Reasoning Web Semantic Technologies For Intelligent Data Access 9th International Summer School 2013 Mannheim Germany July 30 August 2 2013 Applications Incl Internetweb And Hci

Semantic Web technologies enable people to create data stores on the Web, build vocabularies, and write rules for handling data. They have been in use for several years now, and knowledge extraction and knowledge discovery are two key aspects investigated in a number of research fields which can potentially benefit from the application of semantic web technologies, and specifically from the development and reuse of ontologies. This book, Applications and Practices in Ontology Design, Extraction, and Reasoning, has as its main goal the provision of an overview of application fields for semantic web technologies. In particular, it investigates how state-of-the-art formal languages, models, methods, and applications of semantic web technologies reframe research questions and approaches in a number of research fields. The book also aims to showcase practical tools and background knowledge for the building and querying of ontologies. The first part of the book presents the state-of-the-art of ontology design, applications and practices in a number of communities, and in doing so it provides an overview of the latest approaches and techniques for building and reusing ontologies according to domain-dependent and independent requirements. Once the data is represented according to ontologies, it is important to be able to query and reason about them, also in the presence of uncertainty, vagueness and probabilities. The second part of the book covers some of the latest advances in the fields of ontology, semantics and reasoning, without losing sight of the book ' s practical goals.

The widespread use of XML in business and scientific databases has prompted the development of methodologies, techniques, and systems for effectively managing and analyzing XML data. This has increasingly attracted the attention of different research communities, including database, information retrieval, pattern recognition, and machine learning, from which several proposals have been offered to address problems in XML data management and knowledge discovery. XML Data Mining: Models, Methods, and Applications aims to collect knowledge from experts of database, information retrieval, machine learning, and knowledge management communities in developing models, methods, and systems for XML data mining. This book addresses key issues and challenges in XML data mining, offering insights into the various existing solutions and best practices for modeling, processing, analyzing XML data, and for evaluating performance of XML data mining algorithms and systems.

To be effective, data-intensive systems require extensive ongoing customisation to reflect changing user requirements, organisational policies, and the structure and interpretation of the data they hold. Manual customisation is expensive, time-consuming, and error-prone. In large complex systems, the value of the data can be such that exhaustive testing is necessary before any new feature can be added to the existing design. In most cases, the precise details of requirements, policies and data will change during the lifetime of the system, forcing a choice between expensive modification and continued operation with an inefficient design.Engineering Agile Big-Data Systems outlines an approach to dealing with these problems in software and data engineering, describing a methodology for aligning these processes throughout product lifecycles. It discusses tools which can be used to achieve these goals, and, in a number of case studies, shows how the tools and methodology have been used to improve a variety of academic and business systems.

A new edition of the widely used guide to the key ideas, languages, and technologies of the Semantic Web The development of the Semantic Web, with machine-readable content, has the potential to revolutionize the World Wide Web and its uses. A Semantic Web Primer provides an introduction and guide to this continuously evolving field, describing its key ideas, languages, and technologies. Suitable for use as a textbook or for independent study by professionals, it concentrates on undergraduate-level fundamental concepts and techniques that will enable readers to proceed with building applications on their own and includes exercises, project descriptions, and annotated references to relevant online materials. The third edition of this widely used text has been thoroughly updated, with significant new material that reflects a rapidly developing field. Treatment of the different languages (OWL2, rules) expands the coverage of RDF and OWL, defining the data model independently of XML and including coverage of N3/Turtle and RDFa. A chapter is devoted to OWL2, the new W3C standard. This edition also features additional coverage of the query language SPARQL, the rule language RIF and the possibility of interaction between rules and ontology languages and applications. The chapter on Semantic Web applications reflects the rapid developments of the past few years. A new chapter offers ideas for term projects. Additional material, including updates on the technological trends and research directions, can be found at http://www.semanticwebprimer.org.

