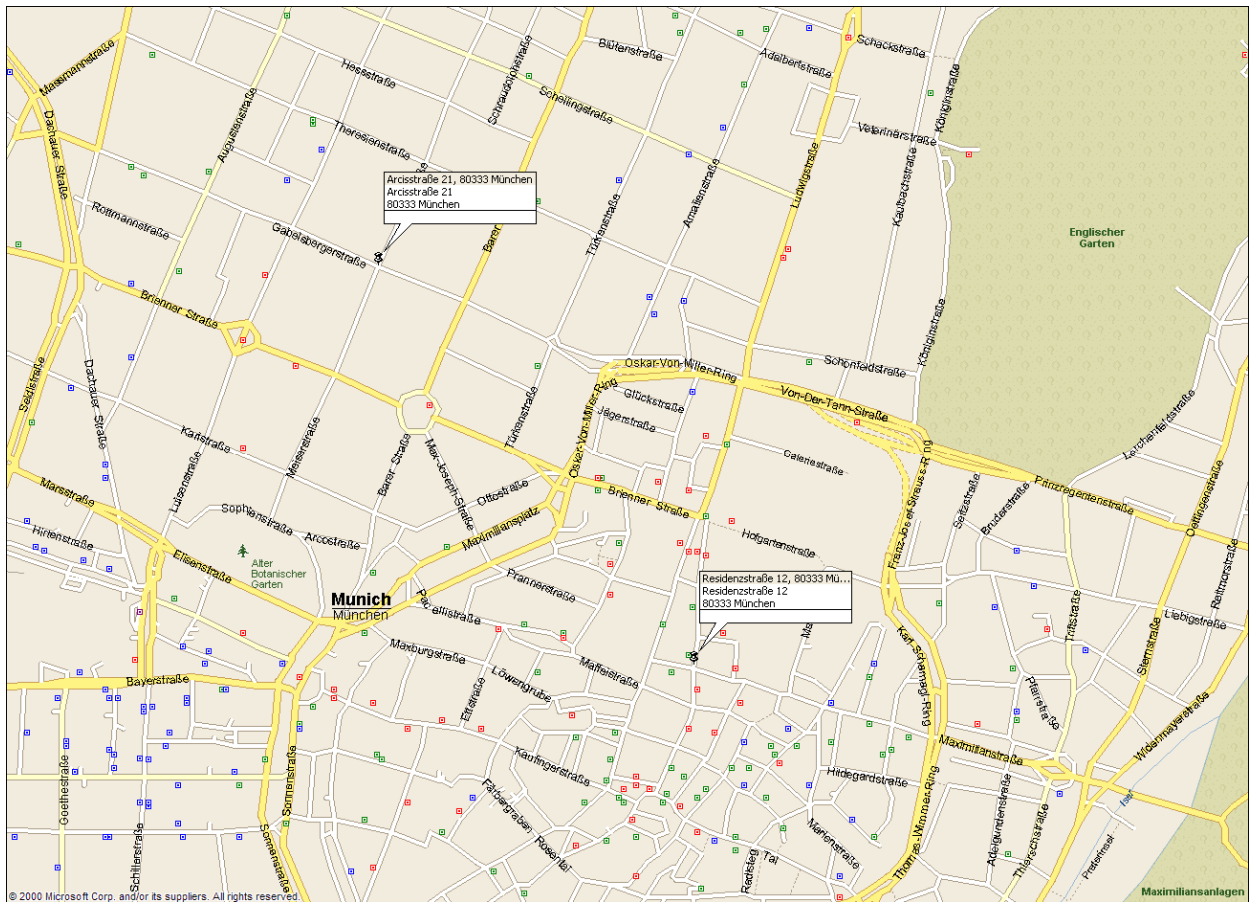# June 16: TUM Garching Campus

Conference location: LRZ (see red marker)

SPAA 2008 Banquet

Address:

Spatenhaus an der Oper
Residenzstraße 12
80333 München
Phone: +49-89-290706-0

SPAA 2008 Program

Friday, June 13

6:00 – 9:00 pm: **Registration and Reception at the Technische Universität München, Arcisstr. 21, 80333 Munich**

