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Modeling with Rules Using Semantic Knowledge EngineeringKnowledge Engineering and Knowledge ManagementThe Semantic Web for Knowledge and Data ManagementSemantic Data MiningMaterials Science and EngineeringData Visualization and Knowledge EngineeringEngineering Knowledge in the Age of the Semantic WebSemantic Web Engineering in the Knowledge SocietyKnowledge Engineering and ManagementSynergies Between Knowledge Engineering and Software EngineeringSoftware Engineering and Knowledge Engineering: Theory and PracticeKnowledge Engineering and Knowledge ManagementOntology Engineering in a Networked WorldSemantic Knowledge ManagementKnowledge Engineering and Semantic WebOntology EngineeringApplied Semantic Web TechnologiesSemantic Annotation in Knowledge Engineering, E-learning and Computational LinguisticsKnowledge Engineering and the Semantic WebKnowledge Engineering and Knowledge ManagementAn Introduction to Knowledge EngineeringAdvances in Knowledge-Based and Intelligent Information and Engineering SystemsKnowledge Engineering and Knowledge ManagementOntological EngineeringEngineering Knowledge in the Age of the Semantic WebKnowledge Engineering and the Semantic WebKnowledge Engineering with Semantic Web Technologies for Decision Support Systems Based on Psychological Models of ExpertiseSemantics Driven Human-machine Computation Framework for Linked Islamic Knowledge EngineeringSemantic Web and Model-Driven EngineeringKnowledge Engineering and Knowledge ManagementSemantic Web Engineering in the Knowledge SocietyKnowledge Engineering and Semantic WebLinguistic Instruments in Knowledge EngineeringKnowledge Representation in the Social Semantic WebKnowledge Engineering and Semantic WebKnowledge Engineering and Knowledge ManagementSemantic Systems. The Power of AI and Knowledge GraphsSemantic Web for Business: Cases and ApplicationsKnowledge Engineering and Knowledge Management: Ontologies and the Semantic WebKnowledge Engineering Shells

Modeling with Rules Using Semantic Knowledge Engineering

Knowledge Engineering and Knowledge Management

th This volume contains the papers presented at the 13 International Conference on Knowledge Engineering and Knowledge Management (EKAW 2002) held in Sig enza, Spain, October 1-4, 2002. Papers were invited on topics related to Knowledge

Acquisition, Knowledge Management, Ontologies, and the Semantic Web. A total of 110 papers were submitted. Each submission was evaluated by at least two reviewers. The selection process has resulted in the acceptance of 20 long and 14 short papers for publication and presentation at the conference; an acceptance rate of about 30%. In addition, one invited paper by a keynote speaker is included. This volume contains 8 papers on Knowledge Acquisition, 4 about Knowledge Management, 16 on Ontologies, and 6 papers about the Semantic Web. This was the second time (EKAW 2000 being the first) that the event was organized as a conference rather than as the usual workshop (hence the acronym: European Knowledge Acquisition Workshop). The large number of submissions (110 versus the usual 40-60) is an indication that the scientific community values EKAW as an important event to share experiences in the Knowledge Technology area, worthy of being organized as a prestigious international conference. Knowledge is the fuel of the upcoming Knowledge Economy. Therefore, we believe that conferences such as EKAW, that focus on Knowledge Technologies, will continue to play a major role as a platform for sharing and exchanging experiences and knowledge between key players in the area.

The Semantic Web for Knowledge and Data Management

The Semantic Web is characterized by the existence of a very large number of distributed semantic resources, which together define a network of ontologies. These ontologies in turn are interlinked through a variety of different meta-relationships such as versioning, inclusion, and many more. This scenario is radically different from the relatively narrow contexts in which ontologies have been traditionally developed and applied, and thus calls for new methods and tools to effectively support the development of novel network-oriented semantic applications. This book by Suárez-Figueroa et al. provides the necessary methodological and technological support for the development and use of ontology networks, which ontology developers need in this distributed environment. After an introduction, in its second part the authors describe the NeOn Methodology framework. The book’s third part details the key activities relevant to the ontology engineering life cycle. For each activity, a general introduction, methodological guidelines, and practical examples are provided. The fourth part then presents a detailed overview of the NeOn Toolkit and its plug-ins. Lastly, case studies from the pharmaceutical and the fishery domain round out the work. The book primarily addresses two main audiences: students (and their lecturers) who need a textbook for advanced undergraduate or graduate courses on ontology engineering, and practitioners who need to develop ontologies in particular or Semantic Web-based applications in general. Its educational value is maximized by its structured approach to explaining guidelines and combining them with case studies and numerous examples. The description of the open source NeOn Toolkit provides an additional asset, as it allows readers to easily evaluate and apply the ideas presented.

