

Knowledge Representation Reasoning And The Design Of Intelligent Agents The Answer Set Programming Approach

"This book explores the phenomena of the emergence of the use of artificial intelligence and other emerging technologies in teaching and learning in higher education. Recent technological advancements and the increasing speed of adopting new technologies in higher education are explored in order to predict the future nature of higher education in a world where artificial intelligence is part of the fabric of our universities"--

The proceedings of the Second International Conference on [title] held in Cambridge, Massachusetts, April 1991, comprise 55 papers on topics including the logical specifications of reasoning behaviors and representation formalisms, comparative analysis of competing algorithms and formalisms, and ana

This book constitutes the thoroughly refereed post-conference proceedings of the Third International Workshop on Graph Structures for Knowledge Representation and Reasoning, GKR 2013, held in Beijing, China, in August 2013, associated with IJCAI 2013, the 23rd International Joint Conference on Artificial Intelligence. The 12 revised full papers presented were carefully reviewed and selected for inclusion in the book. The papers feature current research involved in the development and application of graph-based knowledge representation formalisms and reasoning techniques. They address the following topics: representations of constraint satisfaction problems; formal concept analysis; conceptual graphs; and argumentation frameworks.

Fundamentals of Artificial Intelligence introduces the foundations of present day AI and provides coverage to recent developments in AI such as Constraint Satisfaction Problems, Adversarial Search and Game Theory, Statistical Learning Theory, Automated Planning, Intelligent Agents, Information Retrieval, Natural Language & Speech Processing, and Machine Vision. The book features a wealth of examples and illustrations, and practical approaches along with the theoretical concepts. It covers all major areas of AI in the domain of recent developments. The book is intended primarily for students who major in computer science at undergraduate and graduate level but will also be of interest as a foundation to researchers in the area of AI.

Knowledge Representation, Reasoning, and the Design of Intelligent AgentsThe Answer-Set Programming ApproachCambridge University Press

Medicine and health care are currently faced with a significant rise in their complexity. This is partly due to the progress made during the past three decades in the fundamental biological understanding of the causes of health and disease at the molecular, (sub)cellular, and organ level. Since the end of the 1970s, when knowledge representation and reasoning in the biomedical field became a separate area of research, huge progress has been made in the development of methods and tools that are finally able to impact on the way medicine is being practiced. Even though there are huge differences in the techniques and methods used by biomedical researchers, there is now an increasing tendency to share research results in terms of formal knowledge representation methods, such as ontologies, statistical models, network models, and mathematical models. As there is an urgent need for health-care professionals to make better decisions, computer-based support using this knowledge is now becoming increasingly important. It may also be the only way to integrate research results from the different parts of the spectrum of biomedical and clinical research. The aim of this book is to shed light on developments in knowledge representation at different levels of biomedical application, ranging from human biology to clinical guidelines, and using different techniques, from probability theory and differential equations to logic. The book starts with two introductory chapters followed by 18 contributions organized in the following topical sections: diagnosis of disease; monitoring of health and disease and conformance; assessment of health and personalization; prediction and prognosis of health and disease; treatment of disease; and recommendations.

Qualitative models are better able than traditional models to express states of incomplete knowledge about continuous mechanisms. Qualitative simulation guarantees to find all possible behaviors consistent with the knowledge in the model. This expressive power and coverage is important in problem solving for diagnosis, design, monitoring, explanation, and other applications of artificial intelligence.

Stringently reviewed papers presented at the October 1992 meeting held in Cambridge, Mass., address such topics as nonmonotonic logic; taxonomic logic; specialized algorithms for temporal, spatial, and numerical reasoning; and knowledge representation issues in planning, diagnosis, and natural langu

Reasoning about knowledge—particularly the knowledge of agents who reason about the world and each other's knowledge—was once the exclusive province of philosophers and puzzle solvers. More recently, this type of reasoning has been shown to play a key role in a surprising number of contexts, from understanding conversations to the analysis of distributed computer algorithms. Reasoning About Knowledge is the first book to provide a general discussion of approaches to reasoning about knowledge and its applications to distributed systems, artificial intelligence, and game theory. It brings eight years of work by the authors into a cohesive framework for understanding and analyzing reasoning about knowledge that is intuitive, mathematically well founded, useful in practice, and widely applicable. The book is almost completely self-contained and should be accessible to readers in a variety of disciplines, including computer science, artificial intelligence, linguistics, philosophy, cognitive science, and game theory. Each chapter includes exercises and bibliographic notes.

