

Mads Nielsen Peter Johansen

Ole Fogh Olsen Joachim Weickert (Eds.)



dandelion.com

© 2008 AGI Information Management Consultants  
May be used for personal purposes only or by  
libraries associated to dandelion.com network.

# Scale-Space Theories in Computer Vision

Second International Conference, Scale-Space'99  
Corfu, Greece, September 26-27, 1999  
Proceedings



Springer

# Table of Contents

## Oral Presentations

Blur and Disorder . . . . .	1
<i>Jan J. Koenderink, Andrea J. van Doorn</i>	
Applications of Locally Orderless Images . . . . .	10
<i>Bram van Ginneken, Bart M. ter Haar Romeny</i>	
Scale Space Technique for Word Segmentation in Handwritten Documents . . . . .	22
<i>R. Manmatha, Nitin Srimal</i>	
Fast Geodesic Active Contours . . . . .	34
<i>Roman Goldenberg, Ron Kimmel, Ehud Rivlin, Michael Rudzsky</i>	
Morphing Active Contours . . . . .	46
<i>Marcelo Bertalmio, Guillermo Sapiro, Gregory Randall</i>	
Unfolding the Cerebral Cortex Using Level Set Methods . . . . .	58
<i>Gerardo Hermosillo, Olivier Faugeras, José Gomes</i>	
Reconciling Distance Functions and Level Sets . . . . .	70
<i>José Gomes, Olivier Faugeras</i>	
Computation of Ridges via Pullback Metrics from Scale Space . . . . .	82
<i>Michael Kerckhove</i>	
The Maximal Scale Ridge - Incorporating Scale into the Ridge Definition . . . . .	93
<i>Jason Miller, Jacob Furst</i>	
Detection of Critical Structures in Scale Space . . . . .	105
<i>Joel Staal, Stiliyan Kalitzin, Bart ter Haar Romeny, Max Viergever</i>	
Qualitative Multi-scale Feature Hierarchies for Object Tracking . . . . .	117
<i>Lars Bretzner, Tony Lindeberg</i>	
Riemannian Drums, Anisotropic Curve Evolution and Segmentation . . . . .	129
<i>Jayant Shah</i>	
An Active Contour Model without Edges . . . . .	141
<i>Tony Chan, Luminita Vese</i>	
A Compact and Multiscale Image Model Based on Level Sets . . . . .	152
<i>Jacques Froment</i>	

Morphological Scale Space and Mathematical Morphology . . . . .	164
<i>Frédéric Cao</i>	
Scale-Space from a Level Lines Tree . . . . .	175
<i>Paccal Monasse, Frédéric Guichard</i>	
Morphological Scale-space Representation with Levelings . . . . .	187
<i>Fernand Meyer, Petros Maragos</i>	
Numerical Solution Schemes for Continuous-Scale Morphology . . . . .	199
<i>Rein van den Boomgaard</i>	
Scale-Space Properties of Regularization Methods . . . . .	211
<i>Esther Radmoser, Otmar Scherzer, Joachim Weickert</i>	
An Adaptive Finite Element Method for Large Scale Image Processing . . . . .	223
<i>T. Preußner, M. Rumpf</i>	
A Scale-Space Approach to Nonlocal Optical Flow Calculations . . . . .	235
<i>Luis Alvarez, Joachim Weickert, Javier Sánchez</i>	
Scales in Natural Images and a Consequence on their BV Norm . . . . .	247
<i>Luis Alvarez, Yann Gousseau, Jean-Michel Morel</i>	
Edges as Outliers: Anisotropic Smoothing using Local Image Statistics . . . . .	259
<i>Michael J. Black, Guillermo Sapiro</i>	
The Hausdorff Dimension and Scale-Space Normalisation of Natural Images . . . . .	271
<i>Kim Steenstrup Pedersen, Mads Nielsen</i>	
<b>Long Posters</b>	
Lattice Boltzmann Models for Nonlinear Diffusion Filtering . . . . .	283
<i>Björn Jawerth, Peng Lin, Eric Sinzinger</i>	
Geometric-Variational Approach for Color Image Enhancement and Segmentation . . . . .	294
<i>Ron Kimmel, Nir A. Sochen</i>	
A Level Set Model for Image Classification . . . . .	306
<i>Christophe Samson, Laure Blanc-Féraud, Gilles Aubert, Josiane Zerubia</i>	
Calculations on Critical Points under Gaussian Blurring . . . . .	318
<i>Arjan Kuijper, Luc Florack</i>	
Region Tracking on Surfaces Deforming via Level-Sets Methods . . . . .	330
<i>Marcelo Bertalmio, Guillermo Sapiro, Gregory Randall</i>	
Geometric Multiscale Representation of Numerical Images . . . . .	339
<i>Georges Koepfler, Lionel Moisan</i>	

