Fuzzy Database Modeling Of Imprecise And Uncertain Engineering Information Studies In Fuzziness And Soft Computing

BALLARD KOBE

Intelligent Databases IGI Global
"This 10-volume compilation of authoritative, research-based articles contributed by thousands of researchers and experts from all over the world emphasized modern issues and the presentation of potential opportunities, prospective solutions, and future directions in the field of information science and technology"--Provided by publisher.
Fuzzy Database Modeling IGI Global
also in: THE KLUWER INTERNATIONAL SERIES ON ASIAN STUDIES IN COMPUTER AND INFORMATION SCIENCE, Volume 2
On Fuzziness Springer Science & Business Media
Abstract: "Many real world systems and applications must deal with imprecise or vague data. For such systems, information management components are needed that provide support for managing this imprecise data. Fuzzy theory allows us to model imprecise or vague data. The use of fuzzy theory also allows us to model vague knowledge. There have been several proposals for extending relational database systems in order to represent as well as query fuzzy data. However, little work has been done in modeling uncertainty at the conceptual schema level or in developing higher level conceptual models for fuzzy rules. To fill the first gap, the authors have proposed a design methodology for fuzzy relational databases. This methodology prescribes a sequence of steps to implement a fuzzy relational database from a proposed extended fuzzy Entity-Relationship model. In this paper, we also propose a generic data model to represent fuzzy rules. Generic methods are also presented which allow decision making based on these fuzzy rules. A working prototype of the fuzzy database has been built for a discrete control system, namely a semiconductor manufacturing process supervisory control system, which needs to handle fuzzy data and rules."
16th International Conference on Soft Computing Models in Industrial and Environmental Applications (SOCO 2021) Springer
Computer-based information technologies have been extensively used to help industries manage their processes and information systems hereby - come their nervous center. More specially, databases are designed to s- port the data storage, processing, and retrieval activities related to data management in information systems. Database management systems p- vide efficient task support and database systems are the key to impleme- ing industrial data management. Industrial data management requires da- base technique support. Industrial applications, however, are typically data and knowledge intensive applications and have some unique character- tics that makes their management difficult. Besides, some new techniques such as Web, artificial intelligence, and etc. have been introduced into - dustrial applications. These unique characteristics and usage of new te- nologies have put many potential requirements on industrial data mana- ment, which challenge today’s database systems and promote their evolvement. Viewed from database technology, information modeling in databases can be identified at two levels: (conceptual) data modeling and (logical) database modeling. This results in conceptual (semantic) data model and logical database model. Generally a conceptual data model is designed and then the designed conceptual data model will be transformed into a chosen logical database schema. Database systems based on logical database model are used to build information systems for data mana- ment. Much attention has been directed at conceptual data modeling of - dustrial information systems. Product data models, for example, can be views as a class of semantic data models (i. e.
Transformation of Knowledge, Information and Data: Theory and Applications Physica
This two-volume set (CCIS 1601-1602) constitutes the proceedings of the 19th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems, IPMU 2021, held in Milan, Italy, in July 2022. The 124 papers were carefully reviewed and selected from 188 submissions. The papers are organized in topical sections as follows: aggregation theory beyond the unit interval; formal concept analysis and uncertainty; fuzzy implication functions; fuzzy mathematical analysis and its applications; generalized sets and operators; information fusion techniques based on aggregation functions, pre-aggregation functions, and their generalizations; interval uncertainty; knowledge acquisition, representation and reasoning; logical structures of opposition and logical syllogisms; mathematical fuzzy logics; theoretical and applied aspects of imprecise probabilities; data science and machine learning; decision making modeling and applications; e-health; fuzzy methods in data mining and knowledge discovery; soft computing and artificia intelligence techniques in image processing; soft methods in statistics and data analysis; uncertainty, heterogeneity, reliability and explainability in AI; weak and cautious supervised learning.
Fuzzy XML Data Management Springer
"This reference expands the field of database technologies through four-volumes of in-depth, advanced research articles from nearly 300 of the world's leading professionals"--Provided by publisher.
Advances in Probabilistic Databases for Uncertain Information Management IGI Global
"This book is the premier comprehensive reference source for the latest terms, acronyms and definitions related to all aspects of information science and technology. It provides the most current information to researchers on every level"--Provided by publisher.
