

24th International Symposium on Distributed Computing
DISC 2010
September 12-16, 2010, Cambridge, Massachusetts, USA
Program (including workshops)

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| Sunday, September 12, 2010 |
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★ **2nd Workshop on Theoretical Aspects of Dynamic Distributed Systems**

2:00pm-2:15pm Workshop introduction by the Co-Chairs

- 2:15 -3:00 Algorithms for Dynamic Distributed Systems,
Nancy Lynch (MIT)
- 3:00 -3:45 The Dynamics of f: Distributed Systems Models Revisited,
Paulo Verissimo (Univ. de Lisboa)
- 3:45 -4:00 Coffee Break
- 4:00 -4:45 Virtually-Synchronous Approach for Building Reliable Distributed Services,
Dahlia Malkhi (Microsoft Research Silicon Valley)
- 4:45 -5:30 Resource Allocation in Datacenters
Ion Stoica (Univ. of California, Berkeley)
- 5:30 -6:00 Panel discussion led by the Co-Chairs

6pm-8pm DISC reception

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| Monday, September 13, 2010 |
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| DISC Day One |
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- 8:30-10:00 Session 1a: Invited Lecture; Consensus*
Session Chair: Nancy Lynch
- 8:30-8:35 Opening remarks
- 8:35-9:35 Invited Lecture: Barbara Liskov.
The Power of Abstraction
- 9:35-10:00 Ittai Abraham, Marcos Aguilera and Dahlia Malkhi.
Fast Asynchronous Consensus with Optimal Resilience

10:00-10:20 Break

10:20-12:00 Session 1b: Transactions

Session Chair: Victor Luchangco

10:20-10:45 Luke Dalessandro, Michael L. Scott and Michael F. Spear.
Transactions as the Foundation of a Memory Consistency Model

10:45-11:10 Hagit Attiya and Eshcar Hillel.
The Cost of Privatization

11:10-11:35 Francois Carouge and Michael Spear.
A Scalable Lock-Free Universal Construction with Best Effort Transactional Hardware

11:35- 12:00 Gokarna Sharma, Brett Estrade and Costas Busch.
Window-Based Greedy Contention Management for Transactional Memory

12-1:30 Lunch

1:30-2:45 Session 1c: Shared Memory Services and Concurrency

Session Chair: Yoram Moses

1:30-2:00 Danny Hendler, Itai Incze, Nir Shavit and Moran Tzafrir.
Scalable Flat-Combining Based Synchronous Queues
The presentation by Nir Shavit is dedicated to the memory of our colleague Moran Tzafrir

2:00-2:25 Dan Alistarh, Hagit Attiya, Seth Gilbert, Andrei Giurgiu and Rachid Guerraoui.
Fast Randomized Test-and-Set and Renaming

2:25-2:50 Maurice Herlihy and Sergio Rajsbaum.
Concurrent Computing and Shellable Complexes

2:50-3:15 Session 1d: Brief Announcements I

Session Chair: Yoram Moses

Pascal Felber, Christof Fetzer, Patrick Marlier, Martin Nowack and Torvald Riegel.

BA: Hybrid Time-based Transactional Memory

Yehuda Afek, Guy Korland and Eitan Yanovsky.

Quasi-Linearizability: relaxed consistency for improved concurrency

Hyonho Lee.