Semantic Data Mining

This book constitutes the refereed proceedings of the 4th Conference on Knowledge Engineering and the Semantic Web, KESW 2013, held in St. Petersburg, Russia, in October 2013. The 18 revised full papers presented together with 7 short system descriptions were carefully reviewed and selected from 52 submissions. The papers address research issues related to knowledge representation, semantic web, and linked data.

Materials Science and Engineering

This open access book constitutes the refereed proceedings of the 15th International Conference on Semantic Systems, SEMANTiCS 2019, held in Karlsruhe, Germany, in September 2019. The 20 full papers and 8 short papers presented in this volume were carefully reviewed and selected from 88 submissions. They cover topics such as: web semantics and linked (open) data; machine learning and deep learning techniques; semantic information management and knowledge integration; terminology, thesaurus and ontology management; data mining and knowledge discovery; semantics in blockchain and distributed ledger technologies.

Data Visualization and Knowledge Engineering

This book constitutes the refereed proceedings of the 14th International Conference on Knowledge Engineering and Knowledge Management, EKAW 2004, held in Whittleburg Hall, UK in October 2004. The 30 revised full papers and 21 revised short papers were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on ontologies: mappings and translations; ontologies: problems and applications; ontologies: trust and e-learning; ontology maintenance; applications to medicine; portals; knowledge acquisition; Web services and problem solving; and searching, browsing, and knowledge acquisition.

Engineering Knowledge in the Age of the Semantic Web

An Introduction to Knowledge Engineering presents a simple but detailed exp- ration of current and established work in the ?eld of knowledge-based systems and related technologies. Its treatment of the increasing variety of such systems is designed to provide the reader with a substantial grounding in such techno- gies as expert systems, neural networks, genetic algorithms, case-based reasoning systems, data mining, intelligent agents and the associated techniques and meth- ologies. The material is reinforced by the inclusion of numerous activities that provide opportunities for the reader to engage in their own research and re?ection as they progress through the book. In addition, self-assessment questions allow the student to check their own understanding of the concepts covered. The book will be suitable for both undergraduate and postgraduate students in computing science and related disciplines such as knowledge engineering, arti?cial

Semantic Web Engineering in the Knowledge Society

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Knowledge Engineering and Management

This book compiles a number of contributions originating from the KESE (Knowledge Engineering and Software Engineering) workshop series from 2005 to 2015. The idea behind the series was the realignment of the knowledge engineering discipline and its strong relation to software engineering, as well as to the classical aspects of artificial intelligence research. The book introduces symbiotic work combining these disciplines, such as aspect-oriented and agile engineering, using anti-patterns, and system refinement. Furthermore, it presents successful applications from different areas that were created by combining techniques from both areas.

Synergies Between Knowledge Engineering and Software Engineering

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Software Engineering and Knowledge Engineering: Theory and Practice

This book explores the theme Linguistic Instruments in Knowledge Engineering from the perspective of workers from the fields of linguistics and computer science. The application direction is presented the other way around: - computational linguistics, and computational tools and theories are used for grammar writing, parsing, logical semantics, etc. The first five papers explore primarily linguistic aspects, while the next five take a look at the aspects related to information systems. Topic areas include: information sciences and knowledge engineering, information systems, conceptual model specification, logic and natural language semantics. This combination of linguistics with the representation of knowledge in the form of information systems will be of interest to those working in knowledge engineering, information-system development and CASE tools.

Knowledge Engineering and Knowledge Management

"This book lays the foundations for understanding the concepts and technologies behind the Semantic Web"--Provided by publisher.

