Features

Steerable-Scalable Kernels for Edge Detection and Junction Analysis  p. 3
Families of Tuned Scale-Space Kernels  p. 19
Contour Extraction by Mixture Density Description Obtained from Region Clustering  p. 24
The Mobius Strip Parameterization for Line Extraction  p. 33
Edge Tracing in a priori Known Direction  p. 38
Features Extraction and Analysis Methods for Sequences of Ultrasound Images  p. 43
Figure-Ground Discrimination by Mean Field Annealing  p. 58
Deterministic Pseudo-Annealing: Optimization in Markov-Random-Fields: An Application to Pixel Classification  p. 67
A Bayesian Multiple Hypothesis Approach to Contour Grouping  p. 72
Detection of General Edges and Keypoints  p. 78
Distributed Belief Revision for Adaptive Image Processing Regulation  p. 87
Finding Face Features  p. 92

Color

Detection of Specularity Using Color and Multiple Views  p. 99
Data and Model-Driven Selection Using Color Regions  p. 115
Recovering Shading from Color Images  p. 124

Texture and Shading

Shading Flows and Scenel Bundles: A New Approach to Shape from Shading  p. 135
Texture: Plus ca change,.....  p. 151
Texture Parametrization Method for Image Segmentation  p. 160
Texture Segmentation by Minimizing Vector-Valued Energy Functionals: The Coupled-Membrane Model  p. 165
Boundary Detection in Piecewise Homogeneous Textured Images  p. 174

Motion Estimation

Surface Orientation and Time to Contact from Image Divergence and Deformation  p. 187
Robust and Fast Computation of Unbiased Intensity Derivates in Images  p. 203
Testing Computational Theories of Motion Discontinuities: A Psychophysical Study  p. 212
Motion and Structure Factorization and Segmentation of Long Multiple Motion Image Sequences  p. 217
Motion and Surface Recovery Using Curvature and Motion Consistency  p. 222
Finding Clusters and Planes from 3D Line Segments with Application to 3D Motion Determination  p. 227
Hierarchical Model-Based Motion Estimation  p. 237
A Fast Method to Estimate Sensor Translation  p. 253
Identifying Multiple Motions from Optical Flow  p. 258
A Fast Obstacle Detection Method Based on Optical Flow  p. 267
A Parallel Implementation of a Structure-from-Motion Algorithm  p. 272
Structure from Motion Using the Ground Plane Constraint p. 277
Detecting and Tracking Multiple Moving Objects Using Temporal Integration p. 282
Calibration and Matching
A Study of Affine Matching with Bounded Sensor Error p. 291
Epipolar Line Estimation p. 307
Camera Calibration Using Multiple Images p. 312
Camera Self-Calibration: Theory and Experiments p. 321
Model-Based Object Pose in 25 Lines of Code p. 335
Depth
Image Blurring Effects due to Depth Discontinuities: Blurring that Creates Emergent Image Details p. 347
Ellipse Based Stereo Vision p. 363
Applying Two-Dimensional Delaunay Triangulation to Stereo Data Interpretation p. 368
Local Stereoscopic Depth Estimation Using Ocular Stripe Maps p. 373
Depth Computations from Polyhedral Images p. 378
Parallel Algorithms for the Distance Transformation p. 387
Stereo-motion
A Computational Framework for Determining Stereo Correspondence from a Set of Linear Spatial Filters p. 395
On Visual Ambiguities due to Transparency in Motion and Stereo p. 411
A Deterministic Approach for Stereo Disparity Calculation p. 420
Occlusions and Binocular Stereo p. 425
Tracking
Model-Based Object Tracking in Traffic Scenes p. 437
Tracking Points on Deformable Objects Using Curvature Information p. 458
An Egomotion Algorithm Based on the Tracking of Arbitrary Curves p. 467
Region-Based Tracking in an Image Sequence p. 476
Combining Intensity and Motion for Incremental Segmentation and Tracking over Long Image Sequences p. 485
Active Vision
Active Egomotion: A Qualitative Approach p. 497
Active Perception Using DAM and Estimation Techniques p. 511
Active-Dynamic Stereo for Navigation p. 516
Integrating Primary Ocular Processes p. 526
Where to Look Next Using a Bayes Net: Incorporating Geometric Relations p. 542
An Attentional Prototype for Early Vision p. 551
Binocular Heads
What Can Be Seen in Three Dimensions with an Uncalibrated Stereo Rig? p. 563
Estimation of Relative Camera Positions for Uncalibrated Cameras p. 579
Gaze Control for a Binocular Camera Head p. 588
Curved Surfaces and Objects

