

# Active Database Systems Triggers And Rules For Advanced Database Processing The Morgan Kaufmann Series In Data Management Systems

Doctoral Thesis / Dissertation from the year 2006 in the subject Computer Science - Applied, grade: 1.0, University of Dusseldorf "Heinrich Heine", 127 entries in the bibliography, language: English, abstract: Federated information systems provide access to interrelated data that is distributed over multiple autonomous and heterogeneous data sources. The integration of these sources demands for flexible and extensible architectures that balance both, the highest possible autonomy and a reasonable degree of information sharing. In current federated information systems, the integrated data sources do only have passive functionality with regard to the federation. However, continuous improvements take the functionality of modern databases beyond former limits. The significant improvement, on which this work is based on, is the ability of modern active database systems to execute programs written in a standalone programming language as user-defined functions or stored procedures from within their database management systems. We introduce Enhanced Active Database Systems as a new subclass of active databases that are able to interact with other components of a federation using external program calls from within triggers. We present several concepts and architectures that are specifically developed for Enhanced Active Databases to improve interoperability and consistency in federated information systems. As the basic concept we describe Active Event Notifications to provide an information system with synchronous and asynchronous update notifications in real-time. Based on this functionality, Enhanced Active Databases are able to actively participate in global integrity maintenance executing partial constraint checks on interrelated remote data. Furthermore, we present an architecture for a universal wrapper component that especially supports Active Event Notifications, which makes it perfectly suitable for event-based federated systems with real-time data processing. This tightly coupled wrapper architecture is used to build up the DÍgame architecture for a peer data management system with push-based data and schema replication. Finally, we propose a Link Pattern Catalog as a guideline to model and analyze P2P-based information systems.

Content Description #Includes bibliographical references and index.

The design of knowledge systems is finding myriad applications from corporate databases to general decision support in areas as diverse as engineering, manufacturing and other industrial processes, medicine, business, and economics. In engineering, for example, knowledge bases can be utilized for reliable electric power system operation. In medicine they support complex diagnoses, while in business they inform the process of strategic planning. Programmed securities trading and the defeat of chess champion Kasparov by IBM's Big Blue are two familiar examples of dedicated knowledge bases in combination with an expert system for decision-making. With volumes covering "Implementation," "Optimization," "Computer Techniques," and "Systems and Applications," this comprehensive set constitutes a unique reference source for students, practitioners, and researchers in computer science, engineering, and the broad range of applications areas for knowledge-based systems.

Most modern-day organizations have a need to record data relevant to their everyday activities and many choose to organise and store some of this information in an electronic database. Database Systems provides an essential introduction to modern database technology and the development of database systems. This new edition has been fully updated to include new developments in the field, and features new chapters on: e-business, database development process, requirements for databases, and distributed processing. In addition, a wealth of new examples and exercises have been added to each chapter to make the book more practically useful to students, and full lecturer support will be available online.

Modeling, Scheduling, Load Shedding, and Complex Event Processing

Techniques and Applications

Challenges and Solutions

High Performance Active Database Management on a Shared-nothing Parallel Processor

Cooperative and Reactive Agents for Information Systems

Encyclopedia of Database Technologies and Applications

This book constitutes the refereed proceedings of the 5th East European Conference on Advances in Databases and Information Systems, ADBIS 2001, held in Vilnius, Lithuania, in September 2001. The 25 revised full papers presented together with one invited paper and two abstracts of invited talks were carefully reviewed and selected from 82 submissions. The papers are organized in topical sections on query optimization, multimedia and multilingual information systems, spatiotemporal aspects of databases, data mining, transaction processing, conceptual modeling and information systems specification, active databases, query methods, XML, and information systems design.

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.

