

Answer Set Solving In Practice Synthesis Lectures On Artificial Intelligence And Machine Learning

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Computational Intelligence - Christophe Sabourin 2019-05-29

This book presents revised and extended versions of the best papers presented at the 9th International Joint Conference on Computational Intelligence (IJCCI 2017), held in Funchal, Madeira, from 1 to 3 November 2017. It focuses on four of the main fields of computational intelligence: evolutionary computation, fuzzy computation, neural computation, and cognitive and hybrid systems. As well as presenting the recent advances of these areas, it provides new and innovative solutions for established researchers and a source of information and/or inspiration those new to the field. Discussing innovative techniques in various application areas, it is a useful resource for individual researchers and a valuable addition to academic libraries (of universities and engineering schools).

Algorithmic Decision Theory - Toby Walsh 2015-08-27

This book constitutes the thoroughly refereed conference proceedings of the 4th International Conference on Algorithmic Decision Theory, ADT 2015, held in September 2015 in Lexington, USA. The 32 full papers presented were carefully selected from 76 submissions. The papers are organized in topical sections such as preferences; manipulation, learning and other issues; utility and decision theory; argumentation; bribery and control; social choice; allocation and other problems; doctoral consortium.

Computational Methods in Systems Biology - Eugenio Cinquemani 2021-09-13

This book constitutes the refereed proceedings of the 19th International Conference on Computational Methods in Systems Biology, CMSB 2021, held in Bordeaux, France, September 22-24, 2021.*The 13 full papers and 5 tool papers were carefully reviewed and selected from 32 submissions. The topics of interest include biological process modelling; biological system model verification, validation, analysis, and simulation; high-performance computational systems biology; model inference from experimental data; multi-scale modeling and analysis methods; computational approaches for synthetic biology; machine learning and data-driven approaches; microbial ecology modelling and analysis; methods and protocols for populations and their variability; models, applications, and case studies in systems and synthetic biology. The chapters "Microbial Community Decision Making Models in Batch", "Population design for synthetic gene circuits", "BioFVM-X: An MPI+OpenMP 3-D Simulator for Biological Systems" are published open access under a CC BY license (Creative Commons Attribution 4.0 International License). * The conference was held in a hybrid mode due to the COVID-19 pandemic.

Logics in Artificial Intelligence - Francesco Calimeri 2019-05-06

This book constitutes the proceedings of the 16th European Conference on Logics in Artificial Intelligence, JELIA 2019, held in Rende, Italy, in May 2019. The 50 full papers and 10 short papers included in this volume were carefully reviewed and selected from 101 submissions. Additionally, the book contains 3 invited papers. The accepted papers span a number of areas within Logics in AI, including: belief revision and argumentation; causal, defeasible and inductive reasoning; conditional, probabilistic and propositional logic; description logics; logic programming; modal and default logic; and temporal logic.

How People Learn II - National Academies of Sciences, Engineering, and Medicine 2018-09-27

There are many reasons to be curious about the way people learn, and the past several decades have seen an explosion of research that has important implications for individual learning, schooling, workforce training, and policy. In 2000, *How People Learn: Brain, Mind, Experience, and School: Expanded Edition*

was published and its influence has been wide and deep. The report summarized insights on the nature of learning in school-aged children; described principles for the design of effective learning environments; and provided examples of how that could be implemented in the classroom. Since then, researchers have continued to investigate the nature of learning and have generated new findings related to the neurological processes involved in learning, individual and cultural variability related to learning, and educational technologies. In addition to expanding scientific understanding of the mechanisms of learning and how the brain adapts throughout the lifespan, there have been important discoveries about influences on learning, particularly sociocultural factors and the structure of learning environments. *How People Learn II: Learners, Contexts, and Cultures* provides a much-needed update incorporating insights gained from this research over the past decade. The book expands on the foundation laid out in the 2000 report and takes an in-depth look at the constellation of influences that affect individual learning. *How People Learn II* will become an indispensable resource to understand learning throughout the lifespan for educators of students and adults.

