Andrzej Pelc (Ed.)

LNCS 4731

Distributed Computing

21st International Symposium, DISC 2007
Lemesos, Cyprus, September 2007
Proceedings

Springer

Andrzej Pelc (Ed.)

Distributed Computing

21st International Symposium, DISC 2007
Lemesos, Cyprus, September 24-26, 2007
Proceedings

江苏工业学院图书馆
藏书章

Springer

Volume Editor

Andrzej Pelc
Département d'informatique
Université du Québec en Outaouais
Gatineau, Québec J8X 3X7, Canada
E-mail: pelc@uqo.ca

Library of Congress Control Number: 2007935053

CR Subject Classification (1998): C.2.4, C.2.2, F.2.2, D.1.3, F.1.1, D.4.4-5

LNCS Sublibrary: SL 1 – Theoretical Computer Science and General Issues

ISSN 0302-9743
ISBN-10 3-540-75141-6 Springer Berlin Heidelberg New York
ISBN-13 978-3-540-75141-0 Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media

springer.com

© Springer-Verlag Berlin Heidelberg 2007
Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 12162741 06/3180 5 4 3 2 1 0

Lecture Notes in Computer Science 4731

Commenced Publication in 1973
Founding and Former Series Editors:
Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison
Lancaster University, UK

Takeo Kanade
Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler
University of Surrey, Guildford, UK

Jon M. Kleinberg
Cornell University, Ithaca, NY, USA

Friedemann Mattern
ETH Zurich, Switzerland

John C. Mitchell
Stanford University, CA, USA

Moni Naor
Weizmann Institute of Science, Rehovot, Israel

Oscar Nierstrasz
University of Bern, Switzerland

C. Pandu Rangan
Indian Institute of Technology, Madras, India

Bernhard Steffen
University of Dortmund, Germany

Madhu Sudan
Massachusetts Institute of Technology, MA, USA

Demetri Terzopoulos
University of California, Los Angeles, CA, USA

Doug Tygar
University of California, Berkeley, CA, USA

Moshe Y. Vardi
Rice University, Houston, TX, USA

Gerhard Weikum
Max-Planck Institute of Computer Science, Saarbruecken, Germany

Lecture Notes in Computer Science

Sublibrary 1: Theoretical Computer Science and General Issues

For information about Vols. 1– 4431
please contact your bookseller or Springer

Vol. 4770: V.G. Ganzha, E.W. Mayr, E.V. Vorozhtsov (Eds.), Computer Algebra in Scientific Computing. XIII, 460 pages. 2007.

Vol. 4743: P. Thulasiraman, X. He, T.L. Xu, M.K. Denko, R.K. Thulasiram, L.T. Yang (Eds.), Frontiers of High Performance Computing and Networking ISPA 2007 Workshops. XXIX, 536 pages. 2007.

Vol. 4742: I. Stojmenovic, R.K. Thulasiram, L.T. Yang, W. Jia, M. Guo, R.F. de Mello (Eds.), Parallel and Distributed Processing and Applications. XX, 995 pages. 2007.

Vol. 4736: S. Winter, M. Duckham, L. Kulik, B. Kuipers (Eds.), Spatial Information Theory. XV, 455 pages. 2007.

Vol. 4732: K. Schneider, J. Brandt (Eds.), Theorem Proving in Higher Order Logics. IX, 401 pages. 2007.

Vol. 4731: A. Pelc (Ed.), Distributed Computing. XVI, 510 pages. 2007.

Vol. 4710: C.W. George, Z. Liu, J. Woodcock (Eds.), Domain Modeling and the Duration Calculus. XI, 237 pages. 2007.

Vol. 4708: L. Kučera, A. Kučera (Eds.), Mathematical Foundations of Computer Science 2007. XVIII, 764 pages. 2007.

Vol. 4707: O. Gervasi, M.L. Gavrilova (Eds.), Computational Science and Its Applications – ICCSA 2007, Part III. XXIV, 1205 pages. 2007.

Vol. 4706: O. Gervasi, M.L. Gavrilova (Eds.), Computational Science and Its Applications – ICCSA 2007, Part II. XXIII, 1129 pages. 2007.

Vol. 4705: O. Gervasi, M.L. Gavrilova (Eds.), Computational Science and Its Applications – ICCSA 2007, Part I. XLIV, 1169 pages. 2007.