The latest edition of a popular text and reference on database research, with substantial new material and revision; covers classical literature and recent hot topics. Lessons from database research have been applied in academic fields ranging from bioinformatics to next-generation Internet architecture and in industrial uses including Web-based e-commerce and search engines. The core ideas in the field have become increasingly influential. This text provides both students and professionals with a grounding in database research and a technical context for understanding recent innovations in the field. The readings included treat the most important issues in the database area--the basic material for any DBMS professional. This fourth edition has been substantially updated and revised, with 21 of the 48 papers new to the edition, four of them published for the first time. Many of the sections have been newly organized, and each section includes a new or substantially revised introduction that discusses the context, motivation, and controversies in a particular area, placing it in the broader perspective of database research. Two introductory articles, never before published, provide an organized, current introduction to basic knowledge of the field; one discusses the history of data models and query languages and the other offers an architectural overview of a database system. The remaining articles range from the classical literature on database research to treatments of current hot topics, including a paper on search engine architecture and a paper on application servers, both written expressly for this edition. The result is a collection of papers that are seminal and also accessible to a reader who has a basic familiarity with database systems.

The systems used to process data streams and provide for the needs of stream-based applications are Data Stream Management Systems (DSMSs). This book presents a new paradigm to meet the needs of these applications, including a detailed discussion of the techniques proposed. It includes important aspects of a QoS-driven DSMS (Data Stream Management System) and introduces applications where a DSMS can be used and discusses needs beyond the stream processing model. It also discusses in detail the design and implementation of MavStream. This volume is primarily intended as a reference book for researchers and advanced-level students in computer science. It is also appropriate for practitioners in industry who are interested in developing applications.

Web Information Systems -- WISE 2004

Effective Databases for Text & Document Management

Encyclopedia of Information Science and Technology, First Edition

5th International Conference on Web Information Systems Engineering, Brisbane, Australia, November 22-24, 2004, Proceedings

9th International Conference, DEXA'98, Vienna, Austria, August 24-28, 1998, Proceedings

Visual Database Systems. IFIP TC2 WG2.6 Fifth Working Conference on Visual Database Systems May 10-12, 2000, Fukuoka, Japan

Database systems of the next generation are likely to be inherently very complex due to the diversity of requirements placed on them. Incorporating active, real time, and temporal virtues in one database system is an arduous effort but is also a commendable one. This book presents the proceedings of the Second International Workshop on Active, Real Time, and Temporal Database Systems (ARTDB 97), held in Como, Milan, in September 1997. The aim of the workshop was to bring researchers together from the active and real time research communities, and to examine the current state of the art in active, real time, and temporal database systems. This book offers a collection of papers presented at the ARTDB 97 workshop. The papers, many of them representing proficient and tenable results, illuminate the feasibility of building database system supporting reactive behavior, while enforcing timeliness and predictability. The book contains nine papers carefully reviewed and accepted by the program committee, three invited papers written by prominent researchers in the field, and two summaries of the panel discussions held at the workshop. The program committee received seventeen submissions, where each submission was reviewed by at least three program committee members. The two panel sessions focused on predictability issues and on practical experience of active, real time, and temporal database systems. The ARTDB 97 workshop was held in cooperation with the IEEE Technical Committees on Real Time Systems and Complexity in Computing, and the ACM Special Interest Group on Manipulation of Data.

The database field has experienced a rapid and incessant growth since the development of relational databases. The progress in database systems and applications has produced a diverse landscape of specialized technology areas that have often become the exclusive domain of research specialists.

Examples include active databases, temporal databases, object-oriented databases, deductive databases, imprecise reasoning and queries, and multimedia information systems. This book provides a systematic introduction to and an in-depth treatment of these advanced database areas. It supplies practitioners and researchers with authoritative coverage of recent technological advances that are shaping the future of commercial database systems and intelligent information systems. Advanced Database Systems was written by a team of six leading specialists who have made significant contributions to the development of the technology areas covered in the book. Benefiting from the authors' long experience teaching graduate and professional courses, this book is designed to provide a gradual introduction to advanced research topics and includes many examples and exercises to support its use for individual study, desk reference, and graduate classroom teaching.

The World Wide Web has become a ubiquitous global tool, used for finding information, communicating ideas, carrying out distributed computation and conducting business, learning and science. The Web is highly dynamic in both the content and quantity of the information that it encompasses. In order to fully exploit its enormous potential as a global repository of information, we need to understand how its size, topology and content are evolving. This then allows the development of new techniques for locating and retrieving information that are better able to adapt and scale to its change and growth. The Web's users are highly diverse and can access the Web from a variety of devices and interfaces, at different places and times, and for varying purposes. We thus also need techniques for personalising the presentation and content of Web based information depending on how it is being accessed and on the specific user's requirements. As well as being accessed by human users, the Web is also accessed by applications. New applications in areas such as e-business, sensor networks, and mobile and ubiquitous computing need to be able to detect and react quickly to events and changes in Web-based information. Traditional approaches using query-based 'pull' of information to find out if events or changes of interest have occurred may not be able to scale to the quantity and frequency of events and changes being generated, and new 'push' -based techniques are needed.

