

TABLE OF CONTENTS

IMAGE FEATURES

On scale and resolution in the analysis of local image structure K. Brunnström, J.O. Eklundh, and T. Lindeberg.....	3
Optimal filter for edge detection methods and results S. Castan, J. Zhao, and J. Shen.....	13
Biased anisotropic diffusion - a unified regularization and diffusion approach to edge detection N. Nordström	18
Hierarchical image analysis using irregular tessellations A. Montanvert, P. Meer, and A. Rosenfeld	28
A bit plane architecture for an image analysis processor implemented with P.L.C.A. gate array J.C. Klein, F. Collange, and M. Bilodeau	33
Scale-space singularities A.D. Jepson, and D.J. Fleet	50
Recursive filtering and edge closing: two primary tools for 3-D edge detection O. Monga, R. Deriche, G. Malandain, and J.P. Cocquerez	56
Edge contours using multiple scales D.J. Williams, and M. Shah	66

STEREO AND RECONSTRUCTION

Stereo integration, mean field theory and psychophysics A.L. Yuille, D. Geiger, and H. Bülthoff	73
A pyramidal stereovision algorithm based on contour chain points A. Meygret, M. Thonnat, and M. Berthod	83
Parallel and deterministic algorithms from MRFs: surface reconstruction and integration D. Geiger, and F. Giosi	89
Parallel multiscale stereo matching using adaptive smoothing J.S. Chen, and G. Medioni	99

OPTICAL FLOW

On the motion of 3-D curves and its relationship to optical flow O. Faugeras	107
Structure-from-motion under orthographic projection C. Harris	118
Parallel computation of optic flow S. Gong, and M. Brady	124
Obstacle detection by evaluation of optical flow fields from image sequences W. Enkelmann	134
Extending the 'oriented smoothness constraint' into the temporal domain and the estimation of derivatives of optical flow H.H. Nagel	139
A comparison of stochastic and deterministic solution methods in Bayesian estimation of 2-D motion J. Konrad, and E. Dubois	149
Motion determination in space-time images B. Jähne	161

MOTION

Ambiguity in reconstruction from image correspondences S.J. Maybank	177
An optimal solution for mobile camera calibration P. Puget, and T. Skordas	187
Analytical results on error sensitivity of motion estimation from two views K. Daniilidis, and H.H. Nagel	199

STRUCTURE FROM MOTION

On the estimation of depth from motion using an anthropomorphic visual sensor M. Tistarelli, and G. Sandini	211
The derivation of qualitative information in motion analysis E. François, and P. Bouthemy	226
Road following algorithm using a panned plan-view transformation R.A. Lotufo, B.T. Thomas, and E.L. Dagless	231
3-D-vision-based robot navigation: first steps L. Robert, R. Vaillant, and M. Schmitt	236
Dynamic world modeling using vertical line stereo J.L. Crowley, P. Bobet, and K. Sarachik	241

TRACKING

Tracking in a complex visual environment J.L. Aloimonos, and D.P. Tsakiris	249
Tracking line segments R. Deriche, and O. Faugeras	259
Measurement and integration of 3-D structures by tracking edge lines J.L. Crowley, and P. Stelmazzyk	269
Estimation of 3-D motion and structure from tracking 2-D lines in a sequence of images T. Vieville	281
The incremental rigidity scheme for structure from motion: the line-based formulation D. Dube, and A. Mitiche	292
Object detection using model based prediction and motion parallax S. Carlsson	297
Detection and tracking of moving objects based on a statistical regularization method in space and time P. Bouthemy, and P. Lalande	307

STEREO AND MOTION

Vertical and horizontal disparities from phase K. Langley, T.J. Atherton, R.G. Wilson, and M.H.E. Larcombe	315
Stereo correspondence from optic flow V. Cornilleau-Peres, and J. Droulez	326
A model for the estimate of local image velocity N.M. Grzywack, and A.L. Yuille.....	331
Direct evidence for occlusion in stereo and motion J.J. Little, and W.E. Gillett	336
On the use of trajectory information to assist stereopsis in a dynamic environment M.R.M. Jenkin	341