Logic Programming and Nonmonotonic Reasoning - Pedro Cabalar 2013-09-12

This volume contains the refereed proceedings of the 12th International Conference on Logic Programming and Nonmonotonic Reasoning, LPNMR 2013, held in September 2013 in Corunna, Spain. The 34 revised full papers (22 technical papers, 9 application description, and 3 system descriptions) and 19 short papers (11 technical papers, 3 application descriptions, and 5 system descriptions) presented together with 2 invited talks, were carefully reviewed and selected from 91 submissions. Being a forum for exchanging ideas on declarative logic programming, nonmonotonic reasoning, and knowledge representation, the conference aims to facilitate interactions between those researchers and practitioners interested in the design and implementation of logic-based programming languages and database systems, and those who work in the area of knowledge representation and nonmonotonic reasoning.

Knowledge Science, Engineering and Management - Robert Buchmann 2014-10-10

This book constitutes the refereed proceedings of the 7th International Conference on Knowledge Science, Engineering and Management, KSEM 2014, held in Sibiu, Romania, in October 2014. The 30 revised full papers presented together with 5 short papers and 3 keynote were carefully selected and reviewed from 77 submissions. The papers are organized in topical sections on formal semantics; content and document analysis; concept and lexical analysis; clustering and classification; metamodeling and conceptual modeling; enterprise knowledge; knowledge discovery and retrieval; formal knowledge processing; ontology engineering and management; knowledge management; and hybrid knowledge systems.

Modern Stroke Rehabilitation through e-Health-based Entertainment - Emmanouela Vogiatzaki 2015-09-08

This book describes a new, "e-Health" approach to stroke rehabilitation. The authors propose an alternative approach that combines state of the art ICT technologies ranging from Augmented and Virtual Reality gaming environments to latest advances in immersive user interfaces for delivering a mixed-reality training platform, along with advanced embedded micro sensing and computing devices exhibiting enhanced power autonomy by using the latest Bluetooth Smart communication interfaces and energy saving approaches. These technologies are integrated under the umbrella of an online Personal Health Record (PHR) services allowing for delivery of personalized, patient-centric medical services whether at home, in a clinic or on the

move. Describes innovative ways for achieving mixed-reality gaming environments; Enhances immersive experience by combining virtual projections with user interfaces based on body motion analysis; Offers cost-effective body motion capture by hybridizing wearable sensor data; Utilizes energy-efficient micro-embedded sensors for wearable physiological and sensing and activity monitoring applications; Includes innovative, power autonomous sensing using Body Area Networks; Describes the prototype of the portable, integrated rehabilitation training solution.

Theory and Applications of Satisfiability Testing - SAT 2020 - Luca Pulina 2020-07-01

This book constitutes the proceedings of the 23rd International Conference on Theory and Applications of Satisfiability Testing, SAT 2020, which was planned to take place in Alghero, Italy, during July 5-9, 2020. Due to the coronavirus COVID-19 pandemic, the conference was held virtually. The 25 full, 9 short, and 2 tool papers presented in this volume were carefully reviewed and selected from 69 submissions. They deal with SAT interpreted in a broad sense, including theoretical advances (such as exact algorithms, proof complexity, and other complexity issues), practical search algorithms, knowledge compilation, implementation-level details of SAT solvers and SAT-based systems, problem encodings and reformulations, applications (including both novel application domains and improvements to existing approaches), as well as case studies and reports on findings based on rigorous experimentation.

Business Process Management Workshops - Manfred Reichert 2016-07-25

This book constitutes the refereed proceedings of ten international workshops held in Innsbruck, Austria, in conjunction with the 13th International Conference on Business Process Management, BPM 2015, in September 2015. The seven workshops comprised Adaptive Case Management and other Non-workflow Approaches to BPM (AdaptiveCM 2015), Business Process Intelligence (BPI 2015), Social and Human Aspects of Business Process Management (BPMS2 2015), Data- and Artifact-centric BPM (DAB 2015), Decision Mining and Modeling for Business Processes (DeMiMoP 2015), Process Engineering (IWPE 2015), and Theory and Applications of Process Visualization (TaProViz 2015). The 42 revised papers presented were carefully reviewed and selected from 104 submissions. In addition, four short papers and one keynote (from TAProViz) are also included in this book.