Computing Exact Aspect Graphs of Curved Objects: Algebraic Surfaces  p. 599
Surface Interpolation Using Wavelets  p. 615
Smoothing and Matching of 3D Space Curves  p. 620
Shape from Texture for Smooth Curved Surfaces  p. 630
Recognizing Rotationally Symmetric Surfaces from Their Outlines  p. 639
Using Deformable Surfaces to Segment 3D Images and Infer Differential Structures  p. 648
Finding Parametric Curves in an Image  p. 653
Reconstruction and Shape
Determining Three-Dimensional Shape from Orientation and Spatial Frequency Disparities  p. 661
Using Force Fields Derived from 3D Distance Maps for Inferring the Attitude of a 3D Rigid Object  p. 670
Segmenting Unstructured 3D Points into Surfaces  p. 676
Finding the Pose of an Object of Revolution  p. 681
Extraction of Line Drawings from Gray Value Images by Non-Local Analysis of Edge Element Structures  p. 687
A Method for the 3D Reconstruction of Indoor Scenes from Monocular Images  p. 696
Active Detection and Classification of Junctions by Foveation with a Head-Eye System Guided by the Scale-Space Primal Sketch  p. 701
A New Topological Classification of Points in 3D Images  p. 710
A Theory of 3D Reconstruction of Heterogeneous Edge Primitives from Two Perspective Views  p. 715
Detecting 3D Parallel Lines for Perceptual Organization  p. 720
Integrated Skeleton and Boundary Shape Representation for Medical Image Interpretation  p. 725
Critical Sets for 3D Reconstruction Using Lines  p. 730
Intrinsic Surface Properties from Surface Triangulation  p. 739
Edge Classification and Depth Reconstruction by Fusion of Range and Intensity Edge Data  p. 744
Image Compression and Reconstruction Using a 1D Feature Catalogue  p. 749
Recognition
Canonical Frames for Planar Object Recognition  p. 757
Measuring the Quality of Hypotheses in Model-Based Recognition  p. 773
Using Automatically Constructed View-Independent Relational Model in 3D Object Recognition  p. 778
Learning to Recognize Faces from Examples  p. 787
Face Recognition Through Geometrical Features  p. 792
Fusion Through Interpretation  p. 801
3D Object Recognition Using Passively Sensed Range Data  p. 806
Interpretation of Remotely Sensed Images in a Context of Multisensor Fusion  p. 815
Limitations of Non Model-Based Recognition Schemes  p. 820
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constraints for Recognizing and Locating Curved 3D Objects from Monocular Image Features</td>
<td>829</td>
</tr>
<tr>
<td>Polynomial-Time Object Recognition in the Presence of Clutter, Occlusion, and Uncertainty</td>
<td>834</td>
</tr>
<tr>
<td>Hierarchical Shape Recognition Based on 3D Multiresolution Analysis</td>
<td>843</td>
</tr>
<tr>
<td>Object Recognition by Flexible Template Matching Using Genetic Algorithms</td>
<td>852</td>
</tr>
<tr>
<td>Matching and Recognition of Road Networks from Aerial Images</td>
<td>857</td>
</tr>
<tr>
<td>Applications</td>
<td></td>
</tr>
<tr>
<td>Intensity and Edge-Based Symmetry Detection Applied to Car-Following</td>
<td>865</td>
</tr>
<tr>
<td>Indexicality and Dynamic Attention Control in Qualitative Recognition of Assembly Actions</td>
<td>874</td>
</tr>
<tr>
<td>Real-Time Visual Tracking for Surveillance and Path Planning</td>
<td>879</td>
</tr>
<tr>
<td>Spatio-Temporal Reasoning Within a Traffic Surveillance System</td>
<td>884</td>
</tr>
<tr>
<td>Template Guided Visual Inspection</td>
<td>893</td>
</tr>
<tr>
<td>Hardware Support for Fast Edge-Based Stereo</td>
<td>902</td>
</tr>
<tr>
<td>Author Index</td>
<td>907</td>
</tr>
</tbody>
</table>

*Table of Contents provided by Blackwell's Book Services and R.R. Bowker. Used with permission.*