Vol. 4703: L. Caires, V.T. Vasconcelos (Eds.), CONCUR 2007 – Concurrency Theory. XIII, 507 pages. 2007.

Vol. 4697: L. Choi, Y. Paek, S. Cho (Eds.), Advances in Computer Systems Architecture. XIII, 400 pages. 2007.

Vol. 4688: K. Li, M. Fei, G.W. Irwin, S. Ma (Eds.), Bio-Inspired Computational Intelligence and Applications. XIX, 805 pages. 2007.

Vol. 4684: L. Kang, Y. Liu, S. Zeng (Eds.), Evolvable Systems: From Biology to Hardware. XIV, 446 pages. 2007.

Vol. 4683: L. Kang, Y. Liu, S. Zeng (Eds.), Intelligence Computation and Applications. XVII, 663 pages. 2007.

Vol. 4681: D.-S. Huang, L. Heutte, M. Loog (Eds.), Advanced Intelligent Computing Theories and Applications. XXVI, 1379 pages. 2007.

Vol. 4672: K. Li, C. Jesshope, H. Jin, J.-L. Gaudiot (Eds.), Network and Parallel Computing. XVIII, 558 pages. 2007.

Vol. 4671: V. Malyshkin (Ed.), Parallel Computing Technologies. XIV, 635 pages. 2007.

Vol. 4669: J.M. de Sá, L.A. Alexandre, W. Duch, D. Mandic (Eds.), Artificial Neural Networks – ICANN 2007, Part II. XXXI, 990 pages. 2007.

Vol. 4668: J.M. de Sá, L.A. Alexandre, W. Duch, D. Mandic (Eds.), Artificial Neural Networks – ICANN 2007, Part I. XXXI, 978 pages. 2007.

Vol. 4666: M.E. Davies, C.J. James, S.A. Abdallah, M.D Plumbley (Eds.), Independent Component Analysis and Blind Signal Separation. XIX, 847 pages. 2007.

Vol. 4665: J. Hromkovič, R. Královič, M. Nunkesser, P. Widmayer (Eds.), Stochastic Algorithms: Foundations and Applications. X, 167 pages. 2007.

Vol. 4664: J. Durand-Lose, M. Margenstern (Eds.), Machines, Computations, and Universality. X, 325 pages. 2007.

Vol. 4649: V. Diekert, M.V. Volkov, A. Voronkov (Eds.), Computer Science – Theory and Applications. XIII, 420 pages. 2007.

Vol. 4647: R. Martin, M. Sabin, J. Winkler (Eds.), Mathematics of Surfaces XII. IX, 509 pages. 2007.

Vol. 4646: J. Duparc, T.A. Henzinger (Eds.), Computer Science Logic. XIV, 600 pages. 2007.

Vol. 4644: N. Azémard, L. Svensson (Eds.), Integrated Circuit and System Design. XIV, 583 pages. 2007.

Vol. 4641: A.-M. Kermarrec, L. Bougé, T. Priol (Eds.), Euro-Par 2007 Parallel Processing. XXVII, 974 pages. 2007.

Vol. 4639: E. Csuhaj-Varjú, Z. Ésik (Eds.), Fundamentals of Computation Theory. XIV, 508 pages. 2007.

Vol. 4638: T. Stützle, M. Birattari, H. H. Hoos (Eds.), Engineering Stochastic Local Search Algorithms. X, 223 pages. 2007.

Vol. 4628: L.N. de Castro, F.J. Von Zuben, H. Knidel (Eds.), Artificial Immune Systems. XII, 438 pages. 2007.

Vol. 4627: M. Charikar, K. Jansen, O. Reingold, J.D.P. Rolim (Eds.), Approximation, Randomization, and Combinatorial Optimization. XII, 626 pages. 2007.

Vol. 4624: T. Mossakowski, U. Montanari, M. Haveraaen (Eds.), Algebra and Coalgebra in Computer Science. XI, 463 pages. 2007.

Vol. 4619: F. Dehne, J.-R. Sack, N. Zeh (Eds.), Algorithms and Data Structures. XVI, 662 pages. 2007.

