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Concepts, Ontologies, and Knowledge Representation Knowledge Representation and Reasoning Knowledge Representation and Defeasible Reasoning Knowledge Representation A Knowledge Representation Practionary Process Support and Knowledge Representation in Health Care Legal Knowledge Representation:Automatic Text Analysis in Public International and European Law Knowledge Representation and Language in AI Natural Language Processing and Knowledge Representation Knowledge Representation and Metaphor Graph-based Knowledge Representation Knowledge Representation Lexical Semantics and Knowledge Representation in Multilingual Text Generation Knowledge Representation Knowledge Representation Process Support and Knowledge Representation in Health Care MDATA: A New Knowledge Representation Model Knowledge Representation and Reasoning Under Uncertainty Foundations of Knowledge Representation and Reasoning Knowledge Representation Logic Programming and Knowledge Representation Principles of Knowledge Representation and Reasoning Knowledge representation and inference system The Knowledge Frontier Logic and Knowledge Representation Understanding Meaning and Knowledge Representation Knowledge Representation and Organization in Machine Learning The Logic of Knowledge Bases Proceedings of the First International Conference on Principles of Knowledge Representation and Reasoning Dynamic Knowledge Representation in Scientific Domains Knowledge Management and Representation Advances in Knowledge Representation, Logic Programming, and Abstract Argumentation Knowledge representation in LILOG Knowledge Representation for Health-Care Graph Structures for Knowledge Representation and Reasoning Knowledge Representation in the Social Semantic Web Principles of Knowledge Representation and Reasoning Semantic Knowledge Representation for Information Retrieval Knowledge Representation Techniques Principles of Knowledge Representation and Reasoning

Knowledge Representation in the Social Semantic Web Dec 28 2019 The main purpose of this book is to sum up the vital and highly topical research issue of knowledge representation on the Web and to discuss novel solutions by combining benefits of folksonomies and Web 2.0 approaches with ontologies and semantic technologies. The book contains an overview of knowledge representation approaches in past, present and future, introduction to ontologies, Web indexing and in first case the novel approaches of developing ontologies.

Knowledge Representation Nov 18 2021 Drawing from a wide range of disciplines, this book integrates logic, philosophy, linguistics and computer science into this important new book. Written by a leading researcher in knowledge representation, this definitive work is designed for researchers in computer science with knowledge of artificial intelligence as a prerequisite.

MDATA: A New Knowledge Representation Model Aug 16 2021 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.

Knowledge Management and Representation Jun 01 2020 The knowledge management (KM) process comprises a set of activities for identification, gathering, creation, presentation and distribution of knowledge for the purposes of learning, reuse, and awareness.The knowledge management and representation has gained popularity in the recent years due to the emergence of technologies that enable the flow of knowledge within the organization systems (expert systems, knowledge bases, document management etc.), the emergence of Internet and Internet-based technologies (e-learning, semantic Web, content management, Yellow pages, Wikis, blogs, collaboration tools etc.), and also due to organizational activities such as communities of practice, systems for training and mentoring, etc.Knowledge is defined as the ability to identify facts, information, and skills achieved through experience and/or education, demonstrating a theoretical and practical understanding of a subject. There are three approaches to knowledge management:1) Techno-centric approach: focuses on technology, and it is convenient when users want to expand the sharing and growth of the knowledge base (enabled by the technology solutions, such as expert systems, neural nets, or the semantic Web);2) Organizational approach: to establish an organization that will allow the process of collection, creation and sharing of knowledge.3) Ecological approach: combines interaction of people, personality, knowledge and environmental factors into one adaptive system.Knowledge management techniques support the strategic goals of business systems in order to share a common intelligence, improve the performance of the business systems, pick strategic assets, and further raise the innovative capacity of the individuals.This edition covers different topics of knowledge management and representation, including methods and approaches for knowledge representation, knowledge management techniques, semantic web technology, and knowledge management applications in business and economy.Section 1 focuses on methods and approaches for knowledge representation, describing general knowledge representation model of concepts, symbolic regression knowledge representation framework, knowledge representation in a proof checker for logic programs, and an innovative approach about the process knowledge representation in the processes of large cluster projects management.Section 2 focuses on knowledge management techniques, describing digestion of knowledge in a KM system to reveal implicit knowledge, management of knowledge acquisition from human sources in innovation transfer, the emergence of ontology in the knowledge management, and three postulates that change knowledge management paradigm.Section 3 focuses on semantic web technologies, describing the semantic web-based collaborative knowledge management, improving engineering data management with semantic web techniques, a state-of-the-art survey on semantic web mining, providing semantic content for the next generation web, and reasoning and representing viewpoints on the semantic web.Section 4 focuses on knowledge management applications in business and economy, describing a knowledge management framework as knowledge bases development support to professional risk assessment in SMEs, a stakeholder model for managing knowledge assets in organizations, performance innovation through applied knowledge management, knowledge-based enterprise framework from a management control view perspective, and knowledge representation formalism for semantic business process management.

