

Prolog Programming For Artificial Intelligence 4th Edition International Computer Science Series

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AI Algorithms, Data Structures, and Idioms in Prolog, Lisp, and Java - George F. Luger 2009

Prolog Programming for Artificial Intelligence - Ivan Bratko 2011

The fourth edition of this best-selling guide to Prolog and Artificial Intelligence has been updated to include key developments in the field while retaining its lucid approach to these topics. New and extended topics include Constraint Logic Programming, abductive reasoning and partial order planning. Divided into two parts, the first part of the book introduces the programming language Prolog, while the second part teaches Artificial Intelligence using Prolog as a tool for the implementation of AI techniques. This textbook is meant to teach Prolog as a practical programming tool and so it concentrates on the art of using the basic mechanisms of Prolog to solve interesting problems. The fourth edition has been fully revised and extended to provide an even greater range of applications, making it a self-contained guide to Prolog, AI or AI Programming for students and professional programmers.

Artificial Intelligence and Soft Computing - Amit Konar 2018-10-08

With all the material available in the field of artificial intelligence (AI) and soft computing-texts, monographs, and journal articles-there remains a serious gap in the literature. Until now, there has been no comprehensive resource accessible to a broad audience yet containing a depth and breadth of information that enables the reader to fully understand and readily apply AI and soft computing concepts. Artificial Intelligence and Soft Computing fills this gap. It presents both the traditional and the modern aspects of AI and soft computing in a clear, insightful, and highly comprehensive style. It provides an in-depth analysis of mathematical models and algorithms and demonstrates their applications in real world problems. Beginning with the behavioral perspective of "human cognition," the text covers the tools and techniques required for its intelligent realization on machines. The author addresses the classical aspects-search, symbolic logic, planning, and machine learning-in detail and includes the latest research in these areas. He introduces the modern aspects of soft computing from first principles and discusses them in a manner that enables a beginner to grasp the subject. He also covers a number of other leading aspects of AI research, including nonmonotonic and spatio-temporal reasoning, knowledge acquisition, and much more. Artificial Intelligence and Soft Computing: Behavioral and Cognitive Modeling of the Human Brain is unique for its diverse content, clear presentation, and overall completeness. It provides a practical, detailed introduction that will prove valuable to computer science practitioners and students as well as to researchers migrating to the subject from other disciplines.

Encyclopedia of Information Science and Technology, Second Edition - Khosrow-Pour, Mehdi 2008-10-31

"This set of books represents a detailed compendium of authoritative, research-based entries that define the contemporary state of knowledge on technology"--Provided by publisher.

Artificial Intelligence in the 21st Century - Stephen Lucci 2015-12-10

This new edition provides a comprehensive, colorful, up-to-date, and accessible presentation of AI without sacrificing theoretical foundations. It includes numerous examples, applications, full color images, and

human interest boxes to enhance student interest. New chapters on robotics and machine learning are now included. Advanced topics cover neural nets, genetic algorithms, natural language processing, planning, and complex board games. A companion DVD is provided with resources, applications, and figures from the book. Numerous instructors' resources are available upon adoption. eBook Customers: Companion files are available for downloading with order number/proof of purchase by writing to the publisher at info@merclearning.com. FEATURES: • Includes new chapters on robotics and machine learning and new sections on speech understanding and metaphor in NLP • Provides a comprehensive, colorful, up to date, and accessible presentation of AI without sacrificing theoretical foundations • Uses numerous examples, applications, full color images, and human interest boxes to enhance student interest • Introduces important AI concepts e.g., robotics, use in video games, neural nets, machine learning, and more thorough practical applications • Features over 300 figures and color images with worked problems detailing AI methods and solutions to selected exercises • Includes DVD with resources, simulations, and figures from the book • Provides numerous instructors' resources, including: solutions to exercises, Microsoft PP slides, etc.

