

Principles Of Expert Systems Cs

This book presents a practical view of the knowledge acquisition process, its methodologies and techniques, in order to enable readers to develop expert systems knowledge bases more effectively. It strikes a balance between presenting (1) summaries of research in the field of knowledge acquisition and (2) methodologies and techniques that have been applied and tested on numerous programs in various contexts. Written for novice knowledge engineers or others tasked with acquiring knowledge for the systematic development of expert systems. The presentation of the material does not presume a background in either computer science or artificial intelligence.

In June of 1983, our expert systems research group at Carnegie Mellon University began to work actively on automating knowledge acquisition for expert systems. In the last five years, we have developed several tools under the pressure and influence of building expert systems for business and industry. These tools include the five described in chapters 2 through 6 - MORE, MOLE, SALT, KNACK and SIZZLE. One experiment, conducted jointly by developers at Digital Equipment Corporation, the Soar research group at Carnegie Mellon, and members of our group, explored automation of knowledge acquisition and code development for XCON (also known as R1), a production-level expert system for configuring DEC computer systems. This work influenced the development of RIME, a programming methodology developed at Digital which is the subject of chapter 7. This book describes the principles that guided our work, looks in detail at the design and operation of each tool or methodology, and reports some lessons learned from the enterprise. of the work, brought out in the introductory chapter, is A common theme that much power can be gained by understanding the roles that domain knowledge plays in problem solving. Each tool can exploit such an understanding because it focuses on a well defined problem-solving method used by the expert systems it builds. Each tool chapter describes the basic problem-solving method assumed by the tool and the leverage provided by committing to the method.

This book constitutes the refereed proceedings of the 20th International Conference on Database and Expert Systems Applications, DEXA 2009, held in Linz, Austria, in August/September 2009. The 35 revised full papers and 35 short papers presented were carefully reviewed and selected from 202 submissions. The papers are organized in topical sections on XML and databases; Web, semantics and ontologies; temporal, spatial, and high dimensional databases; database and information system architecture, performance and security; query processing and optimisation; data and information integration and quality; data and information streams; data mining algorithms; data and information modelling; information retrieval and database systems; and database and information system architecture and performance.

"The Encyclopedia of Library and Information Science provides an outstanding resource in 33 published volumes with 2 helpful indexes. This thorough reference set--written by 1300 eminent, international experts--offers librarians, information/computer scientists, bibliographers, documentalists, systems analysts, and students, convenient access to the techniques and tools of both library and information science. Impeccably researched, cross referenced, alphabetized by subject, and generously illustrated, the Encyclopedia of Library and Information Science integrates the essential theoretical and practical information accumulating in this rapidly growing field."

Principles of Expert Systems

Research and Development in Expert Systems XV

The Elements of Artificial Intelligence Using Common LISP

INFORMATION technology issues & challenges

5th International Conference, DEXA'94, Athens, Greece, September 7 - 9, 1994. Proceedings

This series will include monographs and collections of studies devoted to the investigation and exploration of knowledge, information and data-processing systems of all kinds, no matter whether human, (other) animal or machine. Its scope is intended to span the full range of interests from classical problems in the philosophy of mind and philosophical psychology through issues in cognitive psychology and sociobiology (concerning the mental capabilities of other species) to ideas related to artificial intelligence and to computer science. While primary emphasis will be placed upon theoretical, conceptual and epistemological aspects of these problems and domains, empirical, experimental and methodological studies will also appear from time to time. The present volume illustrates the approach represented by this series. It addresses fundamental questions lying at the heart of artificial intelligence, including those of the relative virtues of computational and of non-computational conceptions of language and of mind, whether AI should be envisioned as a philosophical or as a scientific discipline, the theoretical character of patterns of inference and modes of argumentation (especially, defeasible and inductive reasoning), and the relations that may obtain

