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Nota di contenuto	Chap. 1 Introduction -- Chap. 2 Transformation-Invariant Image Recognition Using Multilayer Perceptron -- Chap. 3 Energy Efficient Intelligent Lighting Control Using a Multilayer Perceptron -- Chap. 4 Target Tracking Using Fuzzy Hostility Induced Segmentation of Optical Flow Field -- Chap. 5 Binary Object Extraction by Bidirectional Self-organizing Neural Network Architecture -- Chap. 6 Multilevel Object Extraction by BDSONN Architecture -- Chap. 7 Color Object Extraction by Parallel BDSONN Architecture -- Chap. 8 Gray-Scale Image Edge Detection Using Rough Sets -- References -- Index.
Sommario/riassunto	Proper analysis of image and multimedia data requires efficient extraction and segmentation techniques. Among the many computational intelligence approaches, the soft computing paradigm is best equipped with several tools and techniques that incorporate intelligent concepts and principles. This book is dedicated to object extraction, image segmentation, and edge detection using soft

computing techniques with extensive real-life application to image and multimedia data. The authors start with a comprehensive tutorial on the basics of brain structure and learning, and then the key soft computing techniques, including evolutionary computation, neural networks, fuzzy sets and fuzzy logic, and rough sets. They then present seven chapters that detail the application of representative techniques to complex image processing tasks such as image recognition, lighting control, target tracking, object extraction, and edge detection. These chapters follow a structured approach with detailed explanations of the problems, solutions, results, and conclusions. This is both a standalone textbook for graduates in computer science, electrical engineering, system science, and information technology, and a reference for researchers and engineers engaged with pattern recognition, image processing, and soft computing.