This book constitutes the thoroughly refereed post-conference proceedings of the 4th International Workshop on Graph Structures for Knowledge Representation and Reasoning, GKR 2015, held in Buenos Aires, Argentina, in July 2015, associated with IJCAI 2015, the 24th International Joint Conference on Artificial Intelligence. The 9 revised full papers presented were carefully reviewed and selected from 10 submissions. The papers feature current research involved in the development and application of graph-based knowledge representation formalisms and reasoning techniques. They address the following topics: argumentation; conceptual graphs; RDF; and representations of constraint satisfaction problems.

The proceedings of KR '94 comprise 55 papers on topics including deduction an search, description logics, theories of knowledge and belief, nonmonotonic reasoning and belief revision, action and time, planning and decision-making and reasoning about the physical world, and the relations between KR

This book constitutes the thoroughly refereed post-conference proceedings of the 5th International Workshop on Graph Structures for Knowledge Representation and Reasoning, GKR 2017, held in Melbourne, VIC, Australia, in August 2017, associated with IJCAI 2017, the 26th International Joint Conference on Artificial Intelligence. The 7 revised full papers presented were reviewed and selected from 9 submissions. The contributions address various issues for knowledge representation and reasoning and the common graph-theoretic background allows to

bridge the gap between the different communities.

The purpose of this book is to provide an overview of AI research, ranging from basic work to interfaces and applications, with as much emphasis on results as on current issues. It is aimed at an audience of master students and Ph.D. students, and can be of interest as well for researchers and engineers who want to know more about AI. The book is split into three volumes: - the first volume brings together twenty-three chapters dealing with the foundations of knowledge representation and the formalization of reasoning and learning (Volume 1. Knowledge representation, reasoning and learning) - the second volume offers a view of AI, in fourteen chapters, from the side of the algorithms (Volume 2. AI Algorithms) - the third volume, composed of sixteen chapters, describes the main interfaces and applications of AI (Volume 3. Interfaces and applications of AI). This third volume is dedicated to the interfaces of AI with various fields, with which strong links exist either at the methodological or at the applicative levels. The foreword of this volume reminds us that AI was born for a large part from cybernetics. Chapters are devoted to disciplines that are historically sisters of AI: natural language processing, pattern recognition and computer vision, and robotics. Also close and complementary to AI due to their direct links with information are databases, the semantic web, information retrieval and human-computer interaction. All these disciplines are privileged places for applications of AI methods. This is also the case for bioinformatics, biological modeling and computational neurosciences. The developments of AI have also led to a dialogue with theoretical computer science in particular regarding computability and complexity. Besides, AI research and findings have renewed philosophical and epistemological questions, while their cognitive validity raises questions to psychology. The volume also discusses some of the interactions between science and artistic creation in literature and in music. Lastly, an epilogue concludes the three volumes of this Guided Tour of AI Research by providing an overview of what has been achieved by AI, emphasizing AI as a science, and not just as an innovative technology, and trying to dispel some misunderstandings.

Probabilistic Reasoning and Decision Making in Sensory-Motor Systems by Pierre Bessiere, Christian Laugier and Roland Siegwart provides a unique collection of a sizable segment of the cognitive systems research community in Europe. It reports on contributions from leading academic institutions brought together within the European projects Bayesian Inspired Brain and Artifact (BIBA) and Bayesian Approach to Cognitive Systems (BACS). This fourteen-chapter volume covers important research along two main lines: new probabilistic models and algorithms for perception and action, new probabilistic methodology and techniques for artefact conception and development. The work addresses key issues concerned with Bayesian programming, navigation, filtering, modelling and mapping, with applications in a number of different contexts.

A core problem in Artificial Intelligence is the modeling of human reasoning. Classic-logical approaches are too rigid for this task, as deductive inference yielding logically correct results is not appropriate in situations where conclusions must be drawn based on the incomplete or uncertain knowledge present in virtually all real world scenarios. Since there are no mathematically precise and generally accepted definitions for the notions of plausible or rational, the question of what a knowledge base consisting of uncertain rules entails has long been an issue in the area of knowledge representation and reasoning. Different nonmonotonic logics and various semantic frameworks and axiom systems have been developed to address this question. The main theme of this book, Knowledge Representation and Inductive Reasoning using Conditional Logic and Sets of Ranking Functions, is inductive reasoning from conditional knowledge bases.

