

CONCEPTUAL MODELING OF INFORMATION SYSTEMS FILE PDF

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Conceptual Modeling Of Information Systems Introduction

Conceptual Modeling of Information Systems

This brilliant textbook explains in detail the principles of conceptual modeling independently from particular methods and languages and shows how to apply them in real-world projects. The author covers all aspects of the engineering process from structural modeling over behavioral modeling to meta-modeling, and completes the presentation with an extensive case study based on the osCommerce system. Written for computer science students in classes on information systems modeling as well as for professionals feeling the need to formalize their experiences or to update their knowledge, Olivé delivers here a comprehensive treatment of all aspects of the modeling process. His book is complemented by lots of exercises and additional online teaching material.

Conceptual Modelling in Information Systems Engineering

This book compiles contributions from renowned researchers covering all aspects of conceptual modeling, on the occasion of Arne Sølvberg's 67th birthday. Friends of this pioneer in information systems modeling contribute their latest research results from such fields as data modeling, goal-oriented modeling, agent-oriented modeling, and process-oriented modeling. The book reflects the most important recent developments and application areas of conceptual modeling, and highlights trends in conceptual modeling for the next decade.

Model-Based Development and Evolution of Information Systems

This book introduces and describes in detail the SEQUAL framework for understanding the quality of models and modeling languages, including the numerous specializations of the generic framework, and the various ways in which this can be used for different applications. Topics and features: contains case studies, chapter summaries, review questions, problems and exercises throughout the text, in addition to Appendices on terminology and abbreviations; presents a thorough introduction to the most important concepts in conceptual modeling, including the underlying philosophical outlook on the quality of models; describes the basic tasks and model types in information systems development and evolution, and the main methodologies for mixing different phases of information system development; provides an overview of the general mechanisms and perspectives used in conceptual modeling; predicts future trends in technological development, and discusses how the role of modeling can be envisaged in this landscape.

Handbook of Conceptual Modeling

Conceptual modeling is about describing the semantics of software applications at a high level of abstraction in terms of structure, behavior, and user interaction. Embley and Thalheim start with a manifesto stating that the dream of developing information systems strictly by conceptual modeling – as expressed in the phrase “the model is the code” – is becoming reality. The subsequent contributions written by leading researchers in the field support the manifesto's assertions, showing not only how to abstractly model complex information

systems but also how to formalize abstract specifications in ways that let developers complete programming tasks within the conceptual model itself. They are grouped into sections on programming with conceptual models, structure modeling, process modeling, user interface modeling, and special challenge areas such as conceptual geometric modeling, information integration, and biological conceptual modeling. The Handbook of Conceptual Modeling collects in a single volume many of the best conceptual-modeling ideas, techniques, and practices as well as the challenges that drive research in the field. Thus it is much more than a traditional handbook for advanced professionals, as it also provides both a firm foundation for the field of conceptual modeling, and points researchers and graduate students towards interesting challenges and paths for how to contribute to this fundamental field of computer science.

Conceptual Modeling for New Information Systems Technologies

The objective of the workshops associated with ER 2001, the 20th International Conference on Conceptual Modeling, was to give participants the opportunity to present and discuss emerging hot topics, thus adding new perspectives to conceptual modeling. This, the 20th ER conference, the first of the 21st century, was also the first one in Japan. The conference was held on November 27-30, 2001 at Yokohama National University with 192 participants from 31 countries. ER 2001 encompasses the entire spectrum of conceptual modeling, from theoretical aspects to implementations, including fundamentals, applications, and software engineering. In particular, ER 2001 emphasized e-business and reengineering. To meet this objective, we selected the following four topics and planned four international workshops: – International Workshop on Conceptual Modeling of Human/Organizational/Social Aspects of Manufacturing Activities (HUMACS 2001) Manufacturing enterprises have to confront a host of demands. The competitive climate, enhanced by communication and knowledge sharing, will require increasingly rapid responses to market forces. Customer demands for higher quality, better services, and lower cost will force manufacturers to reach new levels of flexibility and adaptability. Sophisticated customers will demand products customized to meet their needs. Industries have so far sought to cope with these challenges primarily through advances in traditional capital by installing more powerful hardware and software technology. Attention to the role of humans combined with organizational and social schemes in manufacturing has only been marginal. The workshop HUMACS 2001 aimed to challenge the relevance of this last point.