Artificial Intelligence Illuminated - Ben Coppin 2004

Artificial Intelligence Illuminated presents an overview of the background and history of artificial intelligence, emphasizing its importance in today's society and potential for the future. The book covers a range of AI techniques, algorithms, and methodologies, including game playing, intelligent agents, machine learning, genetic algorithms, and Artificial Life. Material is presented in a lively and accessible manner and the author focuses on explaining how AI techniques relate to and are derived from natural systems, such as the human brain and evolution, and explaining how the artificial equivalents are used in the real world. Each chapter includes student exercises and review questions, and a detailed glossary at the end of the book defines important terms and concepts highlighted throughout the text.

Thinking as Computation - Hector J. Levesque 2017-08-11

Students explore the idea that thinking is a form of computation by learning to write simple computer programs for tasks that require thought. This book guides students through an exploration of the idea that thinking might be understood as a form of computation. Students make the connection between thinking and computing by learning to write computer programs for a variety of tasks that require thought, including solving puzzles, understanding natural language, recognizing objects in visual scenes, planning courses of action, and playing strategic games. The material is presented with minimal technicalities and is accessible to undergraduate students with no specialized knowledge or technical background beyond high school mathematics. Students use Prolog (without having to learn algorithms: "Prolog without tears!"), learning to express what they need as a Prolog program and letting Prolog search for answers. After an introduction to the basic concepts, Thinking as Computation offers three chapters on Prolog, covering back-chaining, programs and queries, and how to write the sorts of Prolog programs used in the book. The book follows this with case studies of tasks that appear to require thought, then looks beyond Prolog to consider learning, explaining, and propositional reasoning. Most of the chapters conclude with short bibliographic notes and

exercises. The book is based on a popular course at the University of Toronto and can be used in a variety of classroom contexts, by students ranging from first-year liberal arts undergraduates to more technically advanced computer science students.

Programming in Prolog - W. F. Clocksin 2012-12-06

The computer programming language Prolog is quickly gaining popularity throughout the world. Since its beginnings around 1970. Prolog has been chosen by many programmers for applications of symbolic computation. including: D relational databases D mathematical logic D abstract problem solving D understanding natural language D architectural design D symbolic equation solving D biochemical structure analysis D many areas of artificial Intelligence Until now. there has been no textbook with the aim of teaching Prolog as a practical programming language. It is perhaps a tribute to Prolog that so many people have been motivated to learn it by referring to the necessarily concise reference manuals. a few published papers. and by the orally transmitted 'folklore' of the modern computing community. However. as Prolog is beginning to be introduced to large numbers of undergraduate and postgraduate students. many of our colleagues have expressed a great need for a tutorial guide to learning Prolog. We hope this little book will go some way towards meeting this need. Many newcomers to Prolog find that the task of writing a Prolog program is not like specifying an algorithm in the same way as in a conventional programming language. Instead. the Prolog programmer asks more what formal relationships and objects occur in his problem.

Prolog: Programming For Artificial Intelligence, 3/E - Bratko 2001-09

Artificial Intelligence Through Prolog - Neil C. Rowe 1999

Prolog Programming for Artificial Intelligence - Iv N. Bratko 1990

Artificial Intelligence and Games - Georgios N. Yannakakis 2018-02-17

This is the first textbook dedicated to explaining how artificial intelligence (AI) techniques can be used in and for games. After introductory chapters that explain the background and key techniques in AI and games, the authors explain how to use AI to play games, to generate content for games and to model players. The book will be suitable for undergraduate and graduate courses in games, artificial intelligence, design, human-computer interaction, and computational intelligence, and also for self-study by industrial game developers and practitioners. The authors have developed a website (<http://www.gameaibook.org>) that complements the material covered in the book with up-to-date exercises, lecture slides and reading.