Applications and Practices in Ontology Design, Extraction, and Reasoning

4th Joint International Conference, JIST 2014, Chiang Mai, Thailand, November 9-11, 2014. Revised Selected Papers

Reasoning Web

Web Semantics

Emergent Web Intelligence: Advanced Semantic Technologies

Ontology-based Application Integration

The success of the World Wide Web depends on the ability of users to store, p- cess and retrieve digital information regardless of distance boundaries, languages and domains of knowledge. The universality and ?exibility of the World Wide Web have also enabled the rapid growth of a variety of new services and applications based on human–machine interaction. The semantics of exchanged information and services should be useful not only for human to human communications, but also in that machines would be able to

understand and automatically process web content. Semanticsgive well-de?nedmeaningto web content and enable computersand p- ple to work in cooperation. Today, the crucial challenge becomes the development of languages to express information in a machine processable format. Now more than ever, new advanced techniques and intelligent approaches are required to tra- form the Web into a universal reasoning and computing machine. Web intelligence attempts to deal with this challenge by exploiting information technologies and - ti?cial intelligence approaches to design the next generation of web-empowered systems and services.

Research Paper (undergraduate) from the year 2015 in the subject Computer Science - Applied, grade: 1,0, Technical University of Berlin, course: AIM1: Advanced Information Management I Heterogeneous and Distributed Information Systems, language: English, abstract: Most of today’s information systems are highly heterogeneous and complex. High efforts and costs are put into interlinking systems to let systems communicate to each other and thus overcoming heterogeneity. The semantic web plays a significant role in the way it covers and links knowledge, making the web’s content understandable for machine-to-machine interactions. Hereby, ontologies serve as a technology to cover, infer and verify knowledge and making it available to accomplish a common understanding among participating agents. This paper describes how ontologies are used in practice to support the overcoming of heterogeneity in information systems. After a revision of basic semantic technologies and standards like OWL and SPARQL we discuss a variety of methods and tools of the semantic web. In more detail, we investigate ontology editors, especially the Protégé tool as a well-established open-source application to create, edit and share ontologies. At last, we discover a variety of practical applications where ontologies are of high use.

This book provides a coherent introduction to semantic web methods and research issues with a particular emphasis on reasoning. It is based on a collection of six thoroughly revised tutorial papers culled from lectures given by leading researchers.

What Is Semantic Web The World Wide Web Consortium is responsible for establishing the standards that will be used in the development of the Semantic Web, which is also referred to as Web 3.0 in certain circles (W3C). Making the data on the Internet understandable by machines is the objective of the Semantic Web. How You Will Benefit (I) Insights, and validations about the following topics: Chapter 1: Semantic Web Chapter 2: DARPA Agent Markup Language Chapter 3: Resource Description Framework Chapter 4: MPEG-7 Chapter 5: Web Ontology Language Chapter 6: RDF Schema Chapter 7: Semantic spectrum Chapter 8: SPARQL Chapter 9: FOAF (ontology) Chapter 10: Semantic wiki Chapter 11: RDFa Chapter 12: Semantic technology Chapter 13: RDF query language Chapter 14: Semantic publishing Chapter 15: Semantic HTML Chapter 16: Semantic Web Stack Chapter 17: Ontology engineering Chapter 18: XHTML+RDFa Chapter 19: Knowledge extraction Chapter 20: Open Semantic Framework Chapter 21: Linguistic Linked Open Data (II) Answering the public top questions about semantic web. (III) Real world examples for the usage of semantic web in many fields. (IV) 17 appendices to explain, briefly, 266 emerging technologies in each industry to have 360-degree full understanding of semantic web' technologies. Who This Book Is For Professionals, undergraduate and graduate students, enthusiasts, hobbyists, and those who want to go beyond basic knowledge or information for any kind of semantic web.

Semantic Web Technologies

13th International Summer School 2017, London, UK, July 7-11, 2017, Tutorial Lectures

Towards the Combination of Model-Driven Engineering and Ontology Technologies

Reasoning Web. Semantic Technologies for Information Systems

6th International Summer School 2010, Dresden, Germany, August 30 - September 3, 2010. Tutorial Lectures

Extending the World Wide Web to make internet data machine-readable to offer significant advantages such as reasoning over data and operating with heterogeneous data sources

After years of mostly theoretical research, Semantic Web Technologies are now reaching out into application areas like bioinformatics, eCommerce, eGovernment, or Social Webs. Applications like genomic ontologies, semantic web services, automated catalogue alignment, ontology matching, or blogs and social networks are constantly increasing, often driven or at least backed up by companies like Google, Amazon, YouTube, Facebook, LinkedIn and others. The need to leverage the potential of combining information in a meaningful way in order to be able to benefit from the Web will create further demand for and interest in Semantic Web research. This movement, based on the growing maturity of related research results, necessitates a reliable reference source from which beginners to the field can draw a first basic knowledge of the main underlying technologies as well as state-of-the-art application areas. This handbook, put together by three leading authorities in the field, and supported by an advisory board of highly reputed researchers, fulfils exactly this need. It is the first dedicated reference work in this field, collecting contributions about both the technical foundations of the Semantic Web as well as their main usage in other scientific fields like life sciences, engineering, business, or education.

