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Descrizione fisica	1 online resource (178 p.)
Collana	Advanced Information and Knowledge Processing, , 1610-3947
Disciplina	006.3015
Soggetti	Artificial intelligence Computational intelligence Statistics Operations research Decision making Optical data processing Artificial Intelligence Computational Intelligence Statistics for Engineering, Physics, Computer Science, Chemistry and Earth Sciences Operations Research/Decision Theory Computer Imaging, Vision, Pattern Recognition and Graphics
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 at the end of each chapters and index.
Nota di contenuto	Introduction to Rational Decision Making -- Casual Function for Rational Decision Making: Application to Militarized Interstate Disputes -- Correlation Function for Rational Decision Making: Application to Epileptic Activity -- Missing Data Approaches for Rational Decision Making: Application to Anecdotal Data -- Rational Counterfactuals and Decision Making: Application to Interstate Conflict -- Flexibility-Bounded Rationality in Interstate Conflict -- Filtering Irrelevant Information for Rational Decision Making -- Group Decision Making -- Conclusion -- Appendix A: Fourier Transform, Wavelet Transform, Modal Properties and Pseudo-Modal Energies -- Appendix B:

Develops insights into solving complex problems in engineering, biomedical sciences, social science and economics based on artificial intelligence. Some of the problems studied are in interstate conflict, credit scoring, breast cancer diagnosis, condition monitoring, wine testing, image processing and optical character recognition. The author discusses and applies the concept of flexibly-bounded rationality which prescribes that the bounds in Nobel Laureate Herbert Simon's bounded rationality theory are flexible due to advanced signal processing techniques, Moore's Law and artificial intelligence. Artificial Intelligence Techniques for Rational Decision Making examines and defines the concepts of causal and correlation machines and applies the transmission theory of causality as a defining factor that distinguishes causality from correlation. It develops the theory of rational counterfactuals which are defined as counterfactuals that are intended to maximize the attainment of a particular goal within the context of a bounded rational decision making process. Furthermore, it studies four methods for dealing with irrelevant information in decision making: Theory of the marginalization of irrelevant information Principal component analysis Independent component analysis Automatic relevance determination method In addition it studies the concept of group decision making and various ways of effecting group decision making within the context of artificial intelligence. Rich in methods of artificial intelligence including rough sets, neural networks, support vector machines, genetic algorithms, particle swarm optimization, simulated annealing, incremental learning and fuzzy networks, this book will be welcomed by researchers and students working in these areas.