KI 2016: Advances in Artificial Intelligence - Gerhard Friedrich 2016-09-08

This book constitutes the refereed proceedings of the 39th Annual German Conference on Artificial Intelligence, KI 2016, in conjunction with the Österreichische Gesellschaft für Artificial Intelligence, ÖGAI, held in Klagenfurt, Austria, in September 2016. The 8 revised full technical papers presented together with 12 technical communications, and 16 extended abstracts were carefully reviewed and selected from 44 submissions. The conference provides the opportunity to present a wider range of results and ideas that are of interest to the KI audience, including reports about recent own publications, position papers, and previews of ongoing work.

Handbook of Satisfiability - A. Biere 2021-05-05

Propositional logic has been recognized throughout the centuries as one of the cornerstones of reasoning in philosophy and mathematics. Over time, its formalization into Boolean algebra was accompanied by the recognition that a wide range of combinatorial problems can be expressed as propositional satisfiability (SAT) problems. Because of this dual role, SAT developed into a mature, multi-faceted scientific discipline, and from the earliest days of computing a search was underway to discover how to solve SAT problems in an automated fashion. This book, the Handbook of Satisfiability, is the second, updated and revised edition of the book first published in 2009 under the same name. The handbook aims to capture the full breadth and depth of SAT and to bring together significant progress and advances in automated solving. Topics covered span practical and theoretical research on SAT and its applications and include search algorithms, heuristics, analysis of algorithms, hard instances, randomized formulae, problem encodings, industrial applications, solvers, simplifiers, tools, case studies and empirical results. SAT is interpreted in a broad sense, so as well as propositional satisfiability, there are chapters covering the domain of quantified Boolean formulae (QBF), constraints programming techniques (CSP) for word-level problems and their propositional encoding, and satisfiability modulo theories (SMT). An extensive bibliography completes each chapter. This second edition of the handbook will be of interest to researchers, graduate students, final-year undergraduates, and practitioners using or contributing to SAT, and will provide both an inspiration

and a rich resource for their work. Edmund Clarke, 2007 ACM Turing Award Recipient: "SAT solving is a key technology for 21st century computer science." Donald Knuth, 1974 ACM Turing Award Recipient: "SAT is evidently a killer app, because it is key to the solution of so many other problems." Stephen Cook, 1982 ACM Turing Award Recipient: "The SAT problem is at the core of arguably the most fundamental question in computer science: What makes a problem hard?"

Flexible Query Answering Systems - Alfredo Cuzzocrea 2019-09-11

This book constitutes the refereed proceedings of the 13th International Conference on Flexible Query Answering Systems, FQAS 2019, held in Amantea, Italy, in July 2019. The 27 full papers and 10 short papers presented were carefully reviewed and selected from 43 submissions. The papers present emerging research trends with a special focus on flexible querying and analytics for smart cities and smart societies in the age of big data. They are organized in the following topical sections: flexible database management and querying; ontologies and knowledge bases; social networks and social media; argumentation-based query answering; data mining and knowledge discovery; advanced flexible query answering methodologies and techniques; flexible query answering methods and techniques; flexible intelligent information-oriented and network-oriented approaches; big data veracity and soft computing; flexibility in tools; and systems and miscellanea.

RoboCup 2017: Robot World Cup XXI - Hidehisa Akiyama 2018-09-12

This book includes the post-conference proceedings of the 21st RoboCup International Symposium, held in Nagoya, Japan, in September 2017. The 33 full revised papers and 9 papers from the winning teams presented were carefully reviewed and selected from 58 submissions. The papers are organized on topical sections on Robotics, Artificial intelligence, Environment perception, State estimation and much more.

Principles and Practice of Constraint Programming-CP 2013 - Christian Schulte 2013-09-07

This book constitutes the refereed conference proceedings of the 18th International Conference on Principles and Practice of Constraint Programming (CP 2013), held in Uppsala, Sweden, in September 2013. The 61 revised papers presented together with 3 invited talks were carefully selected from 138 submissions. The scope of the conference is on all aspects of computing with constraints, including: theory, algorithms, environments, languages, models and systems, applications such as decision making, resource allocation, and agreement technologies.

