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Titolo	Uncertain Rule-Based Fuzzy Systems [[electronic resource]] : Introduction and New Directions, 2nd Edition / / by Jerry M. Mendel
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ISBN	3-319-51370-2
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Descrizione fisica	1 online resource (XXII, 684 p. 215 illus., 192 illus. in color.)
Disciplina	511.313
Soggetti	Electrical engineering Computational intelligence Artificial intelligence Neural networks (Computer science) Communications Engineering, Networks Computational Intelligence Artificial Intelligence Mathematical Models of Cognitive Processes and Neural Networks
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Introduction -- Part 1: Type-1 Fuzzy Sets and Systems -- Short Primers on Type-1 Fuzzy Sets and Fuzzy Logic -- Type-1 Fuzzy Logic Systems -- Part 2: Type-2 Fuzzy Sets -- Sources of Uncertainty -- Type-2 Fuzzy Sets -- Operations on and Properties OF Type-2 Fuzzy Sets -- Type-2 Relations and Compositions -- Centroid of a Type-2 Fuzzy Set: Type-Reduction -- Part 3: Type-2 Fuzzy Logic Systems -- Mamdani Interval Type-2 Fuzzy Logic Systems (IT2 FLSS) -- TSK Interval Type-2 Fuzzy Logic Systems -- General Type-2 Fuzzy Logic Systems (GT2 FLSS) -- Conclusion.
Sommario/riassunto	The second edition of this textbook provides a fully updated approach to fuzzy sets and systems that can model uncertainty — i.e., “type-2” fuzzy sets and systems. The author demonstrates how to overcome the limitations of classical fuzzy sets and systems, enabling a wide range of applications from time-series forecasting to knowledge mining to control. In this new edition, a bottom-up approach is presented that

begins by introducing classical (type-1) fuzzy sets and systems, and then explains how they can be modified to handle uncertainty. The author covers fuzzy rule-based systems – from type-1 to interval type-2 to general type-2 – in one volume. For hands-on experience, the book provides information on accessing MatLab and Java software to complement the content. The book features a full suite of classroom material. Presents fully updated material on new breakthroughs in human-inspired rule-based techniques for handling real-world uncertainties; Allows those already familiar with type-1 fuzzy sets and systems to rapidly come up to speed to type-2 fuzzy sets and systems; Features complete classroom material including end-of-chapter exercises, a solutions manual, and three case studies -- forecasting of time series to knowledge mining from surveys and PID control.