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## Expert Systems Design And Development John Durkin

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Proceedings of International Conference on Sustainable Expert Systems  
 Hands-on Expert Systems  
 Evaluating Decision Support and Expert Systems  
 Expert Systems  
 Automating Knowledge Acquisition for Expert Systems  
 Expert Systems for Software Engineers and Managers  
 Design Criteria Development Using Expert Systems  
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 XSEL's Progress

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[Proceedings of International Conference on Sustainable Expert Systems](#) Routledge

By incorporating hypermedia and expert system technologies into one convenient source, this book breaks new ground and defines the next generation of knowledge-based systems. It addresses the relationship that exists between them and provides models which accurately reflect this integration. Unique in both its breadth and scope, it first presents clear definitions of the two technologies. Following this, readers are shown how to go about acquiring workable design/development methodologies. In addition, there are six case studies presented which show the technology in action and reviews of commonly available development tools or shells.

**Hands-on Expert Systems** Prentice Hall

Presents a step-by-step methodology for designing expert systems. Each chapter on design methodology starts with a problem and leads the reader through the design of a system which solves that problem.

*Evaluating Decision Support and Expert Systems* Macmillan College

Expert Systems are so far the most promising achievement of artificial intelligence research. Decision making, planning, design, control, supervision

and diagnosis are areas where they are showing great potential. However, the establishment of expert system technology and its actual industrial impact are still limited by the lack of a sound, general and reliable design and construction methodology. This book has a dual purpose: to offer concrete guidelines and tools to the designers of expert systems, and to promote basic and applied research on methodologies and tools. It is a coordinated collection of papers from researchers in the USA and Europe, examining important and emerging topics, methodological advances and practical experience obtained in specific applications. Each paper includes a survey introduction, and a comprehensive bibliography is provided.

*Expert Systems* Prentice Hall

Managers, business owners, computer literate individuals, software developers, students, and researchers--all are looking for an understanding of artificial intelligence (AI) and what might be in the future. In this literate yet easy-to-read discussion, Derek Partridge explains what artificial intelligence can and cannot do, and what it holds for applications such as banking, financial services, and expert systems of all kinds. Topics include: the strengths and weaknesses of software development and engineering; machine learning and its promises and problems; expert systems and success stories; and practical software through artificial intelligence.

*Automating Knowledge Acquisition for Expert Systems* Wiley

While expert systems technology originated in the United States, its development has become an international concern. Since the start of the DENDRAL project at Stanford University over 15 years ago, with its objective of problem-solving via the automation of actual human expert

knowledge, significant expert systems projects have been completed in countries ranging from Japan to France, Spain to China. This book presents a sample of five such projects, along with four substantial reports of mature studies from North American researchers. Two important issues of expert system design permeate the papers in this volume. The first concerns the incorporation of substantial numeric knowledge into a system. This has become a significant focus of work as researchers have sought to apply expert systems technology to complex, real-world domains already subject to statistical or algebraic description (and handled well at some level in numeric terms). A second prominent issue is that of representing control knowledge in a manner which is both explicit, and thus available for inspection, and compatible with the semantics of the problem domain.

*Expert Systems for Software Engineers and Managers* Springer Science & Business Media

Bridges the gap between two areas of intensive research—mechanical design/manufacturing and cooperating expert systems. Concerned with the theory and implementation of a computational infrastructure, enabling systems designers to achieve the requisite trade-offs for a good overall balance of design among, for example, heterogeneous design tools. Features numerous case studies.

*Design Criteria Development Using Expert Systems* Wiley-Blackwell

This book gives readers and practitioners the tools they need to develop appropriate applications and systems. It also explores managing and institutionalizing expert system development and usage.

*The Design and Development of an Expert System Construction Environment for Inclusion of Data Resource Knowledge* Springer

Expert Systems for Engineering Design presents the application of expert system methods to a variety of engineering design problems. This book provides the technical details on how the methods are used to solve specific design problems in chemical engineering, civil engineering, and several others. Organized into 12 chapters, this book begins with an overview of the synthesis, the creation, and development of alternative designs. This text then examines the nature of design expertise and the types of computer tools that can enhance the expert's decision-making. Other chapters consider the integration of tools into intelligent, cooperative frameworks. This book discusses as well the use of graphic interfaces with built-in knowledge about the designs being configured. The final chapter deals with the development of software tools for automatic design synthesis and evaluation within the integrated framework of a computer-aided mechanical design system known as CASE, which stands for computer-aided simultaneous engineering. This book is a valuable resource for engineers and architects.