Web Semantics strengthen the description of web resources to exploit them better and make them more meaningful for both humans and machines, thereby contributing to the development of a knowledgeintensive data web. The world is experiencing the movement of concept from data to knowledge and the movement of web from document model to data model. The underlying idea is making the data machine understandable and processable. In the light of these trends, conciliation of Semantic and the Web is of paramount importance for further progress in the area. Web Semantics: Cutting Edge and Future Directions in Healthcare describes the three major components of the study of Semantic Web, namely Representation, Reasoning, and Security with a special focus on the healthcare domain. This book summarizes the trends and current research advances in web semantics, emphasizing the existing tools and techniques, methodologies, and research solutions. It provides easily comprehensible information on Web Semantics including semantics for data and semantics for services. Presents a comprehensive examination of the emerging research

in areas of the semantic web, including ontological engineering, semantic annotation, reasoning and intelligent processing, semantic search paradigms, semantic web mining, and semantic sentiment analysis Helps readers understand key concepts in semantic web applications for biomedical engineering and healthcare, including mapping disparate knowledge bases, security issues, multilingual semantic web, and integrating databases with knowledge bases Includes coverage of key application areas of the semantic web, including clinical decision-making, biodiversity science, interactive healthcare, intelligent agent systems, decision support systems, and clinical natural language processing

This book presents a collection of state-of-the-art AI approaches to cybersecurity and cyberthreat intelligence, offering strategic defense mechanisms for malware, addressing cybercrime, and assessing vulnerabilities to yield proactive rather than reactive countermeasures. The current variety and scope of cybersecurity threats far exceed the capabilities of even the most skilled security professionals. In addition, analyzing yesterday ' s security incidents no longer enables experts to predict and prevent tomorrow ' s attacks, which necessitates approaches that go far beyond identifying known threats. Nevertheless, there are promising avenues: complex behavior matching can isolate threats based on the actions taken, while machine learning can help detect anomalies, prevent malware infections, discover signs of illicit activities, and protect assets from hackers. In turn, knowledge representation enables automated reasoning over network data, helping achieve cybersituational awareness. Bringing together contributions by high-caliber experts, this book suggests new research directions in this critical and rapidly growing field.

This volume contains the lecture notes of the 9th Reasoning Web Summer School 2013, held in Mannheim, Germany, in July/August 2013. The 2013 summer school program covered diverse aspects of Web reasoning, ranging from scalable lightweight formalisms such as RDF to more expressive ontology languages based on description logics. It also featured foundational reasoning techniques used in answer set programming and ontology-based data access as well as emerging topics like geo-spatial information handling and reasoning-driven information extraction and integration.

Models, Methods, and Applications

Semantic Technology

9th International Summer School 2013, Mannheim, Germany, July 30 -- August 2, 2013. Proceedings

22nd European Conference on Artificial Intelligence, 29 August - 2 September 2016, The Hague, The Netherlands - Including Prestigious Applications of Artificial Intelligence (PAIS 2016)

Second Joint International Conference, JIST 2012, Nara, Japan, December 2-4, 2012, Proceedings

Mathematical Modeling and Simulation of Systems (MODS'2020)

This volume contains 8 lecture notes of the 16th Reasoning Web Summer School (RW 2020), held in Oslo, Norway, in June 2020. The Reasoning Web series of annual summer schools has become the prime educational event in the field of reasoning techniques on the Web, attracting both young and established researchers. The broad theme of this year's summer school was “Declarative Artificial Intelligence” and it covered various aspects of ontological reasoning and related issues that are of particular interest to Semantic Web and Linked Data applications. The following eight lectures have been presented during the school: Introduction to Probabilistic Ontologies, On the Complexity of Learning Description Logic Ontologies, Explanation via Machine Arguing, Stream Reasoning: From Theory to Practice, First-Order Rewritability of Temporal Ontology-Mediated Queries, An Introduction to Answer Set Programming and Some of Its Extensions, Declarative Data Analysis using Limit Datalog Programs, and Knowledge Graphs: Research Directions.