Logic Programming and Knowledge Representation Apr 11 2021 This book presents the thoroughly refereed post-workshop proceedings of the Third International Workshop on Logic Programming and Knowledge Representation, LPKR'97, held in Port Jefferson, NY, USA, in October 1997.

The eight revised full papers presented have undergone a two-round reviewing process; also included is a comprehensive introduction surveying the state of the art in the area. The volume is divided into topical sections on disjunctive semantics, abduction, priorities, and updates.
Graph-based Knowledge Representation Feb 19 2022 This book provides a de?nition and study of a knowledge representation and r- soning formalism stemming from conceptual graphs, while focusing on the com- tational 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 r- soning 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 und- standable 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 algorithmicqualitiesofgraphshavelongbeenstudied,asindatabasesandconstraint networks.
Dynamic Knowledge Representation in Scientific Domains Jul 03 2020 The main approach to understanding and creating knowledge engineering concepts is static knowledge. Currently, there is a need to approach knowledge through a dynamic lens and address changing relations on an elaborated syntactic and semantic basis. Dynamic Knowledge Representation in Scientific Domains provides emerging research on the internal and external changes in knowledge within various subject areas and their visual representations. While highlighting topics such as behavior diagrams, distribution analysis, and qualitative modeling, this publication explores the structural development and assessment of knowledge models. This book is an important resource for academicians, researchers, students, and practitioners seeking current research on information visualization in order to foster research and collaboration.
Understanding Meaning and Knowledge Representation Nov 06 2020 Today, there is a need to develop natural language processing (NLP) systems from deeper linguistic approaches. Although there are many NLP applications which can work without taking into account any linguistic theory, this type of system can only be described as “deceptively intelligent”. On the other hand, however, those computer programs requiring some language comprehension capability should be grounded in a robust linguistic model if they are to display the expected behaviour. The purpose of this book is to examine and discuss recent work in meaning and knowledge representation within theoretical linguistics and cognitive linguistics, particularly research which can be reused to model NLP applications.
Knowledge representation and inference system Feb 07 2021
Semantic Knowledge Representation for Information Retrieval Oct 25 2019 This book covers the basics of semantic web technologies and indexing languages, and describes their contribution to improve methods of formal knowledge representation and reasoning. The methodologies included combine the specifics of indexing languages, Web representation languages and intersystem relations, and explain their contribution to search functionalities in information retrieval scenarios. An example oriented discussion, considering aspects of conceptual and semantic interoperability in processes of subject querying and knowledge exploration is provided. The book is relevant to information scientists, knowledge workers and indexers. It provides a suitable combination of theoretical foundations and practical applications.
Knowledge Representation Techniques Sep 24 2019 This book contains a cohesive, self-contained collection of theoretical and applied research results that have been achieved in this project which pertain to nonmonotonic and approximate easoning systems developed for an experimental unmanned aerial vehicle system used in the project. This book should be of interest to the theoretician and applied researcher alike and to autonomous system developers and software agent and intelligent system developers.
Knowledge Representation Sep 28 2022 Although many texts exist offering an introduction to artificial intelligence (AI), this book is unique in that it places an emphasis on knowledge representation (KR) concepts. It includes small-scale implementations in PROLOG to illustrate the major KR paradigms and their developments.****back cover copy:**Knowledge representation is at the heart of the artificial intelligence enterprise: anyone writing a program which seeks to work by encoding and manipulating knowledge needs to pay attention to the scheme whereby he will represent the knowledge, and to be aware of the consequences of the choices made.****The book's distinctive approach introduces the topic of AI through a study of knowledge representation issues. It assumes a basic knowledge of computing and a familiarity with the principles of elementary formal logic would be advantageous.****Knowledge Representation: An Approach to Artificial Intelligence develops from an introductory consideration of AI, knowledge representation and logic, through search technique to the three central knowledge paradigms: production rules, structured objects, and predicate calculus. The final section of the book illustrates the application of these knowledge representation paradigms through the Prolog Programming language and with an examination of diverse expert systems applications. The book concludes with a look at some advanced issues in knowledge representation.****This text provides an introduction to AI through a study of knowledge representation and each chapter contains exercises for students. Experienced computer scientists and students alike, seeking an introduction to AI and knowledge representations will find this an invaluable text.
Proceedings of the First International Conference on Principles of Knowledge Representation and Reasoning Aug 04 2020 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.
Concepts, Ontologies, and Knowledge Representation Jan 01 2023 Recording knowledge in a common framework that would make it possible to seamlessly share global knowledge remains an important challenge for researchers. This brief examines several ideas about the representation of knowledge addressing this challenge. A widespread general agreement is followed that states uniform knowledge representation should be achievable by using ontologies populated with concepts. A separate chapter is dedicated to each of the three introduced topics, following a uniform outline: definition, organization, and use. This brief is intended for those who want to get to know the field of knowledge representation quickly, or would like to be up to date with current developments in the field. It is also useful for those dealing with implementation as examples of numerous operational systems are also given.
Legal Knowledge Representation:Automatic Text Analysis in Public International and European Law Jun 25 2022 This volume is a presentation of all methods of legal knowledge representation from the point of view of jurisprudence as well as computer science. A new method of automatic analysis of legal texts is presented in four case studies. Law is seen as an information system with legally formalised information processes. The achieved coverage of legal knowledge in information retrieval systems has to be followed by the next step: conceptual indexing and automatic analysis of texts. Existing approaches of automatic knowledge representations do not have a proper link to the legal language in information systems. The concept-based model for semi-automatic analysis of legal texts provides this necessary connection. The knowledge base of descriptors, context-sensitive rules and meta-rules formalises properly all important passages in the text corpora for automatic analysis. Statistics and self-organising maps give assistance in knowledge acquisition. The result of the analysis is organised with automatically generated hypertext links. Four case studies show the huge potential but also some drawbacks of this approach.
Knowledge Representation Jan 21 2022 Most researchers to date in artificial intelligence has been based on the knowledge representation hypothesis, that is, the assumption that in any artificial intelligence (AI) programme there is a separate module which represents the information that the programme has about the world. As a result, a number of so-called knowlege representation formalisms have been developed for representing this kind

