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Collana	Image Processing, Computer Vision, Pattern Recognition, and Graphics ; ; 3434
Disciplina	006.4
Soggetti	Pattern recognition Optical data processing Computer graphics Computer science—Mathematics Data structures (Computer science) Pattern Recognition Image Processing and Computer Vision Computer Graphics Discrete Mathematics in Computer Science Data Structures
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Graph Representations -- Hypergraph-Based Image Representation -- Vectorized Image Segmentation via Trixel Agglomeration -- Graph Transformation in Document Image Analysis: Approaches and Challenges -- Graphical Knowledge Management in Graphics Recognition Systems -- A Vascular Network Growth Estimation Algorithm Using Random Graphs -- Graphs and Linear Representations -- A Linear Generative Model for Graph Structure -- Graph Seriation Using Semi-definite Programming -- Comparing String Representations and Distances in a Natural Images Classification Task -- Reduction Strings: A Representation of Symbolic Hierarchical Graphs Suitable for

Learning -- Combinatorial Maps -- Representing and Segmenting 2D Images by Means of Planar Maps with Discrete Embeddings: From Model to Applications -- Inside and Outside Within Combinatorial Pyramids -- The GeoMap: A Unified Representation for Topology and Geometry -- Pyramids of n-Dimensional Generalized Maps -- Matching -- Towards Unitary Representations for Graph Matching -- A Direct Algorithm to Find a Largest Common Connected Induced Subgraph of Two Graphs -- Reactive Tabu Search for Measuring Graph Similarity -- Tree Matching Applied to Vascular System -- Hierarchical Graph Abstraction and Matching -- A Graph-Based, Multi-resolution Algorithm for Tracking Objects in Presence of Occlusions -- Coarse-to-Fine Object Recognition Using Shock Graphs -- Adaptive Pyramid and Semantic Graph: Knowledge Driven Segmentation -- A Graph-Based Concept for Spatiotemporal Information in Cognitive Vision -- Inexact Graph Matching -- Approximating the Problem, not the Solution: An Alternative View of Point Set Matching -- Defining Consistency to Detect Change Using Inexact Graph Matching -- Asymmetric Inexact Matching of Spatially-Attributed Graphs -- From Exact to Approximate Maximum Common Subgraph -- Learning -- Automatic Learning of Structural Models of Cartographic Objects -- An Experimental Comparison of Fingerprint Classification Methods Using Graphs -- Collaboration Between Statistical and Structural Approaches for Old Handwritten Characters Recognition -- Graph Sequences -- Decision Trees for Error-Tolerant Graph Database Filtering -- Recovery of Missing Information in Graph Sequences -- Tree-Based Tracking of Temporal Image -- Graph Kernels -- Protein Classification with Kernelized Softassign -- Local Entropic Graphs for Globally-Consistent Graph Matching -- Edit Distance Based Kernel Functions for Attributed Graph Matching -- Graphs and Heat Kernels -- A Robust Graph Partition Method from the Path-Weighted Adjacency Matrix -- Recent Results on Heat Kernel Embedding of Graphs.

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## Sommario/riassunto

Many vision problems have to deal with different entities (regions, lines, line junctions, etc.) and their relationships. These entities together with their relationships may be encoded using graphs or hypergraphs. The structural information encoded by graphs allows computer vision algorithms to address both the features of the different entities and the structural or topological relationships between them. Moreover, turning a computer vision problem into a graph problem allows one to access the full arsenal of graph algorithms developed in computer science. The Technical Committee (TC15, <http://www.iapr.org/tcs.html>) of the IAPR (International Association for Pattern Recognition) has been funded in order to federate and to encourage research work in these fields. Among its activities, TC15 encourages the organization of special graph sessions at many computer vision conferences and organizes the biennial workshop GbR. While being designed within a specific framework, the graph algorithms developed for computer vision and pattern recognition tasks often share constraints and goals with those developed in other research fields such as data mining, robotics and discrete geometry. The TC15 community is thus not closed in its research fields but on the contrary is open to interchanges with other groups/communities.

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