Artificial Intelligence - Stuart J. Russell 2005-03-24

Prolog Programming for Artificial Intelligence Third edition Ivan Bratko The third edition of this best-selling guide to Prolog and Artificial Intelligence has been updated to include key developments in the field while retaining its lucid approach to these topics. Divided into two parts, the first part of the book introduces the programming language Prolog, while the second part teaches Artificial Intelligence using Prolog as a tool for the implementation of AI techniques. Prolog has its roots in logic, however the main aim of this book is to teach Prolog as a practical programming tool. This text therefore concentrates on the art of using the basic mechanisms of Prolog to solve interesting problems. The third edition has been fully revised and extended to provide an even greater range of applications, which further enhance its value as a self-contained guide to Prolog, AI or AI Programming for students and professional programmers alike. Features * Combined approach to Prolog and AI allows flexibility for learning and teaching * Provides a thorough representation of AI, emphasizing practical techniques and Prolog implementations * Prolog programs for use in projects and research are available for download on the World Wide Web. New for this edition: * Constraint Logic Programming * Qualitative Reasoning * Inductive Logic Programming * The addition of belief networks for handling uncertainty * A major update on machine learning * Additional techniques for improving program efficiency * Meta-programming is updated to show how Prolog can be used to implement other languages (including object-oriented programming) * A new Companion Web Site will contain further teaching materials and updates Author: Professor Ivan Bratko leads the AI groups in the Faculty of Computer and Information Science at both Ljubljana University and the Jozef Stefan Institute in Slovenia. He has taught Prolog worldwide as well as applying Prolog in medical expert systems, robot programming, qualitative modelling and

computer chess research.

Beyond Artificial Intelligence - Alain Cardon 2018-08-21

This book will present a complete modeling of the human psychic system that allows to generate the thoughts in a strictly organizational approach that mixes a rising and falling approach. The model will present the architecture of the psychic system that can generate sensations and thoughts, showing how one can feel thoughts. The model developed into an organizational architecture based on massive multiagent systems. The architecture will be fully developed, showing how an artificial system can be endowed with consciousness and intentionally generate thoughts and, especially, feel them. These results are multidisciplinary, combining both psychology and computer science disciplines.

Intelligent Systems for Engineers and Scientists - Adrian A. Hopgood 2016-04-19

The third edition of this bestseller examines the principles of artificial intelligence and their application to engineering and science, as well as techniques for developing intelligent systems to solve practical problems. Covering the full spectrum of intelligent systems techniques, it incorporates knowledge-based systems, computational intelligence

From Logic Programming to Prolog - Krzysztof R. Apt 1997

Provides a systematic introduction to the theory of logic programming and shows how this theory can be applied to reason about pure Prolog programs. The text includes an introduction to programming in Prolog and deals with such programming issues as determination, occur-check freedom and absence of errors. It covers both the natural interpretations of logic programming, as declarative specification and as procedure for computer execution.

Design and Optimization of Thermal Systems, Third Edition - Yogesh Jaluria 2019-09-06

Design and Optimization of Thermal Systems, Third Edition: with MATLAB® Applications provides systematic and efficient approaches to the design of thermal systems, which are of interest in a wide range of applications. It presents basic concepts and procedures for conceptual design, problem formulation, modeling, simulation, design evaluation, achieving feasible design, and optimization. Emphasizing modeling and simulation, with experimentation for physical insight and model validation, the third edition covers the areas of material selection, manufacturability, economic aspects, sensitivity, genetic and gradient search methods, knowledge-based design methodology, uncertainty, and other aspects that arise in practical situations. This edition features many new and revised examples and problems from diverse application areas and more extensive coverage of analysis and simulation with MATLAB®.

Prolog Programming in Depth - Michael A. Covington 1997

Appropriate for courses in artificial intelligence, computer science, logic programming, and expert systems. Can be used as supplemental text in courses in computational linguistics (natural language processing). This text covers the Prolog programming language thoroughly with an emphasis on building practical application software, not just theory. Working through this book, students build several types of expert systems, as well as natural language processing software and utilities to read foreign file formats. This is the first book to cover ISO Standard Prolog, but the programs are compatible with earlier dialects of the language. Program files are available by FTP from The University of Georgia.