Ontology Engineering in a Networked World

Ontologies have become increasingly important as the use of knowledge graphs, machine learning, natural language processing (NLP), and the amount of data generated on a daily basis has exploded. As of 2014, 90% of the data in the digital universe was generated in the two years prior, and the volume of data was projected to grow from 3.2 zettabytes to 40 zettabytes in the next six years. The very real issues that government, research, and commercial organizations are facing in order to sift through this amount of information to support decision-making alone mandate increasing automation. Yet, the data profiling, NLP, and learning algorithms that are ground-zero for data integration, manipulation, and search provide less than satisfactory results unless they utilize terms with unambiguous semantics, such as those found in ontologies and well-formed rule sets. Ontologies can provide a rich "schema" for the knowledge graphs underlying these technologies as well as the terminological and semantic basis for dramatic improvements in results. Many ontology projects fail, however, due at least in part to a lack of discipline in the development process. This book, motivated by the Ontology 101 tutorial given for many years at what was originally the Semantic Technology Conference (SemTech) and then later from a semester-long university class, is designed to provide the foundations for ontology engineering. The book can serve as a course textbook or a primer for all those interested in ontologies.

Semantic Knowledge Management

This book proposes a consistent methodology for building intelligent systems. It puts forward several formal models for designing and implementing rules-based systems, and presents illustrative case studies of their applications. These include software engineering, business process systems, Semantic Web, and context-aware systems on mobile devices. Rules offer an intuitive yet powerful method for representing human knowledge, and intelligent systems based on rules have many important applications. However, their practical development requires proper techniques and models - a gap that this book effectively addresses.

Knowledge Engineering and Semantic Web

This book constitutes the refereed proceedings of the 5th Conference on Knowledge Engineering and the Semantic Web,

KESW 2014, held in Kazan, Russia, in September/October 2014. The 18 revised full papers presented together with 4 short system descriptions were carefully reviewed and selected from 44 submissions. The papers address research issues related to semantic web, linked data, ontologies, natural language processing, knowledge representation.

Ontology Engineering

This book presents the fundamentals and advances in the field of data visualization and knowledge engineering, supported by case studies and practical examples. Data visualization and engineering has been instrumental in the development of many data-driven products and processes. As such the book promotes basic research on data visualization and knowledge engineering toward data engineering and knowledge. Visual data exploration focuses on perception of information and manipulation of data to enable even non-expert users to extract knowledge. A number of visualization techniques are used in a variety of systems that provide users with innovative ways to interact with data and reveal patterns. A variety of scalable data visualization techniques are required to deal with constantly increasing volume of data in different formats. Knowledge engineering deals with the simulation of the exchange of ideas and the development of smart information systems in which reasoning and knowledge play an important role. Presenting research in areas like data visualization and knowledge engineering, this book is a valuable resource for students, scholars and researchers in the field. Each chapter is self-contained and offers an in-depth analysis of real-world applications. It discusses topics including (but not limited to) spatial data visualization; biomedical visualization and applications; image/video summarization and visualization; perception and cognition in visualization; visualization taxonomies and models; abstract data visualization; information and graph visualization; knowledge engineering; human–machine cooperation; metamodeling; natural language processing; architectures of database, expert and knowledge-based systems; knowledge acquisition methods; applications, case studies and management issues: data administration issues and knowledge; tools for specifying and developing data and knowledge bases using tools based on communication aspects involved in implementing, designing and using KBSs in cyberspace; Semantic Web.

Applied Semantic Web Technologies

The central themes of the 14th International Conference on Knowledge Engineering and Knowledge Management (EKAW 2004) were ontological engineering and the Semantic Web. These provide the key foundational and delivery mechanisms for building open, Web-based knowledge services. However, consistent with the tradition of EKAW conferences, EKAW 2004 was concerned with all aspects of eliciting, acquiring, modelling and managing knowledge, and its role in the construction of knowledge-intensive systems. Indeed a key aspect of the Knowledge Acquisition Workshops (KAWs) held in the US, Europe and Asia over the past 20 years has been the emphasis on ‘holistic’ knowledge engineering, addressing problem solving,

usability, socio-technological factors and knowledge modelling, rather than simply analyzing and designing symbol-level inferential mechanisms. The papers included in this volume are thus drawn from a variety of research areas both at the cutting edge of research in ontologies and the Semantic Web and in the more traditionally grounded areas of knowledge engineering. A Semantic Web service can be seen as the addition of semantic technologies to Web services to produce Web-accessible services that can be described using appropriate ontologies, reasoned about and combined automatically. Since Web services can be seen as Web-accessible computational objects, much of the work in this area is also concerned with problem-solving methods (PSMs).