Conceptual Modeling Perspectives

Conceptual modeling has always been one of the main issues in information systems engineering as it aims to describe the general knowledge of the system at an abstract level that facilitates user understanding and software development. This collection of selected papers provides a comprehensive and extremely readable overview of what conceptual modeling is and perspectives on making it more and more relevant in our society. It covers topics like modeling the human genome, blockchain technology, model-driven software development, data integration, and wiki-like repositories and demonstrates the general applicability of conceptual modeling to various problems in diverse domains. Overall, this book is a source of inspiration for everybody in academia working on the vision of creating a strong, fruitful and creative community of conceptual modelers. With this book the editors and authors want to honor Prof. Antoni Olivé for his enormous and ongoing contributions to the conceptual modeling discipline. It was presented to him on the occasion of his keynote at ER 2017 in Valencia, a conference that he has contributed to and supported for over 20 years. Thank you very much to Antoni for so many years of cooperation and friendship.

Conceptual Modeling - ER 2000

This book constitutes the refereed proceedings of the 19th International Conference on Conceptual Modeling, ER 2000, held in Salt Lake City, Utah, USA in October 2000. The 37 revised full papers presented together with three invited papers and eight industrial abstracts were carefully reviewed and selected from a total of 140 submitted papers. The book offers topical sections on database integration, temporal and active database modeling, database and data warehouse design techniques, analysis patterns and ontologies, Web-based

information systems, business process modeling, conceptual modeling and XML, engineering and multimedia application modeling, object-oriented modeling, applying object-oriented technology, quality in conceptual modeling, and application design using UML.

On Conceptual Modelling

The growing demand for systems of ever-increasing complexity and precision has stimulated the need for higher level concepts, tools, and techniques in every area of Computer Science. Some of these areas, in particular Artificial Intelligence, Databases, and Programming Languages, are attempting to meet this demand by defining a new, more abstract level of system description. We call this new level conceptual in recognition of its basic conceptual nature. In Artificial Intelligence, the problem of designing an expert system is seen primarily as a problem of building a knowledge base that represents knowledge about an enterprise. Consequently, Knowledge Representation is viewed as a central issue in Artificial Intelligence research. Database design methodologies developed during the last five years are almost unanimous in offering semantic data models in terms of which the designer directly and naturally models an enterprise before proceeding to a detailed logical and physical database design. In Programming Languages, different forms of abstraction which allow implementation independent specifications of data, functions, and control have been a major research theme for a decade. To emphasize the common goals of these three research efforts, we call this new activity conceptual modelling.

Perspectives in Conceptual Modeling

We are pleased to present the proceedings of the workshops held in conjunction with ER 2005, the 24th International Conference on Conceptual Modeling. The objective of these workshops was to extend the spectrum of the main conference by giving participants an opportunity to present and discuss emerging hot topics related to conceptual modeling and to add new perspectives to this key mechanism for understanding and representing organizations, including the new “virtual” e-environments and the information systems that support them. To meet this objective, we selected 5 workshops: – AOIS 2005: 7th International Bi-conference Workshop on Agent-Oriented Information Systems – BP-UML 2005: 1st International Workshop on Best Practices of UML – CoMoGIS 2005: 2nd International Workshop on Conceptual Modeling for Geographic Information Systems – eCOMO 2005: 6th International Workshop on Conceptual Modeling - approaches for E-business – QoIS 2005: 1st International Workshop on Quality of Information Systems These 5 workshops attracted 18, 27, 31, 9, and 17 papers, respectively. Following the ER workshop philosophy, program committees selected contributions on the basis of strong peer reviews in order to maintain a high standard for accepted papers. The committees accepted 8, 9, 12, 4, and 7 papers, for acceptance rates of 44%, 33%, 39%, 44%, and 41%, respectively. In total, 40 workshop papers were selected out of 102 submissions with a weighted average acceptance rate of 40%.

Conceptual Modeling - ER '98

This volume constitutes the refereed proceedings of the 17th International Conference on Conceptual Modeling, ER '98, held in Singapore, in November 1998. The 32 revised full papers presented were carefully reviewed and selected from a total of 95 submissions. The book is divided into chapters on conceptual modeling and design, user interface modeling, information retrieval on the Web, semantics and constraints, conceptual modeling tools, quality and reliability metrics, industrial experience in conceptual modeling, object-oriented database management systems, data warehousing, industrial case studies, object-oriented approaches.

