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Readings in Artificial Intelligence focuses on the principles, methodologies, advancements, and approaches involved in artificial intelligence. The selection first elaborates on representations of problems of reasoning about actions, a problem similarity approach to devising heuristics, and optimal search strategies for speech understanding control. Discussions focus on comparison with existing speech understanding systems, empirical comparisons of the different strategies, analysis of distance function approximation, problem similarity, problems of reasoning about action, search for solution in the reduction system, and relationship between the initial search space and the higher level search space. The book then examines consistency in networks of relations, non-resolution theorem proving, using rewriting rules for connection graphs to prove theorems, and closed world data bases. The manuscript tackles a truth maintenance system, elements of a plan-based theory of speech acts, and reasoning about knowledge and action. Topics include problems in reasoning about knowledge, integration knowledge and action, models of plans, compositional adequacy, truth maintenance mechanisms, dialectical arguments, and assumptions and the problem of control. The selection is a valuable reference for researchers wanting to explore the field of artificial intelligence.

Genetic algorithms have been used in science and engineering as adaptive algorithms

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for solving practical problems and as computational models of natural evolutionary systems. This brief, accessible introduction describes some of the most interesting research in the field and also enables readers to implement and experiment with genetic algorithms on their own. It focuses in depth on a small set of important and interesting topics—particularly in machine learning, scientific modeling, and artificial life—and reviews a broad span of research, including the work of Mitchell and her colleagues. The descriptions of applications and modeling projects stretch beyond the strict boundaries of computer science to include dynamical systems theory, game theory, molecular biology, ecology, evolutionary biology, and population genetics, underscoring the exciting "general purpose" nature of genetic algorithms as search methods that can be employed across disciplines. An Introduction to Genetic Algorithms is accessible to students and researchers in any scientific discipline. It includes many thought and computer exercises that build on and reinforce the reader's understanding of the text. The first chapter introduces genetic algorithms and their terminology and describes two provocative applications in detail. The second and third chapters look at the use of genetic algorithms in machine learning (computer programs, data analysis and prediction, neural networks) and in scientific models (interactions among learning, evolution, and culture; sexual selection; ecosystems; evolutionary activity). Several approaches to the theory of genetic algorithms are discussed in depth in the fourth chapter. The fifth chapter takes up implementation, and the last chapter

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poses some currently unanswered questions and surveys prospects for the future of evolutionary computation.

Recent research results in the area of parallel algorithms for problem solving, search, natural language parsing, and computer vision, are brought together in this book. The research reported demonstrates that substantial parallelism can be exploited in various machine intelligence and vision problems. The chapter authors are prominent researchers actively involved in the study of parallel algorithms for machine intelligence and vision. Extensive experimental studies are presented that will help the reader in assessing the usefulness of an approach to a specific problem. Intended for students and researchers actively involved in parallel algorithms design and in machine intelligence and vision, this book will serve as a valuable reference work as well as an introduction to several research directions in these areas.

It often happens that when we try to study a subject for some examination or a job interview, we just don't find the right content. The problem with the reference books is that they are too descriptive for last moment studies. Whereas the problem with local publications is that they are inaccurate as compared to the reference books. This particular book encapsulates the subject notes on Artificial Intelligence with the combined benefits of reference books & local publications. It has the accuracy of a reference book as well as the abstraction of a local publication. The author studied the subject from various sources such as web lectures, reference books, online tutorials &

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so on. After having a thorough understanding of the subject, the author compiled this book for an easy understanding of the subject. This book presents the content with utmost simplicity of language, and in an abstract manner so that it can be used for last moment studies. This book can be used by: Ø Students to prepare for their examinations Ø Professionals to prepare for job interviews. Ø Individuals willing to have a basic understanding of the domain: Artificial Intelligence. Happy Reading! ?

