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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Foundations of medical imaging and signal recording -- Spectral transformations -- Information theory and principal component analysis -- Independent component analysis and blind source separation -- Dependent component analysis -- Pattern recognition techniques -- Fuzzy clustering and genetic algorithms -- Exploratory data analysis methods for fMRI -- Low-frequency functional connectivity in fMRI -- Classification of dynamic breast MR image data -- Dynamic cerebral contrast-enhanced perfusion MRI -- Skin lesion classification -- Microscopic slice image processing and automatic labeling -- NMR water artifact removal.
Sommario/riassunto	"Biomedical signal analysis has become one of the most important visualization and interpretation methods in biology and medicine. Many new and powerful instruments for detecting, storing, transmitting, analyzing, and displaying images have been developed in recent years, allowing scientists and physicians to obtain quantitative measurements to support scientific hypotheses and medical diagnoses. This book offers an overview of a range of proven and new methods, discussing

both theoretical and practical aspects of biomedical signal analysis and interpretation." "After an introduction to the topic and a survey of several processing and imaging techniques, the book describes a broad range of methods, including continuous and discrete Fourier transforms, independent component analysis (ICA), dependent component analysis, neural networks, and fuzzy logic methods. The book then discusses applications of these theoretical tools to practical problems in everyday biosignal processing, considering such subjects as exploratory data analysis and low-frequency connectivity analysis in fMRI, MRI signal processing including lesion detection in breast MRI, dynamic cerebral contrast-enhanced perfusion MRI, skin lesion classification, and microscopic slice image processing and automatic labeling." "Biomedical Signal Analysis can be used as a text or professional reference. Part I, on methods, forms a self-contained text, with exercises and other learning aids, for upper-level undergraduate or graduate-level students. Researchers or graduate students in systems biology, genomic signal processing, and computer-assisted radiology will find both parts I and II (on applications) a valuable handbook."--Jacket.