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Titolo	Two-dimensional signal analysis / / edited by Rene Garello
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Altri autori (Persone)	GarelloRene
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Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Two-Dimensional Signal Analysis; Table of Contents; Introduction; Chapter 1. Basic Elements of 2-D Signal Processing; 1.1. Introduction; 1.2. Deterministic 2-D signals; 1.2.1. Definition; 1.2.2. Particular 2-D signals; 1.3. Random 2-D signals; 1.3.1. Definition; 1.3.2. Characterization up to the second order; 1.3.3. Stationarity; 1.3.4. Characterization of orders higher than two; 1.3.5. Ergodicity; 1.3.6. Specificities of random 2-D signals; 1.3.7. Particular random signals; 1.3.7.1. White noise; 1.3.7.2. Gaussian process; 1.4. 2-D systems; 1.4.1. Definition; 1.4.2. Main 2-D operators 1.4.3. Main properties1.4.4. Linear time-invariant (LTI) system; 1.4.5. Example; 1.4.6. Separable system; 1.4.7. Stability of 2-D systems; 1.4.8. Support of the impulse response - causality; 1.5. Characterization of 2-D signals and systems; 1.5.1. Frequency response of an LTI system; 1.5.2. 2-D Fourier transform; 1.5.2.1. Definition; 1.5.2.2. Properties; 1.5.3. Discrete 2-D Fourier transform; 1.5.3.1. Definition; 1.5.3.2. Properties; 1.5.3.3. Calculation of the 2-D DFT; 1.5.4. 2-D z transform; 1.5.4.1. Definition; 1.5.4.2. Region of convergence; 1.5.4.3. Properties

1.5.4.4. Transfer function of a 2-D system1.5.4.5. 2-D inverse ZT; 1.5.4.6. Application to the study of stability of LTI systems; 1.5.4.7. Minimum or non-minimum phase LTI system; 1.5.5. Frequency characterization of a random 2-D signal.; 1.5.6. Output of a 2-D system with random input; 1.6. 2-D Wold decomposition; 1.6.1. Innovation, determinism and regularity in the 2-D case; 1.6.2. Total decomposition of three fields; 1.6.3. Example of an outcome; 1.7. Conclusion; 1.8. Bibliography; Chapter 2. 2-D Linear Stochastic Modeling; 2.1. Introduction; 2.2. 2-D ARMA models; 2.2.1. Definition 2.2.2. 2-D ARMA models and prediction supports2.2.2.1. Causal models; 2.2.2.2. Causal quarter plane model; 2.2.2.3. Causal model whose support is delimited by any two NSHPs; 2.2.2.4. Semi-causal model; 2.2.2.5. Non-causal model; 2.3. L-Markovian fields; 2.3.1. 2-D Markov fields and L-Markovian fields; 2.3.2. 2-D L-Markovian fields and Gibbs fields; 2.4. "Global" estimation methods; 2.4.1. Maximum likelihood; 2.4.1.1. Estimation criteria by supposing the fixed order; 2.4.1.2. Probability criteria "penalized" to estimate the order of the model; 2.4.2. Yule-Walker equations
2.4.2.1. Representation of minimum variance and formulation2.4.2.2. Non-causal support and L-Markovian fields; 2.4.2.3. Causal support and 2-D AR model; 2.4.2.4. Extension to the 2-D AR non-causal model; 2.4.2.5. Extension to the 2-D ARMA model; 2.4.3. 2-D Levinson algorithm (for the parametric 2-D AR estimation); 2.4.3.1. Recalling the 1-D case; 2.4.3.2. Approach for 2-D causal and non-causal prediction models; 2.4.3.3. Multichannel approach and 2-D QP AR model; 2.4.3.4. Other approaches; 2.5. "Adaptive" or "recursive" estimation methods 2.5.1. Connectivity hypotheses for adaptive or recursive algorithms

Sommario/riassunto

This title sets out to show that 2-D signal analysis has its own role to play alongside signal processing and image processing.Concentrating its coverage on those 2-D signals coming from physical sensors (such as radars and sonars), the discussion explores a 2-D spectral approach but develops the modeling of 2-D signals and proposes several data-oriented analysis techniques for dealing with them. Coverage is also given to potential future developments in this area.