Fast Local-spin Abortable Mutual Exclusion with Bounded Space

3:15-3:35 Break

- 3:35-5:15** ***Session 1e: Wireless Networks***
Session Chair: Bogdan Chlebus
- 3:35-4:00 Johannes Schneider and Roger Wattenhofer.
 What Is The Use Of Collision Detection (In Wireless Networks)?
- 4:00-4:25 Alejandro Cornejo and Fabian Kuhn.
 Deploying Wireless Networks with Beeps
- 4:25-4:50 Thomas Kesselheim and Berthold Vöcking.
 Distributed Contention Resolution in Wireless Networks
- 4:50-5:15 Andrea Richa, Christian Scheideler, Stefan Schmid and Jin Zhang.
 A Jamming-Resistant MAC Protocol for Multi-Hop Wireless Networks
- 5:15-5:35** ***Session 1f: Brief Announcements II***
Session Chair: Bogdan Chlebus
- Mahesh Balakrishnan, Philip A. Bernstein, Dahlia Malkhi, Colin Reid
 and Vijayan Prabhakaran.
 BA: Flash-Log: A High Throughput Log
- Sukhyun Song, Pete Keleher, Bobby Bhattacharjee and Alan Sussman.
 BA: Decentralized Pairwise Bandwidth Prediction
- Abhinav Mehta, Shashank Agrawal and Kannan Srinathan.
 BA: Unconditionally Reliable Message Transmission in Directed Asynchronous
 Networks
- 8:00-9:30** ***DISC 2010 Business Meeting***

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| Tuesday, September 14, 2010 | DISC Day Two |
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- 8:30-10:00** ***Session 2a: Invited Lecture; Best Student Paper***
Session Chair: Alex Shvartsman
- 8:30-8:35 Opening remarks
- 8:35-9:35 Invited Lecture: Rachid Guerraoui.
 Speculating Seriously
- 9:35-10:00 François Bonnet and Michel Raynal.
 Anonymous Asynchronous Systems: the Case of Failure Detectors
- 10:00-10:20 Break

10:20-12:00 *Session 2b: Consensus and Leader Election**Session Chair: Michel Raynal*

- 10:20-10:45 Gadi Taubenfeld.
The Computational Structure of Progress Conditions
- 10:45-11:10 Bogdan Chlebus, Dariusz Kowalski and Michal Strojnowski.
Scalable Quantum Consensus for Crash Failures
- 11:10-11:35 Emanuele Guido Fusco and Andrzej Pelc.
How much memory is needed for leader election
- 11:35-12:00 Yoann Dieudonné, Franck Petit and Vincent Villain.
Leader Election Problem Versus Pattern Formation Problem
- 12:00-12:25 Ido Ben-Zvi and Yoram Moses.
Beyond Lamport's Happened-before: On the Role of Time Bounds in Synchronous Systems

12:25-2:00 Lunch (on your own)

2:00- 3:35 *Session 2c: Mobile Agents**Session Chair: Soma Chaudhuri*

- 2:00-2:25 Jérémie Chalopin, Shantanu Das and Peter Widmayer.
Rendezvous of Mobile Agents in Directed Graphs
- 2:25-2:45 Evangelos Bampas, Jurek Czyzowicz, Leszek Gasieniec, David Ilcinkas and Arnaud Labourel.
Almost optimal asynchronous rendezvous in infinite multidimensional grids
- 2:45-3:10 Lélia Blin, Alessia Milani, Maria Gradinariu Potop-Butucaru and Sébastien Tixeuil.
Exclusive Perpetual Ring Exploration without Chirality
- 3:10-3:35 Dariusz Dereniowski and Andrzej Pelc.
Drawing Maps with Advice

