Soft Rough Sets Applied To Multicriteria Group Decision Making

Rough Computing: Theories, Technologies and ApplicationsRough Sets and Current Trends in ComputingOn single valued neurostrophic re ned rough set model and its applicationFuzzy Systems and Data MiningIVTransactions on Rough Sets V: Rough Sets and Knowledge TechnologyRough Sets and Current Trends in ComputingIntelligent Software Methodologies, Tools and TechniquesHybrid Soft Computing Models Applied to Graph TheoryNeurostrophic Sets and Systems, Vol. 41, 2021Single-Valued Neurostrophic GraphsAbout Rough Neutrosophic Soft Sets Theory and Study Their PropertiesSoft Rough Neutrosophic Influence Graphs with ApplicationNeutrosophic Sets and Systems, Book Series, Vol. 35, 2020. An International Book Series in Information Science and EngineeringA Novel Approach to Neutrosophic Rough Soft Sets under UncertaintyNeutrosophic Soft Rough Graphs with ApplicationsGeneralized Interval Neutrosophic Rough Sets and its application in Multi-Attribute Decision MakingOn Soft Rough Topology with Multi-Attribute Group Decision MakingA Novel Approach to Neurostrophic Rough Soft Sets under UncertaintyNeutrosophic Soft Rough Topology and its Applications to Multi Criteria Decision MakingRough Set Theory: A True Landmark in Data AnalysisRough Sets and Knowledge TechnologySingle Valued Neutrosophic Soft Approaches for Decision MakingRough Sets and Soft Rough Sets to Rough Sets, Theory and ApplicationsRough Sets: Novel Method Based on Rough Soft Rough InformationRough Set Methods and ApplicationsSoftware Engineering and Computer Systems, Part IIIHybrid Rough Sets and Applications in Uncertain Decision MakingSoft Interval – Valued Neurostrophic Rough SetsNeutrosophic Multi-Criteria Decision MakingRough SetsThis book constitutes the refereed conference proceedings of the 9th International Conference on Rough Sets and Knowledge Technology, RSKT 2014, held in Shanghai, China, in October 2014. The 70 papers were carefully reviewed and selected from 362 submissions. The papers in this volume cover topics such as foundations and generalizations of rough sets, attribute reduction and feature selection, applications of rough sets, intelligent systems and applications, knowledge technology, domain-oriented data driven data mining, uncertainty in granular computing, advances in granular computing, big data to wise decisions, rough set theory, and three-way decisions, uncertainty, and granular computing.This book constitutes the refereed conference proceedings of the 7th International Conference on Rough Sets, Technology and Information Series, RSKT 2012, held in Chengdu, China during August 2012, as one of the co-located conferences of the 2012 Joint Rough Set Symposium, JRS 2012. The 63 papers presented were carefully reviewed and selected from 268 submissions. They are organized in topical sections: data science; knowledge base systems; natural language processing and sentiment analysis; semantic Web and social networks; computer vision; medical diagnosis system and bio-informatics; applied neural networks; innovations in intelligent systems and applications; decision support systems; adaptive control; soft computing and multi-agent systems; evolutionary algorithms and swarm intelligence; rough set-based algorithms or applications. Earlier rough set-based theories and applications had to rely on more complex assumptions, which may cause less complexity involves in problems exist in nature, traditional tools are unable to handle those in a systematic manner. So we need a tool which is more flexible to handle those problems. Which leads to the invention of soft set which was introduced by Molodtsov in 1999. Soft (SS) theory is a mathematical tool dealt with parameters in imprecise nature. This a generalization of fuzzy set theory. On the other hand Rough set (RS) theory and Neutrosophic set (NS) theory both being as powerful tool to handle these uncertain, incomplete, inconsistent and imprecise information in an effective manner. Actually Neutrosophic set is a generalization of intuitionistic fuzzy set. Sometimes it is not possible to handle all sorts of uncertain problems with a single mathematical tool. Fusion of two or more mathematical tools give rise to a new mathematical concept which gives an idea how to solve such type of problems in a more sophisticated ways. Which leads to the introduction of fuzzy soft set, rough soft set, intuitionistic fuzzy soft set, soft rough set etc. Neutrosophic soft set (NSS) was established by combining the concept of Soft set and Neutrosophic set. In this paper, using the concept of Rough set and Neutrosophic set a new concept known as Rough neutrosophic soft set (RNSS) is developed. Some properties and operations on them are introduced. This book addresses single-valued neurostrophic graphs and their applications. In addition, it introduces readers to a number of central concepts, including certain types of single-valued neurostrophic graphs, energy of single-valued neurostrophic graphs, bipolar single-valued