AI is an emerging discipline of computer science. It deals with the concepts and methodologies required for computer to perform an intelligent activity. The spectrum of computer science is very wide and it enables the computer to handle almost every activity, which human beings could. It deals with defining the basic problem from viewpoint of solving it through computer, finding out the total possibilities of solution, representing the problem from computational orientation, selecting data structures, finding the solution through searching the goal in search space dealing the real world uncertain situations etc. It also develops the techniques for learning and understanding, which make the computer able to exhibit an intelligent behavior. The list is exhaustive and is applied now a days in almost every field of technology. This book presents almost all the components of AI like problem solving, search techniques, knowledge concepts, expert system and many more in a very simple language. One of the unique features of this book is inclusion of number of solved examples; in between the chapters and also at the end of many chapters. Real life examples have been

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discussed to make the reader conversant with the intricate phenomenon of computer science in general, and artificial intelligence in particular. The book is primarily developed for undergraduate and postgraduate engineering students.

This book constitutes the refereed proceedings of the Computer Games Workshop, CGW 2013, held in Beijing, China, in August 2013, in conjunction with the Twenty-third International Conference on Artificial Intelligence, IJCAI 2013. The 9 revised full papers presented were carefully reviewed and selected from 15 submissions. The papers cover a wide range of topics related to computer games. They discuss six games that are played by humans in practice: Chess, Domineering, Chinese Checkers, Go, Goofspiel, and Tzaar. Moreover, there are papers about the Sliding Tile Puzzle, an application, namely, Cooperative Path-Finding Problems, and on general game playing. Design is a central activity in engineering. It is both a creative process not easily defined and a thought process that can, with increasing success, be externalized, articulated, and modelled. This book aims to clarify the issues, providing an operational definition of engineering design and an explication of design as a discipline. In particular, the book focuses on the contribution of AI (artificial intelligence) to engineering design. With its clear presentation of the main ideas of recent AI-based models of design, set within the context of inductive design models, the book offers an integrated view of current thinking about design. Also included is a brief review of some key AI-based problem-solving methods and classical design tools. The author closes

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with a look ahead at the roles that symbolic representation and knowledge-based (expert) systems can play in engineering design in practice and in education. This book presents exact, that is minimal, solutions to individual steps in the design process for Digital Microfluidic Biochips (DMFBs), as well as a one-pass approach that combines all these steps in a single process. All of the approaches discussed are based on a formal model that can easily be extended to cope with further design problems. In addition to the exact methods, heuristic approaches are provided and the complexity classes of various design problems are determined. Presents exact methods to tackle a variety of design problems for Digital Microfluidic Biochips (DMFBs); Describes an holistic, one-pass approach solving different design steps all at once; Based on a formal model of DMFBs that is easily adaptable to deal with further design tasks.

Proceedings of the Fourth International Workshop on Machine Learning provides careful theoretical analyses that make clear contact with traditional problems in machine learning. This book discusses the key role of learning in cognition. Organized into 39 chapters, this book begins with an overview of pattern recognition systems of necessity that incorporate an approximate-matching process to determine the degree of similarity between an unknown input and all stored references. This text then describes the rationale in the Protos system for

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relegating inductive learning and deductive problem solving to minor roles in support of retaining, indexing and matching exemplars. Other chapters consider the power as well as the appropriateness of exemplar-based representations and their associated acquisition methods. This book discusses as well the extensions to the way a case is classified by a decision tree that address shortcomings. The final chapter deals with the advances in machine learning research. This book is a valuable resource for psychologists, scientists, theorists, and research workers. A classic introduction to artificial intelligence intended to bridge the gap between theory and practice, *Principles of Artificial Intelligence* describes fundamental AI ideas that underlie applications such as natural language processing, automatic programming, robotics, machine vision, automatic theorem proving, and intelligent data retrieval. Rather than focusing on the subject matter of the applications, the book is organized around general computational concepts involving the kinds of data structures used, the types of operations performed on the data structures, and the properties of the control strategies used. *Principles of Artificial Intelligence* evolved from the author's courses and seminars at Stanford University and University of Massachusetts, Amherst, and is suitable for text use in a senior or graduate AI course, or for individual study.

This accessible and engaging textbook presents a concise introduction to the

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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

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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.

