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Soggetti	Pattern recognition Optical data processing Artificial intelligence Computer graphics Algorithms Pattern Recognition Image Processing and Computer Vision Artificial Intelligence Computer Graphics Algorithm Analysis and Problem Complexity
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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Learning -- Predictive Discretization During Model Selection -- Adaptive Feature Selection in Image Segmentation -- Semi-supervised Kernel Regression Using Whitened Function Classes -- Bayesian Approaches -- Fast Monocular Bayesian Detection of Independently Moving Objects by a Moving Observer -- Kernel Density Estimation and Intrinsic Alignment for Knowledge-Driven Segmentation: Teaching Level Sets to Walk -- Vision and Faces -- 3D Head Pose Estimation with Symmetry Based Illumination Model in Low Resolution Video -- Efficient Approximations for Support Vector Machines in Object Detection -- Efficient Face Detection by a Cascaded Support Vector Machine Using Haar-Like Features -- Vision / Motion -- Differential Analysis of Two

Model-Based Vehicle Tracking Approaches -- Efficient Computation of Optical Flow Using the Census Transform -- Hybrid Model-Based Estimation of Multiple Non-dominant Motions -- Biologically Motivated Approaches -- A Model of Motion, Stereo, and Monocular Depth Perception -- POI Detection Using Channel Clustering and the 2D Energy Tensor -- Segmentation -- 3D Segmentation and Quantification of Human Vessels Based on a New 3D Parametric Intensity Model -- Hierarchical Image Segmentation Based on Semidefinite Programming -- Fast Random Sample Matching of 3d Fragments -- Object Recognition -- Invariants for Discrete Structures – An Extension of Haar Integrals over Transformation Groups to Dirac Delta Functions -- Scale-Invariant Object Categorization Using a Scale-Adaptive Mean-Shift Search -- Pixel-to-Pixel Matching for Image Recognition Using Hungarian Graph Matching -- Object Recognition / Synthesis -- Estimation of Multiple Orientations at Corners and Junctions -- Phase Based Image Reconstruction in the Monogenic Scale Space -- Synthesizing Movements for Computer Game Characters -- Poster Session -- MinOver Revisited for Incremental Support-Vector-Classification -- A Semantic Typicality Measure for Natural Scene Categorization -- Tunable Nearest Neighbor Classifier -- SVM-Based Feature Selection by Direct Objective Minimisation -- Learning with Distance Substitution Kernels -- Features for Image Retrieval: A Quantitative Comparison -- Learning from Labeled and Unlabeled Data Using Random Walks -- Learning Depth from Stereo -- Learning to Find Graph Pre-images -- Multivariate Regression via Stiefel Manifold Constraints -- Hilbertian Metrics on Probability Measures and Their Application in SVM's -- Shape from Shading Under Coplanar Light Sources -- Pose Estimation for Multi-camera Systems -- Silhouette Based Human Motion Estimation -- Cooperative Optimization for Energy Minimization in Computer Vision: A Case Study of Stereo Matching -- Building a Motion Resolution Pyramid by Combining Velocity Distributions -- A Stratified Self-Calibration Method for a Stereo Rig in Planar Motion with Varying Intrinsic Parameters -- Efficient Feature Tracking for Long Video Sequences -- Recognition of Deictic Gestures with Context -- Mosaics from Arbitrary Stereo Video Sequences -- Accurate and Efficient Approximation of the Continuous Gaussian Scale-Space -- Multi-step Entropy Based Sensor Control for Visual Object Tracking -- Spatio–temporal Segmentation Using Laserscanner and Video Sequences -- Fast Statistically Geometric Reasoning About Uncertain Line Segments in 2D- and 3D-Space -- A Statistical Measure for Evaluating Regions-of-Interest Based Attention Algorithms -- Modelling Spikes with Mixtures of Factor Analysers -- An Algorithm for Fast Pattern Recognition with Random Spikes -- The Perceptual Influence of Spatiotemporal Noise on the Reconstruction of Shape from Dynamic Occlusion -- Level Set Based Image Segmentation with Multiple Regions -- CVPIC Colour/Shape Histograms for Compressed Domain Image Retrieval -- The Redundancy Pyramid and Its Application to Segmentation on an Image Sequence -- A Higher Order MRF-Model for Stereo-Reconstruction -- Adaptive Computer Vision: Online Learning for Object Recognition -- Robust Pose Estimation for Arbitrary Objects in Complex Scenes -- Vectorization-Free Reconstruction of 3D CAD Models from Paper Drawings -- Globally Consistent 3-D Reconstruction by Utilizing Loops in Camera Movement -- A Probabilistic Framework for Robust and Accurate Matching of Point Clouds -- Large Vocabulary Audio-Visual Speech Recognition Using the Janus Speech Recognition Toolkit -- Lesion Preserving Image Registration with Applications to Human Brains -- Snake-Aided Automatic Organ Delineation -- Practical Gaze Point

Detecting System -- Using Pattern Recognition for Self-Localization in Semiconductor Manufacturing Systems -- Feature and Viewpoint Selection for Industrial Car Assembly -- Automating Microscope Colour Image Analysis Using the Expectation Maximisation Algorithm -- Camera Orientation of Mars Express Using DTM Information -- Detection and Classification of Gateways for the Acquisition of Structured Robot Maps -- Real Time High Speed Measurement of Photogrammetric Targets -- A Simple New Method for Precise Lens Distortion Correction of Low Cost Camera Systems.

Sommario/riassunto

We are delighted to present the proceedings of DAGM 2004, and wish to - press our gratitude to the many people whose e?orts made the success of the conference possible. We received 146 contributions of which we were able to - cept 22 as oral presentations and 48 as posters. Each paper received 3 reviews, upon which decisions were based. We are grateful for the dedicated work of the 38 members of the program committee and the numerous referees. The careful review process led to the exciting program which we are able to present in this volume. Among the highlights of the meeting were the talks of our four invited spe- ers, renowned experts in areas spanning learning in theory, in vision and in robotics: – William T. Freeman, Arti?cial Intelligence Laboratory, MIT: Sharing F- tures for Multi-class Object Detection – PietroPerona,Caltech: TowardsUnsupervisedLearningofObjectCategories – StefanSchaal, DepartmentofComputerScience,UniversityofSouthernC- ifornia: Real-Time Statistical Learning for Humanoid Robotics – Vladimir Vapnik, NEC Research Institute: Empirical Inference WearegratefulforeconomicsupportfromHondaResearchInstituteEurope, ABW GmbH, Transtec AG, DaimlerChrysler, and Stemmer Imaging GmbH, which enabled us to ?nance best paper prizes and a limited number of travel grants. Many thanks to our local support Sabrina Nielebock and Dagmar Maier, who dealt with the unimaginably diverse range of practical tasks involved in planning a DAGM symposium. Thanks to Richard van de Stadt for providing excellent software and support for handling the reviewing process. A special thanks goes to Jeremy Hill, who wrote and maintained the conference website.