of information in a computer.
Principles of Knowledge Representation and Reasoning Mar 11 2021 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
Process Support and Knowledge Representation in Health Care Jul 27 2022 This book constitutes thoroughly refereed revised selected papers from the BPM 2012 Joint Workshop on Process-Oriented Information Systems and Knowledge Representation in Health Care, ProHealth 2012/KR4HC 2012, held in Tallinn, Estonia, in September 2012. The 9 papers presented were carefully reviewed and selected from 19 submissions. In addition the book contains 1 keynote paper and 2 invited contributions. The papers are organized in topical sections named: guidelines and summarization; archetypes and cooperation; and process mining and temporal analysis.
Knowledge Representation and Language in AI May 25 2022 "The focus of this book is on the relationship between knowledge representation and language in artificial intelligence." -- Introduction.
Natural Language Processing and Knowledge Representation Apr 23 2022 "Traditionally, knowledge representation and reasoning systems have incorporated natural language as interfaces to expert systems or knowledge bases that performed tasks separate from natural language processing. As this book shows, however, the computational nature of representation and inference in natural language makes it the ideal model for all tasks in an intelligent computer system. Natural language processing combines the qualitative characteristics of human knowledge processing with a computer's quantitative advantages, allowing for in-depth, systematic processing of vast amounts of information.
Knowledge Representation Oct 18 2021 Knowledge representation is fundamental to the study of mind. All theories of psychological processing are rooted in assumptions about how information is stored. These assumptions, in turn, influence the explanatory power of theories. This book fills a gap in the existing literature by providing an overview of types of knowledge representation techniques and their use in cognitive models. Organized around types of representations, this book begins with a discussion of the foundations of knowledge representation, then presents discussions of different ways that knowledge representation has been used. Both symbolic and connectionist approaches to representation are discussed and a set of recommendations about the way representations should be used is presented. This work can be used as the basis for a course on knowledge representation or can be read independently. It will be useful to students of psychology as well as people in related disciplines--computer science, philosophy, anthropology, and linguistics--who want an introduction to techniques for knowledge representation.
Principles of Knowledge Representation and Reasoning Nov 26 2019 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
Knowledge Representation and Reasoning Nov 30 2022 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.
Knowledge Representation and Organization in Machine Learning Oct 06 2020
Knowledge Representation and Defeasible Reasoning Oct 30 2022 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) ani mal, or machine. Its scope is intended to span the full range of interests from classical problems in the philosophy of mind and philosophical psy chology through issues in cognitive psychology and sociobiology (concerning the mental capabilities of other species) to ideas related to artificial intelli gence 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 ap pear 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 prob lems 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.
Knowledge Representation and Metaphor Mar 23 2022 This is an analysis of the philosophical assumptions and implications of current artificial intelligence (AI) representation schemes, particularly those dealing with the underlying cognitive processes of language. The work attacks the traditional, logic-based view of language and knowledge representation and argues that cognitive mechanisms provide a better model for structuring knowledge that that of first-order logic. The author explains her dynamic type hierarchy theory, a new approach to metaphor, language and knowledge representation.
Knowledge Representation May 13 2021 Growing interest in symbolic representation and reasoning has pushed this backstageactivity into the spotlight as a clearly identifiable and technically rich subfield in artificialintelligence. This collection of extended versions of 12 papers from the First InternationalConference on Principles of Knowledge Representation and Reasoning provides a snapshot of the bestcurrent work in AI on formal methods and principles of representation and reasoning. The topicsrange 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 BellLaboratories. Hector J. Levesque and Raymond Reiter are Professors of Computer Science at theUniversity of Toronto.Contents: Introduction. Nonmonotonic Reasoning in the Framework of SituationCalculus. The Computational Complexity of Abduction. Temporal Constraint Networks. Impediments toUniversal Preference-Based Default Theories. Embedding Decision-Analytic Control in a LearningArchitecture. The Substitutional Framework for Sorted Deduction: Fundamental Results on HybridReasoning. Existence Assumptions in Knowledge Representation. Hard Problems for Simple DefaultLogics. The Effect of Knowledge on Belief: Conditioning, Specificity and the Lottery Paradox inDefault Reasoning. Three-Valued Nonmonotonic Formalisms and Semantics of Logic Programs. On theApplicability of Nonmonotonic Logic to Formal Reasoning in Continuous Time. Principles ofMetareasoning.
Advances in Knowledge Representation, Logic Programming, and Abstract Argumentation May 01 2020 This Festschrift is published in honor of Gerhard Brewka on the occasion of his 60th birthday and contains articles from fields reflecting the breadth of Gerd's work. The 24 scientific papers included in the book are written by close friends and colleagues and cover topics such as Actions and Agents, Nonmonotonic and Human Reasoning, Preferences and Argumentation.
Foundations of Knowledge Representation and Reasoning Jun 13 2021 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.
Knowledge Representation and Reasoning Under Uncertainty Jul 15 2021 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.