Adventure in Prolog - Dennis Merritt 2012-12-06

Not long ago" Dennis Merritt wrote one of the best books that I know of about implementing expert systems in Prolog, and I was very glad he published it in our series. The only problem is there are still some unfortunate people around who do not know Prolog and are not sufficiently prepared either to read Merritt's book, or to use this extremely productive language, be it for knowledge-based work or even for everyday programming. Possibly this last statement may surprise you if you were under the impression that Prolog was an "artificial intelligence language" with very limited application potential. Please believe this editor's statement that quite the opposite is true: for at least four years, I have been using Prolog for every programming task in which I am given the option of choosing the language. Therefore, I 'am indeed happy that Dennis Merritt has written another good book on my language of choice, and that it meets the high standard he set with his prior book, Building Expert Systems in Prolog. All that remains for me to do is to wish you success and enjoyment when taking off on your Adventure in Prolog.

Artificial Intelligence and Software Engineering - Derek Partridge 2013-04-11

First published in 1998. Routledge is an imprint of Taylor & Francis, an informa company.

Artificial Intelligence with Python - Alberto Artasanchez 2020-01-31

New edition of the bestselling guide to artificial intelligence with Python, updated to Python 3.x, with seven new chapters that cover RNNs, AI and Big Data, fundamental use cases, chatbots, and more. Key Features Completely updated and revised to Python 3.x New chapters for AI on the cloud, recurrent neural networks, deep learning models, and feature selection and engineering Learn more about deep learning algorithms, machine learning data pipelines, and chatbots Book Description Artificial Intelligence with Python, Second Edition is an updated and expanded version of the bestselling guide to artificial intelligence using the latest version of Python 3.x. Not only does it provide you an introduction to artificial intelligence, this new edition goes further by giving you the tools you need to explore the amazing world of intelligent apps and create your own applications. This edition also includes seven new chapters on more advanced concepts of Artificial Intelligence, including fundamental use cases of AI; machine learning data pipelines; feature selection and feature engineering; AI on the cloud; the basics of chatbots; RNNs and DL models; and AI and Big Data. Finally, this new edition explores various real-world scenarios and teaches you how to apply relevant AI algorithms to a wide swath of problems, starting with the most basic AI concepts and progressively building from there to solve more difficult challenges so that by the end, you will have gained a solid understanding of, and when best to use, these many artificial intelligence techniques. What you will learn Understand what artificial intelligence, machine learning, and data science are Explore the most common artificial intelligence use cases Learn how to build a machine learning pipeline Assimilate the basics of feature selection and feature engineering Identify the differences between supervised and unsupervised learning Discover the most recent advances and tools offered for AI development in the cloud Develop automatic speech recognition systems and chatbots Apply AI algorithms to time series data Who this book is for The intended audience for this book is Python developers who want to build real-world Artificial Intelligence applications. Basic Python programming experience and awareness of machine learning concepts and techniques is mandatory.

Introduction to Artificial Intelligence - Wolfgang Ertel 2018-01-18

This accessible and engaging textbook presents a concise introduction to the exciting field of artificial intelligence (AI). The broad-ranging discussion covers the key subdisciplines within the field, describing practical algorithms and concrete applications in the areas of agents, logic, search, reasoning under uncertainty, machine learning, neural networks, and reinforcement learning. Fully revised and updated, this much-anticipated second edition also includes new material on deep learning. Topics and features: presents an application-focused and hands-on approach to learning, with supplementary teaching resources provided at an associated website; contains numerous study exercises and solutions, highlighted examples, definitions, theorems, and illustrative cartoons; includes chapters on predicate logic, PROLOG, heuristic search, probabilistic reasoning, machine learning and data mining, neural networks and reinforcement learning; reports on developments in deep learning, including applications of neural networks to generate creative content such as text, music and art (NEW); examines performance evaluation of clustering algorithms, and presents two practical examples explaining Bayes' theorem and its relevance in everyday life (NEW); discusses search algorithms, analyzing the cycle check, explaining route planning for car navigation systems, and introducing Monte Carlo Tree Search (NEW); includes a section in the introduction on AI and society, discussing the implications of AI on topics such as employment and transportation (NEW). Ideal for foundation courses or modules on AI, this easy-to-read textbook offers an excellent overview of the field for students of computer science and other technical disciplines, requiring no more than a high-school level of knowledge of mathematics to understand the material.