Vol. 4618: S.G. Akl, C.S. Calude, M.J. Dinneen, G. Rozenberg, H.T. Wareham (Eds.), Unconventional Computation. X, 243 pages. 2007.

Vol. 4616: A. Dress, Y. Xu, B. Zhu (Eds.), Combinatorial Optimization and Applications. XI, 390 pages. 2007.

此为试读,需要完整PDF请访问: www.ertongbook.com

Vol. 4613: F.P. Preparata, Q. Fang (Eds.), Frontiers in Algorithmics. XI, 348 pages. 2007.

Vol. 4600: H. Comon-Lundh, C. Kirchner, H. Kirchner (Eds.), Rewriting, Computation and Proof. XVI, 273 pages. 2007.

Vol. 4599: S. Vassiliadis, M. Berekovic, T.D. Hämäläinen (Eds.), Embedded Computer Systems: Architectures, Modeling, and Simulation. XVIII, 466 pages. 2007.

Vol. 4598: G. Lin (Ed.), Computing and Combinatorics. XII, 570 pages. 2007.

Vol. 4596: L. Arge, C. Cachin, T. Jurdziński, A. Tarlecki (Eds.), Automata, Languages and Programming. XVII, 953 pages. 2007.

Vol. 4595: D. Bošnački, S. Edelkamp (Eds.), Model Checking Software. X, 285 pages. 2007.

Vol. 4590: W. Damm, H. Hermanns (Eds.), Computer Aided Verification. XV, 562 pages. 2007.

Vol. 4588: T. Harju, J. Karhumäki, A. Lepistö (Eds.), Developments in Language Theory. XI, 423 pages. 2007.

Vol. 4583: S.R. Della Rocca (Ed.), Typed Lambda Calculi and Applications. X, 397 pages. 2007.

Vol. 4580: B. Ma, K. Zhang (Eds.), Combinatorial Pattern Matching. XII, 366 pages. 2007.

Vol. 4576: D. Leivant, R. de Queiroz (Eds.), Logic, Language, Information and Computation. X, 363 pages. 2007.

Vol. 4547: C. Carlet, B. Sunar (Eds.), Arithmetic of Finite Fields. XI, 355 pages. 2007.

Vol. 4546: J. Kleijn, A. Yakovlev (Eds.), Petri Nets and Other Models of Concurrency – ICATPN 2007. XI, 515 pages. 2007.

Vol. 4545: H. Anai, K. Horimoto, T. Kutsia (Eds.), Algebraic Biology. XIII, 379 pages. 2007.

Vol. 4533: F. Baader (Ed.), Term Rewriting and Applications. XII, 419 pages. 2007.

Vol. 4528: J. Mira, J.R. Álvarez (Eds.), Nature Inspired Problem-Solving Methods in Knowledge Engineering, Part II. XXII, 650 pages. 2007.

Vol. 4527: J. Mira, J.R. Álvarez (Eds.), Bio-inspired Modeling of Cognitive Tasks, Part I. XXII, 630 pages. 2007.

Vol. 4525: C. Demetrescu (Ed.), Experimental Algorithms. XIII, 448 pages. 2007.

Vol. 4514: S.N. Artemov, A. Nerode (Eds.), Logical Foundations of Computer Science. XI, 513 pages. 2007.

Vol. 4513: M. Fischetti, D.P. Williamson (Eds.), Integer Programming and Combinatorial Optimization. IX, 500 pages. 2007.

Vol. 4510: P. Van Hentenryck, L.A. Wolsey (Eds.), Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems. X, 391 pages. 2007.

Vol. 4507: F. Sandoval, A.G. Prieto, J. Cabestany, M. Graña (Eds.), Computational and Ambient Intelligence. XXVI, 1167 pages. 2007.

Vol. 4501: J. Marques-Silva, K.A. Sakallah (Eds.), Theory and Applications of Satisfiability Testing – SAT 2007. XI, 384 pages. 2007.

Vol. 4497: S.B. Cooper, B. Löwe, A. Sorbi (Eds.), Computation and Logic in the Real World. XVIII, 826 pages. 2007.

Vol. 4494: H. Jin, O.F. Rana, Y. Pan, V.K. Prasanna (Eds.), Algorithms and Architectures for Parallel Processing. XIV, 508 pages. 2007.

