

BOOK REVIEWS

Expert Micros

WANTED: An easy-to-read guide to PC-based expert systems development, commercial applications, market potential, and consumer's guide to languages and shells.

This advertisement might be posted by any manager delegated the responsibility for investigating the applications and market possibilities of expert systems for his/her company. To the rescue have come the authors whose books are reviewed in this article.

Each author provides answers to some of the questions raised by those considering the use of expert systems on micro-computers:

- What are expert systems?
- Can they be implemented on a PC?
- Have any successful PC applications been created?
- Do I really need an expert system?
- How are expert systems developed?
- What problems may occur?
- What are the cost/benefit trade-offs?
- What languages and shells are being used?
- How do I select the right tool for my problem?
- How do I sell an expert system initiative to upper management?

The degree to which the authors answer these questions will be considered in the remainder of this review.

In *Expert Systems and Micros*, G. L. Simons describes the development of micro-based expert systems in an international context. He discusses, for example, the United Kingdom's Alvey project and Japan's Institute for New Generation Computer Technology (ICOT). Expert systems applications in such fields as medicine, engineering, and chemistry together with languages and shells are similarly described.

Essentially a survey of the development of PC-based expert systems and a review of existing applications, languages and shells, this book leaves many of the important questions unanswered. In addition, it suffers from including too many unrelated topics under a chapter heading. Under the title "Features of Expert Systems," Simons begins with a digression on "Computers, Brains, and Minds". Tables and figures which might serve to organize material are introduced and then abandoned for some other organizational scheme. Finally, very little is said about existing tools that would be helpful to the reader in evaluating and selecting them.

Mickey Williamson's *Artificial Intelligence for Micro-Computers; the Guide for Business Decision Makers* provides a well-organized overview of the subject, complete with chapter synopses and a detailed Table of Contents. The introduction to expert systems contains a good summary of

the component parts, a brief overview of knowledge engineering and a cost/benefit analysis procedure for systems development. Other sections cover problem and tool selection criteria. A case study of Human Edge Software's Sale's Edge is used to illustrate the development process.

In "Natural Language Inquiry Systems," Clout2 and Savvy are described and evaluated. Chapter 7, "Expert System Shell—Product Reviews," presents a survey of Expert-Ease, Exsys, Insight/Insight2, M.1, KDS, and Micro-PS. There is also a summary table comparing the features of these shells. Lisp and Prolog dialects are summarized and information provided about vendors and prices.

Of particular interest to the reader is the advice on getting started in the concluding chapter: "scale your applications to a reasonable level" and "don't have great expectations about what can be accomplished." A glossary is appended to the text.

This otherwise fine introduction to expert systems is occasionally marred by shifts in audience orientation from novice to sophisticated user. This is reflected in a division of purpose between introducing micro-based expert systems and teaching the basics of computer literacy (Appendix A) and database management systems in Chapter 2.

Of the books reviewed, *PC-Driven Expert Systems, the Application of Expert Systems in Electronics and Business* (Electronic Trend Publications) is the most comprehensive. For the purchase price (\$795), the buyer also gets a copy of the shell Esie. If the individual is among the first one-hundred purchasers, the publisher provides the following demonstration packages: Exsys, 1st Class, Guru, Insight2+, M.1, Personal Consultant, and Turbo Prolog.

Written for the person who needs a great deal of information in a hurry, this text is well organized and concisely written. An "Executive Summary" is provided in Chapter 2. In Chapter 3, "Artificial Intelligence: A Tutorial," an easy-to-read, illustrated overview of expert systems, representation methods and search strategies is provided. A summary of research projects and commercial applications by various institutions is provided in Chapter 4. Procedures for developing and deploying an expert system are briefly addressed in Chapter 5, "Steps to Developing, Building And Deploying Your Expert System." Of great value to the user is Chapter 8, "Product Profiles," which contains reviews of most of the PC-based expert systems. The author provides suggestions as to when a particular tool may be useful as well as comments on their shortcomings. The evaluations of documentation/tutorial quality are also a fine and thoughtful addition.

(continued on page 115)

Expert Micros (continued from page 82)

If one critical observation might be made, it is that, despite the author's cautions, there is the glitter of cheap and easy entry into the booming AI market. In the introduction, the eager executive is permitted to skip ahead to the important chapters describing successful commercial applications and "Future Trends." The reader is told that the AI "market is projected to reach \$44 billion by 1990." In "Costs, Benefits and Success Factors," the low cost of hardware and software is emphasized. It is announced that virtually "any corporation with a PC, adequate resources, and imagination can enter the expert systems arena."

While not untrue, such statements may encourage unrealistic expectations and later disillusionment. All three texts did this to some extent. Buttressing these expectations is the fact that many of the successful applications described were developed on and for mainframes. More needs to be said about PC-based accomplishments.

For the person considering the development of expert systems, the following is also recommended:

1) Read some general works to answer the other questions. Donald Waterman's *A Guide to Expert Systems* (Addison-Wesley, 1986) is a well-organized, succinct, illustrated book that thoroughly addresses most of the questions, including problems and pitfalls involved in problem/tool selection and the development of expert systems. It is an indispensable aid to those considering an AI initiative

2) Obtain demonstration copies of expert system tools. For evaluation purposes, define a problem and develop a few simple rules to create, edit and run using each tool. The tutorials accompanying these tools can also provide a rapid course in expert systems development

While these first offerings will certainly be of interest to the growing PC-AI audience, it is hoped that future books will address some of the other questions not answered by these

G. L. Simons, *Expert Systems and Micros* (John Wiley & Sons, Inc., 1986) \$19.95; Mickey Williamson, *Artificial Intelligence for Micro-Computers* (Brady Books/An Imprint of Prentice-Hall Press, 1986) \$17.95, Electronic Trend Publications, *PC-Driven Expert Systems* (1986) \$795.00

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