neurostrophic planar graphs, isomorphism of intuitionistic single-valued neurostrophic soft graphs, and single-valued neurostrophic soft rough graphs. Divided into eight chapters, the book seeks to remedy the lack of a mathematical approach to indeterminate and inconsistent information. Chap. 1 presents a concise review of single-valued neurostrophic sets, while Chap. 2 explains the notion of neurostrophic graph structures and explores selected properties of neurostrophic graph structures. Chap. 3 discusses specific bipolar neurostrophic graphs. Chap. 4 highlights the concept of interval-valued neurostrophic valued graphs, while Chap. 5 presents certain notions concerning interval-valued neurostrophic graph structures. Chap. 6 addresses the concepts of rough neurostrophic digraphs and neurostrophic rough digraphs. Chap. 7 focuses on the concepts of soft rough graph and intuitionistic neurostrophic soft graphs before Chap. 8 rounds out the book by considering neurostrophic rough soft graphs.In this manuscript, we introduce the notion of neurostrophic soft rough topology (NSR-topology) defined on neurostrophic soft rough set (NSR-set). We define certain properties of NSR-topology including NSR-interior, NSR-closure, NSR-exterior, NSR-neighborhood, NSR-limit point, and NSR-bases. Furthermore, we aim to develop some multi-criteria decision making (MCDM) methods based on NSR-set and NSR-topology to deal with ambiguities in the real-world problems. For this purpose, we establish algorithm 1 for suitable brand selection and algorithm 2 to determine more issues to control crime rate based on NSR-lower approximations, NSR-upper approximations, matrices, core, and NSR-topology. A comprehensive introduction to the mathematical structures essential for Rough Set Theory. The book enables the reader to systematically study all topics of rough set theory. After a detailed introduction in Part 1 along with an extensive bibliography of current research papers, Part 2 presents a self-contained study that brings together all the relevant information from respective areas of mathematics and logic. Part 3 provides an overall picture of theoretical developments in rough set theory, covering logical, algebraic, and topological methods. Topics covered include: algebraic theory of approximation spaces, logic-based approaches to rough set theory, approximation spaces and rough sets, rough set systems, rough-fuzzy hybrid methods, and more. In Part 4, we discuss new trends in rough set theory, including rough set theory, rough set theory, and rough set theory. Rough set theory is a powerful tool for data analysis and has numerous applications in various fields, such as medicine, economics, and engineering. In Part 5, we explore the use of rough set theory in real-world applications, including decision-making problems and data mining. Part 6 provides a comprehensive overview of the latest research in rough set theory, with a focus on its applications in various fields. Part 7 presents an extensive review of the current state of rough set theory, including its future directions and potential applications. Part 8 concludes the book with a discussion of the future of rough set theory and its potential impact on the field of data analysis. Overall, this book provides a comprehensive and up-to-date overview of rough set theory and its applications, making it an essential resource for researchers, practitioners, and students in the field.
submissions. The IJCRS conferences aim at bringing together experts from universities and research centers as well as the industry representing fields of research in which theoretical and applicational aspects of rough set theory already find or may potentially find usage. The papers are grouped in topical sessions on core rough set models and methods; related methods and hybridization; areas of application;Software is an essential enabler for science and the new economy. It creates new workflows, increases efficiency, and integrates systems and robust society and economy. Current software solutions are not robust nor reliable enough for the constantly evolving market, and many promising approaches have so far failed to deliver the solutions required. This book presents the keynote 'Engineering Cyber-Physical Systems' and 64 peer-reviewed papers from the 16th International Conference on New Trends in Intelligent Software Methodology Tools, and Techniques, (SoMeT_17), held in Kitakyushu, Japan, in September 2017, which brought together researchers and practitioners to share original research results and practical development experience in software science and related new technologies. The aim of the SoMeT conferences is to capture the essence of the new state-of-the-art in software science and its supporting technology and to identify the challenges such technology will have to master. The book explores new trends and technologies which illuminate the direction of developments in this field, and will be of interest to anyone whose work involves software science and its applications.