Vol. 4493: D. Liu, S. Fei, Z. Hou, H. Zhang, C. Sun (Eds.), Advances in Neural Networks – ISNN 2007, Part III. XXVI, 1215 pages. 2007.

Vol. 4492: D. Liu, S. Fei, Z. Hou, H. Zhang, C. Sun (Eds.), Advances in Neural Networks – ISNN 2007, Part II. XXVII, 1321 pages. 2007.

Vol. 4491: D. Liu, S. Fei, Z.-G. Hou, H. Zhang, C. Sun (Eds.), Advances in Neural Networks – ISNN 2007, Part I. LIV, 1365 pages. 2007.

Vol. 4490: Y. Shi, G.D. van Albada, J.J. Dongarra, P.M.A. Sloot (Eds.), Computational Science – ICCS 2007, Part IV. XXXVII, 1211 pages. 2007.

Vol. 4489: Y. Shi, G.D. van Albada, J.J. Dongarra, P.M.A. Sloot (Eds.), Computational Science – ICCS 2007, Part III. XXXVII, 1257 pages. 2007.

Vol. 4488: Y. Shi, G.D. van Albada, J.J. Dongarra, P.M.A. Sloot (Eds.), Computational Science – ICCS 2007, Part II. XXXV, 1251 pages. 2007.

Vol. 4487: Y. Shi, G.D. van Albada, J.J. Dongarra, P.M.A. Sloot (Eds.), Computational Science – ICCS 2007, Part I. LXXXI, 1275 pages. 2007.

Vol. 4484: J.-Y. Cai, S.B. Cooper, H. Zhu (Eds.), Theory and Applications of Models of Computation. XIII, 772 pages. 2007.

Vol. 4475: P. Crescenzi, G. Prencipe, G. Pucci (Eds.), Fun with Algorithms. X, 273 pages. 2007.

Vol. 4474: G. Prencipe, S. Zaks (Eds.), Structural Information and Communication Complexity. XI, 342 pages. 2007.

Vol. 4459: C. Cérin, K.-C. Li (Eds.), Advances in Grid and Pervasive Computing. XVI, 759 pages. 2007.

Vol. 4449: Z. Horváth, V. Zsók, A. Butterfield (Eds.), Implementation and Application of Functional Languages. X, 271 pages. 2007.

Vol. 4448: M. Giacobini (Ed.), Applications of Evolutionary Computing. XXIII, 755 pages. 2007.

Vol. 4447: E. Marchiori, J.H. Moore, J.C. Rajapakse (Eds.), Evolutionary Computation, Machine Learning and Data Mining in Bioinformatics. XI, 302 pages. 2007.

Vol. 4446: C. Cotta, J.I. van Hemert (Eds.), Evolutionary Computation in Combinatorial Optimization. XII, 241 pages. 2007.

Vol. 4445: M. Ebner, M. O'Neill, A. Ekárt, L. Vanneschi, A.I. Esparcia-Alcázar (Eds.), Genetic Programming. XI, 382 pages. 2007.

Vol. 4436: C.R. Stephens, M. Toussaint, L.D. Whitley, P.F. Stadler (Eds.), Foundations of Genetic Algorithms. IX, 213 pages. 2007.

Vol. 4433: E. Şahin, W.M. Spears, A.F.T. Winfield (Eds.), Swarm Robotics. XII, 221 pages. 2007.

Vol. 4432: B. Beliczynski, A. Dzielinski, M. Iwanowski, B. Ribeiro (Eds.), Adaptive and Natural Computing Algorithms, Part II. XXVI, 761 pages. 2007.

Preface

DISC, the International Symposium on Distributed Computing, is an annual forum for presentation of research on all aspects of distributed computing, including the theory, design, implementation and applications of distributed algorithms, systems and networks. The 21st edition of DISC was held during September 24–26, 2007, in Lemesos, Cyprus.

This volume of proceedings begins with abstracts of three invited talks. The keynote speakers of DISC 2007 were: Burkhard Monien from the University of Paderborn, Germany, David Peleg from The Weizmann Institute of Science, Israel, and Michel Raynal from IRISA, Université de Rennes, France.