Advances in Conceptual Modeling

The objective of the workshops associated with the ER'99 18th International Conference on Conceptual Modeling is to give participants access to high level presentations on specialized, hot, or emerging scientific

topics. Three themes have been selected in this respect: — Evolution and Change in Data Management (ECDM'99) dealing with handling the evolution of data and data structure, — Reverse Engineering in Information Systems (REIS'99) aimed at exploring the issues raised by legacy systems, — The World Wide Web and Conceptual Modeling (WWWCM'99) which analyzes the mutual contribution of WWW resources and techniques with conceptual modeling. ER'99 has been organized so that there is no overlap between conference sessions and the workshops. Therefore participants can follow both the conference and the workshop presentations they are interested in. I would like to thank the ER'99 program co-chairs, Jacky Akoka and Mokrane Bouzeghoub for having given me the opportunity to organize these workshops. I would also like to thank Stephen Liddle for his valuable help in managing the evaluation procedure for submitted papers and helping to prepare the workshop proceedings for publication. August 1999 Jacques Kouloumdjian Preface for ECDM'99 The first part of this volume contains the proceedings of the First International Workshop on Evolution and Change in Data Management, ECDM'99, which was held in conjunction with the 18th International Conference on Conceptual Modeling (ER'99) in Paris, France, November 15-18, 1999.

Business Rule-Oriented Conceptual Modeling

The book introduces BROCOM, an approach for a business rule-oriented conceptual modeling which is supported by BURRO, a business rule repository. Prior to focus on the modeling of business rules, their relevance in organizational approaches of Business Administration is discussed and alternatives for their implementing are evaluated. The introduction of BROCOM encompasses its meta model and modeling steps. Furthermore, the potential of graphical models for representing specific aspects is discussed regarding a real world example. The final part of the book includes the successful application of BROCOM to business processes and an information system of an insurance company.

Advanced Conceptual Modeling Techniques

This book constitutes the thoroughly refereed joint post-proceedings of four international workshops held in conjunction with the 21st International Conference on Conceptual Modeling, ER 2002, in Tampere, Finland in October 2002. The 38 revised full papers presented were carefully selected and improved during two rounds of reviewing and revision. The papers are organized in topical sections on management of time and changes in information systems; architectures, models, and tools for systems evolution; conceptual modeling approaches to mobile information systems development; quality of conceptual models; requirements and entity relationship models; class models and architectures; Web and interactive models; processes, models, and Web services; e-business methods and technologies; and success factors for conceptual modeling in e-business.

Conceptual Modeling - ER 2001

This book constitutes the refereed proceedings of the 20th International Conference on Conceptual Modeling, ER 2001, held in Tokohama, Japan, in November 2001. The 45 revised full papers presented together with three keynote presentations were carefully reviewed and selected from a total of 197 submissions. The papers are organized in topical sections on spatial databases, spatio-temporal databases, XML, information modeling, database design, data integration, data warehouse, UML, conceptual models, systems design, method reengineering and video databases, workflows, web information systems, applications, and software engineering.

Conceptual Modeling – ER 2010

This publication comprises the proceedings of the 29 International Conference on Conceptual Modeling (ER 2010), which was held this year in Vancouver, British Columbia, Canada. Conceptual modeling can be considered as lying at the confluence of the three main aspects of information technology applications — the world of the stakeholders and users, the world of the developers, and the technologies available to them. C-

ceptual models provide abstractions of various aspects related to the development of systems, such as the application domain, user needs, database design, and software specifications. These models are used to analyze and define user needs and system requirements, to support communications between stakeholders and developers, to provide the basis for systems design, and to document the requirements for and the design rationale of developed systems. Because of their role at the junction of usage, development, and technology, conceptual models can be very important to the successful development and deployment of IT applications. Therefore, the research and development of methods, techniques, tools and languages that can be used in the process of creating, maintaining, and using conceptual models is of great practical and theoretical importance. Such work is conducted in academia, research institutions, and industry. Conceptual modeling is now applied in virtually all areas of IT applications, and spans varied domains such as organizational information systems, systems that include specialized data for spatial, temporal, and multimedia applications, and biomedical applications.