ABSTRACT (cont.): Active database semantics can be supported on an existing SQL Server (we use Oracle SQL Server as the test SQL Server) by the ECA Agent between the SQL Server and multiple clients. ECA rules are completely supported through the ECA Agent without changing applications in the SQL Server. Both primitive and composite events can be detected in the ECA Agent and actions are invoked in SQL Server. All events are persistent in RDBMS. The Java Local Event Detector (Java LED) is used to notify and detect both primitive events and composite events. The ECA Agent uses Java Database Connectivity (JDBC) to connect to the SQL server. The architecture of the ECA Agent and implementation details are shown in this thesis. Alternative approaches are discussed in details, and the features and limitations are identified.

Logics for Databases and Information Systems

Data Management Systems

Flexible and Efficient Information Handling

Knowledge-Based Systems, Four-Volume Set

7th International Conference, DEXA '96, Zurich, Switzerland, September 9 - 13, 1996. Proceedings

Active Rules in Database Systems

*This book constitutes the strictly refereed post-workshop proceedings of the Third International Workshop on Rules in Database Systems, RIDS '97, held in Skövde, June 1997. The 13 revised papers presented in the book were carefully reviewed and selected from 33 submissions. The book documents the state-of-the art in the area. The papers are devoted to deductive databases, active database systems architectures, events in workflow management, rule modelling and simulation, rule confluence, rule termination analysis, rule testing and validation, active database systems design.*

*This book contains the refereed proceedings of the 8th International Conference on Database and Expert Systems Applications, DEXA '97, held in Toulouse, France, September 1997. The 62 revised full papers presented in the book, together with three invited contributions, were selected from a total of 159 submissions. The papers are organized in sections on modeling, object-oriented databases, active and temporal aspects, images, integrity constraints, multimedia databases, deductive databases and knowledge-based systems, allocation concepts, data interchange, digital libraries, transaction concepts, learning issues, optimization and performance, query languages, maintenance, federated databases, uncertainty handling and qualitative reasoning, and software engineering and reusable software.*

*th 2002 DEXA, the 13 International Conference on Database and Expert Systems Applications was held on September 2-6, 2002, at the Université Aix-Marseille II, France. The quickly growing field of information systems required the establishment of more specialized discussion platforms (the DaWaK conference, EC-Web conference, eGOV conference and DEXA workshops), and there were held in parallel with DEXA, also in Aix-en-*

*Provence. The resulting book was prepared with great effort. Starting with the preparation of submitted papers, the papers went through the reviewing process. The accepted papers were revised to final versions by their authors and arranged to the conference program. This year 241 papers were submitted and our thanks go to all who have contributed. The program committee and the supporting reviewers produced altogether about 730 referee reports, on average three reports per paper, and selected 89 papers for presentation. The papers presented here encompass the extensive domain of databases; together with the other conferences and workshops of the DEXA event cluster a vast part of applied computer science was covered. In this way DEXA has blazed the trail. At this point we would like to acknowledge to all institutions which actively supported this conference and made it possible. These are: • IUT (Université Aix - Marseille II), • FAW, • DEXA Association, • the Austrian Computer Society, • and Microsoft Research*

*Current Trends in Data Management Technology reports on the most recent, important advances in data management as it applies to diverse issues, such as Web information management, workflow systems, electronic commerce, reengineering business processes, object-oriented databases, and more.*

*Active, Real-Time, and Temporal Database Systems*

*New Advances in Intelligent Decision Technologies*

*Advances in Visual Information Management*

*Advances in Databases and Information Systems*

*8th International Conference, DEXA'97, Toulouse, France, September 1-5, 1997, Proceedings*

*Results of the First KES International Symposium IDT'09*

Active database systems enhance traditional database functionality with powerful rule-processing capabilities, providing a uniform and efficient mechanism for many database system applications. Among these applications are integrity constraints, views, authorization, statistics gathering, monitoring and alerting, knowledge-based systems, expert systems, and workflow management. This significant collection focuses on the most prominent research projects in active database systems. The project leaders for each prototype system provide detailed discussions of their projects and the relevance of their results to the future of active database systems. Features: A broad overview of current active database systems and how they can be extended and improved A comprehensive introduction to the core topics of the field, including its motivation and history Coverage of active database (trigger) capabilities in commercial products Discussion of forthcoming standards modelling large-scale problems in computing and biochemistry.

