Lecture Notes in Computer Science 2106
Edited by G. Goos, J. Hartmanis and J. van Leeuwen

Springer
Berlin
Heidelberg
New York
Barcelona
Hong Kong
London
Milan
Paris
Singapore
Tokyo

Michael Kerckhove (Ed.)

Scale-Space and Morphology in Computer Vision

Third International Conference, Scale-Space 2001
Vancouver, Canada, July 7-8, 2001
Proceedings

Springer

Volume Editor

Michael Kerckhove
University of Richmond, Dept. of Mathematics & Computer Science
Richmond, VA 23173, USA
E-mail: mkerckho@richmond.edu

Cataloging-in-Publication Data applied for

Die Deutsche Bibliothek - CIP-Einheitsaufnahme

Scale space and morphology in computer vision : third international conference, scale space 2001, Vancouver, Canada, July, 7 - 8, 2001 ; proceedings / Michael Kerckhove (ed.). - Berlin ; Heidelberg ; New York ; Barcelona ; Hong Kong ; London ; Milan ; Paris ; Singapore ; Tokyo : Springer, 2001
(Lecture notes in computer science ; Vol. 2106)
ISBN 3-540-42317-6

CR Subject Classification (1998): I.4, I.3.5, I.5, I.2.10

ISSN 0302-9743
ISBN 3-540-42317-6 Springer-Verlag Berlin Heidelberg New York

Springer-Verlag Berlin Heidelberg New York
a member of BertelsmannSpringer Science+Business Media GmbH

http://www.springer.de

Typesetting: Camera-ready by author, data conversion by Christian Grosche, Hamburg
Printed on acid-free paper SPIN: 10839532 06/3142 5 4 3 2 1 0

Preface

The scale-space conference series dates back to the NSF/ESPRIT transatlantic collaboration on "geometry-driven diffusion" (1993–1996). This collaboration led to a series of very successful workshops followed by a PhD summer school on Gaussian Scale-Space Theory in Copenhagen, in the spring of 1996. The following year, the First International Conference on Scale-Space Theory in Computer Vision (Utrecht, July, 1997) was held. The series of international conferences has now grown to three. As was the case for the Second International Conference (Corfu, September 1999), the 2001 conference was affiliated with the ICCV as one of its several workshops. Entitled the "Workshop on Scale-Space and Morphology", the purpose of the conference was to encourage the exchange of information and to foster interactions among researchers in scale-space theory in computer vision and mathematical morphology. With the publication of these proceedings, we feel that our purposes have been accomplished.

The conference was held for the first time in North America, and succeeded in attracting participants from the western hemisphere and the pacific rim. A concerted effort was also made to make the workshop attractive to and affordable for graduate students. Of 60 high-quality submissions (including many papers in the subject areas that were accepted at ICCV or the overlapping Workshop on Variational and Level Set Methods), 18 papers were selected for oral presentations. They form Part I of this volume. Part 2 of the volume consists of 23 papers accepted for poster presentations. Invited talks were given by Professor Jitendra Malik, of the Computer Vision Group at the University of California at Berkeley, and by Professor Amiram Grinvald, of the Weizmann Institute of Science in Rehovot, Israel.

On behalf of the Program Board, I would like to thank the authors for their excellent presentations and written work; the referees for their time and valuable comments (each paper was reviewed by 3 referees); and the members of the General Board for their guidance in putting the conference together. We are grateful to the IEEE Computer Society (especially to Keith Price and Tom Fink for their assistance), to the ICCV Workshops Chair Jim Clark, and to Jim Little and David Lowe, the local organizers for ICCV in Vancouver. On a personal note I would like to thank the members of the Program Board, who kept me on course and encouraged me toward the finish line in preparing this volume, and to thank Libbie Geiger at the University of Richmond for her secretarial assistance. Finally, the conference participants deserve recognition for making the event both enjoyable and worthwhile.

May 2001 Michael Kerckhove

Organizers

General Board

Michael Kerckhove (University of Richmond, USA)
Pietro Perona (California Institute of Technology, University of Padua, Italy)
Bart ter Haar Romeny (Image Sciences Institute, Utrecht University, The Netherlands)
Stephen Pizer (University of North Carolina - Chapel Hill, USA)
Guillermo Sapiro (University of Minnesota, USA)

Program Board

Michael Kerckhove (University of Richmond, USA)
Frederic Guichard (Poseidon / Vision IQ, Paris, France)
Ron Kimmel (Technion Israel Institute of Technology, Israel)
Tony Lindeberg (KTH, Stockholm, Sweden)
Petros Maragos (National Technical University of Athens, Greece)
Nir Sochen (Tel Aviv University, Israel)

Program Committee

Luis Alvarez, Universidad de Las Palmas de Gran Canaria
Junior Barrera, Universidade de São Paulo
Rein van den Boomgaard, University of Amsterdam
Alfred M. Bruckstein, Technion Israel Institute of Technology
Frederic Cao, CMLA ENS-Cachan
James L. Crowley, INRIA Rhone-Alpes
Rachid Deriche, INRIA Sophia Antipolis
Olivier Faugeras, INRIA Sophia Antipolis
Luc Florack, University of Utrecht
John Goutsias, Johns Hopkins University
Lewis Griffin, King's College London
Henk Heijmans, Centre for Mathematics and Computer Science (CWI)
Peter Johansen, University of Copenhagen
Renato Keshet, Hewlett-Packard Laboratories, Israel
Ben Kimia, Brown University
Jan Koenderink, University of Utrecht
Ferran Marques, Universitat Politecnica de Catalunya
Fernand Meyer, Centre de Morphologie Mathématique
Farzin Mokhtarian, University of Surrey

Mads Nielsen, IT University of Copenhagen
Wiro Niessen, Image Science Institute, Utrecht
Ole Fogh Olsen, IT University of Copenhagen
Eric Pauwels, Centre for Mathematics and Computer Science (CWI)
Joachim Rieger, Martin-Luther-Universität Halle
Jos Roerdink, University of Groningen
Philippe Salembier, Universitat Politecnica de Catalunya
Christoph Schnoerr, University of Mannheim
Jayant Shah, Northeastern University
Pierre Soille, EC Joint Research Centre, Space Applications Institute, Italy
Jon Sporring, University of Copenhagen
Luc Vincent, LizardTech Inc, USA
Joachim Weickert, University of Mannheim

Invited Adresses

Jitendra Malik (Computer Vision Group, University of California at Berkeley)
"Ecological Statistics of Grouping Cues in Natural Images"

Amiram Grinvald (Weizmann Institute of Science in Rehovot, Israel)
"Real Time Visualization of Cortical Dynamics; Linking Single Neurons to Neuronal Assemblies."

Sponsoring Institutions

IEEE Computer Society
Technical Committee on Pattern Analysis and Machine Intelligence (PAMI)

Table of Contents

Oral Presentations

Poster Presentations