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Titolo	Kernel methods for pattern analysis / / John Shawe-Taylor, Nello Cristianini [[electronic resource]]
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Nota di contenuto	Cover; Half-title; Title; Copyright; Contents; Code fragments; Preface; 1 Pattern analysis; 2 Kernel methods: an overview; 3 Properties of kernels; 4 Detecting stable patterns; 5 Elementary algorithms in feature space; 6 Pattern analysis using eigen-decompositions; 7 Pattern analysis using convex optimisation; 8 Ranking, clustering and data visualisation; 9 Basic kernels and kernel types; 10 Kernels for text; 11 Kernels for structured data: strings, trees, etc.; 12 Kernels from generative models; Appendix A Proofs omitted from the main text; A.1 Proof of McDiarmid's theorem A.2 Stability of principal components analysisA.3 Proofs of diffusion kernels; Appendix B Notational conventions; B.1 List of symbols; B.2 Notation for Tables; Appendix C List of pattern analysis methods; C.1 Pattern analysis computations; C.2 Pattern analysis algorithms; Appendix D List of kernels; D.1 Kernel definitions and computations; D. 2 Kernel algorithms; References; Index
Sommario/riassunto	Kernel methods provide a powerful and unified framework for pattern discovery, motivating algorithms that can act on general types of data (e.g. strings, vectors or text) and look for general types of relations (e. g. rankings, classifications, regressions, clusters). The application areas range from neural networks and pattern recognition to machine learning and data mining. This book, developed from lectures and tutorials, fulfils two major roles: firstly it provides practitioners with a large toolkit of algorithms, kernels and solutions ready to use for standard pattern discovery problems in fields such as bioinformatics, text analysis, image analysis. Secondly it provides an easy introduction for students and researchers to the growing field of kernel-based pattern analysis, demonstrating with examples how to handcraft an algorithm or a kernel for a new specific application, and covering all the necessary conceptual and mathematical tools to do so.