Using ordinal conditional functions as ranking models for conditional knowledge bases, the author studies inferences induced by individual ranking models as well as by sets of ranking models. He elaborates in detail the interrelationships among the resulting inference relations and shows their formal properties with respect to established inference axioms. Based on the introduction of a novel classification scheme for conditionals, he also addresses the question of how to realize and implement the entailment relations obtained. In this work, "Steven Kutsch convincingly presents his ideas, provides illustrating examples for them, rigorously defines the introduced concepts, formally proves all technical results, and fully implements every newly introduced inference method in an advanced Java library (...). He significantly advances the state of the art in this field." – Prof. Dr. Christoph Beierle of the FernUniversität in Hagen

Knowledge representation is an important task in understanding how humans think and learn. Although many representation models or cognitive models have been proposed, such as expert systems or knowledge graphs, they cannot represent procedural knowledge, i.e., dynamic knowledge, in an efficient way. This book introduces a new knowledge representation model called MDATA (Multi-dimensional Data Association and inTelligent Analysis). By modifying the representation of entities and relations in knowledge graphs, dynamic knowledge can be efficiently described with temporal and spatial characteristics. The MDATA model can be regarded as a high-level temporal and spatial knowledge graph model, which has strong capabilities for knowledge representation. This book introduces some key technologies in the MDATA model, such as entity recognition, relation extraction, entity alignment, and knowledge reasoning with spatiotemporal factors. The MDATA model can be applied in many critical applications and this book introduces some typical examples, such as network attack detection, social network analysis, and epidemic assessment. The MDATA model should be of interest to readers from many research fields, such as database, cyberspace security, and social network, as the need for the knowledge representation arises naturally in many practical scenarios.

Proceedings held May 1989. Topics include temporal logic, hierarchical knowledge bases, default theories, nonmonotonic and analogical reasoning, formal theories of belief revision, and metareasoning. Annotation copyright Book News, Inc. Portland, Or.

Contrary to popular mythology, the designs of favorable products and successful systems do not appear suddenly, or magically. This second edition of Engineering Design demonstrates that symbolic representation and related problem-solving methods, offer significant opportunities to clarify and articulate concepts of design to lay a better framework for design research and design education. Artificial Intelligence (AI) provides a substantial body of material concerned with understanding and modeling cognitive processes. This book adopts the vocabulary and a paradigm of AI to enhance the presentation and explanation of design. It includes concepts from AI because of their explanatory power and their utility as possible ingredients of practical design activity. This second edition has been enriched by the inclusion of recent work on design reasoning, computational design, AI in design, and design cognition, with pointers to a wide cross section of the current literature.

The purpose of this book is to provide an overview of AI research, ranging from basic work to interfaces and applications, with as much emphasis on results as on current issues. It is aimed at

an audience of master students and Ph.D. students, and can be of interest as well for researchers and engineers who want to know more about AI. The book is split into three volumes: - the first volume brings together twenty-three chapters dealing with the foundations of knowledge representation and the formalization of reasoning and learning (Volume 1. Knowledge representation, reasoning and learning) - the second volume offers a view of AI, in fourteen chapters, from the side of the algorithms (Volume 2. AI Algorithms) - the third volume, composed of sixteen chapters, describes the main interfaces and applications of AI (Volume 3. Interfaces and applications of AI). Implementing reasoning or decision making processes requires an appropriate representation of the pieces of information to be exploited. This first volume starts with a historical chapter sketching the slow emergence of building blocks of AI along centuries. Then the volume provides an organized overview of different logical, numerical, or graphical representation formalisms able to handle incomplete information, rules having exceptions, probabilistic and possibilistic uncertainty (and beyond), as well as taxonomies, time, space, preferences, norms, causality, and even trust and emotions among agents. Different types of reasoning, beyond classical deduction, are surveyed including nonmonotonic reasoning, belief revision, updating, information fusion, reasoning based on similarity (case-based, interpolative, or analogical), as well as reasoning about actions, reasoning about ontologies (description logics), argumentation, and negotiation or persuasion between agents. Three chapters deal with decision making, be it multiple criteria, collective, or under uncertainty. Two chapters cover statistical computational learning and reinforcement learning (other machine learning topics are covered in Volume 2). Chapters on diagnosis and supervision, validation and explanation, and knowledge base acquisition complete the volume.