Saturday, June 14

08:20 – 08:30 am: **Welcome Address**

08:30 – 09:30 am: **Invited Talk 1**

Towards pervasive parallelism
Kunle Olukotun, Stanford University

09:30 – 10:50 am: **Session 1 – Special Track Multicore Systems**
                 Chair: Nir Shavit

09:30 am: *Winner of the best paper award:*
Utilizing Shared Data in Chip Multiprocessors with the Nahalal Architecture
Zvika Guz, Idit Keidar, Avinoam Kolodny and Uri C. Weiser.

09:50 am: A Consistency Architecture for Hierarchical Shared Caches
Edya Ladan Mozes and Charles Leiserson.

10:10 am: Combinable Memory-Block Transactions
Guy Blelloch, Phillip Gibbons and S. Harsha Vardhan.

10:30 am: Parallelizing Dynamic Information Flow Tracking
Olatunji Ruwase, Phillip B. Gibbons, Todd Mowry, Vijaya Ramachandran, Shimin Chen, Michael Kozuch and Michael Ryan.

10:50 – 11:20 am: **Coffee Break**

11:20 – 12:20 pm: **Session 2 – Algorithms on Graphs**
                 Chair: Emmanuelle Lebhar

11:20: What Can Be Approximated Locally?
Christoph Lenzen, Yvonne Anne Oswald and Roger Wattenhofer.

11:40: Distributed packing in planar graphs
Michal Hanckowiak, Andrzej Czygrinow and Wojciech Wawrzyniak.

12:00: Polylogarithmic Network Navigability Using Compact Metrics with Small Stretch
Pierre Fraigniaud and Cyril Gavoille.

12:20 – 01:40 pm: **Lunch**

01:40 – 02:40 am: **Invited Talk 2**

Where is your dog's belly button?
Arnold Rosenberg, University of Massachusetts at Amherst

02:40 – 04:00 pm: **Session 3 – Broadcasting in Networks**
Chair: Andrea Pietracaprina

02:40: Online Multicast with Egalitarian Cost Sharing
Moses Charikar, Howard Karloff, Claire Mathieu, Seffi Naor and Michael Saks.

03:00: Trade-offs Between the Size of Advice and Broadcasting Time in Trees
Emanuele Guido Fusco and Andrzej Pelc.

03:20: Cost Sharing Mechanisms for Near-Optimal Traffic Aggregation and Network Design
Baruch Awerbuch and Rohit Khandekar.

03:40: On Spreading Recommendations via Social Gossip
Yaacov Fernandess and Dahlia Malkhi.

04:00 - 04:30 pm: **Coffee Break**

04:30 – 05:30 pm: **Session 4 – Brief Announcements**
Chair: Christof Fetzer

04:30: Against Lock-Based Semantics for Transactional Memory
Victor Luchangco.

04:38: A Transactional Approach to Lock Scalability
Amitabha Roy, Keir Fraser and Steven Hand.

04:46: RaceTM: Detecting Data Races Using Transactional Memory
Shantanu Gupta, Florin Sultan, Srihari Cadambi, Franjo Ivancic and Martin Roetteler.

04:54: An Object Based Hardware Transactional Memory System
Behram Khan, Matthew Horsnell, Ian Rogers, Mikel Lujan, Andrew Dinn and Ian

Watson.

05:02: Safe Open-Nested Transactions Through Ownership
Kunal Agrawal, ITing Lee and Jim Sukha.

05:10: Leveraging non-blocking collective communication in high-performance applications
Torsten Hoefler, Peter Gottschling and Andrew Lumsdaine.

05:18: Fractal Communication in Software Data Dependency Graphs
Daniel Greenfield and Simon Moore.