Answer Set Solving in Practice - Martin Gebser 2012-12-01

Answer Set Programming (ASP) is a declarative problem solving approach, initially tailored to modeling problems in the area of Knowledge Representation and Reasoning (KRR). More recently, its attractive combination of a rich yet simple modeling language with high-performance solving capacities has sparked interest in many other areas even beyond KRR. This book presents a practical introduction to ASP, aiming at using ASP languages and systems for solving application problems. Starting from the essential formal foundations, it introduces ASP's solving technology, modeling language and methodology, while illustrating the overall solving process by practical examples

Logic Programming and Nonmonotonic Reasoning - Marcello Balduccini 2017-06-27

This book constitutes the refereed proceedings of the 14th International Conference on Logic Programming and Nonmonotonic Reasoning, LPNMR 2017, held in Espoo, Finland, in July 2017. The 16 full papers and 11 short papers presented in this volume were carefully reviewed and selected from 47 submissions. The book also contains 4 invited talks. The papers were organized in topical sections named: nonmonotonic reasoning; answer set programming; LPNMR systems; and LPNMR applications.

On the Move to Meaningful Internet Systems: OTM 2019 Conferences - Hervé Panetto 2019-10-10

This volume LNCS 11877 constitutes the refereed proceedings of the Confederated International Conferences: Cooperative Information Systems, CoopIS 2019, Ontologies, Databases, and Applications of Semantics, ODBASE 2019, and Cloud and Trusted Computing, C&TC, held as part of OTM 2019 in October 2019 in Rhodes, Greece. The 38 full papers presented together with 8 short papers were carefully reviewed and selected from 156 submissions. The OTM program every year covers data and Web semantics, distributed objects, Web services, databases, informationsystems, enterprise workflow and collaboration, ubiquity, interoperability, mobility, grid and high-performance computing.

Computational Models of Argument - P. Baroni 2016-09-02

Research into computational models of argument is a rich interdisciplinary field involving the study of natural, artificial and theoretical argumentation and requiring openness to interactions with a variety of disciplines, ranging from philosophy and cognitive science to formal logic and graph theory. The ultimate aim is to support the development of computer-based systems able to engage in argumentation-related activities, either with human users or among themselves. This book presents the proceedings of the sixth biennial International Conference on Computational Models of Argument (COMMA 2016), held in Potsdam, Germany, on 12- 16 September. The aim of the COMMA conferences is to bring together researchers interested in computational models of argument and the representation of argumentation structures in natural language texts, with special attention to contributions concerning emerging trends and the development of new connections with other areas. The book contains the 25 full papers, 17 short papers and 10 demonstration abstracts presented at the conference, together with 3 invited talks. Subjects covered include abstract, bipolar and structured argumentation, quantitative approaches and their connections with formalisms like Bayesian networks and fuzzy logic, multi-agent scenarios, algorithms and solvers, and mining arguments in text, dialogue, and social media. The book provides an overview of current research and developments in the field of computational models of argument, and will be essential reading for all those with an interest in the field.

A Concise Introduction to Models and Methods for Automated Planning - Hector Radanovic 2022-05-31

Planning is the model-based approach to autonomous behavior where the agent behavior is derived automatically from a model of the actions, sensors, and goals. The main challenges in planning are computational as all models, whether featuring uncertainty and feedback or not, are intractable in the worst case when represented in compact form. In this book, we look at a variety of models used in AI planning, and at the methods that have been developed for solving them. The goal is to provide a modern and coherent view of planning that is precise, concise, and mostly self-contained, without being shallow. For this, we make no attempt at covering the whole variety of planning approaches, ideas, and applications, and focus on the essentials. The target audience of the book are students and researchers interested in autonomous behavior and planning from an AI, engineering, or cognitive science perspective. Table of Contents: Preface / Planning and Autonomous Behavior / Classical Planning: Full Information and Deterministic Actions / Classical Planning: Variations and Extensions / Beyond Classical Planning: Transformations / Planning with Sensing: Logical Models / MDP Planning: Stochastic Actions and Full Feedback / POMDP Planning: Stochastic Actions and Partial Feedback / Discussion / Bibliography / Author's Biography