Conceptual Modeling - ER 2002

For more than 20 years, the series of Conceptual Modeling – ER conferences has provided a forum for research communities and practitioners to present and exchange research results and practical experiences in the fields of database design and conceptual modeling. Throughout the years, the scope of these conferences has extended from database design and specific topics of that area to more universal or refined conceptual modeling, organizing originally weak or ill-structured information or knowledge in more cultured ways by applying various kinds of principles, abstract models, and theories, for different purposes. At the same time, many technically oriented approaches have been developed which aim to facilitate the implementation of rather advanced conceptual models. Conceptual modeling is based on the process of conceptualization, and it is the core of system structuring as well as justification for information systems development. It supports and facilitates the understanding, explanation, prediction, and reasoning on information and knowledge, and their manipulation in the systems, in addition to understanding and designing the functions of the systems. The conceptualization process aims at constructing concepts relevant for the knowledge and information system in question. Concepts in the human mind and concept descriptions in computerized information systems are quite different things by nature, but both should be taken into account in conceptual modeling. Usually concept descriptions are properly observed, but concepts in the human mind and their properties are often neglected quite carelessly.

Conceptual Modeling - ER 2008

Conceptual modeling has long been recognized as the primary means to enable software development in information systems and data engineering. Conceptual modeling provides languages, methods and tools to understand and represent the application domain; to elicit, conceptualize and formalize system requirements and user needs; to communicate systems designs to all stakeholders; and to formally verify and validate systems design on high levels of abstraction. The International Conference on Conceptual Modeling provides a premiere forum for presenting and discussing current research and applications in which the major emphasis is on conceptual modeling. Topics of interest span the entire spectrum of conceptual modeling including research and practice in areas such as theories of concepts and ontologies underlying conceptual modeling, methods and tools for developing and communicating conceptual models, and techniques for transforming conceptual models into effective implementations. The scientific program of ER 2008 featured several activities running in parallel. The core activity was the presentation of the 33 research papers published in this volume, which were selected by a large Program Committee (PC) Co-chaired by Qing Li, Stefano Spaccapietra and Eric Yu. We thank the PC Co-chairs, the PC members and the additional referees for the hard work done, often within a short time. Thanks are also due to Moira Norrie from ETH Zurich, Oscar Pastor from the Universitat Politècnica de València, and Amit Sheth from the Wright State University for accepting our invitation to present keynotes.

Advances in Conceptual Modeling - Challenging Perspectives

This book constitutes the refereed joint proceedings of eight international workshops held in conjunction with the 28th International Conference on Conceptual Modeling, ER 2009, in Gramado, Brazil, in November 2009. The 33 revised full papers presented were carefully reviewed and selected from 100 submissions. Topics addressed by the workshops are active conceptual modeling of learning (ACM-L), conceptual modeling in the large (CoMoL), evolving theories of conceptual modeling (ETheCoM), workshop on foundations and practices of UML (FP-UML), joint international workshop on metamodels, ontologies, semantic technologies, and information systems for the semantic web (MOST-ONISW), quality of information systems (QoIS), requirements, Intentions and goals in conceptual modeling (RIGiM) and semantic and conceptual issues in geographic information systems (SeCoGIS).

Conceptual Modeling

This volume contains a collection of selected papers presented at the Symposium on Conceptual Modeling, which was held in Los Angeles, California, on December 2, th 1997, immediately before the 16 International Conference on Conceptual Modeling (ER'97), which was held at UCLA. A total of eighteen papers were selected for inclusion in this volume. These papers are written by experts in the conceptual modeling area and represent the most current thinking of these experts. This volume also contains the summaries of three workshops that were held on 6 7 December 1997, immediately after the ER'97 conference at UCLA. The topics of these three workshops are: • Behavioral Modeling • Conceptual Modeling in Multimedia Information Seeking • What Is the Role of Cognition in Conceptual Modeling? Since these topics are not only very important but also very timely, we think it is appropriate to include the summary of these three workshops in this volume. Those readers interested in further investigating topics related to the three workshops can either look up the individual paper published on the Web or contact the authors directly. The summary paper by Chen at the beginning of this volume also includes the summary of several interesting speeches at the Symposium.