There were 100 ten-page-long extended abstracts submitted to DISC this year and this volume contains 32 contributions selected by the Program Committee among these 100 submissions. Every submitted paper was read and evaluated by Program Committee members assisted by external reviewers. The final decisions regarding acceptance or rejection of each paper were made during the electronic Program Committee meeting held in June/July 2007. Revised and expanded versions of a few best selected papers will be considered for publication in a special issue of the journal *Distributed Computing*.

The Best Student Paper Award of DISC 2007 was awarded to David Eisenstat for the paper "Fast Robust Approximate Majority" coauthored with Dana Angluin and James Aspnes.

This volume of proceedings also contains nine two-page-long brief announcements (BA). These BAs present ongoing work or recent results whose full description is not yet ready; it is expected that full papers containing those results will soon appear in other conferences or journals. The main purpose of the BA track is to announce ongoing projects to the distributed computing community and to obtain feedback for the authors. Each BA was also read and evaluated by the Program Committee.

This volume concludes with a section devoted to the 20th anniversary of the DISC conferences that took place during DISC 2006, held September 18–20, 2006, in Stockholm, Sweden.

DISC 2007 was organized in cooperation with the University of Cyprus. The main sponsor of DISC 2007 was CYTA - Cyprus Telecommunications Authority. The support of the Cyprus Tourism Organisation, Microsoft (Cyprus) and COST Action 295 DYNAMO is also gratefully acknowledged.

July 2007 Andrzej Pelc

The 2007 Edsger W. Dijkstra Prize in Distributed Computing

The 2007 Edsger W. Dijkstra Prize in Distributed Computing was presented at DISC 2007 for the paper "Consensus in the Presence of Partial Synchrony" by Cynthia Dwork, Nancy Lynch, and Larry Stockmeyer, which appeared in the Journal of the ACM (Vol. 35, No. 2, April, 1988. pages 288–323). A preliminary version appeared in PODC 1984.

This paper introduces a number of practically motivated partial synchrony models that lie between the completely synchronous and the completely asynchronous models, and in which consensus is solvable. It gives practitioners the right tool for building fault-tolerant systems, and contributes to the understanding that safety can be maintained at all times, despite the impossibility of consensus, and progress is facilitated during periods of stability. These are the pillars on which every fault-tolerant system has been built for two decades. This includes academic projects such as Petal, Frangipani, and Boxwood, as well as real-life data centers, such as the Google file system.

In distributed systems, balancing the pragmatics of building software that works against the need for rigor is particularly difficult because of impossibility results such as the FLP theorem. The publication by Dwork, Lynch, and Stockmeyer was in many respects the first to suggest a path through this thicket, and has been enormously influential. It presents consensus algorithms for a number of partial synchrony models with different timing requirements and failure assumptions: crash, authenticated Byzantine, and Byzantine failures. It also proves tight lower bounds on the resilience of such algorithms.

The eventual synchrony approach introduced in this paper is used to model algorithms that provide safety at all times, even in completely asynchronous runs, and guarantee liveness once the system stabilizes. This has since been established as the leading approach for circumventing the FLP impossibility result and solving asynchronous consensus, atomic broadcast, and state-machine replication.

In particular, the distributed systems engineering community has been increasingly drawn towards systems architectures that reflect the basic split between safety and liveness cited above. Dwork, Lynch, and Stockmeyer thus planted the seed for a profound rethinking of the ways that we should build, and reason about, this class of systems. Following this direction are many foundational solutions. First, these include state-machine replication methods such as Lamport's seminal Paxos algorithm and many group communication methods. Another important branch of research that directly follows this work is given by Chandra and Toueg's unreliable failure detector abstraction, which is realized in the eventual synchrony model of this paper. As Chandra and Toueg write: "we argue that partial synchrony assumptions can be encapsulated in the

unreliability of failure detectors. For example, in the models of partial synchrony considered in Dwork et al. it is easy to implement a failure detector that satisfies the properties of $\Diamond$W." Finally, the insight by Dwork, Lynch, and Stockmeyer also led to various timed-based models of partial synchrony, such as Cristian and Fetzer's Timed-Asynchronous model and others.

The award committee would like to acknowledge the sincere efforts by the nominators of this work, as well as all other (worthy!) nominations which came short of winning.

The Committee wishes to pay a special tribute via this award to Larry Stockmeyer, who passed away on July 31, 2004. Larry's impact on the field through this paper and many others will always be remembered.

