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References; Problems; 4 Properties of Membership Functions, Fuzzification, and Defuzzification; Features of the Membership Function; Various Forms; Fuzzification; Defuzzification to Crisp Sets; - Cuts for Fuzzy Relations; Defuzzification to Scalars; Summary; References; Problems; 5 Logic and Fuzzy Systems; Part I Logic; Classical Logic; Proof; Fuzzy Logic; Approximate Reasoning; Other Forms of the Implication Operation; Part II Fuzzy Systems; Natural Language Linguistic Hedges Fuzzy (Rule-Based) Systems; Graphical Techniques of Inference; Summary; References; Problems; 6 Development of Membership Functions; Membership Value Assignments; Intuition; Inference; Rank Ordering; Neural Networks; Genetic Algorithms; Inductive Reasoning; Summary; References; Problems; 7 Automated Methods for Fuzzy Systems; Definitions; Batch Least Squares Algorithm; Recursive Least Squares Algorithm; Gradient Method; Clustering Method; Learning From Examples; Modified Learning From Examples; Summary; References; Problems; 8 Fuzzy Systems Simulation Fuzzy Relational Equations Nonlinear Simulation Using Fuzzy Systems; Fuzzy Associative Memories (FAMS); Summary; References; Problems; 9 Decision Making with Fuzzy Information; Fuzzy Synthetic Evaluation; Fuzzy Ordering; Nontransitive Ranking; Preference and Consensus; Multiobjective Decision Making; Fuzzy Bayesian Decision Method; Decision Making Under Fuzzy States and Fuzzy Actions; Summary; References; Problems; 10 Fuzzy Classification; Classification by Equivalence Relations; Crisp Relations; Fuzzy Relations; Cluster Analysis; Cluster Validity; c-Means Clustering; Hard c-Means (HCM)

Sommario/riassunto

The first edition of Fuzzy Logic with Engineering Applications (1995) was the first classroom text for undergraduates in the field. Now updated for the second time, this new edition features the latest advances in the field including material on expansion of the MLFE method using genetic algorithms, cognitive mapping, fuzzy agent-based models and total uncertainty. Redundant or obsolete topics have been removed, resulting in a more concise yet inclusive text that will ensure the book retains its broad appeal at the forefront of the literature. Fuzzy Logic with Engineering Appli