The book focuses on a conceptual flaw in contemporary artificial intelligence and cognitive science. Many people have discovered diverse manifestations and facets of this flaw, but the central conceptual impasse is at best only partially perceived. Its consequences, nevertheless, visit themselves as distortions and failures of multiple research projects - and make impossible the ultimate aspirations of the fields. The impasse concerns a presupposition concerning the nature of representation - that all representation has the nature of encodings: encodingism. Encodings certainly exist, but encodingism is at root logically incoherent; any programmatic research predicted on it is doomed to distortion and ultimate failure. The impasse and its consequences - and steps away from that impasse - are explored in a large number of projects and approaches. These include SOAR, CYC, PDP, situated cognition, subsumption architecture robotics, and the frame problems - a general survey of the current research in AI and Cognitive Science emerges. Interactivism, an alternative model of representation, is proposed and examined.

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Computational intelligence is a well-established paradigm, where new theories with a sound biological understanding have been evolving. The current experimental systems have many of the characteristics of biological computers (brains in other words) and are beginning to be built to perform a variety of tasks that are difficult or impossible to do with conventional computers. As evident, the ultimate achievement in this field would be to mimic or exceed human cognitive capabilities including reasoning, recognition, creativity, emotions, understanding, learning and so on. This book comprising of 17 chapters offers a step-by-step introduction (in a chronological order) to the various modern computational intelligence tools used in practical problem solving. Starting with different search techniques including informed and uninformed search, heuristic search, minmax, alpha-beta pruning methods, evolutionary algorithms and swarm intelligent techniques; the authors illustrate the design of knowledge-based systems and advanced expert systems, which incorporate uncertainty and fuzziness. Machine learning algorithms including decision trees and artificial neural networks are presented and finally the fundamentals of hybrid intelligent systems are also depicted. Academics, scientists as well as engineers engaged in research, development and application of computational intelligence techniques, machine learning and data mining would find the comprehensive coverage of this book

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invaluable.

This volume contains the proceedings of LPAR '92, the international conference on logic programming and automated reasoning held in St. Petersburg in July 1992. The aim of the conference was to bring together researchers from the Russian and the international logic programming and theorem proving communities. The topics of interest covered by papers in the volume include automated theorem proving, non-monotonic reasoning, applications of mathematical logic to computer science, deductive databases, implementation of declarative concepts, and programming in non-classical logics. LPAR '92 is the successor of the First and Second Russian Conferences on Logic Programming held in 1990 and 1991, respectively, the proceedings of which were published in LNAI Vol. 592.

Primarily intended for the undergraduate and postgraduate students of computer science and engineering, this textbook (earlier titled as Artificial Intelligence and Machine Learning), now in its second edition, bridges the gaps in knowledge of the seemingly difficult areas of artificial intelligence. This book promises to provide the most number of case studies and worked-out examples among the books of its genre. The text is written in a highly interactive manner which fulfils the curiosity of any reader. Moreover, the content takes off from the introduction

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to artificial intelligence, which is followed by explaining about intelligent agents. Various problem-solving strategies, knowledge representation schemes are also included with numerous case studies and applications. Different aspects of learning, nature-inspired learning, along with natural language processing are also explained in depth. The algorithms and pseudo codes for each topic make this book useful for students. Book also throws light into areas like planning, expert system and robotics. Book concludes with futuristic artificial intelligence, which explains the fascinating applications, that the world will witness in coming years.

KEY FEATURES

- Day-to-day examples and practical representations for deeper understanding of the subject.
- Learners can easily implement the AI applications.
- Effective and useful case studies and worked-out examples for AI problems.