between AI and epistemology. Alternative positions are developed in detail and subjected to vigorous debate in the justifiable expectation that - here as elsewhere - critical inquiry provides the most promising path to discovering the truth about ourselves and the world around us. I.H.F. This paper analyzes the relationship between the techniques used to build expert systems and the behaviors they exhibit to show that there is not sufficient evidence to link the behavioral shortcomings of first-generation expert systems to the shallow methods of representation and inference they employ. There is only evidence that the shortcomings are a consequence of a general lack of knowledge. Moreover, the paper shows that the first-generation of expert systems employ both shallow methods and most of the so-called deep methods. Lastly, we show that deeper methods augment but do not replace shallow reasoning methods; most expert systems should possess both." Technological advancements have extracted a vast amount of useful knowledge and information for applications and services. These developments have evoked intelligent solutions that have been utilized in efforts to secure this data and avoid potential complex problems. Advances in Secure Computing, Internet Services, and Applications presents current research on the applications of computational intelligence in order to focus on the challenge humans face when securing knowledge and data. This book is a vital reference source for researchers, lecturers, professors, students, and developers, who have interest in secure computing and recent advanced in real life applications. An introductory overview of AI today which expresses AI theory in programs written with the new standard Common LISP. The programs are short and accessible to the beginner. The book includes discussions of expert systems, vision and knowledge representation.

Knowledge Acquisition

Expert Systems: Principles and Practice

Encyclopedia of Computer Science and Technology

Expert Systems and Decision Support in Medicine

Principles and Applications

This supplement to the Encyclopedia of Computer Science and Technology looks at subjects ranging from algorithmic learning theory to statistical language modelling.

The new edition of this market-leading text builds upon the blend of expert systems theory and application established in earlier editions.

Artificial intelligence (AI) is the part of computer science concerned with designing intelligent computer systems (systems that exhibit characteristics we associate with intelligence in human behavior). This book is the first published textbook of AI in chemical engineering, and provides broad and in-depth coverage of AI programming, AI principles, expert systems, and neural networks in chemical engineering. This book introduces the computational means and methodologies that are used to enable computers to perform intelligent engineering tasks. A key goal is to move beyond the principles of AI into its applications in chemical engineering. After reading this book, a chemical engineer will have a firm grounding in AI, know what chemical engineering applications of AI exist today, and understand the current challenges facing AI in engineering. Allows the reader to learn AI quickly using inexpensive personal computers Contains a large number of illustrative examples, simple exercises, and complex practice problems and solutions Includes a computer diskette for an illustrated case study Demonstrates an expert system for separation synthesis (EXSEP) Presents a detailed review of published literature on expert systems and neural networks in chemical engineering

This monograph describes an innovative prototyping framework for data and knowledge intensive systems. The proposed approach will prove especially useful for advanced and research-oriented projects that aim to develop a traditional database perspective into fully-fledged advanced database approaches and knowledge engineering technologies. The book is organised in two parts. The first part, comprising chapters 1 to 4, provides an introduction to the concept of prototyping, to database and knowledge-based technologies, and to the main issues involved in the integration of data and knowledge engineering. The second part, comprising chapters 5 to 12, illustrates the proposed approach in technical detail. Audience: This volume will be of interest to researchers in the field of databases and knowledge engineering in general, and for software designers and knowledge engineers who aim to expand their expertise in data and knowledge intensive systems.

Artificial Intelligence and Expert Systems for Engineers

An Analysis of the Distinction Between Deep and Shallow Expert Systems

Past, Present and Future

Artificial Intelligence in Medicine

7th International Conference, DEXA '96, Zurich, Switzerland, September 9 - 13 , 1996. Proceedings

Data analysis is an important part of modern business administration, as efficient compilation of information allows managers and business leaders to make the best decisions for the financial solvency of their organizations. Understanding the use of analytics, reporting, and data mining in everyday business environments is imperative to the success of modern businesses. Business Intelligence: Concepts, Methodologies, Tools, and Applications presents a comprehensive examination of business data analytics along with case studies and practical applications for businesses in a variety of fields and corporate arenas. Focusing on topics and issues such as critical success factors, technology adaptation, agile development approaches, fuzzy logic tools, and best practices in business process management, this multivolume reference is of particular use to business analysts, investors, corporate managers, and entrepreneurs in a

variety of prominent industries.

