Lecture Notes in Computer Science 4400

Commenced Publication in 1973
Founding and Former Series Editors:
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Transactions on Rough Sets VII

Commemorating the Life and Work of Zdzisław Pawlak, Part II

Springer

Library of Congress Control Number: 2007922187

CR Subject Classification (1998): F.4.1, F.1, I.2, H.2.8, I.5.1, I.4

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

ISSN 0302-9743
ISBN-10 3-540-71662-9 Springer Berlin Heidelberg New York
ISBN-13 978-3-540-71662-4 Springer Berlin Heidelberg New York

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 12042814 06/3180 5 4 3 2 1 0

Preface

Volume VII of the *Transactions on Rough Sets (TRS)* is a sequel to volume VI of the TRS. Both volumes commemorate the life and work of Zdzisław Pawlak (1926-2006)[1]. It is evident from the wide spectrum of contributions to these volumes that Zdzisław Pawlak's legacy is rich and varied. Prof. Pawlak's research contributions have had far-reaching implications inasmuch as his works have served as cornerstones in establishing new frontiers for scientific research in a number of fields.

From an early age, Zdzisław Pawlak devoted his life to scientific research. His pioneering work included research on modeling industrial processes, the design of computers, information retrieval, modeling conflict analysis and negotiation, genetic grammars and molecular computing. His research led to the introduction of knowledge representation systems during the early 1970s and the discovery of rough sets during the early 1980s. Added to that was Prof. Pawlak's lifelong interest in painting, photography and poetry. During his lifetime, he nurtured worldwide interest in approximation, approximate reasoning and rough set theory and its applications[2]. Evidence of the influence of Prof. Pawlak's work can be seen in the growth of rough-set literature that now includes over 4000 publications by more than 1600 authors in the rough set database[3] as well as the growth and maturity of the International Rough Set Society[4]. Moreover, numerous biographies of Zdzisław Pawlak have been published[5].

This volume of the TRS presents papers that reflect the profound influence of a number of research initiatives by Zdzisław Pawlak. In particular, it introduces a number of new advances in the foundations and applications of artificial intelligence, engineering, logic, mathematics, and science. These advances have significant implications in a number of research areas. In addition, it is evident from the papers included in this volume that rough set theory and its application form a very active research area worldwide. A total of 42 researchers from 13 countries are represented in this volume, namely, Australia, Canada, Germany, India, Italy, Japan, Poland, P.R. China, Sweden, Thailand, Taiwan, UK (Wales) and the USA. Evidence of the vigor, breadth and depth of research in the theory and applications of rough sets can be found in the articles in this volume.

[1] Prof. Pawlak passed away on 7 April 2006.

[2] See, *e.g.*, Pawlak, Z., Skowron, A.: Rudiments of rough sets, *Information Sciences* 177 (2007) 3–27; Pawlak, Z., Skowron, A.: Rough sets: Some extensions, *Information Sciences* 177 (2007) 28–40; Pawlak, Z., Skowron, A.: Rough sets and Boolean reasoning, *Information Sciences* 177 (2007) 41–73.

[3] `http://rsds.wsiz.rzeszow.pl/rsds.php`

[4] `http://roughsets.home.pl/www/`

[5] See, *e.g.*, Peters, J.F. and Skowron, A., Zdzisław Pawlak: Life and Work. *Transactions on Rough Sets* V, LNCS 4100 (2006) 1-24. See, also, R. Słowiński, Obituary, Prof. Zdzisław Pawlak (1926-2006), *Fuzzy Sets and Systems* 157 (2006) 2419-2422.

Most of the contributions of this commemorative volume of the TRS are on an invitational basis and every paper has been refereed in the usual way. This special issue of the TRS contains 19 papers that explore a number of research streams that are either directly or indirectly related to research initiatives by Zdzisław Pawlak. These research streams are represented by papers on intelligent signal processing techniques (Andrzej Czyżewski), belief networks (Jerzy W. Grzymała-Busse, Zdzisław S. Hippe, Teresa Mroczek), relational attribute systems (Ivo Düntsch, Günther Gediga, Ewa Orłowska), dominance-based rough set approach (Salvatore Greco, Benedetto Matarazzo, Roman Słowiński), rough sets in bioinformatics (Torgeir R. Hvidsten, Jan Komorowski), selection of important attributes for medical diagnosis systems (Grzegorz Ilczuk, Alicja Wakulicz-Deja), rough clustering (Pawan Lingras), case-based reasoning classifiers (Yan Li, Simon Chi-Keung Shiu, Sankar Kumar Pal, James Nga-Kwok Liu), Web information gathering (Yuefeng Li, Ning Zhong), rough sets in pattern recognition (Sushmita Mitra, Haider Banka), possibilistic information (Michinori Nakata, Hiroshi Sakai), hybrid rough sets-population-based system (Puntip Pattaraintakorn, Nick Cercone), intelligent system for survival analysis based on hybrid rough sets (Puntip Pattaraintakorn, Nick Cercone, Kanlaya Naruedomkul), classifying remotely sensed images (B. Uma Shankar), rough feature selection (Qiang Shen), granulation in information security (Da-Wei Wang, Churn-Jung Liau, Tsan-sheng Hsu), definability and approximation (Yiyu Yao), audiovisual emotion recognition (Yong Yang, Guoyin Wang, Peijung Chen, Jian Zhou, Kun He).

The editors of this volume extend their hearty thanks to the following reviewers: Jan Bazan, Maciej Borkowski, Beata Konikowska, Bożena Kostek, Pawan Lingras, Son Nguyen, Wladysław Skarbek, Marcin Szczuka, Sheela Ramanna, Dominik Ślęzak, Jerzy Stefanowski, Piotr Synak, Dimiter Vakarelov, Hui Wang, Piotr Wasilewski, Marcin Wojnarski, Jakub Wróblewski, and Yiyu Yao.

This issue of the TRS has been made possible thanks to the laudable efforts of a great many generous persons and organizations. The editors and authors of this volume also extend an expression of gratitude to Alfred Hofmann, Ursula Barth, Christine Günther and the LNCS staff at Springer for their support in making this volume of the TRS possible. In addition, the editors extend their thanks to Marcin Szczuka for his consummate skill and care in the compilation of this volume.

December 2006

Victor Marek
Ewa Orłowska
James F. Peters
Roman Słowiński
Andrzej Skowron
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LNCS Transactions on Rough Sets

This journal subline has as its principal aim the fostering of professional exchanges between scientists and practitioners who are interested in the foundations and applications of rough sets. Topics include foundations and applications of rough sets as well as foundations and applications of hybrid methods combining rough sets with other approaches important for the development of intelligent systems.

The journal includes high-quality research articles accepted for publication on the basis of thorough peer reviews. Dissertations and monographs up to 250 pages that include new research results can also be considered as regular papers. Extended and revised versions of selected papers from conferences can also be included in regular or special issues of the journal.

Table of Contents

Contributed Papers

Monographs