

Zbigniew Suraj, Ludwik Czaja (Eds.)

Concurrency, Specification & Programming

**24th International Workshop, CS&P 2015
Rzeszow, Poland, September 28-30, 2015
Proceedings**

Volume 2

University of Rzeszow

Editors

Zbigniew Suraj
Chair of Computer Science
University of Rzeszow
Rzeszow
Poland

Ludwik Czaja
Institute of Informatics
University of Warsaw
and Vistula University
Warsaw
Poland

ISBN 978-83-7996-181-8

Preface

This two-volume book contains the papers selected for presentation at the Concurrency, Specification and Programming (CS&P) Workshop. It is taking place from 28th to 30th September 2015 in Rzeszow, the biggest city in southeastern Poland.

CS&P provides an international forum for exchanging scientific, research, and technological achievements in concurrency, programming, artificial intelligence, and related fields. In particular, major areas selected for CS&P 2015 include mathematical models of concurrency, data mining and applications, fuzzy computing, logic and probability in theory of computing, rough and granular computing, unconventional computing models. In addition, three plenary keynote talks were delivered.

The Workshop was initiated in the mid-1970s by computer scientists and mathematicians from Warsaw and Humboldt Universities, as Polish-German annual meetings. The first meeting in this series was named 1st Symposium on Mathematical Foundations of Computer Science and it took place in Warsaw from 12th to 19th September 1976. These meetings have been suspended for some years in the eighties until the beginning of ninetieths, and reactivated in 1992. Since then, the Workshop bears the name CS&P, when the first meeting after the break came into effect in Berlin. Now, it is being organized every even year by the Humboldt University of Berlin and every odd year by the University of Warsaw.

It should be mentioned that the CS&P meetings, initially purely bilateral, since 1992 have developed into events attended by participants from a number of various countries beside Poland and Germany. In 2003 the University of Information Technology and Management in Rzeszow, in 2004, the Fraunhofer Institut FIRST in Berlin, and in 2015, the University of Rzeszow joined the organizers as full members of the Committee and financial contributors. The present CS&P 2015 meeting will be hosting participants from the following countries: Canada, Germany, India, Italy, Poland, Russia, Saudi Arabia, Slovakia, Ukraine.

The CS&P 2015 is the twenty-fourth meeting after the break. It received 53 submissions that were carefully reviewed by Program Committee members or external reviewers. After a reviewing process, 49 papers were accepted for presentation at the workshop and publication in the CS&P 2015 proceedings. This book also contains three extended abstracts by the plenary keynote speakers.

It is truly a pleasure to thank all those people who contributed to preparation of this book. In particular, we would like to express our appreciation for the work of the CS&P 2015 Program Committee members and external reviewers who helped to assure the high standards of accepted papers. We would like to thank all the authors of CS&P 2015, without whose high-quality contributions it would not have been possible to organize the workshop. We are grateful to the Organizing Committee members for their involvement in all the organizational matters related to the CS&P 2015 as well as the creation and maintenance of the conference website. We wish to express our thanks to Mikhail Moshkov, Andrzej Skowron and Louchka Popova-Zeugmann for accepting to be plenary speakers at CS&P 2015. We greatly appreciate the financial support received

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from the University of Rzeszow, the University of Warsaw, and the Vistula University in Warsaw.

We hope that the CS&P 2015 workshop proceedings will serve as a valuable reference for researchers and developers in the field.

September 2015

Zbigniew Suraj
Ludwik Czaja

Organization

CS&P 2015 was organized by the Chair of Computer Science, the University of Rzeszow, Rzeszow, Poland, in cooperation with the Institute of Mathematics and the Institute of Informatics, the University of Warsaw, Warsaw, Poland, the Vistula University, Warsaw, Poland, the Warsaw Center of Mathematics and Computer Science, Warsaw, Poland, and the Institute of Informatics, the Humboldt University, Berlin, Germany.

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