Recent Issues on Fuzzy Databases Springer Nature
This book presents an exhaustive and timely review of key research work on fuzzy XML data management, and provides readers with a comprehensive resource on the state-of-the art tools and theories in this fast growing area. Topics covered in the book include: representation of fuzzy XML, query of fuzzy XML, fuzzy database models, extraction of fuzzy XML from fuzzy database models, reengineering of fuzzy XML into fuzzy database models, and reasoning of fuzzy XML. The book is intended as a reference guide for researchers, practitioners and graduate students working and/or studying in the field of Web Intelligence, as well as for data and knowledge engineering professionals seeking new approaches to replace traditional methods, which may be unnecessarily complex or even unproductive.
Proceedings of the ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference 2005 Springer
"Addresses the evolution of database management, technologies and applications along with the progress and endeavors of new research areas."--P. xiii.
Advances in Fuzzy Object-oriented Databases IGI Global
In recent years, the science of managing and analyzing large datasets has emerged as a critical area of research. In the race to answer vital questions and make knowledgeable decisions, impressive amounts of data are now being generated at a rapid pace, increasing the opportunities and challenges associated with the ability to effectively analyze this data.
Database Technologies: Concepts, Methodologies, Tools, and Applications Physica
Fuzzy Database Modeling of Imprecise and Uncertain Engineering InformationSpringer
Soft Computing Applications for Database Technologies IGI Global
This volume offers the advice of selected expert contributors on the application of heterogeneous

methods for managing uncertainty and imprecision in databases. It contains both survey chapters on classic topics such as "flexible querying in databases", and up to date information on "database models to represent imperfect data". Further, it includes specific contributions on uncertainty management in database integration, and in representing and querying semistructured and spatial data.
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Some recent fuzzy database modeling advances for the non-traditional applications are introduced in this book. The focus is on database models for modeling complex information and uncertainty at the conceptual, logical, physical design levels and from integrity constraints defined on the fuzzy relations. The database models addressed here are; the conceptual data models, including the ExIFO and ExIFO2 data models, the logical database models, including the extended NF2 database model, fuzzy object-oriented database model, and the fuzzy deductive object-oriented database model. Integrity constraints are defined on the fuzzy relations are also addressed. A continuing reason for the limited adoption of fuzzy database systems has been performance. There have been few efforts at defining physical structures that accomodate fuzzy information. A new access structure and data organization for fuzzy information is introduced in this book.
Flexible Databases Supporting Imprecision and Uncertainty Springer
Ongoing advancements in modern technology have led to significant developments in intelligent systems. With the numerous applications available, it becomes imperative to conduct research and make further progress in this field. Intelligent Systems: Concepts, Methodologies, Tools, and Applications contains a compendium of the latest academic material on the latest breakthroughs and recent progress in intelligent systems. Including innovative studies on information retrieval, artificial intelligence, and software engineering, this multi-volume book is an ideal source for researchers, professionals, academics, upper-level students, and practitioners interested in emerging perspectives in the field of intelligent systems.
Data Warehousing and Mining: Concepts, Methodologies, Tools, and Applications IGI Global Snippet
This volume is dedicated to the memory of Professor Ashley Morris who passed away some two years ago. Ashley was a close friend of all of us, the editors of this volume, and was also a Ph.D. student of one of us. We all had a chance to not only fully appreciate, and be inspired by his contributions, which have had a considerable impact on the entire research community. Due to our personal relations with Ashley, we also had an opportunity to get familiar with his deep thinking about the areas of his expertise and interests. Ashley has been involved since the very beginning of his professional career in database research and practice. Notably, he introduced first some novel solution in database management systems that could handle imprecise and uncertain data, and flexible queries based on imprecisely specified user interests. He proposed to use for that purpose fuzzy logic as an effective and efficient tool. Later the interests of Ashley moved to ways of how to represent and manipulate more complicated databases involving spatial or temporal objects. In this research he discovered and pursued the power of Geographic Information Systems (GISs). These two main lines of Ashley’s research interests and contributions are reflected in the composition of this volume. Basically, we collected some significant papers by well known researchers and scholars on the above mentioned topics. The particular contributions will now be briefly summarized to help the reader get a view of the topics covered and the contents of the particular contributions.
