time the articles were written, together with useful bibliographies. In particular, the last chapter by Ruth Curtain provides an excellent synthesis and review of a large body of material.

GILES AUCHMUTY
DEPARTMENT OF MATHEMATICS
UNIVERSITY OF HOUSTON
HOUSTON, TX 77204-3476

4[94-01, 94D05]—*The fuzzy systems handbook: A practitioner's guide to building, using, and maintaining fuzzy systems*, by Earl Cox, AP Professional, Boston, MA, 1994, xxxviii + 615 pp., $23\frac{1}{2}$ cm, softcover, $49.95

As a result of highly successful industrial applications of fuzzy systems in the 1990s, primarily in Japan, interest in this area has been rapidly growing during the last few years. This is currently reflected in the large increase of the literature dealing with fuzzy systems and related subjects, including scores of books.

While most books on fuzzy systems currently on the market are edited collections of papers or monographs on special topics, textbooks on fuzzy systems are still in short supply. Since Earl Cox's book is written as a self-contained introductory textbook on fuzzy systems, it fills an important need.

The book is in some sense unique. It is the only book currently on the market that introduces basic concepts of fuzzy set theory, fuzzy logic, and fuzzy systems from the standpoint of practical applications. As suggested by its subtitle, the book is oriented to practitioners. This orientation of the book is very clearly reflected in its style.

In general, the book shies away from mathematics. It teaches by examples and with the help of relevant computer software, which is included in the book on a diskette. Individual topics are introduced along with associated computer programs (properly explained) to allow the reader to develop his or her own hands-on experience with the topic. The book contains 80 code listings along with 401 figures (computer-generated graphs are, unfortunately, somewhat antiquated). In studying the various topics, the reader is constantly reminded of practical applications of the introduced concepts and supporting computer programs.

The book is perfectly suited for self study. When the study is completed, the reader is familiar not only with fundamentals of fuzzy set theory, fuzzy logic, and fuzzy systems, but also with relevant computer software. Moreover, by studying the book, he or she develops a good feeling for practical applicability of these novel theoretical tools.

The material covered in the book is organized into ten chapters. Six chapters cover basic concepts of fuzzy set theory and fuzzy logic, three chapters deal with various issues regarding the development of fuzzy models in industrial and business applications (including the six in-depth case studies), and one chapter is devoted to an overall description of the computer software designed for fuzzy systems modeling. The software is written in the programming language $C++$.

In general, the book is well conceived and well written. Although it is primarily oriented to practitioners, applied mathematicians and computer scientists will find

it an invaluable source of convincing industrial and business applications of fuzzy set theory.

GEORGE J. KLIR
DEPARTMENT OF SYSTEMS SCIENCE AND INDUSTRIAL ENGINEERING
SUNY AT BINGHAMTON
BINGHAMTON, NY 13902

5[41-06, 65-06, 42-06, 46-06]—*Advances in computational mathematics: New Delhi, India*, H. P. Dikshit and C. A. Micchelli (Editors), Series in Approximations and Decompositions, Vol. 4, World Scientific, Singapore, 1994, xvi + 319 pp., $22\frac{1}{2}$ cm, $75.00

Twenty years ago, relatively little was known about the approximation, representation and analysis of functions of several variables. Since then the theoretical aspects, and more recently the computational development, have evolved quite nicely. In particular, the representation of curves, surfaces and functions has been enhanced by subdivision algorithms, neural network theory and radial basis functions, the analysis of functions by wavelet theory and the numerical solution of equations by multigrid techniques. Many of these computational developments are highlighted in the Proceedings volume under review. It includes 20 articles by many leaders of their fields. For the reader's convenience, the book is subdivided into four main areas: Finite element methods for PDE's, Geometric modeling for curves and surfaces, Wavelets, and Approximation.

The first section contains three papers which report on current numerical approaches to solving certain partial differential and integral equations. Both multigrid and multiscale techniques are utilized in these articles. The next section contains four papers. These articles illustrate the importance of rational splines for geometric modeling of curves and surfaces. Section 3 contains five papers related to wavelets and frames. The articles also include applications of wavelets to compressed representation and reconstruction of curves and images. The final section deals with the representation and approximation of functions of several variables with applications to Neural Networks.

In summary, I believe that the main contribution of this book is that it gives the reader a good feel for several directions of progress made in computational mathematics over the last 15 or 20 years.

J. D. WARD
DEPARTMENT OF MATHEMATICS
TEXAS A & M UNIVERSITY
COLLEGE STATION, TX 77843-3368

6[01A70, 65-06, 65F10, 65T20, 76W05, 83-06, 83C05, 85-06]—*Proceedings of the Cornelius Lanczos international centenary conference*, J. David Brown, Moody T. Chu, Donald C. Ellison, and Robert J. Plemmons (Editors), SIAM Proceedings Series, Society for Industrial and Applied Mathematics, Philadelphia, PA, 1994, 1xvi + 644 pp., $25\frac{1}{2}$ cm, softcover, $78.50

The conference was held during December 12–17, 1993 at North Carolina State University and had about 600 attendees. This scholarly volume describes Lanczos'