Artificial Intelligence - George F. Luger 2002-01

Much has changed since the early editions of Artificial Intelligence were published. To reflect this the introductory material of this fifth edition has been substantially revised and rewritten to capture the excitement of the latest developments in AI work. Artificial intelligence is a diverse field. To ask the question "what is intelligence?" is to invite as many answers as there are approaches to the subject of artificial intelligence. These could be intelligent agents, logical reasoning, neural networks, expert systems, evolutionary computing and so on. This fifth edition covers all the main strategies used for creating computer

systems that will behave in "intelligent" ways. It combines the broadest approach of any text in the marketplace with the practical information necessary to implement the strategies discussed, showing how to do this through Prolog or LISP programming.

Python Artificial Intelligence Projects for Beginners - Dr. Joshua Eckroth 2018-07-31

Build smart applications by implementing real-world artificial intelligence projects Key Features Explore a variety of AI projects with Python Get well-versed with different types of neural networks and popular deep learning algorithms Leverage popular Python deep learning libraries for your AI projects Book Description Artificial Intelligence (AI) is the newest technology that's being employed among varied businesses, industries, and sectors. Python Artificial Intelligence Projects for Beginners demonstrates AI projects in Python, covering modern techniques that make up the world of Artificial Intelligence. This book begins with helping you to build your first prediction model using the popular Python library, scikit-learn. You will understand how to build a classifier using an effective machine learning technique, random forest, and decision trees. With exciting projects on predicting bird species, analyzing student performance data, song genre identification, and spam detection, you will learn the fundamentals and various algorithms and techniques that foster the development of these smart applications. In the concluding chapters, you will also understand deep learning and neural network mechanisms through these projects with the help of the Keras library. By the end of this book, you will be confident in building your own AI projects with Python and be ready to take on more advanced projects as you progress What you will learn Build a prediction model using decision trees and random forest Use neural networks, decision trees, and random forests for classification Detect YouTube comment spam with a bag-of-words and random forests Identify handwritten mathematical symbols with convolutional neural networks Revise the bird species identifier to use images Learn to detect positive and negative sentiment in user reviews Who this book is for Python Artificial Intelligence Projects for Beginners is for Python developers who want to take their first step into the world of Artificial Intelligence using easy-to-follow projects. Basic working knowledge of Python programming is expected so that you're able to play around with code

Artificial Intelligence - Stuart Russell 2016-09-10

Artificial Intelligence: A Modern Approach offers the most comprehensive, up-to-date introduction to the theory and practice of artificial intelligence. Number one in its field, this textbook is ideal for one or two-semester, undergraduate or graduate-level courses in Artificial Intelligence.

PROLOG : PROGRAMMING FOR ARTIFICIAL INTELLIGENCE - IVAN AUTOR BRATKO 1990

Paradigms of Artificial Intelligence Programming - Peter Norvig 2014-06-28

Paradigms of AI Programming is the first text to teach advanced Common Lisp techniques in the context of building major AI systems. By reconstructing authentic, complex AI programs using state-of-the-art Common Lisp, the book teaches students and professionals how to build and debug robust practical programs, while demonstrating superior programming style and important AI concepts. The author strongly emphasizes the practical performance issues involved in writing real working programs of significant size. Chapters on troubleshooting and efficiency are included, along with a discussion of the fundamentals of object-oriented programming and a description of the main CLOS functions. This volume is an excellent text for a course on AI programming, a useful supplement for general AI courses and an indispensable reference for the professional programmer.