Semantic Annotation in Knowledge Engineering, E-learning and Computational Linguistics

Provides a single record of technologies and practices of the Semantic approach to the management, organization, interpretation, retrieval, and use of Web-based data.

Knowledge Engineering and the Semantic Web

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Knowledge Engineering and Knowledge Management

Proceedings of the Sixth International Conference on Intelligent System and Knowledge Engineering presents selected papers from the conference ISKE 2011, held December 15-17 in Shanghai, China. This proceedings doesn’t only examine

original research and approaches in the broad areas of intelligent systems and knowledge engineering, but also present new methodologies and practices in intelligent computing paradigms. The book introduces the current scientific and technical advances in the fields of artificial intelligence, machine learning, pattern recognition, data mining, information retrieval, knowledge-based systems, knowledge representation and reasoning, multi-agent systems, natural-language processing, etc. Furthermore, new computing methodologies are presented, including cloud computing, service computing and pervasive computing with traditional intelligent methods. The proceedings will be beneficial for both researchers and practitioners who want to utilize intelligent methods in their specific research fields. Dr. Yinglin Wang is a professor at the Department of Computer Science and Engineering, Shanghai Jiao Tong University, China; Dr. Tianrui Li is a professor at the School of Information Science and Technology, Southwest Jiaotong University, China.

An Introduction to Knowledge Engineering

The discipline of informatics emerged from the need to translate biomedical research into evidence-based healthcare protocols and policy. Materials science informatics is rooted in an analogous need to “translate” physical sciences research and discoveries into materials-based solutions to address a broad range of issues and challenges for business, government, and the environment. Ontologies and databases are key elements of translational architectures and therefore are fundamental tools of the practice of informatics. Databases are tools for engineering data and information, while ontologies are tools for engineering knowledge and utility. Since knowledge and utility are the core objectives of informatics, correctly understanding and utilizing ontologies is critical to the development of effective materials informatics programs and tools. Rooted in philosophy, the term ontology appears most frequently today in connection with semantic web technology, where it refers to vocabularies used by inference engines to interpret human use of language. Materials science ontologies need to capture the scientific context of the defined concepts to support modeling and prediction of multidimensional structure–property relationships in variable environments and applications. Addressing the complexity of materials science ontologies requires a significant departure from traditional database and semantic web ontology approaches, including the use of neural networks that are capable of implementing methods for modeling context, relevance, complex systems, and human expertise. Pioneering efforts in this space include the Knowledge Engineering for Nanoinformatics Pilot (KENI) launched by the Nanoinformatics Society in 2010, and a collaborative Materials Genome Modeling Methodology initiative led by Iowa State University and initiated in 2011.

Advances in Knowledge-Based and Intelligent Information and Engineering Systems

The rapid advancement of semantic web technologies, along with the fact that they are at various levels of maturity, has left many practitioners confused about the current state of these technologies. Focusing on the most mature technologies,

Applied Semantic Web Technologies integrates theory with case studies to illustrate the history, current state, and future direction of the semantic web. It maintains an emphasis on real-world applications and examines the technical and practical issues related to the use of semantic technologies in intelligent information management. The book starts with an introduction to the fundamentals—reviewing ontology basics, ontology languages, and research related to ontology alignment, mediation, and mapping. Next, it covers ontology engineering issues and presents a collaborative ontology engineering tool that is an extension of the Semantic MediaWiki. Unveiling a novel approach to data and knowledge engineering, the text: Introduces cutting-edge taxonomy-aware algorithms Examines semantics-based service composition in transport logistics Offers ontology alignment tools that use information visualization techniques Explains how to enrich the representation of entity semantics in an ontology Addresses challenges in tackling the content creation bottleneck Using case studies, the book provides authoritative insights and highlights valuable lessons learned by the authors—information systems veterans with decades of experience. They explain how to create social ontologies and present examples of the application of semantic technologies in building automation, logistics, ontology-driven business process intelligence, decision making, and energy efficiency in smart homes.