The Logic of Knowledge Bases Sep 04 2020 This book describes in detail the relationship between symbolic representations of knowledge and abstract states of knowledge, exploring along the way the foundations of knowledge, knowledge bases, knowledge-based systems, and knowledge representation and reasoning. The idea of knowledge bases lies at the heart of symbolic, or "traditional," artificial intelligence. A knowledge-based system decides how to act by running formal reasoning procedures over a body of explicitly represented knowledge—a knowledge base. The system is not programmed for specific tasks; rather, it is told what it needs to know and expected to infer the rest. This book is about the logic of such knowledge bases. It describes in detail the relationship between symbolic representations of knowledge and abstract states of knowledge, exploring along the way the foundations of knowledge, knowledge bases, knowledge-based systems, and knowledge representation and reasoning. Assuming some familiarity with first-order predicate logic, the book offers a new mathematical model of knowledge that is general and expressive yet more workable in practice than previous models. The book presents a style of semantic argument and formal analysis that would be cumbersome or completely impractical with other approaches. It also shows how to treat a knowledge base as an abstract data type, completely specified in an abstract way by the knowledge-level operations defined over it.

Lexical Semantics and Knowledge Representation in Multilingual Text Generation Dec 20 2021 In knowledge-based natural language generation, issues of formal knowledge representation meet with the linguistic problems of choosing the most appropriate verbalization in a particular situation of utterance. Lexical Semantics and Knowledge Representation in Multilingual Text Generation presents a new approach to systematically linking the realms of lexical semantics and knowledge represented in a description logic. For language generation from such abstract representations, lexicalization is taken as the central step: when choosing words that cover the various parts of the content representation, the principal decisions on conveying the intended meaning are made. A preference mechanism is used to construct the utterance that is best tailored to parameters representing the context. Lexical Semantics and Knowledge Representation in Multilingual Text Generation develops the means for systematically deriving a set of paraphrases from the same underlying representation with the emphasis on events and verb meaning. Furthermore, the same mapping mechanism is used to achieve multilingual generation: English and German output are produced in parallel, on the basis of an adequate division between language-neutral and language-specific (lexical and grammatical) knowledge. Lexical Semantics and Knowledge Representation in Multilingual Text Generation provides detailed insights into designing the representations and organizing the generation process. Readers with a background in artificial intelligence, cognitive science, knowledge representation, linguistics, or natural language processing will find a model of language production that can be adapted to a variety of purposes.