The Committee of the 2007 Edsger W. Dijkstra Prize
in Distributed Computing:

Hagit Attiya
Dahlia Malkhi
Keith Marzullo
Marios Mavronicolas
Andrzej Pelc
Roger Wattenhofer (Chair)

Organization

DISC, the International Symposium on Distributed Computing, is an annual forum for presentation of research on all aspects of distributed computing. It is organized in cooperation with the European Association for Theoretical Computer Science (EATCS). The symposium was established in 1985 as a biannual International Workshop on Distributed Algorithms on Graphs (WDAG). The scope was soon extended to cover all aspects of distributed algorithms as WDAG came to stand for International Workshop on Distributed AlGorithms, and in 1989 it became an annual symposium. To reflect the expansion of its area of interest, the name was changed to DISC (International Symposium on DIStributed Computing) in 1998. The name change also reflects the opening of the symposium to all aspects of distributed computing.

Program Committee Chair
Andrzej Pelc, Université du Québec en Outaouais, Canada

Organizing Committee Chair
Chryssis Georgiou, University of Cyprus, Cyprus

Steering Committee Chair
Alexander Shvartsman, University of Connecticut, USA

Organizing Committee

Chryssis Georgiou	University of Cyprus, Cyprus (Chair)
Marios Mavronicolas	University of Cyprus, Cyprus
Nicolas Nicolaides	Congresswise, Cyprus (Financial Officer)
Anna Philippou	University of Cyprus, Cyprus

Steering Committee

Hagit Attiya	Technion, Israel
Shlomi Dolev	Ben Gurion University, Israel
Pierre Fraigniaud	CNRS and Université Paris 7, France
Rachid Guerraoui	EPFL, Switzerland, (Vice Chair)

Andrzej Pelc	Université du Québec en Outaouais, Canada
Sergio Rajsbaum	Universidad Nacional Autonoma de Mexico, Mexico
Alexander Shvartsman	University of Connecticut, USA (Chair)

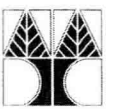
Program Committee

James Aspnes	Yale University, USA
Reuven Cohen	Technion, Israel
Sajal Das	University of Texas at Arlington, USA
Paola Flocchini	University of Ottawa, Canada
Eli Gafni	UCLA, USA
Leszek Gąsieniec	University of Liverpool, UK
Cyril Gavoille	University of Bordeaux, France
Chryssis Georgiou	University of Cyprus, Cyprus
Amir Herzberg	Bar Ilan University, Israel
Alex Kesselman	Intel, Israel
Rastislav Královič	Comenius University, Slovakia
Zvi Lotker	Ben Gurion University, Israel
Marios Mavronicolas	University of Cyprus, Cyprus
Michael Merritt	AT&T Research, USA
Thomas Moscibroda	Microsoft Research at Redmond, USA
Achour Mostefaoui	IRISA, France
Andrzej Pelc	Université du Québec en Outaouais, Canada (Chair)
Michael Reiter	Carnegie Mellon University, USA
Eric Ruppert	York University, Canada
Arun Somani	Iowa State University, USA
Paul Spirakis	Computer Technology Institute, Greece
Sam Toueg	University of Toronto, Canada
Jennifer Welch	Texas A&M University, USA
Udi Wieder	Microsoft Research at Silicon Valley, USA
Masafumi Yamashita	Kyushu University, Japan

此为试读,需要完整PDF请访问: www.ertongbook.com

Sponsoring Institutions

CYTA - Cyprus Telecommunications Authority



University of Cyprus

Cyprus Tourism Organisation

COST Action 295 DYNAMO

Microsoft

DISC 2007 Webmasters
Chryssis Georgiou, University of Cyprus, Cyprus
Richard Královič, Comenius University, Slovakia