The papers are organized in topical sections on software engineering; network; bioinformatics and e-health; bimetrics technologies; Web engineering; neural network; parallel and distributed e-learning; ontology; image processing; information and data management; engineering; software security; graphics and multimedia; databases; algorithms; signal processing; software design/test; e-technology; ad hoc networks; social networks; software process modeling; miscellaneous topics in software engineering and computer systems.This book constitutes the refereed proceedings of the 19th International Conference on Web-Based Learning, ICWL 2020, and 5th International Symposium on Emerging Technologies for Education, SETE 2020, held in Ningbo, China in October 2020. Together for the ICWL 2020 Conference and SETE 2020 Symposium 39 full papers were accepted together with 31 short papers out of 233 submissions. The papers focus on the following subjects: Semantic Web for E-Learning, through Learning Analytics, Computer-Supported Collaborative Learning, Assessment, Pedagogical Issues, E-Learning Platforms, and Tools, to Mobile Learning and much more. The LNCS journal Transactions on Rough Sets is devoted to the entire spectrum of rough sets-related issues, from logical and mathematical foundations, through all aspects of rough set theory and its applications, such as data mining, knowledge discovery, and intelligent information processing, to relations between rough sets and other approaches to uncertainty, vagueness, and incompleteness, as fuzzy sets and theory of evidence. This fifth volume of the Transactions on Rough Sets is dedicated to the monumental life, work and creative genius of Zdzislaw Pawlak, the originator of rough sets, who passed away in April 2006. It opens with a commemorative article that gives a brief coverage of Pawlak's works in rough set theory, molecular computing, philosophy, painting and poetry. Fifteen papers explore the theory of rough sets in various domains as well as new applications of rough sets. In addition, this volume of the TRS includes a complete monograph about rough sets and approximate Boolean reasoning systems that includes both the foundations as well as practical applications. The book constitutes the refereed proceedings of the 19th International Conference on Web-Based Learning, ICWL 2020, and 5th International Symposium on Emerging Technologies for Education, SETE 2020, held in Ningbo, China in October 2020. Together for the ICWL 2020 Conference and SETE 2020 Symposium 39 full papers were accepted together with 31 short papers out of 233 submissions. The papers focus on the following subjects: Semantic Web for E-Learning, through Learning Analytics, Computer-Supported Collaborative Learning, Assessment, Pedagogical Issues, E-Learning Platforms, and Tools, to Mobile Learning and much more. The LNCS journal Transactions on Rough Sets is devoted to the entire spectrum of rough sets-related issues, from logical and mathematical foundations, through all aspects of rough set theory and its applications, such as data mining, knowledge discovery, and intelligent information processing, to relations between rough sets and other approaches to uncertainty, vagueness, and incompleteness, as fuzzy sets and theory of evidence. This fifth volume of the Transactions on Rough Sets is dedicated to the monumental life, work and creative genius of Zdzislaw Pawlak, the originator of rough sets, who passed away in April 2006. It opens with a commemorative article that gives a brief coverage of Pawlak's works in rough set theory, molecular computing, philosophy, painting and poetry. Fifteen papers explore the theory of rough sets in various domains as well as new applications of rough sets. In addition, this volume of the TRS includes a complete monograph about rough sets and approximate Boolean reasoning systems that includes both the foundations as well as practical applications.
Making
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Some articles in this issue: Neutrosophic Soft Fixed Points, Selection of Alternative under the Framework of Single-Valued Neutrosophic Sets, Application of Single Valued Trapezoidal Neutrosophic Numbers in Transportation Problem. As a powerful approach to data reasoning, rough set theory has proven to be invaluable in knowledge acquisition, decision analysis and forecasting, and knowledge discovery. With the ability to enhance the advantages of other soft technology theories, hybrid rough set theory is quickly emerging as a method of choice for decision making under uncertain conditions. Keeping the complicated mathematics to a minimum, Hybrid Rough Sets and Applications in Uncertain Decision-Making provides a systematic introduction to the methods and application of the hybridization for rough set theory with other related soft technology theories, including probability, grey systems, fuzzy sets, and artificial