

Contents

Introduction and Chapter Summary	3
<i>Joseph L. Mundy, Andrew Zisserman and David Forsyth</i>	

Foundations

Cartan's Moving Frame Method and Its Application to the Geometry and Evolution of Curves in the Euclidean, Affine and Projective Planes.....	11
<i>Olivier Faugeras</i>	
Representation of Three-Dimensional Object Structure as Cross-Ratios of Determinants of Stereo Image Points	47
<i>Eamon Barrett, Gregory Gheen and Paul Payton</i>	
A Case Against Epipolar Geometry	69
<i>Andrew Zisserman and Stephen J. Maybank</i>	
Repeated Structures: Image Correspondence Constraints and 3D Structure Recovery.....	89
<i>Joseph L. Mundy and Andrew Zisserman</i>	
How to Use the Cross Ratio to Compute Projective Invariants from Two Images.....	107
<i>Patrick Gros</i>	
On Geometric and Algebraic Aspects of 3D Affine and Projective Structures from Perspective 2D Views.....	127
<i>Amnon Shashua</i>	
The Double Algebra: An Effective Tool for Computing Invariants in Computer Vision	145
<i>Stefan Carlsson</i>	
Matching Perspective Views of Parallel Plane Structures.....	165
<i>Luc Van Gool, Theo Moons, Marc Van Diest and Eric Pauwels</i>	
Invariants for Recovering Shape from Shading	185
<i>Isaac Weiss</i>	
Fundamental Difficulties with Projective Normalization of Planar Curves.....	199
<i>Kalle Åström</i>	
Invariant Size Functions.....	215
<i>Alessandro Verri and Claudio Uras</i>	

Recovery

Euclidean Reconstruction from Uncalibrated Views	237
<i>Richard I. Hartley</i>	
Accurate Projective Reconstruction	257
<i>Roger Mohr, Boubakeur Boufama and Pascal Brand</i>	
Applications of Motion Field of Curves	277
<i>Theo Papadopoulos and Olivier Faugeras</i>	
Affine Reconstruction from Perspective Image Pairs Obtained by a Translating Camera	297
<i>Theo Moons, Luc Van Gool, Marc Van Diest and Eric Pauwels</i>	
Using Invariance and Quasi-Invariance for the Segmentation and Recovery of Curved Objects	317
<i>Mourad Zerroug and Ramakant Nevatia</i>	
Representations of 3D Objects that Incorporate Surface Markings	341
<i>David Forsyth and Charlie Rothwell</i>	
Model-based Invariant Functions and Their Use for Recognition	359
<i>Daphna Weinshall</i>	

Recognition

Integration of Multiple Feature Groups and Multiple Views into a 3D Object Recognition System	381
<i>Jianchang Mao, Anil K. Jain and Patrick J. Flynn</i>	
Hierarchical Object Description Using Invariants	397
<i>Charles A. Rothwell</i>	
Generalizing Invariants for 3-D to 2-D Matching	415
<i>David W. Jacobs</i>	
Recognition by Combinations of Model Views: Alignment and Invariance	435
<i>Ronen Basri</i>	

Statistics

Classification Based on the Cross Ratio.....	453
<i>Stephen J. Maybank</i>	
Correspondence of Coplanar Features Through P^2 -Invariant Representations	473
<i>Peter Meer, Sudhir Ramakrishna and Reiner Lenz</i>	
Integrating Algebraic Curves and Surfaces, Algebraic Invariants and Bayesian Methods for 2D and 3D Object Recognition.....	493
<i>Daniel Keren, Jayashree Subrahmonia and David B. Cooper</i>	