Logic and Knowledge Representation Dec 08 2020

The Knowledge Frontier Jan 09 2021 Knowledge representation is perhaps the most central problem confronting artificial intelligence. Expert systems need knowledge of their domain of expertise in order to function properly. Computer vlslOn systems need to know characteristics of what they are "seeing" in order to be able to fully interpret scenes. Natural language systems are invaluably aided by knowledge of the subject of the natural language discourse and knowledge of the participants in the discourse. Knowledge can guide learning systems towards better understanding and can aid problem solving systems in creating plans to solve various problems. Applications such as intelligent tutoring. computer-aided VLSI design. game playing. automatic programming. medical reasoning. diagnosis in various domains. and speech recogOltlOn. to name a few. are all currently experimenting with knowledge-based approaches. The problem of knowledge representation breaks down into several subsidiary problems including what knowledge to represent in a particular application. how to extract or create that knowledge. how to represent the knowledge efficiently and effectively. how to implement the knowledge representation scheme chosen. how to modify the knowledge in the face of a changing world. how to reason with the knowledge. and how tc use the knowledge appropriately in the creation of the application solution. This volume contains an elaboration of many of these basic issues from a variety of perspectives.

Knowledge representation in LILOG Mar 30 2020

Knowledge Representation for Health-Care Feb 28 2020 This book constitutes the refereed proceedings of the Third International KR4HC 2011 workshop held in conjunction with the 13th Conference on Artificial Intelligence in medicine, AIME 2011, in Bled, Slovenia, in July 2011. The 11 extended papers presented together with 1 invited paper were carefully reviewed and selected from 22 submissions. The papers cover topics like health care knowledge sharing; health process; clinical practice guidelines; and patient records, ontologies, medical costs, and clinical trials.

A Knowledge Representation Practionary Aug 28 2022 This major work on knowledge representation is based on the writings of Charles S. Peirce, a logician, scientist, and philosopher of the first rank at the beginning of the 20th century. This book follows Peirce's practical guidelines and universal categories in a structured approach to knowledge representation that captures differences in events, entities, relations, attributes, types, and concepts. Besides the ability to capture meaning and context, the Peircean approach is also well-suited to machine learning and knowledge-based artificial intelligence. Peirce is a founder of pragmatism, the uniquely American philosophy. Knowledge representation is shorthand for how to represent human symbolic information and knowledge to computers to solve complex questions. KR applications range from semantic technologies and knowledge management and machine learning to information integration, data interoperability, and natural language understanding. Knowledge representation is an essential foundation for knowledge-based AI. This book is structured into five parts. The first and last parts are bookends that first set the context and background and conclude with practical applications. The three main parts that are the meat of the approach first address the terminologies and grammar of knowledge representation, then building blocks for KR systems, and then design, build, test, and best practices in putting a system together. Throughout, the book refers to and leverages the open source KBpedia knowledge graph and its public knowledge bases, including Wikipedia and Wikidata. KBpedia is a ready baseline for users to bridge from and expand for their own domain needs and applications. It is built from the ground up to reflect Peircean principles. This book is one of timeless, practical guidelines for how to think about KR and to design knowledge management (KM) systems. The book is grounded bedrock for enterprise information and knowledge managers who are contemplating a new knowledge initiative. This book is an essential addition to theory and practice for KR and semantic technology and AI researchers and practitioners, who will benefit from Peirce's profound understanding of meaning and context.

Graph Structures for Knowledge Representation and Reasoning Jan 27 2020 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.

Process Support and Knowledge Representation in Health Care Sep 16 2021 This book constitutes the thoroughly refereed papers from the BPM 2013 Joint Workshop on Process-Oriented Information Systems and Knowledge Representation in Health Care, KR4HC 2013/ProHealth 2013, held in Murcia, Spain, in June 2013. The 10 revised full papers presented together with 1 keynote paper were carefully reviewed and selected from 19 submissions. The papers are organized in topical sections on semantic interoperability in health care; modeling clinical guidelines; knowledge-based techniques for handling clinical data; and context aware services and guidance.

Principles of Knowledge Representation and Reasoning Aug 23 2019