*Developing Expert Systems* Springer Science & Business Media

\*\*\*e FACHGEBIET\*\*\* Mathematical Geology, Computer Applications, Artificial Intelligence, Urban Economics and Regional Economics

\*\*\*INTERESSENTENGRUPPE\*\*\* Of interest to Urban and Regional planners, civil engineers, geographers; computer scientists; operations researchers; landscape architects; and advanced students in the above disciplines.- Level: Technical Book, Monograph \*\*\*URHEBER\*\*\* T.J. Kim, University of Illinois, Champaign, IL; L.L. Wiggins, Massachusetts Institute of Technology, Cambridge, MA; J.R. Wright, Purdue University, Lafayette, IN (Eds.)

\*\*\*TITEL\*\*\* Expert Systems: Applications to Urban Planning \*\*\*BIBLIOGRAPHISCHE-ANGABEN\*\*\* 1990. XIV, 268 pp. 48 figs. Hardcover DM 78,- ISBN

3-540-97171-8 \*\*\*LANGTEXT\*\*\* While expert systems have become a popular topic in the computing, medical and engineering fields, the expert system is still a new technology in urban planning. This book introduces expert systems for problem solving in urban planning and describes the way in which heuristic knowledge and rules of thumb of expert planners can be represented through computer programs. The book presents practical applications of expert systems for solving many important urban planning problems, particularly those issues that many practicing planners face in their daily operations. Problems and issues discussed are grouped in the following categories: - Land Use Planning - Transportation Planning - Site Selection and Analysis - Environmental Planning - Conflict Mediation and Legal Disputes - Future Developments and Directions Expert Systems: Applications to Urban Planning will benefit both urban planners who wish to learn how this new technology might be applied to their daily work as well as researchers in expert systems seeking new ideas for systems design.

*Expert Systems Design and Development Using VP-Expert?* Springer Science & Business Media

Here is the inside story of the development of XSEL, one of the first successful, large-scale expert systems. Discusses management problems that arose during development and how they were solved, and makes special note of the success of end-user involvement in system design. Highlights the human dramas, the processes, problems and triumphs during the life of the project.

*Structuring Expert Systems* Elsevier

This book includes papers on intelligent expert systems and sustainability applications in the areas of data science, image processing, wireless communication, risk assessment, healthcare, intelligent social network mining, and energy. The recent growth of sustainability leads to a progressively new era of computing, where its design and deployment leverages significant impact on the intelligent systems research. Moreover, the sustainability technologies can be effectively used in the progressive deployment of various network-enabled technologies like intelligent sensors, smart cities, wearable technologies, robotics, web applications and other such Internet technologies. The thrust of this book is to publish the state-of-the-art research articles that deals with the design, development, implementation and testing of the intelligent expert systems and also to provide an overview of the sustainable management of these systems.

*Enhancing Manufacturing Productivity Through the Design and Development of Expert Systems* Elsevier

This book is written for software engineers, software project leaders, and software managers who would like to introduce a new advanced software technology, expert systems, into their product. Expert system technology brings into programming a new dimension in which "rule of thumb" or heuristic expert knowledge is encoded in the program. In contrast to conventional procedural languages {e. g. , Fortran or C}, expert systems employ high-level programming languages {Le. , expert system shells} that enable us to capture the judgmental knowledge of experts such as geologists, doctors, lawyers, bankers, or insurance underwriters. Past expert systems have been more successfully applied in the problem areas of analysis and synthesis where the boundary of knowledge is well defined and where experts are available and can be identified. Early successful applications include diagnosis systems such as MYCIN, geological systems such as PROSPECTOR, or design/configuration systems such as XCON. These early expert systems were mainly applicable to scientific and engineering problems, which are not theoretically well understood in terms of decisionmaking processes by their experts and which therefore require judgmental assessment. The more recent expert systems are being applied to

sophisticated synthesis problems that involve a large number of choices, such as how the elements are to be compared. These problems normally entailed a large search space and slower speed for the expert systems designed. Examples of these systems include factory scheduling applications such as ISIS, or legal reasoning applications such as TAXMAN.