The use of mathematical logic as a formalism for artificial intelligence was recognized by John McCarthy in 1959 in his paper on Programs with Common Sense. In a series of papers in the 1960's he expanded upon these ideas and continues to do so to this date. It is now 41 years since the idea of using a formal mechanism for AI arose. It is therefore appropriate to consider some of the research, applications and implementations that have resulted from this idea. In early 1995 John McCarthy suggested to me that we have a workshop on Logic-Based Artificial Intelligence (LBAI). In June 1999, the Workshop on Logic-Based Artificial Intelligence was held as a consequence of McCarthy's suggestion. The workshop came about with the support of Ephraim Glinert of the National Science Foundation (IIS-9S2013S), the American Association for Artificial Intelligence who provided support for graduate students to attend, and Joseph JaJa, Director of the University of Maryland Institute for Advanced Computer Studies who provided both manpower and financial support, and the Department of Computer Science. We are grateful for their support. This book consists of refereed papers based on presentations made at the Workshop. Not all of the Workshop participants were able to contribute papers for the book. The common theme of papers at the workshop and in this book is the use of logic as a formalism to solve problems in AI.

This book provides a definition and study of a knowledge representation and reasoning formalism stemming from conceptual graphs, while focusing on the computational properties of this formalism. Knowledge can be symbolically represented in many ways. The knowledge representation and reasoning formalism presented here is a graph formalism – knowledge is represented by labeled graphs, in the graph theory sense, and reasoning mechanisms are based on graph operations, with graph homomorphism at the core. This formalism can thus be considered as related to semantic networks. Since their conception, semantic networks have faded out several times, but have always returned to the limelight. They faded mainly due to a lack of formal semantics and the limited reasoning tools proposed. They have, however, always rebounded - cause labeled graphs, schemas and drawings provide an intuitive and easily understandable support to represent knowledge. This formalism has the visual qualities of any graphic model, and it is logically founded. This is a key feature because logics has been the foundation for knowledge representation and reasoning for millennia. The authors also focus substantially on computational facets of the presented formalism as they are interested in knowledge representation and reasoning formalisms upon which knowledge-based systems can be built to solve real problems. Since object structures are graphs, naturally graph homomorphism is the key underlying notion and, from a computational viewpoint, this moors calculus to combinatorics and to computer science domains in which the algorithmic qualities of graphs have long been studied, as in databases and constraint networks.

This series will include monographs and collections of studies devoted to the investigation and exploration of knowledge, information, and data processing systems of all kinds, no matter whether human, (other) animal, or machine. Its scope is intended to span the full range of interests from classical problems in the philosophy of mind and philosophical psychology through issues in cognitive psychology and sociobiology (concerning the mental capabilities of other species) to ideas related to artificial intelligence and computer science. While primary emphasis will be placed upon theoretical, conceptual, and epistemological aspects of these problems and domains, empirical, experimental, and methodological studies will also appear from time to time. The present volume provides a collection of studies that focus on some of the central problems within the domain of artificial intelligence. These difficulties fall into four principal areas: defeasible reasoning (including the frame problem as apart), ordinary language (and the representation problems that it generates), the revision of beliefs (and its rules of inference), and knowledge representation (and the logical problems that are encountered there). These papers make original contributions to each of these areas of inquiry and should be of special interest to those who understand the crucial role that is played by questions of logical form. They vividly illustrate the benefits that can emerge from collaborative efforts involving scholars from linguistics, philosophy, computer science, and AI. J. H. F.

Do we all define Knowledge representation and reasoning in the same way? Will Knowledge representation and reasoning deliverables need to be tested and, if so, by whom? What are the expected benefits of Knowledge representation and reasoning to the business? Is Knowledge representation and reasoning linked to key business goals and objectives? Are we Assessing Knowledge representation and reasoning and Risk? Defining, designing, creating, and implementing a process to solve a challenge or meet an objective is the most valuable role... In EVERY group, company, organization and department. Unless you are talking a one-time, single-use project, there should be a process. Whether that process is managed and implemented by humans, AI, or a combination of the two, it needs to be designed by someone with a complex enough perspective to ask the right questions. Someone capable of asking the right questions and step back and say, 'What are we really trying to accomplish here? And is there a different way to look at it?' This Self-Assessment empowers people to do just that - whether their title is entrepreneur, manager, consultant, (Vice-)President, CxO etc... - they are the people who rule the future. They are the person who asks the right questions to make Knowledge representation and reasoning investments work better. This Knowledge representation and reasoning All-Inclusive Self-Assessment enables You to be that person. All the tools you need to an in-depth