Time is ubiquitous in information systems. Almost every enterprise faces the problem of its data becoming out of date. However, such data is often valuable, so it should be archived and some means to access it should be provided. Also, some data may be inherently historical, e.g., medical, cadastral, or judicial records. Temporal databases provide a uniform and systematic way of dealing with historical data. Many languages have been proposed for temporal databases, among others temporal logic. Temporal logic combines abstract, formal semantics with the amenability to efficient implementation. This chapter shows how temporal logic can be used in temporal database applications. Rather than presenting new results, we report on recent developments and survey the field in a systematic way using a unified formal framework [GHR94; Ch094]. The handbook [GHR94] is a comprehensive reference on mathematical foundations of temporal logic. In this chapter we study how temporal logic is used as a query and integrity constraint language. Consequently, model-theoretic notions, particularly for model satisfaction, are of primary interest. Axiomatic systems and proof methods for temporal logic [GHR94] have found so far relatively few applications in the context of information systems. Moreover, one needs to bear in mind that for the standard linearly-ordered time domains temporal logic is not recursively axiomatizable [GHR94] so recursive axiomatizations are by necessity incomplete. This book constitutes the proceedings of the 5th International Conference on Web Information Systems Engineering, WISE 2004, held in Brisbane, Australia in November 2004. The 45 revised full papers and 29 revised short papers presented together with 3 invited contributions were carefully reviewed and selected from 198 submissions. The papers are organized in topical sections on Web information modeling; payment and security; information extraction; advanced applications; performance issues; linkage analysis and document clustering; Web caching and content analysis; XML query processing; Web search and personalization; workflow management and enterprise information systems; business processes; deep Web and dynamic content; Web information systems design; ontologies and applications; multimedia, user interfaces, and languages; and peer-to-peer and grid systems.

*Active and Real-Time Database Systems (ARTDB-95)*

*Nontraditional Database Systems*

*Stream Data Processing: A Quality of Service Perspective*

*Database and data communication network systems*

*Active Database Systems*

*Conceptual Modeling - ER 2000*

***Geared toward designers and professionals interested in the conceptual aspects of integrity problems in different paradigms, Database Integrity: Challenges and Solutions successfully addresses these and a variety of other issues.***

***This book constitutes the refereed proceedings of the 9th International Conference on Database and Expert Systems Applications, DEXA'98, held in Vienna, Austria, in August 1998. The 81 revised full papers presented were carefully selected from a total of more than 200 submissions. The papers are organized in sections on active databases, object-oriented systems, data engineering, information retrieval, workflow and cooperative systems, spatial and temporal aspects, document management, spatial databases, adaptation and view updates, genetic algorithms, cooperative and distributed environments, interaction and communication, transaction, advanced***

*applications, temporal aspects, oriented systems, partitioning and fragmentation, database queries, data, data warehouses, knowledge discovery and data mining, knowledge extraction, and knowledge base reduction for comprehension and reuse.*

*The three volume set LNAI 5177, LNAI 5178, and LNAI 5179, constitutes the refereed proceedings of the 12th International Conference on Knowledge-Based Intelligent Information and Engineering Systems, KES 2008, held in Zagreb, Croatia, in September 2008. The 316 revised papers presented were carefully reviewed and selected. The papers present a wealth of original research results from the field of intelligent information processing in the broadest sense; topics covered in the second volume are artificial intelligence driven engineering design optimization; biomedical informatics: intelligent information management from nanomedicine to public health; communicative intelligence; computational intelligence for image processing and pattern recognition; computational intelligence in human cancer research; computational intelligence techniques for Web personalization; computational intelligent techniques for bioprocess modelling, monitoring and control; intelligent computing for Grid; intelligent security techniques; intelligent utilization of soft computing techniques; reasoning-based intelligent systems: relevant reasoning for discovery and prediction; spatio-temporal database concept support for organizing virtual earth; advanced knowledge-based systems; chance discovery; innovation-oriented knowledge management platform; knowledge-based creativity support systems; knowledge-based interface systems; knowledge-based multi-criteria decision support; and knowledge-based systems for e-business.*