Intelligent Decision Technologies 2019 - Ireneusz Czarnowski 2019-07-16

The book presents a collection of peer-reviewed articles from the 11th KES International Conference on Intelligent Decision Technologies (KES-IDT-19), held Malta on 17-19 June 2019. The conference provided opportunities for the presentation of new research results and discussion about them. It was also an opportunity to generation of new ideas in the field of intelligent decision making. The range of topics explored is wide, and covers methods of classification, prediction, data analysis, decision support, modelling and many more in such areas as finance, cybersecurity, economy, health, management and transportation. The topics cover also problems of data science, signal processing and knowledge engineering.

Controlled Natural Language - Brian Davis 2014-07-21

This book constitutes the refereed proceedings of the 4th International Workshop on Controlled Natural Language, CNL 2014, held in Galway, Ireland, in August 2014. The 17 full papers and one invited paper presented were carefully reviewed and selected from 26 submissions. The topics include simplified language, plain language, formalized language, processable language, fragments of language, phraseologies, conceptual authoring, language generation, and guided natural language interfaces.

Artificial Intelligence for Knowledge Management - Eunika Mercier-Laurent 2018-06-12

This book features a selection of papers presented at the 4th IFIP WG 12.6 International Workshop on Artificial Intelligence for Knowledge Management, AI4KM 2016, held in New York, USA, in July 2016, in the framework of the International Joint Conference on Artificial Intelligence, IJCAI 2016. The 9 revised and

extended papers were carefully reviewed and selected from 16 submissions. They present new research and innovative aspects in the field of knowledge management such as machine learning, knowledge models, KM and Web, knowledge capturing and learning, and KM and AI intersections.

Computational Models of Argument - S. Parsons 2014-09-10

Argumentation, which has long been a topic of study in philosophy, has become a well-established aspect of computing science in the last 20 years. This book presents the proceedings of the fifth conference on Computational Models of Argument (COMMA), held in Pitlochry, Scotland in September 2014. Work on argumentation is broad, but the COMMA community is distinguished by virtue of its focus on the computational and mathematical aspects of the subject. This focus aims to ensure that methods are sound – that they identify arguments that are correct in some sense – and provide an unambiguous specification for implementation; producing programs that reason in the correct way and building systems capable of natural argument or of recognizing argument. The book contains 24 long papers and 18 short papers, and the 21 demonstrations presented at the conference are represented in the proceedings either by an extended abstract or by association with another paper. The book will be of interest to all those whose work involves argumentation as it relates to artificial intelligence.

Answer Set Programming - Vladimir Lifschitz 2019-08-29

Answer set programming (ASP) is a programming methodology oriented towards combinatorial search problems. In such a problem, the goal is to find a solution among a large but finite number of possibilities. The idea of ASP came from research on artificial intelligence and computational logic. ASP is a form of declarative programming: an ASP program describes what is counted as a solution to the problem, but does not specify an algorithm for solving it. Search is performed by sophisticated software systems called answer set solvers. Combinatorial search problems often arise in science and technology, and ASP has found applications in diverse areas—in historical linguistic, in bioinformatics, in robotics, in space exploration, in oil and gas industry, and many others. The importance of this programming method was recognized by the Association for the Advancement of Artificial Intelligence in 2016, when AI Magazine published a special issue on answer set programming. The book introduces the reader to the theory and practice of ASP. It describes the input language of the answer set solver CLINGO, which was designed at the University of Potsdam in Germany and is used today by ASP programmers in many countries. It includes numerous examples of ASP programs and present the mathematical theory that ASP is based on. There are many exercises with complete solutions.

Parameterized and Exact Computation - Gregory Gutin 2013-11-19

This book constitutes the thoroughly refereed post-conference proceedings of the 8th International Symposium on Parameterized and Exact Computation, IPEC 2013, in Sophia Antipolis, France, in September 2013. The 29 revised full papers presented were carefully reviewed and selected from 58 submissions. The topics addressed cover research in all aspects of parameterized/exact algorithms and complexity including but are not limited to new techniques for the design and analysis of parameterized and exact algorithms, fixed-parameter tractability results, parameterized complexity theory, relationship between parameterized complexity and traditional complexity classifications, applications of parameterized and exact computation, and implementation issues of parameterized and exact algorithms.