Knowledge representation and reasoning Self-Assessment. Featuring 683 new and updated case-based questions, organized into seven core areas of process design, this Self-Assessment will help you identify areas in which Knowledge representation and reasoning improvements can be made. In using the questions you will be better able to: - diagnose Knowledge representation and reasoning projects, initiatives, organizations, businesses and processes using accepted diagnostic standards and practices - implement evidence-based best practice strategies aligned with overall goals - integrate recent advances in Knowledge representation and reasoning and process design strategies into practice according to best practice guidelines Using a Self-Assessment tool known as the Knowledge representation and reasoning Scorecard, you will develop a clear picture of which Knowledge representation and reasoning areas need attention. Your purchase includes access details to the Knowledge representation and reasoning self-assessment dashboard download which gives you your dynamically prioritized projects-ready tool and shows your organization exactly what to do next. You will receive the following contents with New and Updated specific criteria: - The latest quick edition of the book in PDF - The latest complete edition of the book in PDF, which criteria correspond to the criteria in... - The Self-Assessment Excel Dashboard, and... - Example pre-filled Self-Assessment Excel Dashboard to get familiar with results generation ...plus an extra, special, resource that helps you with project managing. INCLUDES LIFETIME SELF ASSESSMENT UPDATES Every self assessment comes with Lifetime Updates and Lifetime Free Updated Books. Lifetime Updates is an industry-first feature which allows you to receive verified self assessment updates, ensuring you always have the most accurate information at your fingertips.

The papers collected in this book cover a wide range of topics in asymptotic statistics. In particular up-to-date-information is presented in detection of systematic changes, in series of observation, in robust regression analysis, in numerical empirical processes and in related areas of actuarial sciences and mathematical programming. The emphasis is on theoretical contributions with impact on statistical methods employed in the analysis of experiments and observations by biometricians, econometricians and engineers.

The KR conference series is a leading forum for timely in-depth presentation of progress in the theory and principles underlying the representation and computational management of knowledge. It is intended to foster communication and crossfertilization of ideas within the area, as well as collaboration across research boundaries.

To endow computers with common sense is one of the major long-term goals of Artificial Intelligence research. One approach to this problem is to formalize commonsense reasoning using mathematical logic. Commonsense Reasoning is a detailed, high-level reference on logic-based commonsense reasoning. It uses the event calculus, a highly powerful and usable tool for commonsense reasoning, which Erik T. Mueller demonstrates as the most effective tool for the broadest range of applications. He provides an up-to-date work promoting the use of the event calculus for commonsense reasoning, and bringing into one place information scattered across many books and papers. Mueller shares the knowledge gained in using the event calculus and extends the literature with detailed event calculus solutions to problems that span many areas of the commonsense world. Covers key areas of commonsense reasoning including action, change, defaults, space, and mental states. The first full book on commonsense reasoning to use the event calculus. Contextualizes the event calculus within the framework of commonsense reasoning, introducing the event calculus as the best method overall. Focuses on how to use the event calculus formalism to perform commonsense reasoning, while existing papers and books examine the formalisms themselves. Includes fully worked out proofs and circumscriptions for every example.

This volume introduces a formal representation framework for modelling and reasoning, that allows us to quantify the uncertainty inherent in the use of vague descriptions to convey information between intelligent agents. This can then be applied across a range of applications areas in automated reasoning and learning. The utility of the framework is demonstrated by applying it to problems in data analysis where the aim is to infer effective and informative models expressed as logical rules and relations involving vague concept descriptions. The author also introduces a number of learning algorithms within the framework that can be used for both classification and prediction (regression) problems. It is shown how models of this kind can be fused with qualitative background knowledge such as that provided by domain experts. The proposed algorithms will be compared with existing learning methods on a range of benchmark databases such as those from the UCI repository.

This open access book constitutes the thoroughly refereed post-conference proceedings of the 6th International Workshop on Graph Structures for Knowledge Representation and Reasoning, GKR 2020, held virtually in September 2020, associated with ECAI 2020, the 24th European Conference on Artificial Intelligence. The 7 revised full papers presented together with 2 invited contributions were reviewed and selected from 9 submissions. The contributions address various issues for knowledge representation and reasoning and the common graph-theoretic background, which allows to bridge the gap between the different communities.