Knowledge Engineering and Knowledge Management

2012 International Conference on Software Engineering, Knowledge Engineering and Information Engineering (SEKEIE 2012) will be held in Macau, April 1-2, 2012 . This conference will bring researchers and experts from the three areas of Software Engineering, Knowledge Engineering and Information Engineering together to share their latest research results and ideas. This volume book covered significant recent developments in the Software Engineering, Knowledge Engineering and Information Engineering field, both theoretical and applied. We are glad this conference attracts your attentions, and thank your support to our conference. We will absorb remarkable suggestion, and make our conference more successful and perfect.

Ontological Engineering

"This book lays the foundations for understanding the concepts and technologies behind the Semantic Web"--Provided by publisher.

Engineering Knowledge in the Age of the Semantic Web

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 Engineering and the Semantic Web

Ontological Engineering refers to the set of activities that concern the ontology development process, the ontology life cycle, the methods and methodologies for building ontologies, and the tool suites and languages that support them. During the last decade, increasing attention has been focused on ontologies and Ontological Engineering. Ontologies are now widely used in Knowledge Engineering, Artificial Intelligence and Computer Science; in applications related to knowledge management, natural language processing, e-commerce, intelligent integration information, information retrieval, integration of databases, b- informatics, and education; and in new emerging fields like the Semantic Web. Primary goals of this book are to acquaint students, researchers and developers of information systems with the basic concepts and major issues of Ontological Engineering, as well as to make ontologies more understandable to those computer science engineers that integrate ontologies into their information systems. We have paid special attention to the influence that ontologies have on the Semantic Web. Pointers to the Semantic Web appear in all the chapters, but specially in the chapter on ontology languages and tools.

Knowledge Engineering with Semantic Web Technologies for Decision Support Systems Based on Psychological Models of Expertise

This book constitutes the refereed proceedings of the 21th International Conference on Knowledge Engineering and Knowledge Management, EKAW 2018, held in Nancy, France, in November 2018. The 36 full papers presented were carefully reviewed and selected from 104 submissions. The papers cover all aspects of eliciting, acquiring, modeling, and managing knowledge, the construction of knowledge-intensive systems and services for the Semantic Web, knowledge management, e-business, natural language processing, intelligent information integration, personal digital assistance systems, and a variety of other related topics. A special focus was on "Knowledge and AI", i.e. papers describing algorithms, tools, methodologies, and applications that exploit the interplay between knowledge and Artificial Intelligence techniques, with a special emphasis on knowledge discovery.

Semantics Driven Human-machine Computation Framework for Linked Islamic Knowledge Engineering

This book offers a systematic approach to knowledge engineering problems. It gives a brief overview of knowledge

engineering systems and environments, covering both classical and recent techniques of the design and evaluation of them. Detailed descriptions of particular techniques and applications are also provided.

Semantic Web and Model-Driven Engineering

In this 2012 edition of Advances in Knowledge-Based and Intelligent Information and Engineering Systems the latest innovations and advances in Intelligent Systems and related areas are presented by leading experts from all over the world. The 228 papers that are included cover a wide range of topics. One emphasis is on Information Processing, which has become a pervasive phenomenon in our civilization. While the majority of Information Processing is becoming intelligent in a very broad sense, major research in Semantics, Artificial Intelligence and Knowledge Engineering supports the domain specific applications that are becoming more and more present in our everyday living. Ontologies play a major role in the development of Knowledge Engineering in various domains, from Semantic Web down to the design of specific Decision Support Systems. Research on Ontologies and their applications is a highly active front of current Computational Intelligence science that is addressed here. Other subjects in this volume are modern Machine Learning, Lattice Computing and Mathematical Morphology.The wide scope and high quality of these contributions clearly show that knowledge engineering is a continuous living and evolving set of technologies aimed at improving the design and understanding of systems and their relations with humans.

Knowledge Engineering and Knowledge Management

"This book provides simple costs and benefits analysis showing that the Semantic Web is prepared for e-business"--Provided by publisher.

