

certainly purchase the text. For practitioners and those academics wanting to get into the field, the book is well worth the money.

**The integration of expert systems into mainstream software** by Alan C Gillies, Chapman and Hall, London, 1991, pp 246, £19.95.

Reviewed by: Professor R Rada, Department of Computer Science, The University of Liverpool, Liverpool, UK.

This book fills an empty niche in the marketplace. The author notes that he is targeting upper level students in software engineering curricula and software engineers at companies. This seems a reasonable target for the material. Many universities around the world now offer courses on expert systems, and when the course is to emphasize the practical, engineering aspects of building expert systems this book would be helpful.

There are many older books in the area which are well-respected, such as *Building Expert Systems* edited by Hayes-Roth, Waterman and Lenat from 1983, and *Programming Expert Systems in OPS5* by Brownston, *et al.* from 1985. Books appeared in 1990 like *Introduction to Expert Systems* by Peter Jackson, and *Knowledge Systems and IBM Prolog* by Walker, *et al.*, but Gillie's book targets a more specific niche than these 1990 books, and is obviously more recent than the 1983 and 1985 books.

The early chapters of the book address various basic principles, such as the human-computer interface and the assessment of quality. The section on interfaces notes some interesting concepts about the relationship between the normal human-computer interface issues and what are more appropriate decompositions of the problem for expert systems work. My negative comment is that some chunks from these sections on principles could come from a book on another topic as they are not always closely integrated to the specific topic of expert systems.

The book contains three case studies, each occupying its own chapter. The topics are: using the joint knowledge-based system approach to combine human, algorithmic, and knowledge-based approaches to a pattern analysis problem, building an American military decision aid according to classic software engineering rules, and diagnosing tax problems with a system written in Prolog and integrated via C with the relational database management system INGRES. These case studies show the application of the principles described earlier and are crucial to the book's success.

About the style, my positive comments include that the writing style is conducive to relaxed, entertaining reading, and the illustrations are plentiful and helpful. There is a good mix of sentence lengths and use of metaphor. Nevertheless, there are a few places where the jump between a low-level and a high-level explanation seems too large.

The currentness of the topic is complemented by the constructive nature of it. I agree 100% with the author of the book that the major challenge to expert systems is to integrate them successfully in the workplace. This requires both integrating expert systems with the social and psychological needs of people and integrating expert systems with the other computer systems which people use. This book should help those in the commercial audience who want guidelines on how to integrate expert systems into the workplace.

**Knowledge-based approaches for structural design** by D. Sriram, Computational Mechanics Pubs, USA, 1990, pp 159, £29.00.

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Around the early 1980s there was a sudden upsurge of activity in applications of artificial intelligence (AI) tools and techniques to just about anything. Structural engineers obviously did not want to be left behind, and numerous projects were started in different parts of the world on applying AI techniques to structural engineering. One of the first persons to recognize the