

Table of Contents

I Unsupervised Learning and Matching

Stochastic Search for Optimal Linear Representations of Images on Spaces with Orthogonality Constraints	3
<i>Xiuwen Liu and Anuj Srivastava</i>	
Local PCA for Strip Line Detection and Thinning	21
<i>Zhi-Yong Liu, Kai-Chun Chiu, and Lei Xu</i>	
Curve Matching Using the Fast Marching Method	35
<i>Max Frenkel and Ronen Basri</i>	
EM Algorithm for Clustering an Ensemble of Graphs with Comb Matching	52
<i>Miguel Angel Lozano and Francisco Escolano</i>	
Information Force Clustering Using Directed Trees	68
<i>Robert Jenssen, Deniz Erdogmus, Kenneth E. Hild II, Jose C. Principe, and Torbjørn Eltoft</i>	
Watershed-Based Unsupervised Clustering	83
<i>Manuele Bicego, Marco Cristani, Andrea Fusiello, and Vittorio Murino</i>	

II Probabilistic Modelling

Active Sampling Strategies for Multihypothesis Testing	97
<i>Stéphane Herbin</i>	
Likelihood Based Hierarchical Clustering and Network Topology Identification	113
<i>Rui Castro and Robert Nowak</i>	
Learning Mixtures of Tree-Unions by Minimizing Description Length	130
<i>Andrea Torsello and Edwin R. Hancock</i>	
Image Registration and Segmentation by Maximizing the Jensen-Rényi Divergence	147
<i>A. Ben Hamza and Hamid Krim</i>	
Asymptotic Characterization of Log-Likelihood Maximization Based Algorithms and Applications	164
<i>Doron Blatt and Alfred Hero</i>	

Maximum Entropy Models for Skin Detection	180
<i>Bruno Jedynak, Huicheng Zheng, and Mohamed Daoudi</i>	
Hierarchical Annealing for Random Image Synthesis	194
<i>Simon K. Alexander, Paul Fieguth, and Edward R. Vrscay</i>	
On Solutions to Multivariate Maximum α -Entropy Problems	211
<i>Jose Costa, Alfred Hero, and Christophe Vignat</i>	

III Segmentation and Grouping

Semi-supervised Image Segmentation by Parametric Distributional Clustering	229
<i>Lothar Hermes and Joachim M. Buhmann</i>	
Path Variation and Image Segmentation	246
<i>Pablo Andrés Arbeláez and Laurent D. Cohen</i>	
A Fast Snake Segmentation Method Applied to Histopathological Sections	261
<i>Adam Karlsson, Kent Stråhlén, and Anders Heyden</i>	
A Compositionality Architecture for Perceptual Feature Grouping	275
<i>Björn Ommer and Joachim M. Buhmann</i>	
Using Prior Shape and Points in Medical Image Segmentation	291
<i>Yunmei Chen, Weihong Guo, Feng Huang, David Wilson, and Edward A. Geiser</i>	
Separating a Texture from an Arbitrary Background Using Pairwise Grey Level Cooccurrences	306
<i>Georgy Gimel'farb and Linjiang Yu</i>	

IV Shape Modelling

Surface Recovery from 3D Point Data Using a Combined Parametric and Geometric Flow Approach	325
<i>Peter Savadjiev, Frank P. Ferrie, and Kaleem Siddiqi</i>	
Geometric Analysis of Continuous, Planar Shapes	341
<i>Anuj Srivastava, Washington Mio, Eric Klassen, and Shantanu Joshi</i>	
Curvature Vector Flow to Assure Convergent Deformable Models for Shape Modelling	357
<i>Debora Gil and Petia Radeva</i>	
Definition of a Signal-to-Noise Ratio for Object Segmentation Using Polygonal MDL-Based Statistical Snakes	373
<i>François Goudail, Philippe Réfrégier, and Olivier Ruch</i>	

V Restoration and Reconstruction

Minimization of Cost-Functions with Non-smooth Data-Fidelity Terms to Clean Impulsive Noise	391
<i>Mila Nikolova</i>	
A Fast GEM Algorithm for Bayesian Wavelet-Based Image Restoration Using a Class of Heavy-Tailed Priors	407
<i>José M. Bioucas-Dias</i>	
Diffusion Tensor MR Image Restoration	421
<i>Z. Wang, B.C. Vemuri, and Y. Chen</i>	
A MAP Estimation Algorithm Using IIR Recursive Filters	436
<i>João M. Sanches and Jorge S. Marques</i>	
Estimation of Rank Deficient Matrices from Partial Observations: Two-Step Iterative Algorithms	450
<i>Rui F. C. Guerreiro and Pedro M. Q. Aguiar</i>	
Contextual and Non-combinatorial Approach to Feature Extraction	467
<i>Toshiro Kubota</i>	

VI Graphs and Graph-Based Methods

Generalizing the Motzkin-Straus Theorem to Edge-Weighted Graphs, with Applications to Image Segmentation	485
<i>Massimiliano Pavan and Marcello Pelillo</i>	
Generalized Multi-camera Scene Reconstruction Using Graph Cuts	501
<i>Vladimir Kolmogorov, Ramin Zabih, and Steven Gortler</i>	
Graph Matching Using Spectral Seriation	517
<i>Antonio Robles-Kelly and Edwin R. Hancock</i>	
Author Index	533