History and Cultural Theory - Simon Gunn 2014-05-22

In recent times there has been recognition of the growing influence of cultural theory on historical writing. Foucault, Bourdieu, Butler and Spivak are just some of the thinkers whose ideas have been taken up and deployed by historians. What are these ideas and where do they come from? How have cultural theorists thought about 'history'? And how have historians applied theoretical insights to enhance their own understanding of events in the past? This book provides a wide-ranging and authoritative guide to the often vexed and controversial relationship between history and contemporary theory. It analyses the concepts that concern both theorists and historians, such as power, identity, modernity and postcolonialism, and offers a critical evaluation of them from an historical standpoint. Written in an accessible manner, History and Cultural Theory gives historians and students an invaluable summary of the impact of cultural theory on

historiography over the last twenty years, and indicates the likely directions of the subject in the future.

Artificial Intelligence: A Systems Approach - M. Tim Jones 2008-12-26

This book offers students and AI programmers a new perspective on the study of artificial intelligence concepts. The essential topics and theory of AI are presented, but it also includes practical information on data input & reduction as well as data output (i.e., algorithm usage). Because traditional AI concepts such as pattern recognition, numerical optimization and data mining are now simply types of algorithms, a different approach is needed. This "sensor / algorithm / effector" approach grounds the algorithms with an environment, helps students and AI practitioners to better understand them, and subsequently, how to apply them. The book has numerous up to date applications in game programming, intelligent agents, neural networks, artificial immune systems, and more. A CD-ROM with simulations, code, and figures accompanies the book.

Logic Programming with Prolog - Max Bramer 2005-12-06

Written for those who wish to learn Prolog as a powerful software development tool, but do not necessarily have any background in logic or AI. Includes a full glossary of the technical terms and self-assessment exercises.

Artificial Intelligence - George F. Luger 2011-11-21

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. Artificial Intelligence: Structures and Strategies for Complex Problem Solving is ideal for a one- or two-semester undergraduate course on AI. In this accessible, comprehensive text, George Luger captures the essence of artificial intelligence—solving the complex problems that arise wherever computer technology is applied. Ideal for an undergraduate course in AI, the Sixth Edition presents the fundamental concepts of the discipline first then goes into detail with the practical information necessary to implement the algorithms and strategies discussed. Readers learn how to use a number of different software tools and techniques to address the many challenges faced by today's computer scientists.

Expert Systems in Prolog - Dennis Merritt 2017-05-22

The machine learning capabilities of today's AI are extremely exciting, but they are only one part of the architecture of today's systems. For example, self-driving car technology uses machine learning to interpret the visual field around a car, but it's good old fashioned rule-based AI that contains the plans on what to do with that information. Similarly, the phenomenal program that plays Go at a master level uses machine learning to evaluate board positions (very difficult for a machine to do) but uses conventional AI for deciding what to do with that information. Written a number of years ago, Building Expert Systems in Prolog is still a classic text on knowledge engineering. The name might be a bit misleading, as it's not so much about building expert systems, but rather on building the knowledge representation and reasoning engine tools used for various types of expert system applications. (Including, of course, examples of each kind of system.) As such, it provides details and working code for identification systems, systems that need to cope with uncertainty, forward-chaining planning and configuration systems, frames for representing complex layers of information, and ideas for prototyping/implementing any way of representing knowledge and algorithms for reasoning over that knowledge. The text is a bit more general than just a Prolog text. Yes, all the code for implementing these systems is written in Prolog, but Prolog is more than just an implementation language. Because it is logic programming, a Prolog program is really a logical specification of an application. Yes it runs, but it can also be used for rapid prototyping, and the Prolog code itself can be used to precisely specify how to implement the system in any other language. In other words, the architectures of these systems will be the same, no matter what language they are implemented in, and the use of Prolog for rapid prototyping is covered in the book as well.