8:30 – 10:30 pm: Business meeting

Location: TUM Main Campus, Room 0606 (the same as for the conference)

Sunday, June 15

08:30 – 09:30 am: **Invited Talk 3**

TBA
Leslie Valiant, Harvard University

9:30 – 10:50 am: **Session 5 – Graph Algorithms**
                Chair: Danny Hendler

09:30: Many Random Walks Are Faster Than One
Noga Alon, Chen Avin, Michal Koucky, Gady Kozma, Zvi Lotker and Mark R. Tuttle.

09:50: Improved Distributed Approximate Matching
Zvi Lotker, Boaz Patt-Shamir and Seth Pettie.

10:10: Graph partitioning into isolated, high conductance clusters: theory, computation and applications to preconditioning
Ioannis Koutis and Gary Miller.

10:30: Finding Strongly Connected Components in Parallel using $O(\log^2 n)$ Reachability Queries
Warren Schudy.

10:50 – 11:20 am: **Coffee Break**

11:20 – 12:20 pm: **Session 6 – Special Track Transactional Memory**
                Chair: Panagiota Fatourou

11:20: Automatic Data Partitioning in Software Transactional Memories
Torvald Riegel, Christof Fetzer and Pascal Felber.

11:40: RingSTM: Scalable Transactions with a Single Atomic Instruction
Michael Spear, Maged Michael and Christoph von Praun.

12:00: Adaptive Transaction Scheduling for Transactional Memory Systems
Richard Yoo and Hsien-Hsin Lee.

12:20 – 01:40: **Lunch (provided)**

01:40 – 02:40: **Invited Talk 4**

TBA
Hagit Attiya, Technion

02:40 – 03:30 pm: **Session 7 – Brief announcements (and in parallel poster session)**
Chair: Faith Ellen

02:40: Operational Analysis of Processor Speed Scaling
Kai Shen, Alex Zhang, Terence Kelly and Chris Stewart.

02:48: A Temperature-Aware Virtual Submesh Allocation Scheme for NoC-based Manycore Chips
Xiongfei Liao, Wu Jigang and Thambipillai Srikanthan.

02:56: Optimal Speedup on a Low-Degree Multi-Core Parallel Architecture (LoPRAM)
Reza Dorrigiv, Alejandro Lopez-Ortiz and Alejandro Salinger.

03:04: Energy-Optimal Distributed Algorithms for Minimum Spanning Trees
Yongwook Choi, Maleq Khan, Anil Kumar and Gopal Pandurangan.

03:12: Data Replication in P2P Environments
Andre Brinkmann and Sascha Effert.

03:20: Graphical Congestion Games with Linear Latencies
Vittorio Bilo', Angelo Fanelli, Michele Flammini and Luca Moscardelli.

03:30 – 04:00 pm: **Coffee Break with continuing poster session**

The Adaptive Transactional Memory Test Platform
Mark Moir, Kevin Moore and Dan Nussbaum.

Improving Software Concurrency with Hardware-assisted memory Snapshot
Jaewoong chung, Jiwon seo, Woongki Baek, Chi Cao Minh, Christos Kozyrakis and kunle Olukotun.

Distributed Voronoi diagram computation in wireless sensor networks
Waleed Alsalih, Md. Kamrul Islam, Yurai Nunez Rodriguez and Henry Xiao.

Directed Transmission Method, a Fully Asynchronous Approach to Solve Sparse Linear Systems in Parallel
Fei Wei and Huazhong Yang.

ASeD: Availability, Security, and Debugging Support using Transactional Memory
Jaewoong chung, Woongki Baek, Nathan Bronson, Jiwon Seo, Christos Kozyrakis and Kunle Olukotun.

04:00 – 05:00 pm: **Session 8 – Special Track Multicore Algorithms**
Chair: Ravi Rajwar

04:00: Fundamental Parallel Algorithms for Private-Cache Chip Multiprocessors
Lars Arge, Michael T. Goodrich, Michael Nelson and Nodari Sitchinava.

04:20: Cache-efficient Dynamic Programming Algorithms for Multicores
Rezaul Chowdhury and Vijaya Ramachandran.

