

Book reviews

- Dictionary of artificial intelligence** reviewed by John L. Beaven, Department of Artificial Intelligence, Edinburgh University, 80 South Bridge, Edinburgh EH1 1HN, UK.
- Knowledge representation: an approach to artificial intelligence** reviewed by John Washbrook, Department of Computer Science, University College, London, UK.
- An introduction to neural computing** reviewed by S Parfitt, Research Fellow, IBM UK Scientific Centre, Winchester, UK.
- Expert knowledge and explanation** reviewed by Professor FH George, Bureau of Information Science, Seer Green, Bucks, UK.
- Knowledge Elicitation** reviewed by Professor FH George, Bureau of Information Science, Seer Green, Bucks, UK.
- Computers and thought** reviewed by Professor FH George, Bureau of Information Science, Seer Green, Bucks, UK.
- Perspectives in artificial intelligence—Volume 2: Machine translation** reviewed by Professor FH George, Bureau of Information Science, Seer Green, Bucks, UK.
- Computing** reviewed by Professor FH George, Bureau of Information Science, Seer Green, Bucks, UK.
- Expert systems—a manager’s guide** reviewed by Robert Milne, Intelligent Applications Ltd, Scotland.
- Artificial experts: social knowledge and intelligent machines** reviewed by Richard Ennals, Kingston Business School, Kingston-upon-Thames, UK.
- Catalogue of artificial intelligence techniques** (3rd Edn) reviewed by Simon Parsons, Department of Electronic Engineering, Queen Mary and Westfield College, Mile End Road, London E1 4NS, UK.
- Computational logic** reviewed by Simon Parsons, Department of Electronic Engineering, Queen Mary and Westfield College, Mile End Road, London E1 4NS, UK.
- Handbook of genetic algorithms** reviewed by GV Conroy, Computation Department, UMIST, Manchester, UK.
- The integration of expert systems into mainstream software** reviewed by Professor R Rada, Department of Computer Science, The University of Liverpool, Liverpool, UK.
- Knowledge-based approaches for structural design** reviewed by Bimal Kumar*, Design Computing Unit, University of Sydney, Sydney NSW 2006, Australia (*On leave from Department of Civil Engineering, Strathclyde University, Glasgow, UK).

Dictionary of artificial intelligence by Dennis Mercadal, Chapman and Hall, London, 1990, pp 334, £19.50. ISBN 0 442 00451 6.

Reviewed by: John L. Beaven, Department of Artificial Intelligence, Edinburgh University, 80 South Bridge, Edinburgh EH1 1HN, UK.

The last year has seen an impressive increase in the number of dictionaries of Artificial Intelligence (AI) in the market. Of the five or six that come to mind, half of them have been published in that period.

This is no doubt a reflection of the fact that many AI techniques are gradually moving into mainstream computing, and the field is becoming less esoteric. For instance, expert systems are a fairly common tool in many fields nowadays.

Mercadal’s dictionary is one of these additions, intended, according to the back cover, to help novices and experts improve their technical understanding of AI. It is aimed “at knowledge

engineers, computer programmers, engineers, business professionals, psychologists, and others who need to keep up with the field of AI". The dictionary is divided into four sections.

The first and second sections are the dictionary itself, providing detailed entries for a large number of expressions. The author claims that there are more AI definitions than any other dictionary currently available, and this seems believable. The definitions vary from a mere cross-reference to another expression, through a short paragraph, to a whole page, and are often divided into sub-entries for the various meanings of a word. They tend to be clearly written, though the style is sometimes a little telegraphic. Cross-references to related terms are abundant, and a particularly welcome feature (and one that is sadly missing from some other such dictionaries) is that they contain pointers to items in the bibliography for the reader who wishes to find out more about the subject.

The third section contains detailed references to various expert system shells available in the market, and is perhaps the most "perishable" part of the book. It contains a brief description of the most popular products available, together with information about vendors, and sometimes prices.

The final section is an extensive and up-to-date bibliography, with some 400 entries, that should prove very useful in helping the reader to learn more about specific entries.

In any book of this nature, which tries to cover the very broad range of subjects which make up AI, any reviewer is bound to find that the covering of their own branch is somewhat sparse, and this one is no exception. My feeling is that the dictionary is very heavily slanted towards expert systems, a reflection of the author's background, at the expense of the other subjects. For instance, in my opinion the coverage for natural language processing is not only very short, but more importantly it is seriously out of date, ignoring many of the advances of the last decade. A solution to this problem would have been perhaps to share the work between people from various backgrounds, or to have them on the editorial board.

In general, the entries are well written, but the editorial work occasionally leaves something to be desired. In addition to the many annoying typos and occasional mistakes, there are a few editorial quirks and inconsistencies, like cross-references to non-existing entries, or entries for expressions which are supposed to be synonymous (such as those for *Language Processing* and *Natural-Language Processing*), but which seem to be so unrelated that they could have been written by different people. Many of these problems should have been spotted by a careful proof-reader. No doubt they are a consequence of the tight deadlines imposed by a rapidly changing field, and will be put right in future editions of the dictionary.

In short, I would say this dictionary is a reference tool well worth having, but its heavy slant towards expert systems probably means that you will need another more general dictionary alongside it. Still, it is as complete as any of the other dictionaries that come to mind, and should be a welcome addition to any reference shelf.

Knowledge representation: an approach to artificial intelligence by TJM Bench-Capon,
Academic Press, London, 1990, pp 220, £19.50.

Reviewed by: John Washbrook, Department of Computer Science, University College, London, UK.

When I first saw the contents pages of this book, including chapters on Logic, Search, Production Rules, Nets and Frames, Prolog and Expert Systems, I expected a substantial tome. When it arrived I was surprised to find that I was right—the book is substantial—but not in the way I had anticipated. At 200 or so pages it is a fairly slim volume, which it is quite possible to read thoroughly in a couple of evenings (depending on one's knowledge of the area). But it is substantial in its intellectual content. Topics are introduced assuming little prior background and examples are given, so that the text stands on its own, but it is not really an introductory text. The introductions of the topics serve more to establish the notation and concepts. It lacks the detail of, say, Jackson or Rich, and instead gives a meta-level view of the area. The impression it gives is of a text which has been produced as a summary of a course—well, not a summary, but a discussion of some of the