Learn Prolog Now! - Patrick Blackburn 2006

Prolog is a programming language, but a rather unusual one. Prolog" is short for Programming with Logic", and the link with logic gives Prolog its special character. At the heart of Prolog lies a surprising idea: don't tell the computer what to do. Instead, describe situations of interest, and compute by asking questions. Prolog will logically deduce new facts about the situations and give its deductions back to us as answers. Why learn Prolog? For a start, its say what the problem is, rather than how to solve it" stance, means that it is a very

high level language, good for knowledge rich applications such as artificial intelligence, natural language processing, and the semantic web. So by studying Prolog, you gain insight into how sophisticated tasks can be handled computationally. Moreover, Prolog requires a different mindset. You have to learn to see problems from a new perspective, declaratively rather than procedurally. Acquiring this mindset, and learning to appreciate the links between logic and programming, makes the study of Prolog both challenging and rewarding. Learn Prolog Now! is a practical introduction to this fascinating language. Freely available as a web-book since 2002 (see www.learnprolognow.org) Learn Prolog Now! has become one of the most popular introductions to the Prolog programming language, an introduction prized for its clarity and down-to-earth approach. It is widely used as a textbook at university departments around the world, and even more widely used for self study. College Publications is proud to present here the first hard-copy version of this online classic. Carefully revised in the light of reader's feedback, and now with answers to all the exercises, here you will find the essential material required to help you learn Prolog now.

Clause and Effect - William F. Clocksin 2012-12-06

This book is for people who have done some programming, either in Prolog or in a language other than Prolog, and who can find their way around a reference manual. The emphasis of this book is on a simplified and disciplined methodology for discerning the mathematical structures related to a problem, and then turning these structures into Prolog programs. This book is therefore not concerned about the particular features of the language nor about Prolog programming skills or techniques in general. A relatively pure subset of Prolog is used, which includes the 'cut', but no input/output, no assert/retract, no syntactic extensions such as if then-else and grammar rules, and hardly any built-in predicates apart from arithmetic operations. I trust that practitioners of Prolog programming who have a particular interest in the finer details of syntactic style and language features will understand my purposes in not discussing these matters. The presentation, which I believe is novel for a Prolog programming text, is in terms of an outline of basic concepts interleaved with worksheets. The idea is that worksheets are rather like musical exercises. Carefully graduated in scope, each worksheet introduces only a limited number of new ideas, and gives some guidance for practising them. The principles introduced in the worksheets are then applied to extended examples in the form of case studies.

Beginning Artificial Intelligence with the Raspberry Pi - Donald J. Norris 2017-06-05

Gain a gentle introduction to the world of Artificial Intelligence (AI) using the Raspberry Pi as the computing platform. Most of the major AI topics will be explored, including expert systems, machine learning both shallow and deep, fuzzy logic control, and more! AI in action will be demonstrated using the Python language on the Raspberry Pi. The Prolog language will also be introduced and used to demonstrate fundamental AI concepts. In addition, the Wolfram language will be used as part of the deep machine learning demonstrations. A series of projects will walk you through how to implement AI concepts with the Raspberry Pi. Minimal expense is needed for the projects as only a few sensors and actuators will be required. Beginners and hobbyists can jump right in to creating AI projects with the Raspberry Pi using this book. What You'll Learn What AI is and—as importantly—what it is not Inference and expert systems Machine learning both shallow and deep Fuzzy logic and how to apply to an actual control system When AI might be appropriate to include in a system Constraints and limitations of the Raspberry Pi AI implementation Who This Book Is For Hobbyists, makers, engineers involved in designing autonomous systems and wanting to gain an education in fundamental AI concepts, and non-technical readers who want to understand what AI is and how it might affect their lives.

Expert Systems: Principles and Programming with CD - Giarratano

The Art of Prolog, second edition - Leon S. Sterling 1994-03-10

This new edition of The Art of Prolog contains a number of important changes. Most background sections at the end of each chapter have been updated to take account of important recent research results, the references have been greatly expanded, and more advanced exercises have been added which have been used successfully in teaching the course. Part II, The Prolog Language, has been modified to be compatible with the new Prolog standard, and the chapter on program development has been significantly altered: the predicates defined have been moved to more appropriate chapters, the section on efficiency has been

moved to the considerably expanded chapter on cuts and negation, and a new section has been added on stepwise enhancement—a systematic way of constructing Prolog programs developed by Leon Sterling. All but one of the chapters in Part III, Advanced Prolog Programming Techniques, have been substantially changed, with some major rearrangements. A new chapter on interpreters describes a rule language and interpreter for expert systems, which better illustrates how Prolog should be used to construct expert systems. The chapter on program transformation is completely new and the chapter on logic grammars adds new material for recognizing simple languages, showing how grammars apply to more computer science examples.