*Intelligent Systems Design* Wiley-Interscience

Provides structured methodologies in the design and construction of Expert systems. Explores structuring the Expert system domain, the structured elements of system design, and system development and implementation. Annotation copyrighted by Book News, Inc., Portland, OR

*The Structure, Design and Development of Expert Systems* Springer Nature

The new edition of this market-leading text builds upon the blend of expert systems theory and application established in earlier editions. The first half of the book concentrates on the theoretical base of expert systems, and offers a broad overview of Artificial Intelligence and its relation to expert systems. The second half of the text focuses on application, with the introduction of the CLIPS expert systems tool, and its new object-oriented language, COOL. All chapters end with an extensive problem set designed to reinforce knowledge.

*Expert Systems* ASCE Publications

A hands-on introduction to designing expert systems using the latest version of the one of the most popular commercial expert systems shells available, VP-Expert 2.0. Includes an educational version of the powerful, commercial VP-Expert software package. Step-by-step approach makes learning expert system design easy. VP-Expert 2.0 features backward and forward chaining, inductive front end, confidence factors, and an easy-to-use interface. Includes illustrative examples and exercises.

*Expert Aided Control System Design* Course Technology Ptr

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.

*Delfi* Elsevier

This six-volume set presents cutting-edge advances and applications of expert systems. Because expert systems combine the expertise of engineers, computer scientists, and computer programmers, each group will benefit from buying this important reference work. An "expert system" is a knowledge-based computer system that emulates the decision-making ability of a human expert. The primary role of the expert system is to perform appropriate functions under the close supervision of the human, whose work is supported by that expert system. In the reverse, this same expert system can monitor and double check the human in the performance of a task. Human-computer interaction in our highly complex world requires the development of a wide array of expert systems. Expert systems techniques and applications are presented for a diverse array of topics including Experimental design and decision support The integration of machine learning with knowledge acquisition for the design of expert systems Process planning in design and manufacturing systems and process control applications Knowledge discovery in large-scale knowledge bases Robotic systems Geographic information systems Image analysis, recognition and interpretation Cellular automata methods for pattern recognition Real-time fault tolerant control systems CAD-based vision systems in pattern matching processes Financial systems Agricultural applications Medical diagnosis

*Expert Systems for Engineering Design* Springer Science & Business Media

The first book to discuss efficient ways to implement the systems currently being developed--written by the co-author of Expert Systems: Artificial Intelligence in Business, generally regarded as the best non-technical guide to expert systems for business people. Gives innovative ideas for using expert systems to facilitate business operations. Appropriate as a text or supplement for data base, decision support, or special-topic courses that cover expert systems. Clearly explains new applications of automatic decision-making in management, sales, operations, programming, research, and service industries. Text supported by extensive examples and graphs.

*Expert Systems: Applications to Urban Planning* Springer Science & Business Media

This is a book about the design of knowledge-based systems of prime interest to those organizations with a commitment to building up large, integrated, corporate knowledge bases. It is principally written for those who have an interest in building expert systems and deductive database systems. Debenham's method is to represent and analyze knowledge in a way that is independent of any particular expert system shell or computer language. This method extends from initial knowledge acquisition to knowledge base implementation and knowledge base maintenance. The text is illustrated with examples expressed in logic programming, a procedure adopted because it is both simple and widely understood comparative with other knowledge languages. While this book is not intended to be a complete account of expert systems or deductive databases, it will enable the knowledge-processing specialist to do a better and more systematic job.

*Expert System Applications*

Expert Systems are computer programs designed to include a simulation of the reasoning and decision-making processes of human experts. This report provides a set of general guidelines for the development and distribution of highway related Expert Systems. This expands the guidelines provided in Chapter X, Expert Systems, of the Information Resources Management Manual. Included in this set of guidelines is information on developing, distributing and maintaining Expert Systems. The general development guidelines include discussions of: (1) a representative set of

problem types that are amenable to solutions using Expert Systems; (2) a description of the major components of a typical Expert System and how these components interact in a problem solving situation; and (3) a set of Expert System development guidelines and a set of guidelines for maintaining an Expert System.