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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

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## 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.

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