Target Audience

- Students of B.E./B.Tech Computer Science Engineering
- Students of M.E./M.Tech Computer Science Engineering

Searching is an important process in most AI systems, especially in those AI production systems consisting of a global database, a set of production rules, and a control system. Because of the intractability of uninformed search procedures, the use of heuristic information is necessary in most searching processes of AI systems. This important concept of heuristic information is the central topic of this book. We first use the 8-puzzle and the game tic-tac-toe

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(noughts and crosses) as examples to help our discussion. The 8-puzzle consists of eight numbered movable tiles set in a 3 x 3 frame. One cell of the frame is empty so that it is possible to move an adjacent numbered tile into the empty cell. Given two tile configurations, initial and goal, an 8-puzzle problem consists of changing the initial configuration into the goal configuration, as illustrated in Fig. 1.1. A solution to this problem is a sequence of moves leading from the initial configuration to the goal configuration, and an optimal solution is a solution having the smallest number of moves. Not all problems have solutions; for example, in Fig. 1.1, Problem 1 has many solutions while Problem 2 has no solution at all.

Search in Artificial Intelligence Springer Science & Business Media

Algorithmic puzzles are puzzles involving well-defined procedures for solving problems. This book will provide an enjoyable and accessible introduction to algorithmic puzzles that will develop the reader's algorithmic thinking. The first part of this book is a tutorial on algorithm design strategies and analysis techniques. Algorithm design strategies — exhaustive search, backtracking, divide-and-conquer and a few others — are general approaches to designing step-by-step instructions for solving problems. Analysis techniques are methods for investigating such procedures to answer questions about the ultimate result of the procedure or how many steps are executed before the procedure stops. The discussion is an elementary level, with puzzle examples, and requires neither programming nor mathematics beyond a secondary

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school level. Thus, the tutorial provides a gentle and entertaining introduction to main ideas in high-level algorithmic problem solving. The second and main part of the book contains 150 puzzles, from centuries-old classics to newcomers often asked during job interviews at computing, engineering, and financial companies. The puzzles are divided into three groups by their difficulty levels. The first fifty puzzles in the Easier Puzzles section require only middle school mathematics. The sixty puzzle of average difficulty and forty harder puzzles require just high school mathematics plus a few topics such as binary numbers and simple recurrences, which are reviewed in the tutorial. All the puzzles are provided with hints, detailed solutions, and brief comments. The comments deal with the puzzle origins and design or analysis techniques used in the solution. The book should be of interest to puzzle lovers, students and teachers of algorithm courses, and persons expecting to be given puzzles during job interviews.

Search is an important component of problem solving in artificial intelligence (AI) and, more generally, in computer science, engineering and operations research. Combinatorial optimization, decision analysis, game playing, learning, planning, pattern recognition, robotics and theorem proving are some of the areas in which search algorithms play a key role. Less than a decade ago the conventional wisdom in artificial intelligence was that the best search algorithms had already been invented and the likelihood of finding new results in this area was very small. Since then many new insights and results have been obtained. For example, new algorithms for state space, AND/OR graph, and game tree search were discovered. Articles on new theoretical developments and experimental results on backtracking, heuristic search and constraint propagation were published. The relationships among various search and

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combinatorial algorithms in AI, Operations Research, and other fields were clarified. This volume brings together some of this recent work in a manner designed to be accessible to students and professionals interested in these new insights and developments.

Quotient Space Based Problem Solving provides an in-depth treatment of hierarchical problem solving, computational complexity, and the principles and applications of multi-granular computing, including inference, information fusing, planning, and heuristic search. Explains the theory of hierarchical problem solving, its computational complexity, and discusses the principle and applications of multi-granular computing Describes a human-like, theoretical framework using quotient space theory, that will be of interest to researchers in artificial intelligence Provides many applications and examples in the engineering and computer science area Includes complete coverage of planning, heuristic search and coverage of strictly mathematical models

This Innovative Book On Artificial Intelligence (Ai) Uses The Unifying Thread Of Search To Bring Together The Major Application And Modeling Techniques That Use Symbolic Ai. Each Of The 11 Chapters Is Divided Into 3 Sections:# Section Which Introduces The Techniques# Section Which Develops A Low-Level (Pop-11) Implementation# Section Which Develops A High-Level (Prolog) ImplementationComprehensive Yet Practical, This Book Will Be Of Great Value To Those Experienced In Ai, As Well As To Students With Some Programming Background And Academics And Professionals Looking For A Precise Discussion Of Ai Through Search.This Special Low-Priced Edition Is For Sale In India, Bangladesh, Bhutan, Maldives, Nepal, Myanmar, Pakistan And Sri Lanka Only.

