Lecture Notes in Computer Science

7154

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

Alfred Kobsa

University of California, Irvine, CA, 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

TU Dortmund University, Germany

Madhu Sudan

Microsoft Research, Cambridge, MA, USA

Demetri Terzopoulos

University of California, Los Angeles, CA, USA

Doug Tygar

University of California, Berkeley, CA, USA

Gerhard Weikum

Max Planck Institute for Informatics, Saarbruecken, Germany

R. Ramanujam Srini Ramaswamy (Eds.)

Distributed Computing and Internet Technology

8th International Conference, ICDCIT 2012 Bhubaneswar, India, February 2-4, 2012 Proceedings



Volume Editors

R. Ramanujam Institute of Mathematical Sciences C.I.T. Campus Taramani, Chennai 600113, India E-mail: jam@imsc.res.in

Srini Ramaswamy Industrial Software Systems ABB India Corporate Research Center Bangalore, India Email: srini@ieee.org

ISSN 0302-9743 e-ISSN 1611-3349 ISBN 978-3-642-28072-6 e-ISBN 978-3-642-28073-3 DOI 10.1007/978-3-642-28073-3 Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2011945543

CR Subject Classification (1998): C.2.4, C.2, D.4, H.2.4, E.3, H.3-5, K.6.5

LNCS Sublibrary: SL 3 – Information Systems and Application, incl. Internet/Web and HCI

© Springer-Verlag Berlin Heidelberg 2012

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.

The use of general descriptive names, registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Preface

This volume contains the papers presented at ICDCIT 2012: The 8th International Conference on Distributed Computing and Internet Technologies held during February 2–4, 2012 at KIIT University, Bhubaneswar, India. The papers range over a spectrum of issues related to the theme of the conference, covering theoretical foundations, computational tools, and societal applications. State-of-the-art techniques like game theoretic ones are used by authors to analyze conceptual problems.

As in the previous years, we were fortunate to have highly eminent researchers giving plenary talks. It gives us great pleasure to thank N. Asokan (Nokia Research Centre, Helsinki, Finland), Catherine Meadows (Naval Research laboratory, Washington DC, USA), Yoram Moses (Technion, Haifa, Israel) and Lynne Parker (University of Tennessee, USA) for agreeing to give talks and for contributing to this volume.

There were 89 submissions. Each submission was reviewed by at least 2, and on the average 2.7, Program Committee members or their subreviewers. The committee decided to accept 17 regular papers and 15 submissions for short presentation (for some of which a short abstract is included in the proceedings). We thank all the reviewers for their invaluable help. We also express our gratitude to all members of the Program Committee for doing an excellent job of discussion and selection.

As is customary in ICDCIT, there were satellite events of interest to the community: an Industry Syposium, a Research Student Symposium and a Student Poster Exhibition.

The conference was co-organized by KIIT University, Bhubaneswar, and was held on their pleasant campus. We thank the Organizing Committee, KIIT University and its founder Achyuta Samanta for taking on the responsibility and doing a fine job.

We thank Springer for their continued support of ICDCIT and the Easy-Chair system for making the Program Committee's job as well as that of the proceedings editors easy indeed.

February 2012

R. Ramanujam Srini Ramaswamy

Organization

Program Committee

Shivali Agarwal IBM, India Research Lab, India Amy Apon University of Arkansas, USA

Kai Chen Google Inc., USA

Venkatesh Choppella International Institute of Information Technology

Hyderabad, India

Meenakshi D'Souza International Institute of Information Technology,

India

Anupam Datta CMU, USA

Elsa Estevez United Nations University – International Institute

for Software Technology, Japan

Veena Goswami KIIT University, India Maurice Herlihy Brown University, USA Prasad Jayanti Dartmouth College, USA S.N. Krishna IIT Bombay, India

Rupak Majumdar UCLA, USA

Tulika Mitra National University of Singapore

Neeraj Mittal The University of Texas at Dallas, USA

Hrushikesha Mohanty University of Hyderabad, India

G.B. Mund KIIT University, India

R. Ramanujam Institute of Mathematical Sciences, Chennai

(Co-chair), India

Srini Ramaswamy Industrial Software Systems, ABB Corporate Research

(Co-chair), India

Pradip Srimani Clemson University, USA

Maria Wimmer Universität Koblenz-Landau, Germany

Nobuko Yoshida — Imperial College London, UK

Additional Reviewers

Al-Shukri, Shaymaa Chenthati, Deepak Anguraj, Baskar D'Souza, Deepak Damani, Om Anil, R. Arumugam, Sivabalan Das, Debabrata Barjis, Joseph Datta, Subhajit Bhattacharya, Debojyoti Fossati, Luca Bhavani S., Durga Gabale, Vijay Chebrolu, Kameswari Garg, Vikas K.