A Guide to Artificial Intelligence with Visual Prolog - Randall Scott 2010

Get started with the simplest, most powerful prolog ever: Visual Prolog If you want to explore the potential of Artificial Intelligence (AI), you need to know your way around Prolog. Prolog - which stands for "programming with logic" - is one of the most effective languages for building AI applications, thanks to its unique approach. Rather than writing a program that spells out exactly how to solve a problem, with Prolog you define a problem with logical Rules, and then set the computer loose on it. This paradigm shift from Procedural to Declarative programming makes Prolog ideal for applications involving AI, logic, language parsing, computational linguistics, and theorem-proving. Now, Visual Prolog (available as a free download) offers even more with its powerful Graphical User Interface (GUI), built-in Predicates, and rather large provided Program Foundation Class (PFC) libraries. A Guide to Artificial Intelligence with Visual Prolog is an excellent introduction to both Prolog and Visual Prolog. Designed for newcomers to Prolog with some conventional programming background (such as BASIC, C, C++, Pascal, etc.), Randall Scott proceeds along a logical, easy-to-grasp path as he explains the beginnings of Prolog, classic algorithms to get you started, and many of the unique features of Visual Prolog. Readers will also gain key insights into application development, application design, interface construction, troubleshooting, and more. In addition, there are numerous sample examples to learn from, copious illustrations and information on helpful resources. A Guide to Artificial Intelligence with Visual Prolog is less like a traditional textbook and more like a workshop where you can learn at your own pace - so you can start harnessing the power of Visual Prolog for whatever your mind can dream up.

Handbook of Knowledge Representation - Frank van Harmelen 2008-01-08

Handbook of Knowledge Representation describes the essential foundations of Knowledge Representation, which lies at the core of Artificial Intelligence (AI). The book provides an up-to-date review of twenty-five key topics in knowledge representation, written by the leaders of each field. It includes a tutorial background and cutting-edge developments, as well as applications of Knowledge Representation in a variety of AI systems. This handbook is organized into three parts. Part I deals with general methods in Knowledge Representation and reasoning and covers such topics as classical logic in Knowledge Representation; satisfiability solvers; description logics; constraint programming; conceptual graphs; nonmonotonic reasoning; model-based problem solving; and Bayesian networks. Part II focuses on classes of knowledge and specialized representations, with chapters on temporal representation and reasoning; spatial and physical reasoning; reasoning about knowledge and belief; temporal action logics; and nonmonotonic causal logic. Part III discusses Knowledge Representation in applications such as question answering; the semantic web; automated planning; cognitive robotics; multi-agent systems; and knowledge engineering. This book is an essential resource for graduate students, researchers, and practitioners in knowledge representation and AI. * Make your computer smarter * Handle qualitative and uncertain information * Improve computational tractability to solve your problems easily

The Quest for Artificial Intelligence - Nils J. Nilsson 2009-10-30

Artificial intelligence (AI) is a field within computer science that is attempting to build enhanced intelligence into computer systems. This book traces the history of the subject, from the early dreams of eighteenth-century (and earlier) pioneers to the more successful work of today's AI engineers. AI is becoming more and more a part of everyone's life. The technology is already embedded in face-recognizing cameras, speech-recognition software, Internet search engines, and health-care robots, among other applications. The book's many diagrams and easy-to-understand descriptions of AI programs will help the casual reader gain an understanding of how these and other AI systems actually work. Its thorough (but unobtrusive) end-of-chapter notes containing citations to important source materials will be of great use to AI scholars and researchers. This book promises to be the definitive history of a field that has captivated the imaginations of scientists, philosophers, and writers for centuries.