There are many books available in the market on the proposed topic but none of them can be

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termed as comprehensive. Besides, students face many problems in understanding the language of this books. Keeping these points in mind, Artificial Intelligence was prepared, which should be simple enough to comprehend and comprehensive enough to encompass all the topics of different institutions and universities.

Problem solving is a central topic for both cognitive psychology and artificial intelligence (AI). Psychology seeks to analyze naturally occur ring problem solving into hypothetical processes, while AI seeks to synthesize problem-solving performance from well-defined processes. Psychology may suggest possible processes to AI and, in turn, AI may suggest plausible hypotheses to psychology. It should be useful for both sides to have some idea of the other's contribution-hence this book, which brings together overviews of psychological and AI re search in major areas of problem solving. At a more general level, this book is intended to be a contribution toward comparative cognitive science. Cognitive science is the study of intelligent systems, whether natural or artificial, and treats both organ isms and computers as types of information-processing systems. Clearly, humans and typical current computers have rather different functional or cognitive architectures. Thus, insights into the role of cognitive ar chitecture in performance may be gained by comparing typical human problem solving with efficient machine problem solving over a range of tasks. Readers may notice that there is little mention of connectionist ap proaches in this volume. This is because, at the time of writing, such approaches have had little or no impact on research at the problem solving level. Should a similar volume be produced in ten years or so, of course, a very different story may need to be told.

In the last decade, AI firmly settled into our industrial society with the expert systems as the

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representative product. However, almost every one of the systems could cover only a single task domain. In the highly mechanized world of the 21st century, systems will become smart and user friendly enough to cover a wide range of task domains. Systems with much user friendliness must be multilingual because users in different domains usually have different languages. Language is formed in its own culture. Therefore, promotion for cross-cultural scientific interchange will be indispensable for the progress of AI.

This book is designed to identify some of the current applications and techniques of artificial intelligence as an aid to solving problems and accomplishing tasks. It provides a general introduction to the various branches of AI which include formal logic, reasoning, knowledge engineering, expert systems, neural networks, and fuzzy logic, etc. The book has been structured into five parts with an emphasis on expert systems: problems and state space search, knowledge engineering, neural networks, fuzzy logic, and Prolog. Features: Introduces the various branches of AI which include formal logic, reasoning, knowledge engineering, expert systems, neural networks, and fuzzy logic, etc. Includes a separate chapter on Prolog to introduce basic programming techniques in AI

This book offers a unique compendium of fundamental experiments, which forms the crucial foundation to understand this contemporary subject that has enormous impact of many other branches of life sciences. In addition to its simple and lucid language, the main focus of the book is to equip the beginner with the skill and ability required to conduct independent experimentation and research in laboratories.

This book constitutes the refereed proceedings of the 11th Biennial Conference of the Canadian Society for Computational Studies of Intelligence, AI 96, held in Toronto, Ontario,

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Canada, in May 1996. The 35 revised full papers presented in the book were carefully selected by the program committee. Although organized by a national society, AI 96 attracted contributions and participants with a significant geographic diversity. The issues addressed in this volume cover an eclectic range of current AI topics with a certain emphasis on various aspects of knowledge representation, natural language processing, and learning.

Hybrid architecture for intelligent systems is a new field of artificial intelligence concerned with the development of the next generation of intelligent systems. This volume is the first book to delineate current research interests in hybrid architectures for intelligent systems. The book is divided into two parts. The first part is devoted to the theory, methodologies, and algorithms of intelligent hybrid systems. The second part examines current applications of intelligent hybrid systems in areas such as data analysis, pattern classification and recognition, intelligent robot control, medical diagnosis, architecture, wastewater treatment, and flexible manufacturing systems. Hybrid Architectures for Intelligent Systems is an important reference for computer scientists and electrical engineers involved with artificial intelligence, neural networks, parallel processing, robotics, and systems architecture.

