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Book Reviews

Soft computing: fuzzy logic, neural networks and distributed artificial intelligence by F. Aminzadeh and M. Jamshidi (Eds.), PTR Prentice Hall, Englewood Cliffs, NJ, pp 301, ISBN 0-13-146234-2.

"Soft computing" is a new term that refers to an important body of work, including fuzzy logic, belief networks, neural networks and genetic algorithms, that attempts to make computing more flexible, more human, and more capable of dealing with the vagaries of real life. It is an area that I believe is very important for the field of artificial intelligence; I cannot imagine how it is going to be possible to build a real intelligent system without including at least one component which is in some way "soft" since I am convinced that the ability to handle incomplete and noisy information is central to what we understand by "intelligence".

Now, whilst there have been many excellent papers and monographs on the components of soft computing, there is a need for a book that deals with the whole area, a book that will weave a coherent and compelling argument for the combination of the exciting and powerful soft computing techniques that have been developed, a book that will push the area of soft computing to the forefront of the field of artificial intelligence where I believe it belongs.

Sadly, this is not that book. Instead it is a collection of papers, some of which are in the area of soft computing, and some of which are not. As such, it has no more to recommend it than other, similar collections. Indeed, given that some of the papers contain factual errors, and others are rather sloppily put together, I feel that there is good reason to avoid it.

Reviewed by Simon Parsons, Department of Electronic Engineering, Queen Mary and Westfield College, London.

Formal methods in knowledge engineering by M. Aben, University of Amsterdam, Netherlands, pp 236, ISBN 90-5470-028-9.

The related areas of formal methods and artificial intelligence have had remarkably little overlap over the years, despite their common historical ancestry through the likes of Alan Turing. In some quarters there is suspicion between the two camps. Many formal methods people believe there is little "intelligence" in the AI approach. Indeed, I have heard one very well respected formal methods researcher say that he would be happy with AI if it stood for "Automated Inference" instead.

This thesis forms a contribution which might help remedy the dichotomy, particularly in the area of building expert systems. I am sure that the formal methods and AI communities can each benefit from learning more about the approaches of the other. In the past few years there have been moves afoot to bring the formal methods community in more contact with safety and control engineers, in the context of the application of mathematical approaches to safety-critical, real-time and embedded computer-controlled systems. There has not yet been such a move with respect to AI, but this work could provide a prompting in that direction. In recent years, previous attempts along these lines have only been espoused within the formal methods camp by Ian Craig (applying the Z notation to blackboard systems) and John Rushby et al. (for NASA in the USA), to the knowledge of the reviewer.

The research behind this thesis was undertaken in the framework of the European KADS initiative and methodology for knowledge based system development. The premiss is that informal