Semantic Web Engineering in the Knowledge Society

Ontologies are now increasingly used to integrate, and organize data and knowledge, particularly in data and knowledge-intensive applications in both research and industry. The book is devoted to semantic data mining – a data mining approach where domain ontologies are used as background knowledge, and where the new challenge is to mine knowledge encoded in domain ontologies and knowledge graphs, rather than only purely empirical data. The introductory chapters of the book provide theoretical foundations of both data mining and ontology representation. Taking a unified perspective, the book then covers several methods for semantic data mining, addressing tasks such as pattern mining, classification and similarity-based approaches. It attempts to provide state-of-the-art answers to specific challenges and peculiarities of data mining with use of ontologies, in particular: How to deal with incompleteness of knowledge and the so-called Open World

Assumption? What is a truly “semantic” similarity measure? The book contains several chapters with examples of applications of semantic data mining. The examples start from a scenario with moderate use of lightweight ontologies for knowledge graph enrichment and end with a full-fledged scenario of an intelligent knowledge discovery assistant using complex domain ontologies for meta-mining, i.e., an ontology-based meta-learning approach to full data mining processes. The book is intended for researchers in the fields of semantic technologies, knowledge engineering, data science, and data mining, and developers of knowledge-based systems and applications.

Knowledge Engineering and Semantic Web

Linguistic Instruments in Knowledge Engineering

In this work, a comprehensive study of semantic annotation has been carried out in early stage. The study focuses on the annotation requirements of human knowledge acquisition in knowledge engineering, e-learning and computational linguistics. Based on findings from the study, annotation of natural languages for linguistic analysis creates complicated data structures. Due to the complexity, almost all existing annotation schemes are designed to support only one application domain at one instance. Discovery of new knowledge by means of cross-domains text analysis is limited by the capability of these annotation schemes. To realize the findings in the study and provide solution to the problem, a new general-purpose annotation archival scheme has been developed but not limited to (1) Enable true cross-domain data analysis in knowledge engineering, e-Learning and computational linguistics, and (2) Organize complex structure of human knowledge annotation in an accessible manner, so they can be analyzed in multiple layers through retrieval, search, visualization and etc. To further verify the contributions of the new semantic annotation scheme in real application, experiments has been carried out in several areas, namely (1) collaborative retrieval of complex linguistic information, (2) computer-assisted production of learning material and (3) relevancy comparison between text. In (1), the annotation scheme is applied in a cloud-based platform for hosting parallel multilingual corpora leading to new applications such as computer assisted pattern visualization, speech analysis, speech-to-text transcription and statistical analysis. In (2), the annotation scheme provides support to applications that produce reader friendly learning material suites for teacher, and as a result improve learning quality. In (3), the annotation scheme provides support to a text' comparison platform that carries out writing assessment semantically. XIII.

Knowledge Representation in the Social Semantic Web

This book constitutes the refereed proceedings of the 8th International Conference on Knowledge Engineering and the

Semantic Web, KESW 2017, held Szczecin, Poland, in November 2017. The 16 full papers presented were carefully reviewed and selected from 58 submissions. The papers are organized in topical sections on natural language processing; knowledge representation and reasoning; ontologies and controlled vocabularies; scalable data access and storage solutions; semantic Web and education; linked data; semantic technologies in manufacturing and business.

Knowledge Engineering and Semantic Web

Despite its explosive growth over the last decade, the Web remains essentially a tool to allow humans to access information. Semantic Web technologies like RDF, OWL and other W3C standards aim to extend the Web's capability through increased availability of machine-processable information. Davies, Grobelnik and Mladenic have grouped contributions from renowned researchers into four parts: technology; integration aspects of knowledge management; knowledge discovery and human language technologies; and case studies. Together, they offer a concise vision of semantic knowledge management, ranging from knowledge acquisition to ontology management to knowledge integration, and their applications in domains such as telecommunications, social networks and legal information processing. This book is an excellent combination of fundamental research, tools and applications in Semantic Web technologies. It serves the fundamental interests of researchers and developers in this field in both academia and industry who need to track Web technology developments and to understand their business implications.

Knowledge Engineering and Knowledge Management

This book constitutes the refereed proceedings of the 6th Conference on Knowledge Engineering and the Semantic Web, KESW 2015, held in Moscow, Russia, in September/October 2015.The 17 revised full papers presented together with 6 short system descriptions were carefully reviewed andselected from 35 submissions. The papers address research issues related to semantic web, linked data, ontologies, natural language processing, knowledge representation.