There are many distinct pleasures associated with computer programming. Craftsmanship has its quiet rewards, the satisfaction that comes from building a useful object and making it work. Excitement arrives with the flash of insight that cracks a previously intractable problem. The spiritual quest for elegance can turn the hacker into an artist.

There are pleasures in parsimony, in squeezing the last drop of performance out of clever algorithms and tight coding. The games, puzzles, and challenges of problems from international programming competitions are a great way to experience these pleasures while improving your algorithmic and coding

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skills. This book contains over 100 problems that have appeared in previous programming contests, along with discussions of the theory and ideas necessary to - tack them. Instant online grading for all of these problems is available from two WWW robot judging sites. Combining this book with a judge gives an exciting new way to challenge and improve your programming skills. This book can be used for self-study, for teaching innovative courses in algorithms and programming, and in training for international competition. To the Reader The problems in this book have been selected from over 1,000 programming problems at the Universidad de Valladolid online judge, available at <http://online-judge.uva.es>. The judge has ruled on well over one million submissions from 27,000 registered users around the world to date. We have taken only the best of the best, the most fun, exciting, and interesting problems available.

This unique compendium presents an introduction to problem solving, information theory, statistical machine learning, stochastic methods and quantum computation. It indicates how to apply quantum computation to problem solving, machine learning and quantum-like models to decision making — the core disciplines of artificial intelligence. Most of the chapters were rewritten and extensive new materials were updated. New topics include quantum machine learning, quantum-like Bayesian networks and mind in Everett many-worlds.

For the students of B.E./B.Tech Computer Science Engineering and Information Technology (CSE/IT)

This book presents the use of imperfect information (called heuristic information) in game-tree search. Its purpose is to investigate the theoretical background of the use of heuristic information in game-tree search. Computer programs playing games usually search the game-

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tree to a reasonable depth with a static evaluation function and make decisions based upon backed-up values. Since the information in either the backed-up values or the values returned directly by the static evaluation function is often imperfect, decision making is usually not optimal. Also, pathological cases show why intuition about game-tree search is not always correct. This book introduces a mathematical formulation of heuristic information and a theoretical model of game-tree search. In this model, notions of game-tree search are formulated in mathematical terms and a sound mathematical theory of heuristic information is developed. The conventional pathological cases disappear in this theory. This book is accessible to the general AI community, for example first year graduate students who have completed an introductory AI course and have at least some background in probability. The book is also a foundation for further work on game-tree search as well as on heuristic information in general AI.

This text provides an overview of leading-edge developments in the field of human-computer interaction. It includes contributions from many key areas that are influencing the use of computers. Sections include speech technology, interaction with mobile and hand-held computers, e-business, web-based systems, virtual reality and haptic interfaces.

Introduction; Methodology of knowledge representation; General inference principles; Hierarchical control systems; Expert control systems; Fuzzy control systems; Neurocontrol systems; Learning control systems; Intelligent control systems in application; Perspectives of intelligent control; References; Bibliography; Subject index.

A Classroom-Tested, Alternative Approach to Teaching Math for Liberal Arts Puzzles, Paradoxes, and Problem Solving: An Introduction to Mathematical Thinking uses puzzles and

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paradoxes to introduce basic principles of mathematical thought. The text is designed for students in liberal arts mathematics courses. Decision-making situations that progress from recreational problems to important contemporary applications develop the critical-thinking skills of non-science and non-technical majors. The logical underpinnings of this textbook were developed and refined throughout many years of classroom feedback and in response to commentary from presentations at national conferences. The text's five units focus on graphs, logic, probability, voting, and cryptography. The authors also cover related areas, such as operations research, game theory, number theory, combinatorics, statistics, and circuit design. The text uses a core set of common representations, strategies, and algorithms to analyze diverse games, puzzles, and applications. This unified treatment logically connects the topics with a recurring set of solution approaches. Requiring no mathematical prerequisites, this book helps students explore creative mathematical thinking and enhance their own critical-thinking skills. Students will acquire quantitative literacy and appreciation of mathematics through the text's unified approach and wide range of interesting applications.

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

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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.

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