Referees

N. Agmon
M. K. Aguilera
L. Alvisi
H. Attiya
Y. Bartal
S. Baswana
A. Beimel
P. Bille
E. Bortnikov
D. Benjamin Carbajal
J. Chalopin
B. Charron-Bost
I. Chatzigiannakis
G. Chockler
S. Das
C. Delporte
S. Dolev
A. Dvir
M. Elkin
X. Euthimiou
G. Even
P. Fatourou
H. Fauconnier
A. Fernandez
F. Freiling
S. Funke
S. Ganguly
P. W. Goldberg
O. Goussevskaia
R. Guerraoui
T. Harris
Y. Haviv
D. Hendler
M. Herlihy
E. Hillel
J.-H. Hoepman
S. L. Horn
Z. Hu
R. Kat
L. Katzir
D. Kaynar
I. Keidar
A. Kinalis
R. Klasing
S. Kontogiannis
A. Korman
D. R. Kowalski
R. Královič
D. Krizanc
F. Kuhn
P. Kuznetov
C. Lavault
P. Leone
V. Liagkou

M. Liu
A. Lopez-Ortiz
N. Lynch
R. Majundar
D. Malkhi
G. De Marco
E. Markou
T. Mchenry
L. Michael
M. Moir
P. M. Musial
G. Mylonas
N. C. Nicolaou
A. Nisgav
F. Oprea
P. Panagopoulou
D. Pardubska
B. Patt-Shamir
T. Plachetka
G. Prencipe
R. De Prisco
G. Proietti
C. Raptopoulos
E. M. Schiller
G. Shegalov
H. Shpungin
S. Smorodinski
G. Stupp
C. Travers
U. Vaccaro
R. Wattenhofer
T. Wong
Q. Xin
I. Yoffe
S. Zaks
J. Zhang

Table of Contents

Invited Talks

Routing and Scheduling with Incomplete Information 1
Burkhard Monien and Karsten Tiemann

Time-Efficient Broadcasting in Radio Networks 3
David Peleg

A Subjective Visit to Selected Topics in Distributed Computing 5
Michel Raynal

Regular Papers

Bounded Wait-Free Implementation of Optimally Resilient Byzantine Storage Without (Unproven) Cryptographic Assumptions 7
Amitanand S. Aiyer, Lorenzo Alvisi, and Rida A. Bazzi

A Simple Population Protocol for Fast Robust Approximate Majority 20
Dana Angluin, James Aspnes, and David Eisenstat

A Denial-of-Service Resistant DHT 33
Baruch Awerbuch and Christian Scheideler

Mobility Versus the Cost of Geocasting in Mobile Ad-Hoc Networks 48
Roberto Baldoni, Kleoni Ioannidou, and Alessia Milani

Self-stabilizing Counting in Mobile Sensor Networks with a Base Station 63
Joffroy Beauquier, Julien Clement, Stephane Messika, Laurent Rosaz, and Brigitte Rozoy

Scalable Load-Distance Balancing 77
Edward Bortnikov, Israel Cidon, and Idit Keidar

Time Optimal Asynchronous Self-stabilizing Spanning Tree 92
Janna Burman and Shay Kutten

Rendezvous of Mobile Agents in Unknown Graphs with Faulty Links ... 108
Jérémie Chalopin, Shantanu Das, and Nicola Santoro

Weakening Failure Detectors for k-Set Agreement Via the Partition Approach 123
Wei Chen, Jialin Zhang, Yu Chen, and Xuezheng Liu

Amnesic Distributed Storage 139
Gregory Chockler, Rachid Guerraoui, and Idit Keidar

Distributed Approximations for Packing in Unit-Disk Graphs 152
Andrzej Czygrinow and Michał Hańćkowiak

From Crash-Stop to Permanent Omission: Automatic Transformation and Weakest Failure Detectors 165
Carole Delporte-Gallet, Hugues Fauconnier, Felix C. Freiling, Lucia Draque Penso, and Andreas Tielmann

Deterministic Distributed Construction of Linear Stretch Spanners in Polylogarithmic Time 179
Bilel Derbel, Cyril Gavoille, and David Peleg

On Self-stabilizing Synchronous Actions Despite Byzantine Attacks 193
Danny Dolev and Ezra N. Hoch

Gossiping in a Multi-channel Radio Network: An Oblivious Approach to Coping with Malicious Interference (Extended Abstract) 208
Shlomi Dolev, Seth Gilbert, Rachid Guerraoui, and Calvin Newport

The Space Complexity of Unbounded Timestamps 223
Faith Ellen, Panagiota Fatourou, and Eric Ruppert

