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Descrizione fisica	1 online resource (VII, 252 p. 94 illus., 75 illus. in color.)
Disciplina	621.382
Soggetti	Signal processing Image processing Speech processing systems Pattern perception Computational intelligence Computer science - Mathematics Biomedical engineering Signal, Image and Speech Processing Pattern Recognition Computational Intelligence Computational Mathematics and Numerical Analysis Biomedical Engineering and Bioengineering
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Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Theory -- Basic principles of PCA -- Geometric Principles of PCA -- Principal components and Correlation -- PCA in Regression analysis matrices -- PCA in cluster analysis -- PCA and factor analysis -- PCA for time series and independent data (ICA) -- Sparse PCA -- Non-negative PCA -- Applications of PCA -- PCA for Electrocardiography (ECG) applications -- PCA for Electroencephalography (EEG) applications -- PCA for Electromyography (EMG) applications -- PCA for bioinformatics and gene expression applications -- PCA for human movement science applications -- PCA for Gait Kinematics for Patients with Knee Osteoarthritis -- Neuroscience and biomedical application of PCA -- PCA applications for Brain Computer Interface (BCI) and motor

	imagery tasks -- PCA for Image processing applications -- PCA for Video processing applications -- PCA for dimensional reduction applications -- PCA for financial and economics applications.
Sommario/riassunto	This book reports on the latest advances in concepts and further developments of principal component analysis (PCA), addressing a number of open problems related to dimensional reduction techniques and their extensions in detail. Bringing together research results previously scattered throughout many scientific journals papers worldwide, the book presents them in a methodologically unified form. Offering vital insights into the subject matter in self-contained chapters that balance the theory and concrete applications, and especially focusing on open problems, it is essential reading for all researchers and practitioners with an interest in PCA.