04:40: Scheduling Strategies for Optimistic Parallel Execution of Irregular Programs
Milind Kulkarni, Keshav Pingali, Ganesh Ramanarayanan, Bruce Walter, Patrick Carribault, Paul Chew and Kavita Bala.

08:00 – 11:00 pm: **Banquet dinner at the Spatenhaus**

Location: see above

Monday, June 16

08:30 – 09:30 am: **Invited Talk 5**

 Cilk++
Charles Leiserson, MIT and Cilk Arts Inc.

09:30 – 10:50 am: **Session 9 – Parallel and Distributed Scheduling**
Chair: Susanne Albers

09:30: Fast Distributed Scheduling via Primal-Dual
Mauro Sozio and Alessandro Panconesi.

09:50: A Primal-Dual Resource Augmentation Analysis of a Constant Approximate Algorithm for Stable Coalitions in a Cluster
Indrajit Roy and Nedialko Dimitrov.

10:10: Improved Approximations for Multiprocessor Scheduling Under Uncertainty
Christopher Crutchfield, Zoran Dzunic, Jeremy Fineman, David Karger and Jacob Scott.

10:30: Competitive Non-migratory Scheduling for Flow Time and Energy
Tak-Wah Lam, Lap Kei Lee, Isaac K.K. To and Prudence W.H. Wong.

10:50 – 11:10 am: **Coffee Break**

11:10 – 12:30 pm: **Session 10 – Special Track STM Design and Locks**
Chair: Alexandra Fedorova

11:10: Kicking the Tires of Software Transactional Memory: Why the Going Gets Tough
Richard Yoo, Yang Ni, Adam Welc, Bratin Saha, Ali-Reza Adl-Tabatabai and Hsien-Hsin Lee.

11:30: Checkpoints and Continuations instead of Nested Transactions
Eric Koskinen and Maurice Herlihy.

11:50: Irrevocable Transactions and their Applications
Adam Welc, Bratin Saha and Ali-Reza Adl-Tabatabai.

12:10: Partial Snapshot Objects
Hagit Attiya, Rachid Guerraoui and Eric Ruppert.

12:30 – 01:40 pm: **Lunch (provided)**

01:40 – 02:40 pm: **Invited Talk 6**

Parallel Computing at Microsoft
Burton Smith, Microsoft Research

02:40 – 03:40 pm: **Session 11 – STM Analysis and Semantics**
Chair: Pascal Felber

02:40: On Obstruction-Free Transactions
Rachid Guerraoui and Michal Kapalka.

03:00: Practical Weak-Atomicity Semantics for Java STM
Vijay Menon, Steven Balensiefer, Tatiana Shpeisman, Ali-Reza Adl-Tabatabai, Richard Hudson, Bratin Saha and Adam Welc.

03:20: Commit Phase in Timestamp-based STM
Rui Zhang, Zoran Budimlic, and William Scherer.

03:40 – 04:00 pm: **Coffee break**
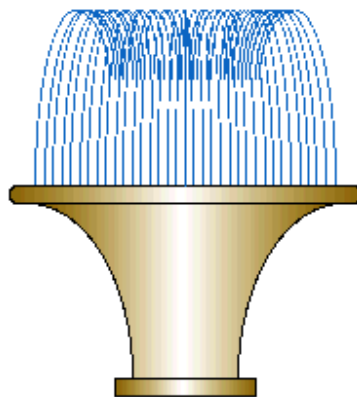
04:00 – 05:00 pm: **Session 12 – Algorithms**
                        Chair: Rajmohan Rajaraman

04:00: Dreadlocks: Efficient Deadlock Detection
Eric Koskinen and Maurice Herlihy.

04:20: Communication in wireless networks with directional antennas
Ioannis Caragiannis, Christos Kaklamanis, Evangelos Kranakis, Danny Krizanc and Andreas Wiese.

04:40: Tight Competitive Ratios for Parallel Disk Prefetching and Caching
Wing Kai Hon, Rahul Shah, Peter Varman and Jeffrey Scott Vitter.

Conference adjourns. Thanks for coming to SPAA 2008!!

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