2. Record Nr. UNINA9910484722603321

Titolo	Discrete Geometry for Computer Imagery : 13th International Conference, DGCI 2006, Szeged, Hungary, October 25-27, 2006, Proceedings / / edited by Attila Kuba, László G. Nyúl, Kálmán Palágyi
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Collana	Image Processing, Computer Vision, Pattern Recognition, and Graphics, , 3004-9954 ; ; 4245
Altri autori (Persone)	KubaAttila NyulLaszlo G PalagyiKalman
Disciplina	006.601/516
Soggetti	Application software Computer vision Computer graphics Computer science - Mathematics Discrete mathematics Computer simulation Algorithms Computer and Information Systems Applications Computer Vision Computer Graphics Discrete Mathematics in Computer Science Computer Modelling
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Discrete Geometry -- Duality and Geometry Straightness, Characterization and Envelope -- On Minimal Perimeter Polyminoes -- A Generic Approach for n-Dimensional Digital Lines -- Two Discrete-Euclidean Operations Based on the Scaling Transform -- Geometry of Neighborhood Sequences in Hexagonal Grid -- Recognition of Blurred

Pieces of Discrete Planes -- Discrete Tomography -- The Number of Line-Convex Directed Polyominoes Having the Same Orthogonal Projections -- A Network Flow Algorithm for Binary Image Reconstruction from Few Projections -- Fast Filling Operations Used in the Reconstruction of Convex Lattice Sets -- Reconstruction Algorithm and Switching Graph for Two-Projection Tomography with Prohibited Subregion -- A Geometry Driven Reconstruction Algorithm for the Mojette Transform -- Quantised Angular Momentum Vectors and Projection Angle Distributions for Discrete Radon Transformations -- A Benchmark Evaluation of Large-Scale Optimization Approaches to Binary Tomography -- Construction of Switching Components -- Discrete Topology -- Minimal Non-simple and Minimal Non-cosimple Sets in Binary Images on Cell Complexes -- Combinatorial Relations for Digital Pictures -- Reusing Integer Homology Information of Binary Digital Images -- On the Lattice Structure of Subsets of Octagonal Neighborhood Sequences in ?n -- On the Connectedness of Rational Arithmetic Discrete Hyperplanes -- Homology of Simploidal Set -- Measuring Intrinsic Volumes in Digital 3d Images -- Distance -- An Objective Comparison Between Gray Weighted Distance Transforms and Weighted Distance Transforms on Curved Spaces -- Chordal Axis on Weighted Distance Transforms -- Attention-Based Mesh Simplification Using Distance Transforms -- Generating Distance Maps with Neighbourhood Sequences -- Hierarchical Chamfer Matching Based on Propagation of Gradient Strengths -- Elliptical Distance Transforms and Applications -- Image Analysis -- A Composite and Quasi Linear Time Method for Digital Plane Recognition -- Fusion Graphs, Region Merging and Watersheds -- Revisiting Digital Straight Segment Recognition -- On Discrete Moments of Unbounded Order -- Feature Based Defuzzification in ?2 and ?3 Using a Scale Space Approach -- Improving Difference Operators by Local Feature Detection -- Shape Representation -- An Optimal Algorithm for Detecting Pseudo-squares -- Optimization Schemes for the Reversible Discrete Volume Polyhedrization Using Marching Cubes Simplification -- Arithmetic Discrete Hyperspheres and Separatingness -- The Eccentricity Transform (of a Digital Shape) -- Projected Area Based 3D Shape Similarity Evaluation -- Continuous Level of Detail on Graphics Hardware -- Topological and Geometrical Reconstruction of Complex Objects on Irregular Isothetic Grids -- Fast Polynomial Segmentation of Digitized Curves -- Segmentation -- Fuzzy Segmentation of Color Video Shots -- Application of Surface Topological Segmentation to Seismic Imaging -- Watershed Segmentation with Chamfer Metric -- Generalized Map Pyramid for Multi-level 3D Image Segmentation -- Topologically Correct Image Segmentation Using Alpha Shapes -- Skeletonization -- New Removal Operators for Surface Skeletonization -- Skeleton Pruning by Contour Partitioning -- A New 3D Parallel Thinning Scheme Based on Critical Kernels -- Order Independence in Binary 2D Homotopic Thinning -- Exact Euclidean Medial Axis in Higher Resolution -- Skeletonization and Distance Transforms of 3D Volumes Using Graphics Hardware -- Surfaces and Volumes -- How to Tile by Dominoes the Boundary of a Polycube -- A Generalized Preimage for the Standard and Supercover Digital Hyperplane Recognition -- Distance Transforms on Anisotropic Surfaces for Surface Roughness Measurement -- A 3D Live-Wire Segmentation Method for Volume Images Using Haptic Interaction -- Minimal Decomposition of a Digital Surface into Digital Plane Segments Is NP-Hard -- Erratum -- Topological and Geometrical Reconstruction of Complex Objects on Irregular Isothetic Grids.

Sommario/riassunto

This book constitutes the refereed proceedings of the 13th

International Conference on Discrete Geometry for Computer Imagery, DGCI 2006, held in Szeged, Hungary in October 2006. The 28 revised full papers and 27 revised poster papers presented together with two invited papers were carefully reviewed and selected from 99 submissions.