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Rough Sets and Current Trends in Computing

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Preface

This volume contains the papers selected for presentation at RSCTC 2012: The 8th International Conference on Rough Sets and Current Trends in Computing (RSCTC) held during August 17–20, 2012, in Chengdu, China, one of the co-located conferences of the 2012 Joint Rough Set Symposium (JRS 2012). JRS 2012 consists of RSCTC 2012 and the 7th International Conference on Rough Sets and Knowledge Technology (RSKT 2012).

RSCTC has been held biannually since 1998. It aims to present the state of the art in rough set theory, current computing methods and their applications. It intends to bring together researchers and practitioners from universities, laboratories, and industry, to facilitate dialogue and cooperation. The first RSCTC was held in 1998 in Warsaw, Poland, followed by RSCTC 2000 in Banff, Canada, RSCTC 2002 in Malvern, USA, RSCTC 2004 in Uppsala, Sweden, RSCTC 2006 in Kobe, Japan, RSCTC 2008 in Akron, USA, and RSCTC 2010 in Warsaw, Poland.

JRS 2012 received 292 papers and competition submissions from 56 countries and regions, including Afghanistan, Antarctica, Antigua and Barbuda, Argentina, Australia, Austria, Bangladesh, Belgium, Brazil, Canada, China, Colombia, Croatia, Cuba, Denmark, Egypt, Finland, France, Germany, Ghana, Greece, Hong Kong, Hungary, India, Indonesia, Iran, Israel, Italy, Japan, Jordan, Korea, Lebanon, Mexico, The Netherlands, New Zealand, Pakistan, Poland, Portugal, Reunion, Romania, Russian Federation, Rwanda, Saudi Arabia, Serbia and Montenegro, Singapore, Slovenia, Spain, Sweden, Switzerland, Taiwan, Tunisia, Ukraine, UK, USA, Venezuela, and Vietnam.

Following the tradition of the previous RSCTC and RSKT conferences, all submissions underwent a very rigorous reviewing process. Every submission was reviewed by at least two Program Committee(PC) members and at least one external domain expert. On average, each submission received 3.6 reviews. About ten papers received more than six reviews each. Finally, the PC selected 55 papers (including 34 regular papers and 21 short papers), based on their originality, significance, correctness, relevance, and clarity of presentation, to be included in this volume of the proceedings. Revised camera-ready submissions were further reviewed by PC Chairs. Some authors were requested to make additional revisions. We would like to thank all the authors for submitting their papers for consideration for presentation at the conference. We also wish to congratulate those authors whose papers were selected for presentation and publication in the proceedings. Their contribution was crucial for the quality of this conference.

The JRS 2012 program was further enriched by four keynote speeches. We are grateful to RSKT keynote speakers, Andrzej Skowron and Zhi-Hua Zhou, as well as RSCTC keynote speakers, Yiyu Yao and Bo Zhang, for their inspiring talks on rough sets, knowledge technology, and current trends in computing.

The JRS 2012 program included one workshop, Advances in Granular Computing 2012, and five Special Sessions, Decision-Theoretic Rough Set Model and Applications, Intelligent Decision-Making and Granular Computing, Mining Complex Data with Granular Computing, Formal Concept Analysis and Granular Computing, and Rough Set Foundations. In addition, we selected papers written by the winners of the JRS 2012 Data Mining Competition: Topical Classification of Biomedical Research Papers.

This data mining competition was a special event associated with the JRS 2012 conference. It was organized by a research team from the University of Warsaw and co-funded by organizers of JRS 2012, Southwest Jiaotong University, and the SYNAT project. A task in this challenge was related to the problem of predicting topical classification of scientific publications in the field of biomedicine. It was an interactive on-line competition, hosted on the TunedIT platform (<http://tunedit.org>). The JRS 2012 Data Mining Competition attracted participants from 50 different countries across six continents. There were 126 active teams who submitted at least one solution to the leaderboard. Apart from submitting solutions, participants were asked to deliver short descriptions of their approaches. The most interesting of these reports were extended to conference papers and included in the RSCTC proceedings.

JRS 2012 would not have been successful without the support of many people and organizations. We wish to thank the members of the Steering Committee for their invaluable suggestions and support throughout the organization process. We are indebted to the PC members and external reviewers for their effort and engagement in providing a rich and rigorous scientific program. We express our gratitude to the Special Session Chairs (Mihir Kr. Chakraborty, Degang Chen, Davide Ciucci, Qinghua Hu, Andrzej Janusz, Xiuyi Jia, Adam Krasuski, Huaxiong Li, Jiye Liang, Tsau Young Lin, Dun Liu, Xiaodong Liu, Fan Min, Hung Son Nguyen, Jianjun Qi, Dominik Slezak, Sebastian Stawicki, Lidong Wang, Xizhao Wang, Ling Wei, JingTao Yao, Yiyu Yao, and Hong Yu) for selecting and coordinating the sessions on very interesting topics. Thanks also go to the Tutorial Chairs (Chris Cornelis and Qinghua Hu), Special Session/Workshop Chairs (Davide Ciucci and Wei-Zhi Wu), Publicity Chairs (Jianchao Han, Pawan Lingras, Dun Liu, Duoqian Miao, Mikhail Moshkov, Shusaku Tsumoto), and Organizing Chairs (Hongmei Chen, Yan Yang and Qinghua Zhang).

We are also grateful to Anping Zeng, Chuan Luo, Shaoyong Li, Jie Hu, Shengjiu Liu, and Junbo Zhang from Southwest Jiaotong University, whose great effort ensured the success of the conference. We greatly appreciate the co-operation, support, and sponsorship of various institutions, companies, and organizations, including Southwest Jiaotong University, the University of Regina, the University of Warsaw, the International Rough Set Society, the Rough Sets and Soft Computation Society, the Chinese Association for Artificial Intelligence, Infobright, the Chongqing Institute of Green and Intelligent Technology, the Chinese Academy of Sciences, Section of Intelligent Decision Support Systems and

Granular Computing of the Computer Science Committee of the Polish Academy of Sciences. In addition, we would like to give special thanks for the support of the National Science Foundation of China (Funding Numbers: 61175047, 61170111, 61100117 and 61073146).

We acknowledge the use of the EasyChair conference system for paper submission, review, and editing of the proceedings. Its new feature of editing LNCS volumes is especially useful. We are thankful to Alfred Hofmann and the excellent LNCS team at Springer for their support and cooperation in publishing the proceedings as a volume of the *Lecture Notes in Computer Science*.

May 2012

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