The Database and Expert Systems Applications (DEXA) conferences bring together researchers and practitioners from all over the world to exchange ideas, experiences and opinions in a friendly and stimulating environment. The papers are at once a record of what has been achieved and the first steps towards shaping the future of information systems. DEXA covers a broad field, and all aspects of database, knowledge base and related technologies and their applications are represented. Once again there were a good number of submissions: 241 papers were submitted and of these the programme committee selected 103 to be presented. DEXA'99 took place in Florence and was the tenth conference in the series, following events in Vienna, Berlin, Valencia, Prague, Athens, London, Zurich, Toulouse and Vienna. The decade has seen many developments in the areas covered by DEXA, developments in which DEXA has played its part. I would like to express thanks to all the institutions which have actively supported and made possible this conference, namely: • University of Florence, Italy • IDG CNR, Italy • FAW - University of Linz, Austria • Austrian Computer Society • DEXA Association In addition, we must thank all the people who have contributed their time and effort to make the conference possible. Special thanks go to Maria Schweikert (Technical University of Vienna), M. Neubauer and G. Wagner (FAW, University of Linz). We must also thank all the members of the programme committee, whose careful reviews are important to the quality of the conference.

The 33rd Annual Meeting of the German Association for Medical Documentation, Informatics and Statistics was combined with a Special Topic Conference of the European Federation for Medical Informatics and takes place at Hannover, F. R. of Germany, from September 26 to 29, 1988. It was planned and initially prepared by the late Prof. P. L Reichertz, who headed the Hannover institute from 1969 to 1987. To commemorate his contribution to the development of medicine the conference was devoted to him "Peter Reichertz Memorial Conference on Expert Systems and Decision Support in Medicine" Since computers in the early Fifties were first applied to support medical reasoning, various phases of euphoria and resignation have followed. Every new methodology which became technically possible was and will be applied to the old question of how to diagnose diseases more reliably. Artificial Intelligence is just one new approach to the old challenge. Over the years some authors have been very optimistic and put forward opinions which motivated the common press to coin the phrase 'Dr. med. computer'. Papers printed under this heading rebuffed the majority of physicians for many years. Today we know that medical decision making is a most complex human performance. And 30 years of research on decision support have given us only limited insight into the underlying processes. Most of the principal methodological questions were already asked very early on.

This book provides a comprehensive presentation of artificial intelligence (AI) methodologies and tools valuable for solving a wide spectrum of engineering problems. What's more, it offers these AI tools on an accompanying disk with easy-to-use software. Artificial Intelligence and Expert Systems for Engineers details the AI-based methodologies known as: Knowledge-Based Expert Systems (KBES); Design Synthesis; Design Critiquing; and Case-Based Reasoning. KBES are the most popular AI-based tools and have been successfully applied to planning, diagnosis, classification, monitoring, and design problems. Case studies are provided with problems in engineering design for better understanding of the problem-solving models using the four methodologies in an integrated software environment. Throughout the book, examples are given so that students and engineers can acquire skills in the use of AI-based methodologies for application to practical problems ranging from diagnosis to planning, design, and construction and manufacturing in various disciplines of engineering. Artificial Intelligence and Expert Systems for Engineers is a must-have reference for students, teachers, research scholars, and professionals working in the area of civil engineering design in particular and engineering design in general.

Information Control Problems in Manufacturing Technology 1989

Expert Systems

Expert Systems and Geographic Information Systems for Impact Assessment

12th International Conference, DEXA 2001 Munich, Germany, September 3-5, 2001 Proceedings

Automating Knowledge Acquisition for Expert Systems

Impact Assessment is becoming part and parcel of an increasing number of development proposals in the UK and Europe. As the practice of Impact Assessment develops it becomes more standardized and good practice starts to be defined. However, the quality of Impact Assessment is still far from satisfactory. Expert Systems and GIS for Impact Assessment Contributed articles.

Until recently, fuzzy logic was the intellectual plaything of a handful of researchers. Now it is being used to enhance the power of intelligent systems, as well as improve the performance and reduce the cost of intelligent and "smart" products appearing in the commercial market. Fuzzy Expert Systems focuses primarily on the theory of fuzzy expert systems and their applications in science and engineering. In doing so, it provides the first comprehensive study of "soft" expert systems and applications for those systems. Topics covered include general purpose fuzzy expert systems, processing imperfect information using structured frameworks, the fuzzy linguistic inference network generator, fuzzy associative memories, the role of approximate reasoning in medical expert systems, MILORD (a fuzzy expert systems shell), and COMAX (an autonomous fuzzy expert system for tactical communications networks. Fuzzy Expert Systems provides an invaluable reference resource for researchers and students in artificial intelligence (AI) and approximate reasoning (AR), as well as for other researchers looking for methods to apply similar tools in their own designs of intelligent systems.