VIII Organization

Ghosh, Sanjay Hota, Chittaranjan

Hu, Raymond Hurst, William Jetley, Raoul Jithendrian, S. Joshi, Hemant Kanaskar, Nitin Karunakaran, Deepak Kulkarni, Purushottam

Kulkarni, Sandeep Kumar, Atul

Lal, Rajendra Prasad

Lodaya, Kamal Manoj, Kranthi

Martha, Venkata Swamy Mohanty, Hrushikesha Muralidhara, V.N. Narasimhan, Lakshmi

Nelabhotla, Narendra Kumar

Ngo, Linh Paul, Soumya

Ponnalagu, Karthikeyan

Raghavan, Rama

Ramanathan, Chandrashekar

Rao, Shrisha Rath, Anand

Rathinasamy, Bhavanandan

Sahoo, Anirudha Sapna, P.G. Sarac, Kamil Sen, Rijurekha Shanthi, V.

Sharma, Divyasheel Sivakumar, G. Sobha Rani, T. Sreevalsan Nair, Jaya Srinivasa, Srinath

Subramanian, Vimalathithan

Sudarsan, Sithu Suresh, S.P.

Tudoreanu, M. Eduard Vaidyanathan, Aparajithan

Vu, Hai

Yadav, Dharmendra Kumar

Yoshigoe, Kenji Yu, Liguo

Table of Contents

Usable Mobile Security N. Asokan and Cynthia Kuo	1
Actor-Network Procedures (Extended Abstract)	7
Knowledge as a Window into Distributed Coordination	27
Decision Making as Optimization in Multi-robot Teams	35
Mstar: A New Two Level Interconnection Network	50
An Improved Scheme for False Data Filtering in Wireless Sensor Networks	62
Anonymity and Security in Mobile Ad Hoc Networks	71
Circle Formation by Asynchronous Fat Robots with Limited Visibility	83
High Concurrency for Continuously Evolving OODBMS	94
A New Scheme for IPv6 BD-TTCS Translator	106
Nash Equilibrium in Weighted Concurrent Timed Games with Reachability Objectives	117
Parallelization of PageRank on Multicore Processors Tarun Kumar, Parikshit Sondhi, and Ankush Mittal	129
Cryptanalysis and Improvement of Sood et al.'s Dynamic ID-Based Authentication Scheme	141

An Algebra of Social Distance	153
Detecting Flaws in Dynamic Hierarchical Key Management Schemes Using Specification Animation	166
Strong Minimum Energy Minimum Interference Topology in Wireless Sensor Networks	177
Distributed Processing and Internet Technology to Solve Challenges of Primary Healthcare in India	188
Packet Forwarding Strategies for Cooperation Enforcement in Mobile Ad Hoc Wireless Networks	200
A Study on Scalability of Services and Privacy Issues in Cloud Computing	212
A Recommendation Model for Handling Dynamics in User Profile	231
Allocation of Slotted Deadline Sensitive Leases in Infrastructure Cloud	242
Grids Security without Public Key Settings	253
Concurrent HCM for Authorizing Grid Resources	255
Seamless Provision of Cloud Services Using Peer-to-Peer (P2P) Architecture	257
Distributed Fault Tolerant Estimation in Wireless Sensor Network Using Robust Diffusion Adaptation	259

Table	e of Contents	XI
Robust Distributed Block LMS over WSN in Impulsive Noi Trilochan Panigrahi, Ganapati Panda, and B. Mulgrew	se	261
Resource Allocation Techniques Based on Availability and Reliability for Mobile Cloud Computing		263
Transparency Computation for Work Groups		265
A New Hierarchical Structure of Star Graphs and Application Wei Shi, Feng Luo, and Pradip Srimani	ons	267
Incremental Discovery of Sequential Pattern from Semi-str Document Using Grammatical Inference		269
Group Associated Petri Nets in Bio Computing		270
Concept Map Based Service Specification and Discovery $Supriya\ Vaddi$		272
Semantic Search Using Constrained Spread Activation for Digital Library	Semantic	274
Author Index		277