Active Conceptual Modeling of Learning

This volume is a collection of papers presented during the first International ACM-L Workshop, which was held in Tucson, Arizona, during the 25th International Conference on Conceptual Modeling, ER 2006. Included in this state-of-the-art survey are 11 revised full papers, carefully reviewed and selected from the workshop presentations. These are rounded off with four invited lectures and an introductory overview, and represent the current thinking in conceptual modeling research.

The Evolution of Conceptual Modeling

Conceptual modeling represents a recent approach to creating knowledge. It has emerged in response to the computer revolution, which started in the middle of the 20th century. Computers, in the meantime, have become a major knowledge media. Conceptual modeling provides an answer to the difficulties experienced throughout the development of computer applications and aims at creating effective, reasonably priced, and sharable knowledge about using computers in business. Moreover, it has become evident that conceptual modeling has the potential to exceed the boundaries of business and computer usage. This state-of-the-art survey originates from the International Seminar on the Evolution of Conceptual Modeling, held in Dagstuhl Castle, Germany, in April 2008. The major objective of this seminar was to look into conceptual modeling from a historical perspective with a view towards the future of conceptual modeling and to achieve a better understanding of conceptual modeling issues in several different domains of discourse, going beyond individual (modeling) projects. The book contains 14 chapters. These were carefully selected during two rounds of reviewing and improvement from 26 presentations at the seminar and are preceded by a detailed preface providing general insights into the field of conceptual modeling that are not necessarily discussed in any of the chapters but nevertheless aid in conceptualizing the inner structure and coherence of the field. The

chapters are grouped into the following three thematic sections: the evolution of conceptual modeling techniques; the extension of conceptual modeling to a service-oriented, peer-to-peer, or Web context; and new directions for conceptual modeling.

Conceptual Modeling - ER 2005

Conceptual modeling is fundamental to any domain where one must cope with complex real-world situations and systems because it fosters communication between technology experts and those who would benefit from the application of those technologies. Conceptual modeling is the key mechanism for understanding and representing the domains of information system and database engineering but also increasingly for other domains including the new “virtual” e-environments and the information systems that support them. The importance of conceptual modeling in software engineering is evidenced by recent interest in “model-driven architecture” and “extreme non-programming”. Conceptual modeling also plays a prominent role in various technical disciplines and in the social sciences. The Annual International Conference on Conceptual Modeling (referred to as the ER Conference) provides a central forum for presenting and discussing current research and applications in which conceptual modeling is the major emphasis. In keeping with this tradition, ER 2005, the 24th ER Conference, spanned the spectrum of conceptual modeling including research and practice in areas such as theories of concepts and ontologies underlying conceptual modeling, methods and tools for developing and communicating conceptual models, and techniques for transforming conceptual models into effective (information) system implementations. Moreover, new areas of conceptual modeling including Semantic Web services and the interdependencies of conceptual modeling with knowledge-based, logical and linguistic theories and approaches were also addressed.

Conceptual Modeling - ER 2004

On behalf of the Organizing Committee, we would like to welcome you to the proceedings of the 23rd International Conference on Conceptual Modeling (ER 2004). This conference provided an international forum for technical discussion on conceptual modeling of information systems among researchers, developers and users. This was the third time that this conference was held in Asia; the first time was in Singapore in 1998 and the second time was in Yokohama, Japan in 2001. China is the third largest nation with the largest population in the world. Shanghai, the largest city in China and a great metropolis, famous in Asia and throughout the world, is therefore a most appropriate location to host this conference. This volume contains papers selected for presentation and includes the two keynote talks by Prof. Hector Garcia-Molina and Prof. Gerhard Weikum, and an invited talk by Dr. Xiao Ji. This volume also contains industrial papers and demo/poster papers. An additional volume contains papers from 6 workshops. The conference also featured three tutorials: (1) Web Change Management and Delta Mining: Opportunities and Solutions, by Sanjay Madria, (2) A Survey of Data Quality Issues in Cooperative Information Systems, by Carlo Batini, and (3) Visual SQL - An ER-Based Introduction to Database Programming, by Bernhard Thalheim.