*"Focused on the latest research on text and document management, this guide addresses the information management needs of organizations by providing the most recent findings. How the need for effective databases to house information is impacting organizations worldwide and how some organizations that possess a vast amount of data are not able to use the data in an economic and efficient manner is demonstrated. A taxonomy for object-oriented databases, metrics for controlling database complexity, and a guide to accommodating hierarchies in relational databases are provided. Also covered is how to apply Java-triggers for X-Link management and how to build signatures."*

*Computer Performance Engineering*

*Triggers and Rules for Advanced Database Processing*

*5th East European Conference, ADBIS 2001, Vilnius, Lithuania September 25-28, 2001 Proceedings techniques and applications*

*Rules in Database Systems*

*Current Trends in Data Management Technology*

**These proceedings contain 25 contributed papers presented at the 13th East-European Conference Advances on Databases and Information Systems (ADBIS 2009) held September 7-10, 2009, in Riga, Latvia. The Call for Papers attracted 93 submissions from 28 countries. In a rigorous reviewing process the international Program Committee of 64 members from 29 countries selected these 25 contributions for publication in this volume; in addition, there is the abstract of an invited talk by Matthias Brantner. Furthermore, 18 additional contributions were selected for short presentations and have been published in a separate volume of local proceedings by the organizing institution. Topically, the accepted**

**papers cover a wide spectrum of database and information system topics ranging from query processing and optimization via query languages, design methods, data integration, indexing and caching to business processes, data mining, and application oriented topics like XML and data on the Web. The ADBIS 2009 conference continued the series of ADBIS conferences organized every year in different countries of Eastern and Central Europe, beginning in St. Petersburg (Russia, 1997), Poznan (Poland, 1998), Maribor (Slovenia, 1999), Prague (Czech Republic, as a joint ADBIS-DASFAA conference, 2000), Vilnius (Lithuania, 2001), Bratislava (Slovakia, 2002), Dresden (Germany, 2003), Budapest (Hungary, 2004), Tallinn (Estonia, 2005), Thessaloniki (Greece, 2006), Varna (Bulgaria, 2007), and Pori (Finland, 2008). The conferences are initiated and supervised by an international Steering Committee, which consists of representatives from Armenia, Austria, Bulgaria, Czech Republic, Greece, Estonia, Germany, Hungary, Israel, Italy, Latvia, Lithuania, Poland, Russia, Serbia, Slovakia, Slovenia, and Ukraine, and is chaired by Professor Leonid Kalinichenko.**

**This book is the proceedings of a workshop held at Heriot-Watt University in Edinburgh in August 1993. The central theme of the workshop was rules in database systems, and the papers presented covered a range of different aspects of database rule systems. These aspects are reflected in the sessions of the workshop, which are the same as the sections in this proceedings: Active Databases Architectures Incorporating Temporal Rules Rules and Transactions Analysis and Debugging of Active Rules Integrating Graphs/Objects with Deduction Integrating Deductive and Active Rules Integrity Constraints Deductive Databases The incorporation of rules into database systems is an important area of research, as it is a major component in the integration of behavioural information with the structural data with which commercial databases have traditionally been associated. This integration of the behavioural aspects of an application with the data to which it applies in database systems leads to more straightforward application development and more efficient processing of data. Many novel applications seem to need database systems in which structural and behavioural information are fully integrated. Rules are only one means of expressing behavioural information, but it is clear that different types of rule can be used to capture directly different properties of an application which are cumbersome to support using conventional database architectures. In recent years there has been a surge of research activity focusing upon active database systems, and this volume opens with a collection of papers devoted specifically to this topic.**