Practical Aspects of Declarative Languages - Francesco Calimeri 2018-01-02

This book constitutes the proceedings of the 20th International Symposium on Practical Aspects of Declarative Languages, PADL 2018, held in Los Angeles, CA, USA, in January 2018 and collocated with the 45th ACM SIGPLAN Symposium on Principles of Programming Languages. The 13 regular papers presented in this volume together with the abstracts of 2 invited talks were carefully reviewed and selected from 23 submissions. They deal with functional programming; constraint programming and business rules; prolog and optimization; and answer set programming.

Theory and Applications of Satisfiability Testing - SAT 2016 - Nadia Creignou 2016-06-10

This book constitutes the refereed proceedings of the 19th International Conference on Theory and Applications of Satisfiability Testing, SAT 2016, held in Bordeaux, France, in July 2016. The 31 regular papers, 5 tool papers presented together with 3 invited talks were carefully reviewed and selected from 70 submissions. The papers address different aspects of SAT, including complexity, satisfiability solving,

satisfiability applications, satisfiability modolop theory, beyond SAT, quantified Boolean formula, and dependency QBF.

Rough Sets - Sheela Ramanna 2021-10-19

The volume LNAI 12872 constitutes the proceedings of the International Joint Conference on Rough Sets, IJCRS 2021, Bratislava, Slovak Republic, in September 2021. The conference was held as a hybrid event due to the COVID-19 pandemic. The 13 full paper and 7 short papers presented were carefully reviewed and selected from 26 submissions, along with 5 invited papers. The papers are grouped in the following topical sections: core rough set models and methods, related methods and hybridization, and areas of applications.

Knowledge Representation, Reasoning, and the Design of Intelligent Agents - Michael Gelfond 2014-03-10

Knowledge representation and reasoning is the foundation of artificial intelligence, declarative programming, and the design of knowledge-intensive software systems capable of performing intelligent tasks. Using logical and probabilistic formalisms based on answer set programming (ASP) and action languages, this book shows how knowledge-intensive systems can be given knowledge about the world and how it can be used to solve non-trivial computational problems. The authors maintain a balance between mathematical analysis and practical design of intelligent agents. All the concepts, such as answering queries, planning, diagnostics, and probabilistic reasoning, are illustrated by programs of ASP. The text can be used for AI-related undergraduate and graduate classes and by researchers who would like to learn more about ASP and knowledge representation.

Human-Like Machine Intelligence - Stephen Muggleton 2021-07-15

In recent years there has been increasing excitement concerning the potential of Artificial Intelligence to transform human society. This book addresses the leading edge of research in this area. The research described aims to address present incompatibilities of Human and Machine reasoning and learning approaches. According to the influential US funding agency DARPA (originator of the Internet and Self-Driving Cars) this new area represents the Third Wave of Artificial Intelligence (3AI, 2020s-2030s), and is being actively investigated in the US, Europe and China. The chapters of this book have been authored by a mixture of UK and other international specialists. Some of the key questions addressed by the Human-Like Computing programme include how AI systems might 1) explain their decisions effectively, 2) interact with human beings in natural language, 3) learn from small numbers of examples and 4) learn with minimal supervision. Solving such fundamental problems involves new foundational research in both the Psychology of perception and interaction as well as the development of novel algorithmic approaches in Artificial Intelligence.

Graph Representation Learning - William L. Hamilton 2022-06-01

Graph-structured data is ubiquitous throughout the natural and social sciences, from telecommunication networks to quantum chemistry. Building relational inductive biases into deep learning architectures is crucial for creating systems that can learn, reason, and generalize from this kind of data. Recent years have seen a surge in research on graph representation learning, including techniques for deep graph embeddings, generalizations of convolutional neural networks to graph-structured data, and neural message-passing approaches inspired by belief propagation. These advances in graph representation learning have led to new state-of-the-art results in numerous domains, including chemical synthesis, 3D vision, recommender systems, question answering, and social network analysis. This book provides a synthesis and overview of graph representation learning. It begins with a discussion of the goals of graph representation learning as well as key methodological foundations in graph theory and network analysis. Following this, the book introduces and reviews methods for learning node embeddings, including random-walk-based methods and applications to knowledge graphs. It then provides a technical synthesis and introduction to the highly successful graph neural network (GNN) formalism, which has become a dominant and fast-growing paradigm for deep learning with graph data. The book concludes with a synthesis of recent advancements in deep generative models for graphs—a nascent but quickly growing subset of graph representation learning.