5:00-6:30 **Excursion: Boston Duck Tour**

6:30-10:00 **DISC 2010 Banquet, Museum of Science**

Wednesday, September 15, 2010**DISC Day Three**

- 8:30-10:00** *Session 3a: Invited Lecture; Wireless Networks*
Session Chair: Jennifer Welch
- 8:30-8:35 Opening remarks
- 8:35-9:35 Invited Lecture: Nitin Vaidya.
 Network-Aware Distributed Algorithms: Challenges and Opportunities
 in Wireless Networks
- 9:35-10:00 Dariusz Kowalski and Mariusz Rokicki.
 Connectivity Problem in Wireless Networks
- 10:00-10:20 Break
- 10:20-11:10** *Session 3b: Computing in Wireless and Mobile Networks*
Session Chair: Chryssis Georgiou
- 10:20-10:45 Seth Gilbert and Dariusz Kowalski.
 Trusted Computing for Fault-Prone Wireless Networks
- 10:45-11:10 Antonio Fernandez Anta, Alessia Milani, Miguel A. Mosteiro and Shmuel Zaks.
 Opportunistic Information Dissemination in Mobile Ad-hoc Networks:
 The Profit of Global Synchrony
- 11:10-12:00** *Session 3c: Brief Announcements III*
Session Chair: Chryssis Georgiou
- Scott M. Pike, Srikanth Sastry and Jennifer Welch.
 BA: Failure Detectors Encapsulate Fairness
- Francesco Alberti, Silvio Ghilardi, Elena Pagani, Silvio Ranise and
 Gian Paolo Rossi.
 BA: Automated Support for the Design and Validation of Fault Tolerant Parametrized
 Systems: a case study
- Mitre Costa Dourado, Lucia Draque Penso, Dieter Rautenbach and
 Jayme Luiz Szwarcfiter.
 BA: On Reversible and Irreversible Conversions
- Venkatesan Chakaravarthy, Yogish Sabharwal and Vijay Garg.
 BA: An Efficient Decentralized Algorithm for the Distributed
 Trigger Counting Problem
- Michael Ben-Or, Danny Dolev and Ezra N. Hoch.
 BA: Simple Gradecast Based Algorithms
- Dan Alistarh, Seth Gilbert, Rachid Guerraoui, and Corentin Travers
 BA: New Bounds for Partially Synchronous Set Agreement

12-1:30 Lunch

1:30-3:30 Session 3d: Modeling Issues and Adversity

Session Chair: Gadi Taubenfeld

1:30-1:55 Edmund Wong, Lorenzo Alvisi and Joshua Leners.
It's on Me! The Benefit of Altruism in BAR Environments

1:55-2:20 H B Acharya and Mohamed Gouda.
On the Power of Non-Spoofing Adversaries

2:20-2:45 Vijay Garg.
Implementing Fault-Tolerant Services Using State Machines:
Beyond Replication

2:45-3:05 Break

3:05-5:10 Session 3e: Self-Stabilizing and Graph Algorithms

Session Chair: Antonio Fernandez

3:05-3:30 Dmitry Zinenko and Shay Kutten.
Low Communication Self-Stabilization Through Randomization

3:30-3:55 Lelia Blin, Shlomi Dolev, Maria Gradinariu Potop-Butucaru and
Stéphane Rovedakis.
Fast Self-Stabilizing Minimum Spanning Tree Construction

3:55-4:20 Swan Dubois, Toshimitsu Masuzawa and Sébastien Tixeuil.
The Impact of Topology on Byzantine Containment in Stabilization

4:20-4:45 Christoph Lenzen and Roger Wattenhofer.
Minimum Dominating Set Approximation in Graphs of Bounded Arboricity

4:45-5:00 Session 3f: Brief Announcements IV

Session Chair: Antonio Fernandez

Noga Alon, Hagit Attiya, Shlomi Dolev, Swan Dubois, Maria Gradinariu
Potop-Butucaru and Sebastien Tixeuil.
Sharing Memory in a Self-Stabilizing Manner

Benjamin Doerr, Leslie Ann Goldberg, Lorenz Minder, Thomas Sauerwald
and Christian Scheideler.
Stabilizing Consensus with the Power of Two Choices

**5:00-5:20 DISC symposium closing
(but workshops on September 16th!)**

Thursday, September 16, 2010**★ 2nd Workshop on the Theory of Transactional Memory****8:30-10:00** *Panel**Invited speakers: Ali-Reza Adl-Tabatabai, Rachid Guerraoui and Mark Moir**Moderator: Michael L. Scott*

10:00-10:20 Coffee break

10h20-11h10 *Concurrency*

A. Beniusa.

On Relaxing Memory Consistency for Transactional Memory

Y. Afek, A. Morrison, M. Tzafrir.

View Transactions and the Relaxation of Consistency Checks in Software Transactional Memory

V. Gramoli, R. Guerraoui, M. Letia.

Composition vs. Concurrency

Discussion

11h10-11h50 *Nesting*

S. Peri, K. Vidyasankar.

Correctness of Concurrent Executions of Closed Nested Transactions in Transactional Memory Systems