The Semantic Web combines the descriptive languages RDF (Resource Description Framework) and OWL (Web Ontology Language), with the data-centric, customizable XML (eXtensible Mark-up Language) to provide descriptions of the content of Web documents. These machine-interpretable descriptions allow more intelligent software systems to be written, automating the analysis and exploitation of web-based information. Software agents will be able to create automatically new services from already published services, with potentially huge implications for models of e-Business. Semantic Web Technologies provides a comprehensive overview of key semantic knowledge technologies and research. The authors explain (semi-)automatic ontology generation and metadata extraction in depth, along with ontology management and mediation. Further chapters examine how Semantic Web technology is being applied in knowledge management (“Semantic Information Access”) and in the next generation of Web services. Semantic Web Technologies: Provides a comprehensive exposition of the state-of-the art in Semantic Web research and key technologies. Explains the use of ontologies and metadata to achieve machine-interpretability. Describes methods for ontology learning and metadata generation. Discusses ontology management and evolution, covering ontology change detection and propagation, ontology dependency and mediation. Illustrates the theoretical concepts with three case studies on industrial applications in digital libraries, the legal sector and the telecommunication industry. Graduate and advanced undergraduate students, academic and industrial researchers in the field will all find Semantic Web Technologies an essential guide to the technologies of the Semantic Web.

This book constitutes the proceedings of the 4th Joint International Semantic Technology Conference, JIST 2014, held in Chiang Mai, Thailand, in November 2014. The theme of the JIST 2014 conference was "Open Data and Semantic Technology". JIST 2014 conference consisted of main technical tracks including regular paper track (full and short papers), in-use track and special track, poster and demo session, two workshops and four tutorials. The 32 papers in this volume were carefully reviewed and selected from 71 submissions. The paper topics are

divided into eight categories: ontology and reasoning, linked data, learning and discovery, rdf and sparql, ontological engineering, semantic social Web, search and querying and applications of semantic technology.
"The Semantic Web is a new area of research and development in the field of computer science that aims to make it easier for computers to process the huge amount of information on the Web, and indeed other large databases, by enabling them not only to read, but also to understand the information. Based on successful courses taught by the authors, and liberally sprinkled with examples and exercises, this comprehensive textbook describes not only the theoretical issues underlying the Semantic Web, but alsoalgorithms, optimisation ideas and implementation details. The book will therefore be valuable to practitioners as well as students, indeed to anyone who is interested in Internet technology, knowledge engineering or description logics. Supplementary materials available online include the source code of program examples and solutions to selected exercises"--
Semantic Web Programming
Advances in Web Semantics I
Flexible Integration and Efficient Analysis of Multidimensional Datasets from the Web
5th Joint International Conference, JIST 2015, Yichang, China, November 11-13, 2015, Revised Selected Papers
The Semantic Web Explained
ECAI 2016

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.

This book contains a collection of thoroughly revised tutorial papers based on lectures given by leading researchers at the Second International Summer School on the Reasoning Web in Dresden, Germany, September 2007. The nine tutorial papers cover methods and research issues of the Semantic Web, ontology languages and their relation to description logics, techniques in Web information extraction, employing ontologies to ease construction of software applications, and more.

Welcome to the proceedings of Reasoning Web 2010 which was held in Dresden. Reasoning Web is a summer school series on theoretical foundations,contemporary approaches, and practical solutions for reasoning in a Web of Semantics. It has est- lished itself as a meeting point for experts from research institutes and industry, as well as students undertakingtheir PhDs in related ?elds. This volume contains tutorial notes of the sixth school in the series, held from August 30 to September 3, 2010. This year, the school focused on applications of semantic technologies in software engineeringandthereasoningtechnologiesappropriateforsuchanendeavor. Asit turns out, semantic technologies in software engineering are not so easily applied, and s- eral issues mustbe resolvedbeforesoftware modelingcanbene?t fromreasoning. First, reasoning has to be fast and scalable, since models and programscan be quite large and voluminous. Sincemanyreasoninglanguagesareexponentialor NP-complete,appro- mation, incrementalization,and other optimizationtechniques are extremelyimportant. Second, software engineering needs to model software systems, in contrast to mod- ing domains of the world. Thus, the modeling techniques are prescriptive rather than descriptive [1], which in?uences the way models are reasoned about. When a software system is modeled, its behavior is prescribed by the model, that is, “ the truth is in the model ” [2]; when a domainof the world is described,its behaviorcannotbe prescribed, only described by the model (“ the truth is in the world ”). Therefore, reasoning has to distinguish between prescriptiveness and descriptiveness, leading to different assu- tions about the closeness or openness of the world (closed-world assumption, CWA vs. open-world assumption, OWA).