Dictionary of Information Science and Technology IGI Global
The notion of Fuzziness stands as one of the really new concepts that have recently enriched the world of Science. Science grows not only through technical and formal advances on one side and useful applications on the other side, but also as consequence of the introduction and assimilation of new concepts in its corpus. These, in turn, produce new developments and applications. And this is what Fuzziness, one of the few new concepts arisen in the XX Century, has been doing so far. This book aims at paying homage to Professor Lotfi A. Zadeh, the “father of fuzzy logic” and also at giving credit to his exceptional work and personality. In a way, this is reflected in the variety of contributions collected in the book. In some of them the authors chose to speak of personal meetings with Lotfi; in others, they discussed how certain papers of Zadeh were able to open for them a new research horizon. Some contributions documented results obtained from the author/s after taking inspiration from a particular idea of Zadeh, thus implicitly acknowledging him. Finally, there are contributions of several “third generation fuzzysists or softies” who were firstly led into the world of Fuzziness by a disciple of Lotfi Zadeh, who, following his example, took care of opening for them a new road in science. Rudolf Seising is Adjoint Researcher at the European Centre for Soft Computing in Mieres, Asturias (Spain). Enric Trillas and Claudio Moraga are Emeritus Researchers at the European Centre for Soft Computing, Mieres, Asturias (Spain). Settimo Termini is Professor of Theoretical Computer Science at the University of Palermo, Italy and Affiliated Researcher at the European Centre for Soft Computing, Mieres, Asturias (Spain)
Computing with Words in Information/Intelligent Systems 2 IGI Global
This volume constitutes the refereed proceedings of the International Conferences, EL, DTA and UNESST 2012, held as part of the Future Generation Information Technology Conference, FGIT 2012, Kangwondo, Korea, in December 2012. The papers presented were carefully reviewed and selected from numerous submissions and focus on the various aspects of education and learning, database theory and application and u- and e-service, science and technology.
Uncertainty Approaches for Spatial Data Modeling and Processing Springer Science & Business Media
Research and development surrounding the use of data queries is receiving increased attention from computer scientists and data specialists alike. Through the use of query technology, large volumes of data in databases can be retrieved, and information systems built based on databases can support problem solving and decision making across industries. The Handbook of Research on Innovative Database Query Processing Techniques focuses on the growing topic of database query processing methods, technologies, and applications. Aimed at providing an all-inclusive reference source of technologies and practices in advanced database query systems, this book investigates various techniques, including database and XML queries, spatiotemporal data queries, big data queries, metadata queries, and applications of database query systems. This comprehensive handbook is a necessary resource for students, IT professionals, data analysts, and academicians interested in uncovering the latest methods for using queries as a means to extract information from databases. This all-inclusive handbook includes the latest research on topics pertaining to information retrieval, data extraction, data management, design and development of database queries, and database and XM queries.
Intelligent Systems: Concepts, Methodologies, Tools, and Applications IGI Global
These two volumes consisting of Foundations and Applications provide the current status of theoretical and empirical developments in "computing with words". In philosophy, the twentieth century is said to be the century of language. This is mainly due to Wittgenstein who said: "The meaning of a word is its use in the language game". "The concept game is a concept with blurred edges". In the first phrase, "the language game" implies the everyday human activity with language, and in the latter, "game" simply implies an ordinary word. Thus, Wittgenstein precisely stated that a word is fuzzy in real life. Unfortunately this idea about a word was not accepted in the conventional science. We had to wait for Zadeh's fuzzy sets theory. Remembering Wittgenstein's statement, we should consider, on the one hand, the concept of "computing with words" from a philosophical point of view. It deeply relates to the everyday use of a word in which the meaning of a word is fuzzy in its nature.
Modeling and Management of Fuzzy Semantic RDF Data Springer
First of all, I would like to congratulate Gabriella Pasi and Gloria Bordogna for the work they accomplished in preparing this new book in the series "Study in Fuzziness and Soft Computing". "Recent Issues on the Management of Fuzziness in Databases" is undoubtedly a token of their long-lasting and active involvement in the area of Fuzzy Information Retrieval and Fuzzy Database Systems. This book is really welcome in the area of fuzzy databases where they are not numerous although the first works at the crossroads of fuzzy sets and databases were initiated about twenty years ago by L. Zadeh. Only five books have been published since 1995, when the first volume dedicated to fuzzy databases published in the series "Study in Fuzziness and Soft Computing" edited by J. Kacprzyk and myself appeared. Going beyond books strictly speaking, let us also mention the existence of review papers that are part of a couple of handbooks related to fuzzy sets published since 1998. The area known as fuzzy databases covers a bunch of topics among which: -flexible queries addressed to regular databases, -the extension of the notion of a functional dependency, -data mining and fuzzy summarization, -querying databases containing imperfect attribute values represented thanks to possibility distributions.