R. Kumar, K. Vidyasankar.

ParSTM: A Hierarchy-based STM Protocol for Supporting Nested Parallelism

Discussion

11h50-13h40 Lunch break (lunch on your own)

13h40-14h30 *Correctness*

T. Palmer, E. Moss.

Automating Proofs of Coarse-Transaction Properties of Data Abstractions

J. Gottschlich, J.G. Siek, M. Vachharajani.

Proving Conflict Serializability for Full Invalidation

S. Doherty, V. Luchangco, M. Moir.

Towards Formal Specification and Verification of Transactional Memory: Machine-Checked Proof

Discussion

14h30-15h10 Message Passing Models

B. Zhang, B. Ravindran.

Supporting Transactional Memory in Distributed Systems based on the Data-Flow Model

M. Herlihy, E. Koskinen.

Simplified Synchronization through Optimistic Linearizability

Discussion

15h10-15h30 Coffee break**15h30-16h20 Memory Models**

M. L. Scott, L. Dalessandro.

On the Orthogonality of Speculation and Atomicity

S. White, M. Spear.

On Reconciling Hardware Atomicity, Memory Models, and `_tm_waiver`

S. Diestelhorst, M. Hohmuth, M. Pohlack.

Sane Semantics of Best Effort Hardware Transactional Memory

Discussion

16h20-17h Progress

G. Sharma, C. Busch.

Improving the Performance Competitive Ratios of Transactional Memory Contention Managers

J. Kim, B. Ravindran.

The Semantics of Progress and Concurrency in Distributed Transactional Memory Systems

Discussion

Thursday, September 16, 2010**★ 6th ACM DIALM-POMC International Workshop on Foundations of Mobile Computing**

8:35 - 8:45 *Opening Remarks*

8:45 - 9:45 **Invited Talk: Games Ad Hoc Networks Play**
Rajmohan Rajaraman (*Northeastern University*)

9:45 - 10:35 *Session 1: Broadcasting*

9:45 - 10:10 Radio Cover Time in Hyper-Graphs
Avin, Lando and Lotker

10:10 - 11:35 Decomposing Broadcast Algorithms Using Abstract MAC Layers.
Khabbазian, Kowalski, Kuhn and Lynch

10:35 - 11:00 Coffee Break

11:00 - 12:15 *Session 2: Sensor and Cellular Networks*

11:00 - 11:25 Data Transmission and Base-Station Placement for Optimizing Network
Lifetime
Arkin, Efrat, Mitchell, Ramasubramanian, Polishchuk, Sankararaman and Taheri

11:25 - 11:50 Bandwidth Allocation in Cellular Networks with Multiple Interferences
Bar-Yehuda, Plevoy and Rawitz

11:50 - 12:15 Information Security for Sensors by Overwhelming Random Sequences and
Permutations
Dolev, Gilboa, Kopeetsky, Persiano and Spirakis

12:15 - 1:45 Lunch Break (on your own)

1:45 - 2:45 **Invited Talk: Networking Devices over TV White Spaces**
Ranveer Chandra (*Microsoft Research*)

2:45 - 3:35 *Session 3: Vehicular Networks*

2:45 - 3:10 Finding Available Parking Spaces Made Easy
Klappenecker, Lee and Welch

3:10 - 3:35 Prioritized Gossip in Vehicular Networks
Cornejo and Newport

3:35 - 4:00 Coffee Break

4:00 - 5:15 ***Session 4: Mobile Ad-Hoc Networks***

4:00 - 4:25 Reliable Neighbor Discovery for Mobile Ad Hoc Networks
Cornejo, Viqar and Welch

4:25 - 4:50 Direction Election in Flocking Swarms
Ben-Shahar, Dolev, Dolgin and Segal

4:50 - 5:15 Regional Consecutive Leader Election in Mobile Ad-Hoc Networks
Chung, Robinson and Welch

5:15 ***Concluding Remarks***