This volume contains the lecture notes of the 13th Reasoning Web Summer School, RW 2017, held in London, UK, in July 2017. In 2017, the theme of the school was "Semantic Interoperability on the Web", which encompasses subjects such as data integration, open data management, reasoning over linked data, database to ontology mapping, query answering over ontologies, hybrid reasoning with rules and ontologies, and ontology-based dynamic systems. The papers of this volume focus on these topics and also address foundational reasoning techniques used in answer set programming and ontologies.

Ontologies, Web Services and Applied Semantic Web
Reasoning Web. Semantic Technologies for the Web of Data

Cutting Edge and Future Directions in Healthcare
Selected Papers of 15th International Scientific-practical Conference, MODS, 2020 June 29 – July 01, Chernihiv, Ukraine
16th International Summer School 2020, Oslo, Norway, June 24 – 26, 2020, Tutorial Lectures
Reasoning Web. Semantic Interoperability on the Web

This book constitutes the first volume of a series of books focusing on the vital and ever-growing field of web semantics. The primary aim of the series is to investigate, present and promote core concepts, ideas and exemplary technologies for the next generation of semantic web research, stemming from both academia and industry. Topics covered will include process semantics, web services, ontologies, workflows, trust and reputation, and web applications. The 14 papers in this volume, written by key scientists in the field, are preceded by an introduction written by the volume editors. The papers have been divided into three sections on Ontologies and Knowledge Sharing, Applied Semantic Web, and Web Services.

Model-Driven Engineering (MDE) aims to raise the level of abstraction in software system specifications and increase automation in software development. Modelware technological spaces contain the languages and tools for MDE that software developers take into consideration to model systems and domains. Ontoware technological spaces contain ontology languages and technologies to design, query, and reason on knowledge. With the advent of the Semantic Web, ontologies are now being used within the field of software development, as well. In this thesis, bridging technologies are developed to combine two technological spaces in general. In particular, this thesis focuses on the combination of modelware and ontoware technological spaces. Subsequent to a sound comparison of languages and tools in both spaces, the bridging technologies are used to build a common technological space, which allows for the hybrid use of languages and the interoperable use of tools.

The next major advance in the Web-Web 3.0-will be built on semantic Web technologies, which will allow data to be shared and reused across application, enterprise, and community boundaries. Written by a team of highly experienced Web developers, this book explains examines how this powerful new technology can unify and fully leverage the ever-growing data, information, and services that are available on the Internet. Helpful examples demonstrate how to use the semantic Web to solve practical, real-world problems while you take a look at the set of design principles, collaborative working groups, and technologies that form the semantic Web. The companion Web site features full code, as well as a reference section, a FAQ section, a discussion forum, and a semantic blog.

The Semantic Web aims at enriching the existing Web with meta-data and processing methods so as to provide web-based systems with advanced capabilities, in particular with context awareness and decision support.

The objective of this book is to provide a coherent introduction to semantic web methods and research issues with a particular emphasis on reasoning. The 7th reasoning web Summer School, held in August 2011, focused on the central topic of applications of reasoning for the emerging “ Web of Data ”. The 12 chapters in the present book provide excellent educational material as well as a number of references for further reading. The book not only addresses students working in the area, but also those seeking an entry point to various topics related to reasoning over Web data.

Data Mining: Concepts, Methodologies, Tools, and Applications
8th International Summer School 2012, Vienna, Austria, September 3-8, 2012. Proceedings
Semantic Web and Model-Driven Engineering
Trends and Research in Ontology-based Systems
XML Data Mining: Models, Methods, and Applications
9th Joint International Conference, JIST 2019, Hangzhou, China, November 25 – 27, 2019, Revised Selected Papers

With more substantial funding from research organizations and industry, numerous large-scale applications, and recently developed technologies, the Semantic Web is quickly emerging as a well-recognized and important area of computer science. While Semantic Web technologies are still rapidly evolving, Foundations of Semantic Web Technologies focuses

Data mining continues to be an emerging interdisciplinary field that offers the ability to extract information from an existing data set and translate that knowledge for end-users into an understandable way. Data Mining: Concepts, Methodologies, Tools, and Applications is a comprehensive collection of research on the latest advancements and developments of data mining and how it fits into the current technological world.