Multiscale Morphological Segmentations Based on Watershed, Flooding, and Eikonal PDE .....	351
<i>Fernand Meyer, Petros Maragos</i>	
Nonlinear PDEs and Numerical Algorithms for Modeling Levelings and Reconstruction Filters .....	363
<i>Petros Maragos, Fernand Meyer</i>	
Proper Scales of Shapes - A Curved Scale Space .....	375
<i>Ph. G. Batchelor, A. D. Castellano Smith, D. L. G. Hill</i>	
Nonlinear Anisotropic Diffusion in Three-Dimensional Electron Microscopy	386
<i>Achilleas S. Frangakis, Reiner Hegerl</i>	
Polygon Evolution by Vertex Deletion .....	398
<i>Longin Jan Latecki, Rolf Lakämper</i>	
A Scale-Space Based Approach for Deformable Contour Optimization ....	410
<i>Yusuf Sinan Akgul, Chandra Kambhamettu</i>	
<b>Short Posters</b>	
Self-Similarity of Noise in Scale-Space .....	423
<i>Peter Majer</i>	
A New Time Dependent Model Based on Level Set Motion for Nonlinear Deblurring and Noise Removal .....	429
<i>Antonio Marquina, Stanley Osher</i>	
Curvature Scale Space with Affine Length Parametrisation .....	435
<i>Sadegh Abbasi, Farzin Mokhtarian</i>	
A Stochastic Scale Space for Multiscale Image Representation .....	441
<i>Uma S. Ranjan, K. R. Ramakrishnan</i>	
Fast Marching to Moving Object Location .....	447
<i>E. Sifakis and G. Tziritas</i>	
A Windows-Based User Friendly System for Image Analysis with Partial Differential Equations .....	453
<i>Do Hyun Chung, Guillermo Sapiro</i>	
Color Invariant Edge Detection .....	459
<i>Jan-Mark Geusebroek, Anuj Dev, Rein van den Boomgaard, Arnold W. M. Smeulders, Frans Cornelissen, Hugo Geerts</i>	
Scale Space Range Image Aspect Graph .....	465
<i>Satoru Morita</i>	

Hierarchical Density Non-rigid Object Analysis .....	471
<i>Satoru Morita</i>	
Discrete Mean Curvature Flow .....	477
<i>Atsushi Imiya, Ulrich Eckhardt</i>	
An Adaptive Local Smoothing for Contour Figure Approximation .....	483
<i>Hidekata Hontani, Koichiro Deguchi</i>	
Negative Results for Multilevel Preconditioners in Image Deblurring .....	489
<i>C. R. Vogel</i>	
Decomposition and Hierarchy: Efficient Structural Matching of Large Multi-scale Representations .....	495
<i>Simon Massey and Graeme A. Jones</i>	
Tracing of Curvilinear Structures in 3D Images with Single Scale Diameter Measurement .....	501
<i>G.J.Streekstra, A. W. M. Smeulders, R. van den Boomgaard</i>	
A Geometric Functional for Derivatives Approximation .....	507
<i>Nir A. Sochen, Robert M. Haralick, Yehoshua Y. Zeevi</i>	
Segmenting by Compression Using Linear Scale-Space and Watersheds....	513
<i>Jon Sporring, Ole Fogh Olsen</i>	
A Multiscale Taylor Series Approach to Optic Flow and Stereo: a Generalization of Optic Flow Under the Aperture .....	519
<i>Robert Maas, Bart M. ter Haar Romeny, Max A. Viergever</i>	
Global Convergence Rates of Nonlinear Diffusion for Time-Varying Images	525
<i>Winfried Lohmüller, Jean-Jacques E. Slotine</i>	
<b>Author Index</b> .....	<b>531</b>