Conceptual Modeling - ER 2005

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Advances in Conceptual Modeling

This book constitutes the refereed proceedings of five workshops symposia, held at the 38th International Conference on Conceptual Modeling, ER 2019, in Salvador, Brazil, in November 2019. The 34 papers promote and disseminate research on theories of concepts underlying conceptual modeling, methods and tools for developing and communicating conceptual models, techniques for transforming conceptual models into effective implementations, and the impact of conceptual modeling techniques on databases, business strategies and information systems. The following workshops are included in this volume: Workshop on Conceptual Modeling, Ontologies and Metadata Management for FAIR Data (FAIR), 6th Workshop on Conceptual Modeling in Requirements Engineering and Business Analysis (MREBA), 2nd International Workshop on Empirical Methods in Conceptual Modeling (EmpER), 8th International Workshop on Modeling and Management of Big Data (MoBiD19), and 7th International Workshop on Ontologies and Conceptual Modelling (OntoCom).

Conceptual Modeling: Foundations and Applications

This Festschrift volume, published in honor of John Mylopoulos on the occasion of his retirement from the University of Toronto, contains 25 high-quality papers, written by leading scientists in the field of conceptual modeling. The volume has been divided into six sections. The first section focuses on the foundations of conceptual modeling and contains material on ontologies and knowledge representation. The four sections on software and requirements engineering, information systems, information integration, and web and services, represent the chief current application domains of conceptual modeling. Finally, the section on implementations concentrates on projects that build tools to support conceptual modeling. With its in-depth coverage of diverse topics, this book could be a useful companion to a course on conceptual modeling.

Domain-Specific Conceptual Modeling

This book draws new attention to domain-specific conceptual modeling by presenting the work of thought leaders who have designed and deployed specific modeling methods. It provides hands-on guidance on how to build models in a particular domain, such as requirements engineering, business process modeling or enterprise architecture. In addition to these results, it also puts forward ideas for future developments. All this is enriched with exercises, case studies, detailed references and further related information. All domain-specific methods described in this volume also have a tool implementation within the OMILAB Collaborative Environment – a dedicated research and experimentation space for modeling method engineering at the University of Vienna, Austria – making these advances accessible to a wider community of further developers and users. The collection of works presented here will benefit experts and practitioners from academia and industry alike, including members of the conceptual modeling community as well as lecturers and students.

Conceptual Modeling

This book constitutes the refereed proceedings of the 31st International Conference on Conceptual Modeling, ER 2012, held in Florence, Italy, in October 2012. The 24 regular papers presented together with 13 short papers, 6 poster papers and 3 keynotes were carefully reviewed and selected from 141 submissions. The

papers are organized in topical sections on understandability and cognitive approaches; conceptual modeling for data warehousing and business intelligence; extraction, discovery and clustering; search and documents; data and process modeling; ontology based approaches; variability and evolution; adaptation, preferences and query refinement; queries, matching and topic search; and conceptual modeling in action.

Advances in Conceptual Modeling. Recent Developments and New Directions

This book constitutes the refereed proceedings of workshops, held at the 30th International Conference on Conceptual Modeling, ER 2011, in Brussels, Belgium in October/November 2011. The 31 revised full papers presented together with 9 posters and demonstrations (out of 88 submissions) for the workshops and the 6 papers (out of 11 submissions) for the industrial track were carefully reviewed and selected. The papers are organized in sections on the workshops Web Information Systems Modeling (WISM); Modeling and Reasoning for Business Intelligence (MORE-BI); Software Variability Management (Variability@ER); Ontologies and Conceptual Modeling (Onto.Com); Semantic and Conceptual Issues in GIS (SeCoGIS); and Foundations and Practices of UML (FP-UML).

Dynamic Modelling of Information Systems

The use of dynamic models in the development of information systems is regarded by many researchers as a promising issue in design support. Modelling the dynamics of information systems is likely to improve the quality and the performance of the design products. Dynamic modelling as a new approach for dynamic analysis of problems within an existing situation, and design and evaluation of different solution strategies may overcome many difficulties in the design process.

Conceptual Modeling - ER 2007

This book constitutes the refereed proceedings of the 26th International Conference on Conceptual Modeling, ER 2007. Coverage in the papers includes data warehousing and data mining, design methodologies and tools, information and database integration, information modeling concepts and ontologies, integrity constraints, logical foundations of conceptual modeling, patterns and conceptual meta-modeling, semi-structured data and XML, as well as Web information systems and XML.

