1. Record Nr. UNINA9910817003603321

Autore	Peeva Ketty
Titolo	Fuzzy relational calculus : theory, applications and software (with CD-ROM) / / Ketty Peeva, Yordan Kyosev
Pubbl/distr/stampa	New Jersey, : World Scientific, 2004
ISBN	1-281-89706-X 9786611897062 981-270-133-8
Edizione	[1st ed.]
Descrizione fisica	1 online resource (305 p.)
Collana	Advances in fuzzy systems ; ; v. 22
Altri autori (Persone)	KyosevYordan
Disciplina	511.3/22
Soggetti	Fuzzy relational calculus Fuzzy mathematics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface; Contents; PART 1 FUZZY RELATIONAL CALCULUS; Chapter 1 Introduction; 1.1 Basic Concepts; 1.2 Images and Compositions; 1.3 Basic Problems in Fuzzy Relational Calculus; 1.4 Aspects in Artificial Intelligence; 1.5 Fuzzy Finite Machines and Fuzzy Algebras; 1.6 Fuzzy Grammars in Syntactic Pattern Recognition; 1.7 Bibliographical Notes; Chapter 2 Fuzzy Relations. Direct Problem Resolution; 2.1 Basic Notions; 2.2 Fuzzy Relations - Compositions and Properties; 2.3 Fuzzy Relations and Membership Matrices; 2.4 Bibliographical Notes; Chapter 3 Fuzzy Relational Equations 3.1 Inverse Problem Formulation3.2 Fuzzy Linear Equations; 3.3 Fuzzy Linear Systems of Equations; 3.4 Solving Fuzzy Relational Equations; 3.5 Bibliographical Notes; Chapter 4 Fuzzy Relational Inclusions; 4.1 Preliminaries; 4.2 Fuzzy Linear Systems of Inequalities; 4.3 Fuzzy Relational Inclusions; 4.4 Applications in Fuzzy Linear Programming; 4.5 Bibliographical Notes; Chapter 5 Fuzzy Linear Systems - Dual Approach; 5.1 Basic Concepts; 5.2 Solving Fuzzy Linear Systems; 5.3 Fuzzy Relational Equations; 5.4 Dual Approach to Inverse Problem Resolution; 5.5 Bibliographical Notes Chapter 6 Direct and Inverse Problems in Intuitionistic Fuzzy Relational Calculus6.1 Intuitionistic Fuzzy Relations. Compositions; 6.2 Intuitionistic Fuzzy Matrices. Direct and Inverse Problems; 6.3

Intuitionistic Fuzzy Relational Equations; 6.4 Bibliographical Notes; PART 2 FUZZY RELATIONAL CALCULUS - APPLICATIONS; Chapter 7 L-Fuzzy Finite Machines; 7.1 L-Fuzzy Finite Machines. Behavior; 7.2 Equivalences; 7.3 Reduction and Minimization; 7.4 Intuitionistic Fuzzy Finite Machines; 7.5 Bibliographical Notes; Chapter 8 Fuzzy Languages in Syntactic Pattern Recognition
8.1 Finite L-Fuzzy Acceptors and Regular L-Fuzzy Languages8.2 Intuitionistic Fuzzy Languages in Syntactic Pattern Recognition; 8.3 Bibliographical Notes; Chapter 9 Applications as Inference Engine; 9.1 Architecture of System with Artificial Intelligence; 9.2 Fuzzy Linear System of Equations as Inference Engine; 9.3 Intuitionistic Fuzzy Linear System as Inference Engine; 9.4 Bibliographical Notes; PART 3 FUZZY RELATIONAL CALCULUS - SOFTWARE; Chapter 10 Software Description; 10.1 Unary Matrix Operations; 10.2 Binary Matrix Operations; 10.3 Compositions; 10.4 Inverse Problem
10.5 Intuitionistic Fuzzy Relational Calculus10.6 Engineering Examples; PART 4 APPENDICES; Appendix A Solved Samples; Appendix B List of Symbols; Appendix C List of Abbreviations; Bibliography; Index

Sommario/riassunto

This book examines fuzzy relational calculus theory with applications in various engineering subjects. The scope of the text covers unified and exact methods with algorithms for direct and inverse problem resolution in fuzzy relational calculus. Extensive engineering applications of fuzzy relation compositions and fuzzy linear systems (linear, relational and intuitionistic) are discussed. Some examples of such applications include solutions of equivalence, reduction and minimization problems in fuzzy machines, pattern recognition in fuzzy languages, optimization and inference engines in textil