This book constitutes the proceedings of the Second Joint International Semantic Technology Conference, JIST 2012, held in Nara, Japan, in December 2012. The 20 full papers and 13 short papers included in this volume were carefully reviewed and selected from 90 submissions. The regular papers deal with ontology and description logics; RDF and SPARQL; learning and discovery; semantic search; knowledge building; semantic Web application. The in-use track papers cover topics on social semantic Web and semantic search; and the special track papers have linked data in practice and database integration as a topic.

This book constitutes the thoroughly refereed proceedings of the 5th Joint International Semantic Technology Conference, JIST 2015, held in Yichang, China, in November 2015. The theme of the JIST 2015 conference was "Big Data and Social Media". The JIST 2015 conference consisted of main technical tracks including 2 keynotes, 2 invited talks, a regular technical paper track (full and short papers), an in-use track, a poster and demo session, workshop, and tutorial. The 14 full and 8 short papers in this volume were carefully reviewed and selected from 43 submissions. The paper cover the following topics: ontology and reasoning, linked data, learning and discovery, RDF and query, knowledge graph, knowledge integration, query and recommendation, and applications of semantic technologies.

A Semantic Web Primer, third edition
Advanced Concepts, Methods, and Applications in Semantic Computing
10th International Summer School 2014, Athens, Greece, September 8-13, 2014. Proceedings
Third International Summer School 2007, Dresden, Germany, September 3-7, 2007, Tutorial Lectures