Answer Set Solving in Practice - Martin Liu 2022-05-31

Answer Set Programming (ASP) is a declarative problem solving approach, initially tailored to modeling

problems in the area of Knowledge Representation and Reasoning (KRR). More recently, its attractive combination of a rich yet simple modeling language with high-performance solving capacities has sparked interest in many other areas even beyond KRR. This book presents a practical introduction to ASP, aiming at using ASP languages and systems for solving application problems. Starting from the essential formal foundations, it introduces ASP's solving technology, modeling language and methodology, while illustrating the overall solving process by practical examples. Table of Contents: List of Figures / List of Tables / Motivation / Introduction / Basic modeling / Grounding / Characterizations / Solving / Systems / Advanced modeling / Conclusions

Reasoning Web. Web Logic Rules - Wolfgang Faber 2015-07-17

This volume contains the lecture notes of the 11th Reasoning Web Summer School 2015, held in Berlin, Germany, in July/August 2015. In 2015, the theme of the school was Web Logic Rules. This Summer School is devoted to this perspective, and provides insight into the semantic Web, linked data, ontologies, rules, and logic.

Foundations of Information and Knowledge Systems - Flavio Ferrarotti 2018-05-07

This book constitutes the refereed proceedings of the 10th International Symposium on Foundations of Information and Knowledge Systems, FoIKS 2018, held in Budapest, Hungary, in May 2018. The 20 revised full papers presented together with 1 invited talk were carefully reviewed and selected from 40 submissions. The papers address various topics such as big data; database design; dynamics of information; information fusion; integrity and constraint management; intelligent agents; knowledge discovery and information retrieval; knowledge representation, reasoning and planning; logics in databases and AI; mathematical foundations; security in information and knowledge systems; semi-structured data and XML; social computing; the semantic web and knowledge management; and the world wide web.

Logics in Artificial Intelligence - Eduardo Fermé 2014-09-16

This book constitutes the proceedings of the 14th European Conference on Logics in Artificial Intelligence, JELIA 2014, held in Funchal, Madeira, Portugal, in September 2014. The 35 full papers and 14 short papers included in this volume were carefully reviewed and selected from 121 submissions. They are organized in topical sections named: description logics; automated reasoning; logics for uncertain reasoning; non-classical logics; answer-set programming; belief revision; dealing with inconsistency in ASP and DL; reason about actions and causality; system descriptions; short system descriptions; and short papers. The book also contains 4 full paper invited talks.

Proceedings of the 21st EANN (Engineering Applications of Neural Networks) 2020 Conference - Lazaros Iliadis 2020-05-27

This book gathers the proceedings of the 21st Engineering Applications of Neural Networks Conference, which is supported by the International Neural Networks Society (INNS). Artificial Intelligence (AI) has been following a unique course, characterized by alternating growth spurts and "AI winters." Today, AI is an essential component of the fourth industrial revolution and enjoying its heyday. Further, in specific areas, AI is catching up with or even outperforming human beings. This book offers a comprehensive guide to AI in a variety of areas, concentrating on new or hybrid AI algorithmic approaches with robust applications in diverse sectors. One of the advantages of this book is that it includes robust algorithmic approaches and applications in a broad spectrum of scientific fields, namely the use of convolutional neural networks (CNNs), deep learning and LSTM in robotics/machine vision/engineering/image processing/medical systems/the environment; machine learning and meta learning applied to neurobiological modeling/optimization; state-of-the-art hybrid systems; and the algorithmic foundations of artificial neural networks.