The Symposium presented and discussed the latest research on new theories and advanced applications of automatic systems, which are developed for manufacturing technology or are applicable to advanced manufacturing systems. The topics included computer integrated manufacturing, simulation and the increasingly important areas of artificial intelligence and expert systems, and applied them to the broad spectrum of problems that the modern manufacturing engineer is likely to encounter in the design and application of increasingly complex automatic systems.

Concepts, Methodologies, Tools, and Applications

Volume 51 - Supplement 14: Automation of Library and Information Services in China: II. Taiwan to Thesaurus Management Software

33rd Annual Meeting of the GMDS EFMI Special Topic Meeting Peter L. Reichertz Memorial Conference Hannover, September 26-29, 1988 Proceedings

Advances in Secure Computing, Internet Services, and Applications

Principles and Guidelines

th DEXA 2001, the 12 International Conference on Database and Expert Systems Applications was held on September 3-5, 2001, at the Technical University of Munich, Germany. The rapidly growing spectrum of database applications has led to the establishment of more specialized discussion platforms (DaWaK conference, EC Web conference, and DEXA workshop), which were all held in parallel with the DEXA conference in Munich. In your hands are the results of much effort, beginning with the preparation of the submitted papers. The papers then passed through the reviewing process, and the accepted papers were revised to final versions by their authors and arranged with the conference program. All this culminated in the conference itself. A total of 175 papers were submitted to this conference, and I would like to thank all the authors. They are the real base of the conference. The program committee and the supporting reviewers produced altogether 497 referee reports, on average of 2.84 reports per paper, and selected 93 papers for presentation. Comparing the weight or more precisely the number of papers devoted to particular topics at several recent DEXA conferences, an increase can be recognized in the areas of XMS databases, active databases, and multi and hypermedia efforts. The space devoted to the more classical topics such as information retrieval, distribution and Web aspects, and transaction, indexing and query aspects has remained more or less unchanged. Some decrease is visible for object orientation.

The Database and Expert Systems Applications (DEXA) conferences have established themselves as a platform for bringing together researchers and practitioners from various backgrounds and all regions of the world to exchange ideas, experiences and opinions in a friendly and stimulating environment. The papers presented at the conference represent recent developments in the field and important steps towards shaping the future of applied computer science and information systems. DEXA covers a broad field: all aspects of databases, knowledge based systems, knowledge management, web-based systems, information systems, related technologies and their applications. Once again there were a good number of submissions: out of 183 papers that were submitted, the program committee selected 92 to be presented. In the first year of this new millennium DEXA has come back to the United Kingdom, following events in Vienna, Berlin, Valencia, Prague, Athens, London, Zurich, Toulouse, Vienna and Florence. The past decade has seen several revolutionary developments, one of which was the explosion of Internet-related applications in the areas covered by DEXA, developments in which DEXA has played a role and in which DEXA will continue to play a role in its second decade, starting with this conference.

The goal of the International Workshop on Expert Systems in Engineering is to stimulate the flow of information between researchers working on theoretical and applied research topics in this area. It puts special emphasis on new technologies relevant to industrial engineering expert systems, such as model-based diagnosis, qualitative reasoning, planning, and design, and to the conditions in which they operate, in real time, with database support. The workshop is especially relevant for engineering environments like CIM (computer integrated manufacturing) and process automation.

Latest volume in this rather new series by a publisher of impeccable probity. Topics in the 3d volume include security, AI, image analysis, history of logic, LISP, CAM. Annotation copyrighted by Book News, Inc., Portland, OR

10th International Conference, DEXA'99, Florence, Italy, August 30 - September 3, 1999, Proceedings

Principles of Logic and Logic Programming

11th International Conference, DEXA 2000 London, UK, September 4-8, 2000 Proceedings

Principles of rule based expert systems

Logic's basic elements are unfolded in this book. The relation of and the transition from Logic to Logic Programming are analysed. With the use and the development of computers in the beginning of the 1950's, it soon became clear that computers could be used, not only for arithmetical computation, but also for symbolic computation. Hence, the first arithmetical computation programs, and the first programs created to answer elementary questions and prove simple theorems, were written simultaneously. The basic steps towards a general method based on Logic, were accomplished in 1965 by Robinson and later by Kowalski and Colmerauer who made use of Logic directly as a Logic Programming language. Each chapter includes solved as well as unsolved exercises provided to help the reader assimilate the corresponding topics. The solved exercises demonstrate how to work methodically, whereas the unsolved exercises aim to stimulate the reader's personal initiative. The contents of the book are self-contained; only an elementary knowledge of analysis is required. Thus, it can be used by students in every academic year, as simply reading material, or in the context of a course. It can also be used by those who utilize Logic Programming without having any particular theoretical background knowledge of Logic, or by those simply interested in Logic and its applications in Logic Programming.