Information Systems Development and Data Modeling

Summarises ideas in Information Systems Development for graduate students and professionals.

Conceptual Modeling

This book constitutes the refereed proceedings of the 39th International Conference on Conceptual Modeling, ER 2020, which was supposed to be held in Vienna, Austria, in November 2020, but the conference was held virtually due to the COVID-19 pandemic. The 28 full and 16 short papers were carefully reviewed and selected from 143 submissions. This event covers a wide range of topics, and the papers are organized in the following sessions: foundations of conceptual modeling; process mining and conceptual modeling; conceptual modeling of business rules and processes; modeling chatbots, narratives and natural language; ontology and conceptual modeling; applications of conceptual modeling; schema design, evolution, NoSQL; empirical studies of conceptual modeling; networks, graphs and conceptual modeling; and conceptual modeling of complex and data-rich systems.

Conceptual Modeling

This book constitutes the refereed proceedings of the 40th International Conference on Conceptual Modeling,

ER 2021, which will be held as virtual event, in October 2021. The 14 full and 18 short papers were carefully reviewed and selected from 85 submissions. The conference presents topics on conceptual modeling, its foundations and applications. Celebrating its 40th anniversary this year, the overall theme of ER 2021 is: Conceptual Modeling in an Age of Uncertainty.

Conceptual Modeling: Foundations and Applications

Published in honor of John Mylopoulos on his retirement from the University of Toronto, this Festschrift volume contains 25 high-quality papers, written by leading scientists in the field of conceptual modeling and covering a wide variety of relevant topics.

Advances in Conceptual Modeling

This book constitutes the refereed proceedings of workshops, held at the 31st International Conference on Conceptual Modeling, ER 2012, in Florence, Italy in October 2012. The 32 revised papers presented together with 6 demonstrations were carefully reviewed and selected from 84 submissions. The papers are organized in sections on the workshops CMS 2012, EDCM-NoCoDa, MODIC, MORE-BI, RIGIM, SeCoGIS and WISM. The workshops cover different conceptual modeling topics, from requirements, goal and service modeling, to evolution and change management, to non-conventional data access, and they span a wide range of domains including Web information systems, geographical information systems, business intelligence, data-intensive computing.

Conceptual Modeling, Databases, and Case

Conceptual Modeling is used to create databases, appropriate across numerous applications areas, while still retaining "custom" qualities of the individual database. Contains original chapters written by leading international researchers in order to integrate Conceptual Modeling, Computer Aided Software Engineering (CASE) and database systems and present their combined impact on the development of new information systems. Features papers on Extensible Systems, Deductive Databases and Object-Oriented DBMS.

Innovations in Information Systems Modeling: Methods and Best Practices

Covers central topics in information systems modeling and architectures. Includes the latest developments in information systems modeling, methods, and best practices.

Conceptual Modeling for Advanced Application Domains

This book constitutes the refereed joint proceedings of six international workshops held in conjunction with the 23rd International Conference on Conceptual Modeling, ER 2004, in Shanghai, China in November 2004. The 56 revised full papers presented were carefully reviewed and selected from 163 submissions. The papers are organized in topical sections on geographical conceptual modeling; spatial storage, indexing, and data consistency; spatial representation and spatial services; spatial queries and retrieval, Web information integration; Web information mining; conceptual models for Web information; Web information systems and Webservices; systems evolution support in conceptual modeling; temporal and evolution aspects in Internet-based information systems; schema evolution and versioning in data management; conceptual modeling of agents; agents applications; digital government systems; digital government technologies; e-business systems requirements engineering; and e-business processes and infrastructure.

Fundamentals of Spatial Information Systems

The study and application of spatial information systems have been developed primarily from the use of

computers in the geosciences. These systems have the principle functions of capturing, storing, representing, manipulating, and displaying data in 2-D and 3-D worlds. This book approaches its subject from the perspectives of informatics and geography, presenting methods of conceptual modeling developed in computer science that provide valuable aids for resolving spatial problems. This book is an essential textbook for both students and practitioners. It is indispensable for academic geographers, computer scientists, and the GIS professional. Serves as the first comprehensive textbook on the field of Spatial Information Systems (also known as Geographic Information Systems) Contains extensive illustrations Presents numerous detailed examples

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