Lecture Notes in Computer Science 6366

Commenced Publication in 1973
Founding and Former Series Editors:
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Stabilization, Safety, and Security of Distributed Systems

12th International Symposium, SSS 2010
New York, NY, USA, September 20-22, 2010
Proceedings

Springer

Volume Editors

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Library of Congress Control Number: 2010934646

CR Subject Classification (1998): C.2.4, C.3, F.1, F.2.2, K.6

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

ISSN 0302-9743
ISBN-10 3-642-16022-0 Springer Berlin Heidelberg New York
ISBN-13 978-3-642-16022-6 Springer Berlin Heidelberg New York

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper 06/3180

Preface

The papers in this volume were presented at the 12th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS), held September 20–22, 2010 at Columbia University, NYC, USA.

The SSS symposium is an international forum for researchers and practitioners in the design and development of distributed systems with self-* properties: (the classical) self-stabilizing, self-configuring, self-organizing, self-managing, self-repairing, self-healing, self-optimizing, self-adaptive, and self-protecting. Research in distributed systems is now at a crucial point in its evolution, marked by the importance of dynamic systems such as peer-to-peer networks, large-scale wireless sensor networks, mobile ad hoc networks, cloud computing, robotic networks, etc. Moreover, new applications such as grid and web services, banking and e-commerce, e-health and robotics, aerospace and avionics, automotive, industrial process control, etc., have joined the traditional applications of distributed systems. SSS started as the Workshop on Self-Stabilizing Systems (WSS), the first two of which were held in Austin in 1989 and in Las Vegas in 1995. Starting in 1995, the workshop began to be held biennially; it was held in Santa Barbara (1997), Austin (1999), and Lisbon (2001). As interest grew and the community expanded, the title of the forum was changed in 2003 to the Symposium on Self-Stabilizing Systems (SSS). SSS was organized in San Francisco in 2003 and in Barcelona in 2005. As SSS broadened its scope and attracted researchers from other communities, a couple of changes were made in 2006. It became an annual event, and the name of the conference was changed to the International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS). The last four SSS conferences were held in Dallas (2006), Paris (2007), Detroit (2008), and Lyon (2009).

This year the Program Committee was organized into several tracks reflecting most topics related to self-* systems. The tracks were: (i) Self-Stabilization, (ii) Self-Organization, (iii) Ad-Hoc, Sensor, and Dynamic Networks, (iv) Peer to Peer, (v) Fault-Tolerance and Dependable Systems, (vi) Safety and Verification, (vii) Swarm, Amorphous, Spatial, and Complex Systems, (viii) Security, (ix) Cryptography, and (x) Discrete Distributed Algorithms. The Safety and Verification track is *in Memory of Amir Pnueli*. We received 90 submissions. Each submission was reviewed by at least three Program Committee members with the help of external reviewers. Out of the 90 submitted papers, 39 papers were selected for presentation. The symposium also included brief announcements. Selected papers from the symposium will be published in a special issue of the *Information and Computation* journal.

This year, we were fortunate to have three distinguished invited speakers: Leonid Levin, Mihalis Yannakakis, and Yechiam Yemini.

Among the 39 selected papers, we considered two papers for special awards. The best paper award was given to Anurag Agarwal, Vijay Garg, and Vinit Ogale, for "Modeling and Analyzing Periodic Distributed Computations." The best student paper award was given to Dana Angluin, James Aspnes, Rida A. Bazzi, Jiang Chen, David Eisenstat, and Goran Konjevod for "Storage Capacity of Labeled Graphs."

On behalf of the Program Committee, we would like to thank all the authors who submitted their work to SSS. We thank all the Program Vice-Chairs who managed the various tracks, all the members of the Program Committee, and the external reviewers for their tremendous effort and valuable reviews. We also thank the members of the Steering Committee for their invaluable advice. The process of paper submission, selection, and compilation in the proceedings was greatly simplified due to the strong and friendly interface of the EasyChair system (`http://www.easychair.org`). We are grateful to the Organizing Committee members for their time and invaluable effort, which greatly contributed to the success of this symposium. The support of the EU FRONTS project and the NSF is greatly appreciated.

September 2010

Jorge Cobb
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