This volume constitutes the proceedings of the 5th International Conference on Database and Expert Systems Applications (DEXA '94), held in Athens, Greece in September 1994. The 78 papers presented were selected from more than 300 submissions and give a comprehensive view of advanced applications of databases and expert systems. Among the topics covered are object-oriented, temporal, active, geographical, hypermedia and distributed databases, data management, cooperative office applications, object-oriented modelling, industrial applications, conceptual modelling, legal systems, evolving environments, knowledge engineering, information retrieval, advanced querying, medical systems, and CIM.

Abstract: "This monograph provides an introduction to the theory of expert systems. The task of medical diagnosis is used as a unifying theme throughout. A broad perspective is taken, ranging from the role of diagnostic programs to methods of evaluation. While much emphasis is placed on probability theory, other calculi of uncertainty are given due consideration."

Content Description #Includes bibliographical references and index.

Computer Education in India

Artificial Intelligence in Chemical Engineering

Business Intelligence: Concepts, Methodologies, Tools, and Applications

An Introduction to Expert Systems

Volume 45 - Supplement 30

R.G.MILES XHP Consulting Ltd, Gloucester. This book is one of two volumes containing papers for presentation at the British Computer Society Expert Systems 98 conference. This is the annual conference of th the BCS Specialist Group on Expert Systems and is in its 18 year. During its lifetime it has established itself as the premier Expert Systems conference in the UK. The conference is attracting an increasing number of papers world-wide and this year in excess of 70% were from research groups outside the UK. This volume includes all papers accepted for the Technical Stream of Expert

Systems 98 and presented at the conference in December 1998. The papers within this stream present innovative, new research work. The companion volume, Applications and Innovations in Expert Systems VI, includes all papers accepted for the application stream of the conference. This stream has become the premier European conference on applications of Expert Systems. The papers accepted for presentation within the Technical Stream cover a broad range of research within Expert Systems and fit into four broad categories: ontological frameworks, knowledge base development, classifiers and neuro-fuzzy systems. The award for best Technical paper has been made to David McSherry, from the University of Ulster, for his paper entitled "Strategic Induction of Decision Trees".

Principles of Artificial Intelligence and Expert Systems Development
Expert Systems Principles and Programming
Brooks/Cole

Expert systems constitute a research area which is currently expanding. This book is based largely on work undertaken for my doctoral thesis and attempts to set out in readily understood language the different methods of knowledge representation used in different systems. However, since the field for applications is enormous and touches on many disciplines (engineering science, computing, geology, medicine etc.) only those systems with medical applications are presented. The second part of this book is devoted to detailed discussion of one expert system developed in this department: SPHINX. I wish to thank all those who have given me their support, their criticisms and suggestions: Dominique Fieschi, Michel Joubert, Genevieve Botti, Michel Roux, Jean-Louis Lauriere, as well as the CNRS which supported the ATP Expert Systems Group with an individual grant. Marius Fieschi Foreword This work deals with 'Expert Systems' in the realm of medicine. The phrase 'Expert System' describes an information system not only in terms of its content but also in terms of its application. As with all generic terms, it is condensed to the point where the meaning cannot be guessed from simply reading it. It concerns systems processing knowledge and behaviour in ways close to those of a human expert. In the field of medicine this expert would be the consultant or specialist to whom a family practitioner refers a 'case' which he is unable to diagnose. The study of expert systems is a branch of computer science called artificial intelligence.

Selected papers from the 6th IFAC/IFIP/IFORS/IMACS Symposium, Madrid, Spain, 26-29 September 1989
20th International Conference, DEXA 2009, Linz, Austria, August 31 - September 4, 2009, Proceedings
Principles and Programming : Solutions Manual
Database and Expert Systems Applications
Annual Review of Computer Science