Learner-Centered Teaching - Maryellen Weimer 2008-05-02

In this much needed resource, Maryellen Weimer—one of the nation's most highly regarded authorities on effective college teaching—offers a comprehensive work on the topic of learner-centered teaching in the college and university classroom. As the author explains, learner-centered teaching focuses attention on what the student is learning, how the student is learning, the conditions under which the student is learning, whether the student is retaining and applying the learning, and how current learning positions the student for future learning. To help educators accomplish the goals of learner-centered teaching, this

important book presents the meaning, practice, and ramifications of the learner-centered approach, and how this approach transforms the college classroom environment. *Learner-Centered Teaching* shows how to tie teaching and curriculum to the process and objectives of learning rather than to the content delivery alone.

How People Learn - National Research Council 2000-08-11

First released in the Spring of 1999, *How People Learn* has been expanded to show how the theories and insights from the original book can translate into actions and practice, now making a real connection between classroom activities and learning behavior. This edition includes far-reaching suggestions for research that could increase the impact that classroom teaching has on actual learning. Like the original edition, this book offers exciting new research about the mind and the brain that provides answers to a number of compelling questions. When do infants begin to learn? How do experts learn and how is this different from non-experts? What can teachers and schools do with curricula, classroom settings, and teaching methods--to help children learn most effectively? New evidence from many branches of science has significantly added to our understanding of what it means to know, from the neural processes that occur during learning to the influence of culture on what people see and absorb. *How People Learn* examines these findings and their implications for what we teach, how we teach it, and how we assess what our children learn. The book uses exemplary teaching to illustrate how approaches based on what we now know result in in-depth learning. This new knowledge calls into question concepts and practices firmly entrenched in our current education system. Topics include: How learning actually changes the physical structure of the brain. How existing knowledge affects what people notice and how they learn. What the thought processes of experts tell us about how to teach. The amazing learning potential of infants. The relationship of classroom learning and everyday settings of community and workplace. Learning needs and opportunities for teachers. A realistic look at the role of technology in education.

Declarative Logic Programming - Michael Kifer 2018-09-19

The idea of this book grew out of a symposium that was held at Stony Brook in September 2012 in celebration of David S. Warren's fundamental contributions to Computer Science and the area of Logic

Programming in particular. Logic Programming (LP) is at the nexus of Knowledge Representation, Artificial Intelligence, Mathematical Logic, Databases, and Programming Languages. It is fascinating and intellectually stimulating due to the fundamental interplay among theory, systems, and applications brought about by logic. Logic programs are more declarative in the sense that they strive to be logical specifications of "what" to do rather than "how" to do it, and thus they are high-level and easier to understand and maintain. Yet, without being given an actual algorithm, LP systems implement the logical specifications automatically. Several books cover the basics of LP but focus mostly on the Prolog language with its incomplete control strategy and non-logical features. At the same time, there is generally a lack of accessible yet comprehensive collections of articles covering the key aspects in declarative LP. These aspects include, among others, well-founded vs. stable model semantics for negation, constraints, object-oriented LP, updates, probabilistic LP, and evaluation methods, including top-down vs. bottom-up, and tabling. For systems, the situation is even less satisfactory, lacking accessible literature that can help train the new crop of developers, practitioners, and researchers. There are a few guides on Warren's Abstract Machine (WAM), which underlies most implementations of Prolog, but very little exists on what is needed for constructing a state-of-the-art declarative LP inference engine. Contrast this with the literature on, say, Compilers, where one can first study a book on the general principles and algorithms and then dive in the particulars of a specific compiler. Such resources greatly facilitate the ability to start making meaningful contributions quickly. There is also a dearth of articles about systems that support truly declarative languages, especially those that tie into first-order logic, mathematical programming, and constraint solving. LP helps solve challenging problems in a wide range of application areas, but in-depth analysis of their connection with LP language abstractions and LP implementation methods is lacking. Also, rare are surveys of challenging application areas of LP, such as Bioinformatics, Natural Language Processing, Verification, and Planning. The goal of this book is to help fill in the previously mentioned void in the LP literature. It offers a number of overviews on key aspects of LP that are suitable for researchers and practitioners as well as graduate students. The following chapters in theory, systems, and applications of LP are included.