1. Record Nr. UNINA9910437764603321

Autore	Bede Barnabas
Titolo	Mathematics of Fuzzy Sets and Fuzzy Logic [[electronic resource] /] / by Barnabas Bede
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2013
ISBN	3-642-35221-9
Edizione	[1st ed. 2013.]
Descrizione fisica	1 online resource (XII, 276 p.)
Collana	Studies in Fuzziness and Soft Computing, , 1434-9922
Disciplina	511.3/223
Soggetti	Computational intelligence Computer science—Mathematics Mathematical logic Game theory Computational Intelligence Math Applications in Computer Science Mathematical Logic and Foundations Game Theory, Economics, Social and Behav. Sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1 Fuzzy Sets -- 2 Fuzzy Set-Theoretic Operations -- 3 Fuzzy Relations -- 4 Fuzzy numbers -- 5 Fuzzy Arithmetic -- 6 Fuzzy Inference -- 7 Single Input Single Output Fuzzy Systems -- 8 Fuzzy Analysis -- 9 Fuzzy Differential Equations -- 10 Extensions of Fuzzy Set Theory -- 11 Possibility Theory -- 12 Fuzzy Clustering -- 13 Fuzzy Transform -- 14 Arti cial Neural Networks and Neuro-Fuzzy Systems.
Sommario/riassunto	This book presents a mathematically-based introduction into the fascinating topic of Fuzzy Sets and Fuzzy Logic and might be used as textbook at both undergraduate and graduate levels and also as reference guide for mathematician, scientists or engineers who would like to get an insight into Fuzzy Logic. Fuzzy Sets have been introduced by Lotfi Zadeh in 1965 and since then, they have been used in many applications. As a consequence, there is a vast literature on the practical applications of fuzzy sets, while theory has a more modest coverage. The main purpose of the present book is to reduce this gap

by providing a theoretical introduction into Fuzzy Sets based on Mathematical Analysis and Approximation Theory. Well-known applications, as for example fuzzy control, are also discussed in this book and placed on new ground, a theoretical foundation. Moreover, a few advanced chapters and several new results are included. These comprise, among others, a new systematic and constructive approach for fuzzy inference systems of Mamdani and Takagi-Sugeno types, that investigates their approximation capability by providing new error estimates. .