Reasoning Web - Semantic Technologies for Advanced Query Answering
Engineering Agile Big-Data Systems
This book constitutes the thoroughly refereed proceedings of the 9th Joint International Semantic Technology Conference, JIST 2019, held in Hangzhou, China, in November 2019. The 12 full papers and 12 short papers presented were carefully reviewed and selected from 70 submissions. The papers present applications of semantic technologies, theoretical results, new algorithms and tools to facilitate the adoption of semantic technologies.
Semantic computing is critical for the development of semantic systems and applications that must utilize semantic analysis, semantic description, semantic interfaces, and semantic integration of data and services to deliver their objectives. Semantic computing has enormous capabilities to enhance the efficiency and throughput of systems that are based on key emerging concepts and technologies such as semantic web, internet of things, blockchain technology, and knowledge graphs. Thus, research that expounds advanced concepts, methods, technologies, and applications of semantic computing for solving challenges in real-world domains is vital. Advanced Concepts, Methods, and Applications in Semantic Computing is a scholarly reference book that provides a sound theoretical foundation for the application of semantic methods, concepts, and technologies for practical problem solving. It is designed as a comprehensive and reliable resource on how semantic-oriented approaches can be used to aid new emergent technologies and tackle real-world problems. Covering topics that include deep learning, machine learning, blockchain technology, and semantic web services, this book is ideal for professionals, academicians, researchers, and students working in the field of semantic computing in various disciplines, including but not limited to software engineering, systems engineering, knowledge engineering, electronic commerce, computer science, and information technology.
This volume contains the lecture notes of the 8th Reasoning Web Summer School 2012, held in Vienna, Austria, in September 2012, in the form of worked out tutorial papers on the various topics that have been covered in that school. The 2012 summer school program had been put together under the general leitmotif of advanced query answering topics for the Web. The idea was to address on the one hand foundations and computational aspects of query answering, in formalisms, methods and technology, and on the other hand to also spotlight some rising or emerging application fields relating to the Semantic Web in which query answering plays a role, and which by their nature also pose new challenges and problems for this task; linked stream processing, geospatial data, semantic wikis, and argumentation on the web fall in this category.
This book contains works on mathematical and simulation modeling of processes in various domains: ecology and geographic information systems, IT, industry, and project management. The development of complex multicomponent systems requires an increase in accuracy, efficiency, and adequacy while reducing the cost of their creation. The studies presented in the book are useful to specialists who are involved in the development of real events models: analog, management and decision-making models, production models, and software products. Scientists can get acquainted with the latest research in various decisions proposed by leading scholars and identify promising directions for solving complex scientific and practical problems. The chapters of this book contain the contributions presented on the 15th International Scientific-Practical Conference, MODS, June 29 – July 01, 2020, Chernihiv, Ukraine.
Handbook of Semantic Web Technologies
Bridging Technological Spaces
Reasoning Web. Reasoning and the Web in the Big Data Era
The Technology and Mathematics behind Web 3.0
5th International Summer School 2009, Brixen-Bressanone, Italy, August 30 - September 4, 2009, Tutorial Lectures
Reasoning Web. Semantic Technologies for Software Engineering
Ontology-based Application Integration introduces UI-level (User Interface Level) application integration and discusses current problems which can be remedied by using ontologies. It shows a novel approach for applying ontologies in system integration. While ontologies have been used for integration of IT systems on the database and on the business logic layer, integration on the user interface layer is a novel field of research. This book also discusses how end users, not only developers, can benefit from semantic technologies. Ontology-based Application Integration presents the development of a software framework including a detailed ontology about user interfaces and interactions. This includes a running case study of a real world integrated emergency management system. The last section of this book discusses useful features that can be built on top of the framework for improving the user experience with future integrated information systems. Ontology-based Application Integration is designed as a reference book for practitioners and researchers who understand and work with the principles of applying semantic web technologies to a software engineering problem. This book will also make an excellent reference or secondary text book for advanced-level students concentrating on computer science.
This volume contains the lecture notes of the 10th Reasoning Web Summer School 2014, held in Athens, Greece, in September 2014. In 2014, the lecture program of the Reasoning Web introduces students to recent advances in big data aspects of semantic web and linked data, and the fundamentals of reasoning techniques that can be used to tackle big data applications.
This book contains a collection of revised tutorial papers based on lectures given by researchers at the 5th International Summer School on the Reasoning Web. It introduces semantic web methods and research issues with a particular emphasis on reasoning.
Artificial Intelligence continues to be one of the most exciting and fast-developing fields of computer science. This book presents the 177 long papers and 123 short papers accepted for ECAI 2016, the latest edition of the biennial European Conference on Artificial Intelligence, Europe ’ s premier venue for presenting scientific results in AI. The conference was held in The Hague, the Netherlands, from August 29 to September 2, 2016. ECAI 2016 also incorporated the conference on Prestigious Applications of Intelligent Systems (PAIS) 2016, and the Starting AI Researcher Symposium (STAIRS). The papers from PAIS are included in this volume; the papers from STAIRS are published in a separate volume in the Frontiers in Artificial Intelligence and Applications (FAIA) series. Organized by the European Association for Artificial Intelligence (EurAI) and the Benelux Association for Artificial Intelligence (BNVKI), the ECAI conference provides an opportunity for researchers to present and hear about the very best research in contemporary AI. This proceedings will be of interest to all those seeking an overview of the very latest innovations and developments in this field.
7th International Summer School 2011, Galway, Ireland, August 23-27, 2011, Tutorial Lectures

Reasoning Web. Semantic Technologies for Intelligent Data Access
AI in Cybersecurity
The Use of Ontologies in Practice
Reasoning Web. Declarative Artificial Intelligence
Semantic Web technologies enable people to create data stores on the Web, build vocabularies, and write rules for handling data. They have been in use for several years now, and knowledge extraction and knowledge discovery are two key aspects investigated in a number of research fields which can potentially benefit from the application of semantic web technologies, and specifically from the development and reuse of ontologies.This book, Applications and Practices in Ontology Design, Extraction, and Reasoning, has as its main goal the provision of an overview of application fields for semantic web technologies. In particular, it investigates how state-of-the-art formal languages, models, methods, and applications of semantic web technologies reframe research questions and approaches in a number of research fields. The book also aims to showcase practical tools and background knowledge for the building and querying of ontologies.The first part of the book presents the state-of-the-art of ontology design, applications and practices in a number of communities, and in doing so it provides an overview of the latest approaches and techniques for building and reusing ontologies according to domain-dependent and independent requirements. Once the data is represented according to ontologies, it is important to be able to query and reason about them, also in the presence of uncertainty, vagueness and probabilities. The second part of the book covers some of the latest advances in the fields of ontology, semantics and reasoning, without losing sight of the book's practical goals.
Concepts, Methodologies, Tools, and Applications
Foundations of Semantic Web Technologies
Semantic Web