Knowledge management and knowledge-based intelligence are areas of importance in the economy and society, and to exploit them fully and efficiently it is necessary both to represent and reason about knowledge via a declarative interface whose input language is based on logic. In this book, originally published in 2003, Chitta Baral shows exactly how to go about doing that: how to write programs that behave intelligently by giving them the ability to express knowledge and reason about it. He presents a language, AnsProlog, for both knowledge representation and reasoning, and declarative problem solving. The results have been organised here into a form that will appeal to practising and would-be knowledge engineers wishing to learn more about the subject, either in courses or through self-teaching. A comprehensive bibliography rounds off the book.

This Festschrift volume, published in honor of Michael Gelfond on the occasion of his 65th birthday, contains a collection of papers written by his closest friends and colleagues. Several of these papers were presented during the Symposium on Constructive Mathematics in Computer Science, held in Lexington, KY, USA on October 25-26, 2010. The 27 scientific papers included in the book focus on answer set programming. The papers are organized in sections named "Foundations: ASP and Theories of LP, KR, and NMR", "ASP and Dynamic Domains", and "ASP – Applications and Tools".

This volume is based on the International Conference Logic at Work, held in Amsterdam, The Netherlands, in December 1992. The 14 papers in this volume are selected from 86 submissions and 8 invited contributions and are all devoted to knowledge representation and reasoning under uncertainty, which are core issues of formal artificial intelligence. Nowadays, logic is not any longer mainly associated to mathematical and philosophical problems. The term applied logic has a far wider meaning, as numerous applications of logical methods, particularly in computer

science, artificial intelligence, or formal linguistics, testify. As demonstrated also in this volume, a variety of non-standard logics gained increased importance for knowledge representation and reasoning under uncertainty.

Growing interest in symbolic representation and reasoning has pushed this backstage activity into the spotlight as a clearly identifiable and technically rich subfield in artificial intelligence. This collection of extended versions of 12 papers from the First International Conference on Principles of Knowledge Representation and Reasoning provides a snapshot of the best current work in AI on formal methods and principles of representation and reasoning. The topics range from temporal reasoning to default reasoning to representations for natural language. Ronald J. Brachman is Head of the Artificial Intelligence Principles Research Department at AT&T Bell Laboratories. Hector J. Levesque and Raymond Reiter are Professors of Computer Science at the University of Toronto. Contents: Introduction. Nonmonotonic Reasoning in the Framework of Situation Calculus. The Computational Complexity of Abduction. Temporal Constraint Networks. Impediments to Universal Preference-Based Default Theories. Embedding Decision-Analytic Control in a Learning Architecture. The Substitutional Framework for Sorted Deduction: Fundamental Results on Hybrid Reasoning. Existence Assumptions in Knowledge Representation. Hard Problems for Simple Default Logics. The Effect of Knowledge on Belief: Conditioning, Specificity and the Lottery Paradox in Default Reasoning. Three-Valued Nonmonotonic Formalisms and Semantics of Logic Programs. On the Applicability of Nonmonotonic Logic to Formal Reasoning in Continuous Time. Principles of Metareasoning.

This in-depth introduction for students and researchers shows how to use ASP for intelligent tasks, including answering queries, planning, and diagnostics.

Knowledge representation is at the very core of a radical idea for understanding intelligence. This book talks about the central concepts of knowledge representation developed over the years. It is suitable for researchers and practitioners in database management, information retrieval, object-oriented systems and artificial intelligence.

This book is dedicated to intelligent systems of broad-spectrum application, such as personal and social biosafety or use of intelligent sensory micro-nanosystems such as "e-nose", "e-tongue" and "e-eye". In addition to that, effective acquiring information, knowledge management and improved knowledge transfer in any media, as well as modeling its information content using meta- and hyper heuristics and semantic reasoning all benefit from the systems covered in this book. Intelligent systems can also be applied in education and generating the intelligent distributed eLearning architecture, as well as in a large number of technical fields, such as industrial design, manufacturing and utilization, e.g., in precision agriculture, cartography, electric power distribution systems, intelligent building management systems, drilling operations etc. Furthermore, decision making using fuzzy logic models, computational recognition of comprehension uncertainty and the joint synthesis of goals and means of intelligent behavior biosystems, as well as diagnostic and human support in the healthcare environment have also been made easier.

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