**This book constitutes the refereed proceedings of the 23rd British National Conference on Databases, BNCOD 23, held in Belfast, Northern Ireland, UK in July 2006. The 12 revised full papers and 6 revised short papers presented together with 2 invited lectures and 13 poster papers were carefully reviewed and selected from 58 submissions. The papers are organized in topical sections on data modelling and architectures and transaction management, data integration and interoperability and information retrieval, query processing and optimisation, data mining, data warehousing and decision-support systems, as well as data streaming.**

**This book constitutes the refereed proceedings of the Second International Workshop on Rules in Database Systems, RIDS '95, held in Athens, Greece, in September 1995. The book presents 22 revised full papers selected during a very careful reviewing process from a total of 47 submissions. In addition, there is a detailed invited introduction for a panel discussion on the Active Database Management Systems Manifesto. The papers are organized in sections on semantics for database systems, active behavior, rule base organization and modeling, rule analysis, deductive databases, implementation and benchmarking of active database systems, and cooperative systems support.**

**Third International Workshop, RIDS '97, Skövde, Sweden, June 26-28, 1997 Proceedings**

**Second International Workshop, ARTDB'97, Como, Italy, September 8-9, 1997, Proceedings  
Database Systems**

**5th International Conference, DOOD'97, Montreux, Switzerland, December 8-12, 1997. Proceedings**

**Adapting to Change in Content, Size, Topology and Use**

**Advanced Database Systems**

A timely survey of the field from the point of view of some of the subject's most active researchers. Divided into several parts organized by theme, the book first covers the underlying methodology regarding active rules, followed by formal specification, rule analysis, performance analysis, and support tools. It then moves on to the implementation of active rules in a number of commercial systems, before concluding with applications and future directions for research. All researchers in databases will find this a valuable overview of the topic.

IDT (Intelligent Decision Technologies) seeks an interchange of research on intelligent systems and intelligent technologies which enhance or improve decision making in industry, government and academia. The focus is interdisciplinary in nature, and includes research on all aspects of intelligent decision technologies, from fundamental development to the applied system. It constitutes a great honor and pleasure for us to publish the works and new research results of scholars from the First KES International Symposium on Intelligent Decision Technologies (KES IDT '09), hosted and organized by University of Hyogo in conjunction with KES International (Himeji, Japan, April, 2009). The symposium was concerned with theory, design, development, implementation, testing and evaluation of intelligent decision systems. Its topics included intelligent agents, fuzzy logic, multi-agent systems, artificial neural networks, genetic algorithms, expert systems, intelligent decision making support systems, information retrieval systems, geographic information systems, and knowledge management systems. These technologies have the potential to support decision making in many areas of management, international business, finance, accounting, marketing, healthcare, military applications, production, networks, traffic management, crisis response, and human interfaces.

"Addresses the evolution of database management, technologies and applications along with the progress and endeavors of new research areas."--P. xiii.

The areas of active and real-time databases have seen a tremendous growth of interest in the past few years, particularly with regard to their support of time-critical and embedded applications. ARTDB-95 provided, therefore, an important forum for researchers from both communities to discuss research results, and also to chart new directions for the future. As well as the 11 submitted papers presented at the workshop, this volume also contains 4 invited papers on the following topics: the impact of active databases on commercial practice; the optimization of active database transactions; the need for better language, compiler and tool support for real-time databases; and the origin of time constraints associated with data, events and actions. Together the papers give a comprehensive overview of current research, and will provide invaluable reading for academic and industrial researchers and students at both undergraduate and postgraduate level.

**A Generalized Active Agent System for Extending the Active Capabilities of a RDBMS**

**13th East European Conference, ADBIS 2009, Riga, Latvia, September 7-10, 2009, Proceedings**

**Proceedings of the First International Workshop on Active and Real-Time Database Systems, Skövde, Sweden, 9-11 June 1995**

**Evolution and Interoperation**

**Database and Expert Systems Applications**

**23rd British National Conference on Databases, BNCOD 23, Belfast, Northern Ireland, UK, July 18-20, 2006, Proceedings**

**This book constitutes the refereed proceedings of the 5th International Conference on Deductive and Object-Oriented Databases, DOOD'97, held in Montreux, Switzerland, in December 1997. The 22 revised full papers presented in this book were selected from a total of 59 submissions. Also included are abstracts or full versions of three invited talks and three tutorials and six short presentations. The papers are organized in topical sections on materialized view maintenance, extending DBMs features, database updates, managing change in object databases, semantics of active databases, formal semantics, and new directions.**

**Nontraditional Database Systems is the fifth volume in the Advanced Information Processing Technology series. It brings together the results of research carried out by the Japanese database research community in the field of nontraditional database systems. The book examines nontraditional types of applications, data types, systems and environments together with high-performance architecture to support nontraditional applications, such as web mining, data engineering and object processing.**

As the information contained in databases has become a critical resource in organizations, efficient access to that information and the ability to share it among different users and across different systems has become an urgent need.