Semantic Systems. The Power of AI and Knowledge Graphs

This book constitutes the refereed proceedings of the 7th International Conference on Knowledge Engineering and the Semantic Web, KESW 2016, held in Prague, Czech Republic, in September 2016.The 17 revised full papers presented together with 9 short papers were carefully reviewed and selected from 53 submissions. The papers are organized in topical sections on ontologies; information and knowledge extraction; data management; applications.

Semantic Web for Business: Cases and Applications

This book constitutes the refereed proceedings of the 19th International Conference on Knowledge Engineering and Knowledge Management, EKAW 2014, held in Linköping, Sweden, in November 2014. The 24 full papers and 21 short papers presented were carefully reviewed and selected from 138 submissions. The papers cover all aspects of eliciting, acquiring, modeling, and managing knowledge, the construction of knowledge-intensive systems and services for the Semantic Web, knowledge management, e-business, natural language processing, intelligent information integration, personal digital assistance systems, and a variety of other related topics.

Knowledge Engineering and Knowledge Management: Ontologies and the Semantic Web

The next enterprise computing era will rely on the synergy between both technologies: semantic web and model-driven software development (MDSD). The semantic web organizes system knowledge in conceptual domains according to its meaning. It addresses various enterprise computing needs by identifying, abstracting and rationalizing commonalities, and checking for inconsistencies across system specifications. On the other side, model-driven software development is closing the gap among business requirements, designs and executables by using domain-specific languages with custom-built syntax and semantics. It focuses on using modeling languages as programming languages. Among many areas of application, we highlight the area of configuration management. Consider the example of a telecommunication company, where managing the multiple configurations of network devices (routers, hubs, modems, etc.) is crucial. Enterprise systems identify and document the functional and physical characteristics of network devices, and control changes to those characteristics. Applying the integration of semantic web and model-driven software development allows for (1) explicitly specifying configurations of network devices with tailor-made languages, (2) for checking the consistency of these specifications (3) for defining a vocabulary to share device specifications across enterprise systems. By managing configurations with consistent and explicit concepts, we reduce cost and risk, and enhance agility in response to new requirements in the telecommunication area. This book examines the synergy between semantic web and model-driven software development. It brings together advances from disciplines like ontologies, description logics, domain-specific modeling, model transformation and ontology engineering to take enterprise computing to the next level.

Knowledge Engineering Shells

Formalized knowledge engineering activities including semantic annotation and linked data management tasks in specialized domains suffer from considerable knowledge acquisition bottleneck - owing to the lack of availability of experts and in-efficacy of automated approaches. Human Computation & Crowdsourcing (HC & C) methods successfully advocate leveraging the human intelligence and processing power to solve problems that are still difficult to be solved computationally. Contextualized to the domain of Islamic Knowledge, this research investigates the synergistic interplay of

these HC & C methods and the semantic web and proposes a semantics driven human-machine computation framework for knowledge engineering in specialized and knowledge intensive domains. The overall objective is to augment the process of automated knowledge extraction and text mining methods using a hybrid approach for combining collective intelligence of the crowds with that of experts to facilitate activities in formalized knowledge engineering - thus overcoming the so-called knowledge acquisition bottleneck. As part of this framework, we design and implement formal and scalable knowledge acquisition workflows through the application of semantics driven crowdsourcing methodology and its specialized derivative, called learnersourcing. We evaluate these methods and workflows for a range of knowledge engineering tasks including thematic classification, thematic disambiguation, thematic annotation and contextual interlinking for two primary Islamic texts, namely the Qur'an and the books of Prophetic narrations called the Hadith. This is done at various levels of granularity, including atomic and composite task workflows, that existing research fails to address. We leverage primarily upon students and learners engaging in typical knowledge seeking and learning scenarios. The chosen method ensures annotation reliability by introducing an 'expert sourcing' workflow tightly integrated within the system. Therefore, quantitative measures of ensuring annotation quality are woven into the very fabric of the human computation framework. The results of our evaluation demonstrate that our proposed methods are robust and are capable of generating high quality and reliable annotations, while significantly reducing the need for expert contributions.