comprehensive index to make the content of the papers more accessible; the 'subject index' is only loosely based on the keywords listed by the authors, and is less than complete. An example is one paper, the abstract of which opens with, 'This paper examines, by discrete-event simulation, . . .', and yet is not referenced under 'simulation' in the subject index.

Perhaps the timetable in bringing the book to press precluded detailed indexing and consistency of presentation. The main omission is in the lack of a keynote paper outlining the intentions of the conference, or at the least an extended foreword (the very short preface hardly does this justice). The main emphasis is on the presentation of academic papers rather than case studies, and while this is an international collection, it is heavily biased to the American literature. In some ways this is hardly surprising, as the conference was held in America, but some papers might have the reader believe that research is only being carried out in the USA.

This book is not for the casual reader; few could justify the expense. It is for libraries, those who have an interest in particular fields, and the contributors. As a reference book for academic research, it should prove useful, earlier criticisms notwithstanding.

MARTIN DAVIES

**Neural Computation and Self-Organising Maps: An Introduction**
HELGE RITTER, THOMAS MARTINETZ and KLAUS SCHULTEN
*Addison-Wesley, Germany*, 1992. XIV + 306 pp. £22.95
ISBN 0 201 55442 9

Much interest has been generated recently in using computers to develop models (known as neural networks) of the neural and synaptic activity of the biological brain. An indication of the strength of interest in the topic can be gained by the number of introductory texts which have recently been published, of which this book is an interesting addition.

The book is sub-divided into five distinct sections, each covering a self-contained topic, which can, if wished, be read independently. Part I provides a thorough introduction to the discipline of neural computing, including sections on the biological background of neural networks, the perceptron, associative memory, the Hopfield model, and the back-propagation algorithm. Parts II to V cover self-organizing sensory maps, self organizing motor maps, applications in robotics and the mathematical analysis of learning methods.

The book relies very heavily on mathematical notation, rather than examples, to introduce the fundamental concepts of neural computing, which can make it heavy going in places. The later parts of the book, however, which focus on the application of neural computation to specific information processing tasks are more interesting. One chapter which will be of particular interest to the operational researcher relates to the solution of the 'travelling salesman problem', using self-organizing sensory maps. The field of neural computing has grown, in a short period of time, into a wide-ranging discipline. This book does not, therefore, attempt to give all its many aspects equal coverage, but rather focuses heavily on neural networks based upon self-organizing maps, and will consequently be of most significance to readers interested specifically in this area. The reader requiring a wider ranging introductory text may find Davlo and Naim[1], more appropriate.

The authors have recognized that the subject of neural computation is multi-disciplinary, and the book is consequently targeted at those working in the fields of computer science, physics, biology, mathematics, engineering, psychology and medicine. Due to the strong mathematical nature of the book, however, it may be most appropriate for the reader with an interest in the mathematical foundations of neural networks. For the reader seeking a less mathematical introductory text, Davlo and Naim[1] may be more enlightening.

NEIL DOHERTY

*Reference*

1. E. DAVLO and P. NAIM (1991) *Neural Networks*. Macmillan, London.