neural networks. It also: Addresses the variety of uncertainties that can arise in the practical application of knowledge discovery systems Unveils a novel hybrid model of probability and rough sets Introduces grey variable precision rough set models Analyzes the advantages and disadvantages of various practical applications. The authors examine the scope of application of the rough set theory and discuss how the combination of variable precision rough sets and dominance relations can produce probabilistic preference rules out of preference attribute decision tables of preference actions. Complete with numerous cases that illustrate the specific application of hybrid methods, the text adopts the latest achievements in the theory, method, and application of rough sets. This book constitutes the refereed proceedings of the 5th International Conference on Rough Sets and Current Trends in Computing, RSCTC 2006, held in Kobe, Japan in November 2006. The 91 revised full papers presented together with five invited papers and two commemorative papers were carefully reviewed and selected from 332 submissions. This book is a printed edition of the Special Issue "Neutrosophic Multi-Criteria Decision Making" that was published in Axioms. Big Data Analytics is on the rise in the last years of the current decade. Data are overwhelming the computation capacity of high performance servers. Cloud, grid, edge and fog computing are obvious examples of the current hype. Computational Intelligence offers two faces to deal with the development of models: on the one hand, the crisp approach, which considers for every variable an exact value and, on the other hand, the fuzzy focus, which copes with values between two boundaries. This book presents 114 papers from the 4th International Conference on Fuzzy Systems and Data Mining (FSDM 2018), held in Bangkok, Thailand, from 16 to 19 November 2018. All papers were carefully reviewed by program committee members, who took into consideration the breadth and depth of the research topics that fall within the scope of FSDM. The acceptance rate was 32.85%. Offering a state-of-the-art overview of fuzzy systems and data mining, the publication will be of interest to all those whose work involves data science. Contributors to current issue (listed in papers' order): Ibrahim Yasser, Abeer Twakol, A. A. Abd El-Khalek, A. A. Salama, Ahmed Sharaf Al-Din, Issam Abu Al-Qasim, Rafif Alhabib, Magdy Badran, Remya P. B. Francina Shalini, Masoud Ghods, Zahra Rostami, A. Sahaya Sudha, Luiz Flavio Autran Monteiro Gomes, K. R. Vijayalakshmi, Prakasam Muraleshrishna, Surya Manomaran, Nidhi Singh, Avishhek Chakraborty, Soma Bose Biswas, Malini Majumdar, Rahul Das, Binod Chandra Tripathy, Nidhi Singh, Avishhek Chakraborty, Nilabhiru Paul, Deepshikha Sarma, Akash Singh, Uttam Kumar Beria, Fatimah M. Mohammad, Sarah W. Raheem, Muhammed Ruiz, Florentin Smarandache, Faruk Karasu, Masoud Uzma Hameed, Iqra Nawaz, Konshik Das, Sovan Samanta, Kapil De, Xavier Encarnacion, Nivedta Martin, I. Pradeepa, N. Ramila Gandhi, P. Pandammal, Aiman Muzzaffer, Md Tabrez, Najib, Shalhub Saquiib Sohail, Abujiit Saha, Jhulanowers Bairdya, Dejithi Dutta, Irfan Deli, Said Broumi, Mohsin Khalid, Neha Andaleeb Khalid, Md. Hanif Page, Qays Hatem Imran, Shilpi Pal, S. Sathum Hussain, Saeid Jafari, N. Durgu, Hanieh Shamvayati, Mohsen Shafiei Niazi, Seved Mohammad, Ali Khutami Firozabad, Mohammad Mahraninan,ezh, Mujahid Abbas, Gluam Maruza, K. Porzeli, B. Elavarasan, Y. B. Jun, Chinnadurai V, Sindhu M P, K.Radhika, K. Arun Prakash, Malayalam Lathamaheswari, Ruipa Tan, Deivanayagampillai Nagarajan, Talaee Mohamed, Asinia Bukali, Nivedha Martin, R. Dhavaseelan, Ali Hussein Mahmood Al-Obeidi, Saman Das, Sarupati Pramanik, Muadad Khan, Muhammed Zeeshan, Sinai Anis, Abdul Sami Awam, M. Sarwar Sindhu, Tabasum Rashid, Agha Rashif, Rajesh Kumar Saini, Atul Sangal, Manisha: “Neutrosophic Sets and Systems” has been created for publications on advanced studies in neutrosophy, neutrosophic set, neutrosophic logic, neutrosophic probability, neutrosophic statistics that started in 1995 and their applications in any field, such as the neutrosophic structures developed in algebra, geometry, topology, etc. Neutrosophic set (NS) was originally proposed by Smarandache to handle indeterminate and inconsistent information. Soft sets (SSs), neutrosophic sets (NSs), and rough sets (RSs) are different mathematical models for handling uncertainties, but they are mutually related. In this research paper, we introduce the notions of soft rough neutrosophic sets (SRNSs) and neutrosophic soft rough sets (NSRSs) as hybrid models for soft computing. Part 1 of this book deals with theoretical contributions of rough set theory, and parts 2 and 3 focus on several real world data mining applications. The book thoroughly explores recent results in rough set research.

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