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Titolo	Backward Fuzzy Rule Interpolation [[electronic resource] /] / by Shangzhu Jin, Qiang Shen, Jun Peng
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ISBN	981-13-1654-6
Descrizione fisica	1 online resource (167 pages) : illustrations
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Soggetti	Engineering Artificial intelligence Computer simulation Computer aided design Computational Intelligence Artificial Intelligence Simulation and Modeling Computer-Aided Engineering (CAD, CAE) and Design
Lingua di pubblicazione	Inglese
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Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Background: Fuzzy Rule Interpolation (FRI) -- BFRI with a Single Missing Antecedent Value (S-BFRI) -- BFRI with Multiple Missing Antecedent Values (M-BFRI) -- An Alternative BFRI Method -- Backward rough-fuzzy rule interpolation -- Application: Terrorism Risk Assessment using BFRI -- Conclusion -- Appendix A Publications Arising from the Thesis -- Appendix B List of Acronyms -- Appendix C Glossary of terms -- Bibliography.
Sommario/riassunto	This book chiefly presents a novel approach referred to as backward fuzzy rule interpolation and extrapolation (BFRI). BFRI allows observations that directly relate to the conclusion to be inferred or interpolated from other antecedents and conclusions. Based on the scale and move transformation interpolation, this approach supports both interpolation and extrapolation, which involve multiple hierarchical intertwined fuzzy rules, each with multiple antecedents. As such, it offers a means of broadening the applications of fuzzy rule interpolation and fuzzy inference. The book deals with the general

situation, in which there may be more than one antecedent value missing for a given problem. Two techniques, termed the parametric approach and feedback approach, are proposed in an attempt to perform backward interpolation with multiple missing antecedent values. In addition, to further enhance the versatility and potential of BFRI, the backward fuzzy interpolation method is extended to support -cut based interpolation by employing a fuzzy interpolation mechanism for multi-dimensional input spaces (IMUL). Finally, from an integrated application analysis perspective, experimental studies based upon a real-world scenario of terrorism risk assessment are provided in order to demonstrate the potential and efficacy of the hierarchical fuzzy rule interpolation methodology.