The interoperability of heterogeneous database systems-literally, the ability to access information between or among differing types of databases, is the topic of this timely book. In the last two decades, tremendous improvements in tools

and technologies have resulted in new products that provide distributed data processing capabilities. This book describes these tools and emerging technologies, explaining the essential concepts behind the topics but focusing on practical applications. Selected products are discussed to illustrate the characteristics of the different technologies. This is an ideal source for anyone who needs a broad perspective on heterogeneous database integration and related technologies. Comprehensive coverage of critical issues related to information science and technology.

Enhanced active databases for federated information systems

12th International Conference, KES 2008, Zagreb, Croatia, September 3-5, 2008, Proceedings, Part II

13th International Conference, DEXA 2002, Aix-en-Provence, France, September 2-6, 2002. Proceedings

Readings in Database Systems

Web Dynamics

Database Integrity: Challenges and Solutions

A new type of system for testing trigger conditions and running trigger actions outside of a DBMS was designed as part of a system is called an asynchronous trigger processor since it processes triggers asynchronously, after triggering updates to the source database. The architecture of a prototype asynchronous trigger processor called TriggerMan is described. TriggerMan is designed to be able to gather updates from a wide variety of sources, including relational databases, object-relational databases, flat files, the web, and others. TriggerMan achieves the ability to gather updates from so many sources using a source mechanism. TriggerMan can make use of the asynchronous replication features of commercial database products to gather updates. When cooperating with a source DBMS with direct support for asynchronous replication, TriggerMan can gather updates in a simple and robust manner. TriggerMan supports simple, single-table (single data-source) triggers, as well as sophisticated multiple-table (multiple data-source) triggers. It also will support temporal triggers using an extensible temporal function mechanism. Moreover, TriggerMan takes advantage of parallelism for high performance, utilizing a shared-nothing model of parallel computation.

Video segmentation is the most fundamental process for appropriate indexing and retrieval of video intervals. In general, a video is composed of shots delimited by physical shot boundaries. Substantial work has been done on how to detect such shot boundaries automatically (Arman et al. , 1993) (Zhang et al. , 1993) (Zhang et al. , 1995) (Kobla et al. , 1997). Through the integration of techniques such as image processing, speech/character recognition and natural language understanding, keywords can be extracted and associated with these shots for indexing (Wactlar et al. , 1996). A single shot, however, rarely carries enough amount of information to be retrieved by itself. Usually, it is a semantically meaningful interval that most users are interested in retrieving. Generally, such meaningful intervals span several consecutive shots. There hardly exists any efficient and reliable technique, either automatic or manual, to identify semantically meaningful intervals within a video stream. Works by (Smith and Davenport, 1992) (Oomoto and Tanaka, 1993) (Oomoto, 1995) (Hjelsvold et al. , 1996) suggest manually defining all such intervals in the database in advance. However, even an interval may have an indefinite number of meaningful intervals. Moreover, video data is multi-interpretative. Therefore, given a query for a meaningful interval to an annotator may not be meaningful to the user who issues the query. In practice, manual indexing of video intervals is labour intensive and inadequate.

19th International Conference on Conceptual Modeling, Salt Lake City, Utah, USA, October 9-12, 2000 Proceedings

Knowledge-Based Intelligent Information and Engineering Systems

5th European Performance Engineering Workshop, EPEW 2008, Palma de Mallorca, Spain, September 24-25, 2008, Proceedings

Proceedings of the 1st International Workshop on Rules in Database Systems, Edinburgh, Scotland, 30 August-1 September 2002

Deductive and Object-Oriented Databases

Second International Workshop, RIDS '95, Glyfada, Athens, Greece, September 25 - 27, 1995. Proceedings