

EDITORIAL PREFACE

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Dear Reader, on behalf of the editorial team, welcome to this inaugural issue of *International Journal of Rough Sets and Data Analysis* (IJRSDA).

The notion of rough sets was introduced by Zdzislaw Pawlak in his seminal paper of 1982 (Pawlak 1982). It is a formal theory derived from fundamental research on logical properties of information systems. Rough set theory (RST) is a new area of uncertainty mathematics closely related to fuzzy theory. Rough sets and fuzzy sets are complementary generalizations of classical sets. The approximation spaces of RST are sets with multiple memberships, while fuzzy sets are concerned with partial memberships. Approximation is carried out in terms of two sets, the lower and upper approximations respectively, and it is the interplay between the two which provides the main driving force. The lower approximation comprises all objects classified with certainty as belonging to the set which is of interest and the upper approximation contains objects which are possibly classified. Rough set theory has been successfully applied to machine learning, intelligent systems, inductive reasoning, pattern recognition, mereology, image processing, signal analysis, knowledge discovery, decision analysis, expert systems, bioinformatics, biomedical engineering and many other fields.

The *International Journal of Rough Sets and Data Analysis* (IJRSDA) is a multidisciplinary journal that publishes high-quality and

significant research in all fields of rough sets, granular computing and data mining techniques. Rough set theory is a mathematical approach concerned with the analysis and modeling of classification and decision problems involving vague, imprecise, uncertain, or incomplete information. Rough sets have been proposed for a variety of applications, including artificial intelligence and cognitive sciences, especially machine learning, knowledge discovery, data mining, expert systems, approximate reasoning, and pattern recognition. The journal extends existing research findings (theoretical innovations and modeling applications) to provide the highest quality original concepts, hybrid applications, innovative methodologies, and development trends studies for all audiences. This journal publishes original articles, reviews, technical reports, patent alerts, and case studies on the latest innovative findings of new methodologies and techniques.

All papers submitted to the IJRSDA undergo a comprehensive review process under the direction of a member of our Editorial Board. Each paper receives at least three reviews, based on which the Editorial Board member makes a recommendation. The Editorial Board members ensure all papers receive fair and in-depth reviews before any decision is made. These decisions are reviewed by the Editor-in-chief.

IJRSDA is semi-Annually journal and is an official publication of the Information Resources Management Association (www.ijrstda.com).

igi-global.com/IJRSDA). The *International Journal of Rough Sets and Data Analysis* (IJRSDA) is published by IGI Global (formerly Idea Group Inc.), publisher of the “Information Science Reference” (formerly Idea Group Reference), “Medical Information Science Reference”, “Business Science Reference”, and “Engineering Science Reference” imprints. For additional information regarding the publisher, please visit www.igi-global.com.

We would like to take this opportunity to thank all the people who have helped in launching this new journal. Also, we would like to express my gratitude to all our Associate Editors, and Editorial Board Members who have provided significant support and advice, and look forward to their continued support in the future. All of them are established researchers in their respective fields and we are sure that their international reputation and great expertise in the field of rough set will play a significant role in evolution of IJRSDA as a reputed international journal. This journal intends to rely heavily on their expertise for selecting the best papers for publication. We are honoured and fortunate to work with a strong technical editorial board.

My special thanks go to all the authors who have contributed papers to the inaugural

issue of IJRSDA. We hope the IJRSDA can become an important forum for the rough set and data mining community and a major media for presenting original research ideas. Like the field, the journal is multidisciplinary and multi-specialty. So we encourage researchers from all disciplines and specialties to submit their papers, and short communications as well as reviews, to the editors. And the last, but not the least, we would like to express our heartiest gratitude to all staff members of the IGI-Global for the excellent publishing services being provided by them. Without their support and help, this journal could not have taken shape and cannot grow.

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Ahmad Azar has received the MSc degree (2006) in System Dynamics and PhD degree (2009) in Adaptive Neuro-Fuzzy Systems from Faculty of Engineering, Cairo University (Egypt). He is currently assistant professor, Faculty of Computers and information, Benha University, Egypt. Dr. Azar is the Editor-in-Chief of two journals published by IGI Global, USA, titled International Journal of System Dynamics Applications (IJSDA) and International Journal of Rough Sets and Data Analysis (IJRSDA). He is associate editor of IEEE Transactions on Neural Networks and Learning Systems. Dr Azar is a research member of Scientific Research Group in Egypt (SRGE). He has worked in the areas of System Dynamics, Intelligent Control, soft computing and Modeling in Biomedicine and has authored/coauthored over 70 research publications in peer-reviewed reputed journals, book chapters and conference proceedings. He is an editor of four books in the field of Fuzzy logic systems and biomedical engineering. Dr. Azar is closely associated with several international journals as a reviewer. He serves as international programme committee member in many international and peer-reviewed conferences. He is currently serves as the editor of many international journals. His biography was selected to appear in the 27th and 29th editions of Who's Who in the World, Marquis Who's Who, USA, 2010 and 2012, respectively. Recently, his biography was selected to appear in the 67th edition of Who's Who in America, Marquis Who's Who, USA, 2013. Dr Ahmad Azar is currently the Vice chair of IEEE Computational Intelligence Society (CIS) Egypt Chapter and Vice President Of Egypt System Dynamics Chapter. He is an Academic Member of IEEE Systems, Man, and Cybernetics Society Technical Committee on Computational Collective Intelligence and also a member in KES Focus Group on Agent and Multi-agent Systems. His research interests include: Biomedical modeling, Control System Analysis, Systems Engineering, System Dynamics, Medical Robotics, Process Control, Data mining, Machine learning, Neural network, Fuzzy logic controllers, Neuro-Fuzzy systems, System thinking, Mathematical Modeling and Computer Simulation, Statistical Analysis, Decision Making Analysis, Biofeedback systems, and Monitoring and Controlling of Hemodialysis System.

About Ella Hassanien (Abo) is a Professor at Cairo University, Faculty of Computers and Information, IT Department and the Chair of Scientific Research Group in Egypt (SRGE). Abo is the chair of the International Rough Sets Society-Egypt Chapter. He received his BSc with honors in 1986 and MSc degree in 1993, both from Ain Shams University, Faculty of Science, Pure Mathematics and Computer Science Department, Cairo, Egypt. On September 1998, he received his doctoral degree from the Department of Computer Science, Graduate School of Science & Engineering, Tokyo Institute of Technology, Japan. He works in a multidisciplinary environment involving machine intelligence, network security and cryptology, data mining, various issues in intelligent environment including monitoring pollutions, technologies for disabled people including text-to-speech for blind people, Arabic sign Language, Social networks, biomedical engineering and bioinformatics and their applications to various real-world problems. He has authored/coauthored over 360 research publications in peer-reviewed reputed journals, book chapters and conference proceedings. He has served as the program committee member of various international conferences and reviewer for various international journals. He has received the excellence younger researcher award from Kuwait University for the academic year 2003/2004. He has guest edited many special issues for international scientific journals. He has directed many funded research projects. He is the editor and co-editor for more than 30 books in the area of rough computing, computational intelligence, social networks, bioinformatics, and E-commerce.