FEATURES / SHAPE

Distributed learning of texture classification J.R. Sullins	349
Fast shape from shading R. Szeliski	359
Inverse perspective of a triangle: new exact and approximate solutions D. Dementhon, and L.S. Davis.....	369
Finding geometric and relational structures in an image R. Horaud, and F. Veillon	374

SHAPE DESCRIPTION

Recovery of volumetric object descriptions from laser rangefinder images F.P. Ferrie, J. Lagarde, and P. Whaite.....	387
Extraction of deformable part models A. Pentland	397
Toward a computational theory of shape: an overview B.B. Kimia, A. Tannenbaum, and S.W. Zucker.....	402
Stabilized solution for 3-D model parameters D.G. Lowe	408
Deformable templates for features extraction from medical images P. Lipson, A.L. Yuille, D. O'Keefe, J. Cavanaugh J. Taaffe, and D. Rosenthal	413
Charting surface structure P.T. Sander, and S.W. Zucker.....	418
Projectively invariant representations using implicit algebraic curves D. Forsyth, J.L. Mundy, A. Zisserman, and C.M. Brown	427
Shape from contour using symmetries S.Y. Kelvin Yuen	437
Using occluding contours for 3-D object modeling R. Vaillant	454
Robust estimation of surface curvature from deformation of apparent contours A. Blake, and R. Cipolla	465
Spatial localization of modelled objects of revolution in monocular perspective vision M. Dhome, J.T. Lapreste, G. Rives, and M. Richetin.....	475

RECOGNITION - MATCHING

On the verification of hypothesized matches in model-based recognition W.E.L. Grimson, and D.P. Huttenlocher	489
Object recognition using local geometric constraints: A robust alternative to tree-search A.J. Bray	499
SIMD Geometric matching D. Holder, and H. Buxton	516
A 3-D interpretation system based on consistent labeling of a set of propositions - Application to the interpretation of straight line correspondences R. Laganier, and A. Mitche.....	521
Model-based object recognition by geometric hashing H.J. Wolfson	526
An analysis of knowledge representation schemes for high level vision G.M. Provan	537

Experiments on the use of the ATMS to label features for object recognition R.M. Bodington, G.D.Sullivan, and K.D. Baker	542
The combinatorics of heuristic search termination for object recognition in cluttered environments W.E.L. Grimson	552

POSTERS

Combinatorial characterization of perspective projections from polyhedral object scenes J.D. Andersen	559
Estimation of curvature in 3-D images using tensor field filtering H. Bärman, G.H. Granlund, and H. Knutsson	563
Transparent-motion analysis J.R. Bergen, P.J. Burt, R. Hingorani, and S. Peleg	566
Snake growing M.O. Berger	570
Local cross-modality image alignment using unsupervised learning O. Bernander, and C. Koch	573
A heterogeneous vision architecture A.W.G. Duller, R.H. Storer, A.R. Thomson, M.R. Pout, and E.L. Dagless	576
Spatial context in an image analysis system P. Garnesson, and G. Giraudon	579
Object detection and identification by hierarchical segmentation P. Hanusse, and P. Guillaud	583
Shading into texture and texture into shading: an active approach J.Y. Herve, and J.L. Aloimonos	586
3-D curve matching using splines E. Kishon, H. Wolfson, and T. Hastie	589
The dynamic generalized Hough transform V.F. Leavers	592
The analysis of time varying image sequences E. De Micheli, S. Uras, and V. Torre	595
On the use of motion concepts for top-down control in traffic scenes M. Mohnhaupt, and B. Neumann	598
Final steps towards real time trinocular stereovision G. Randall, S. Foret, and N. Ayache	601
B-spline contour representation and symmetry detection P. Saint-Marc, and G. Medioni	604
Shape and mutual cross-ratios with applications to exterior, interior and relative orientation G. Sparr, and L. Nielsen	607

Using neural networks to learn shape decomposition by successive prototypication N. Walker	610
Adapting computer vision systems to the visual environment: Topographic mapping T. Zielke, K. Storjohann, H.A. Mallot, and W. von Seelen	613
Stereo matching based on a combination of simple features used for matching in temporal image sequences G. Zimmermann	616
AUTHOR INDEX	619