Reviewed by
Reza Langari
Department of
Mechanical Engineering
Texas ATM University
College Station, Texas 77843-3123

BOOK REVIEW

FUZZY LOGIC AND CONTROL: SOFTWARE AND HARDWARE APPLICATIONS

By Mohammad Jamshidi, Nadar Vadiee, and Timothy J. Ross, Prentice Hall, 1993, 395 pp., $72.00.

This latest effort by Professor Jamshidi and colleagues provides those interested in engineering applications of fuzzy logic with both a sourcebook of introductory material on fuzzy set theory and logic and a compact handbook of industrial applications of this emerging technology. To this end, the book can provide the practicing engineer or engineering professional with sufficient background knowledge to understand what fuzzy logic is and what its applications may be, and also aid him or her through the process of analyzing the advantages, as well as possible disadvantages, this technology may offer in any number of application areas discussed in the book. The book can also serve as a textbook for an introductory course in upper undergraduate, or early graduate, level engineering programs, and in this sense it is a worthwhile contribution to the education of future engineers and engineering scientists.

The book is comprised of two introductory chapters by Ross on fuzzy sets and fuzzy logic that are presented at the right level of mathematical rigor for the engineering student/practicing engineer. The two chapters by Vadiee on fuzzy expert systems are somewhat difficult but worthwhile reading for those interested in the role of *fuzzy relational equations* in modeling and control of dynamic systems. This topic remains to be fully explored and these chapters provide a good overview of recent progress in this area. The chapter on software and hardware tools for fuzzy control, by Jamshidi, is well placed and provides the potential user of the technology with reasonably up-to-date knowledge of available tools and development environments for fuzzy control.

In addition to the basic material on fuzzy set theory and logic, the book includes several chapters on application of fuzzy logic in *robotics*, *positioning systems*, *manufacturing process planning*, *power systems control* and *flight control*, among others. The diversity of these application areas provides the user with sufficient breadth of knowledge regarding where and how fuzzy logic can be used productively. Indeed, given the range of applications covered, the potential user of this technology can immediately find clues to the solution of his/her interest of problems in this book.

One shortcoming of the book worth pointing out is the unevenness of the typesetting, which makes reading less than pleasant; nonetheless, the wealth of information presented makes the book definitely worthwhile. This is a tribute to the fact that the editors/authors of the book have played pioneering roles in both development of fuzzy logic technology and education of technical professionals in its use, and continue to serve the community in these multiple capacities.

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