Approximating Wardrop Equilibria with Finitely Many Agents 238
Simon Fischer, Lars Olbrich, and Berthold Vöcking

Energy and Time Efficient Broadcasting in Known Topology Radio Networks 253
Leszek Gąsieniec, Erez Kantor, Dariusz R. Kowalski, David Peleg, and Chang Su

A Distributed Algorithm for Finding All Best Swap Edges of a Minimum Diameter Spanning Tree 268
Beat Gfeller, Nicola Santoro, and Peter Widmayer

On the Message Complexity of Indulgent Consensus 283
Seth Gilbert, Rachid Guerraoui, and Dariusz R. Kowalski

Gathering Autonomous Mobile Robots with Dynamic Compasses: An Optimal Result 298
Taisuke Izumi, Yoshiaki Katayama, Nobuhiro Inuzuka, and Koichi Wada

Compact Separator Decompositions in Dynamic Trees and Applications to Labeling Schemes 313
Amos Korman and David Peleg

On the Communication Surplus Incurred by Faulty Processors 328
Dariusz R. Kowalski and Michał Strojnowski

Output Stability Versus Time Till Output (Extended Abstract) 343
Shay Kutten and Toshimitsu Masuzawa

A Distributed Maximal Scheduler for Strong Fairness 358
Matthew Lang and Paolo A.G. Sivilotti

Cost-Aware Caching Algorithms for Distributed Storage Servers 373
Shuang Liang, Ke Chen, Song Jiang, and Xiaodong Zhang

Push-to-Pull Peer-to-Peer Live Streaming 388
Thomas Locher, Remo Meier, Stefan Schmid, and Roger Wattenhofer

Probabilistic Opaque Quorum Systems 403
Michael G. Merideth and Michael K. Reiter

Detecting Temporal Logic Predicates on Distributed Computations 420
Vinit A. Ogale and Vijay K. Garg

Optimal On-Line Colorings for Minimizing the Number of ADMs in Optical Networks (Extended Abstract) 435
Mordechai Shalom, Prudence W.H. Wong, and Shmuel Zaks

Efficient Transformations of Obstruction-Free Algorithms into Non-blocking Algorithms 450
Gadi Taubenfeld

Automatic Classification of Eventual Failure Detectors 465
Piotr Zieliński

Brief Announcements

When $3f + 1$ Is Not Enough: Tradeoffs for Decentralized Asynchronous Byzantine Consensus 480
Alysson Neves Bessani, Miguel Correia, Henrique Moniz, Nuno Ferreira Neves, and Paulo Verissimo

On the Complexity of Distributed Greedy Coloring 482
Cyril Gavoille, Ralf Klasing, Adrian Kosowski, and Alfredo Navarra

Fault-Tolerant Implementations of the Atomic-State Communication Model in Weaker Networks 485
Colette Johnen and Lisa Higham

Transaction Safe Nonblocking Data Structures 488
Virendra J. Marathe, Michael F. Spear, and Michael L. Scott

Long Live Continuous Consensus 490
Tal Mizrahi and Yoram Moses

Fully Distributed Algorithms for Convex Optimization Problems 492
Damon Mosk-Aoyama, Tim Roughgarden, and Devavrat Shah

On the Power of Impersonation Attacks 494
Michael Okun

Perfectly Reliable and Secure Communication in Directed Networks Tolerating Mixed Adversary 496
Arpita Patra, Ashish Choudhary, Kannan Srinathan, and Chandrasekharan Pandu Rangan

A Formal Analysis of the Deferred Update Technique 499
Rodrigo Schmidt and Fernando Pedone

DISC 20th Anniversary

DISC at Its 20th Anniversary (Stockholm, 2006) 501
Michel Raynal, Sam Toueg, and Shmuel Zaks

Time, Clocks, and the Ordering of My Ideas About Distributed Systems (DISC 20th Anniversary: Invited Talk) 504
Leslie Lamport

My Early Days in Distributed Computing Theory: 1979-1982 (DISC 20th Anniversary: Invited Talk) 505
Nancy Lynch

Provably Unbreakable Hyper-Encryption Using Distributed Systems (DISC 20th Anniversary: Invited Talk) 506
Michael O. Rabin

Author Index 509

此为试读,需要完整PDF请访问: www.ertongbook.com