Lecture Notes in Computer Science 2350

Edited by G. Goos, J. Hartmanis, and J. van Leeuwen

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

Anders Heyden Gunnar Sparr
Mads Nielsen Peter Johansen (Eds.)

Computer Vision – ECCV 2002

7th European Conference on Computer Vision
Copenhagen, Denmark, May 28-31, 2002
Proceedings, Part I

Springer

Volume Editors

Anders Heyden
Gunnar Sparr
Lund University, Centre for Mathematical Sciences
Box 118, 22100 Lund, Sweden
E-mail: {Anders.Heyden,Gunnar.Sparr}@math.lth.se

Mads Nielsen
The IT University of Copenhagen
Glentevej 67-69, 2400 Copenhagen NW, Denmark
E-mail: malte@itu.dk

Peter Johansen
University of Copenhagen
Universitetsparken 1, 2100 Copenhagen, Denmark
E-mail: peterjo@diku.dk

Cataloging-in-Publication Data applied for

Die Deutsche Bibliothek - CIP-Einheitsaufnahme

Computer vision : proceedings / ECCV 2002, 7th European Conference on Computer Vision, Copenhagen, Denmark, May 28 - 31, 2002. Anders Heyden ... (ed.). - Berlin ; Heidelberg ; New York ; Barcelona ; Hong Kong ; London ; Milan ; Paris ; Tokyo : Springer
Pt. 1 . - 2002
(Lecture notes in computer science ; Vol. 2350)
ISBN 3-540-43745-2

CR Subject Classification (1998): I.4, I.3.5, I.5, I.2.9-10

ISSN 0302-9743
ISBN 3-540-43745-2 Springer-Verlag Berlin Heidelberg New York

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

http://www.springer.de

Printed in Germany

Typesetting: Camera-ready by author, data conversion by PTP-Berlin, Stefan Sossna e.K.
Printed on acid-free paper SPIN: 10870025 06/3142 5 4 3 2 1 0

Preface

Premiering in 1990 in Antibes, France, the European Conference on Computer Vision, ECCV, has been held biennially at venues all around Europe. These conferences have been very successful, making ECCV a major event to the computer vision community.

ECCV 2002 was the seventh in the series. The privilege of organizing it was shared by three universities: The IT University of Copenhagen, the University of Copenhagen, and Lund University, with the conference venue in Copenhagen. These universities lie geographically close in the vivid Öresund region, which lies partly in Denmark and partly in Sweden, with the newly built bridge (opened summer 2000) crossing the sound that formerly divided the countries.

We are very happy to report that this year's conference attracted more papers than ever before, with around 600 submissions. Still, together with the conference board, we decided to keep the tradition of holding ECCV as a single track conference. Each paper was anonymously refereed by three different reviewers. For the final selection, for the first time for ECCV, a system with area chairs was used. These met with the program chairs in Lund for two days in February 2002 to select what became 45 oral presentations and 181 posters. Also at this meeting the selection was made without knowledge of the authors' identity.

The high-quality of the scientific program of ECCV 2002 would not have been possible without the dedicated cooperation of the 15 area chairs, the 53 program committee members, and all the other scientists, who reviewed the papers. A truly impressive effort was made. The spirit of this process reflects the enthusiasm in the research field, and you will find several papers in these proceedings that define the state of the art in the field.

Bjarne Ersbøll as Industrial Relations Chair organized the exhibitions at the conference. Magnus Oskarsson, Sven Spanne, and Nicolas Guilbert helped to make the review process and the preparation of the proceedings function smoothly. Ole Fogh Olsen gave us valuable advice on editing the proceedings. Camilla Jørgensen competently headed the scientific secretariat. Erik Dam and Dan Witzner were responsible for the ECCV 2002 homepage. David Vernon, who chaired ECCV 2000 in Dublin, was extremely helpful during all stages of our preparation for the conference. We would like to thank all these people, as well as numerous others who helped in various respects. A special thanks goes to Søren Skovsgaard at the Congress Consultants, for professional help with all practical matters.

We would also like to thank Rachid Deriche and Theo Papadopoulo for making their web-based conference administration system available and adjusting it to ECCV. This was indispensable in handling the large number of submissions and the thorough review and selection procedure.

Finally, we wish to thank the IT University of Copenhagen and its president Mads Tofte for supporting the conference all the way from planning to realization.

March 2002

Anders Heyden
Gunnar Sparr
Mads Nielsen
Peter Johansen

Organization

Conference Chair

Peter Johansen	Copenhagen University, Denmark

Conference Board

Hans Burkhardt	University of Freiburg, Germany
Bernard Buxton	University College London, UK
Roberto Cipolla	University of Cambridge, UK
Jan-Olof Eklundh	Royal Institute of Technology, Sweden
Olivier Faugeras	INRIA, Sophia Antipolis, France
Bernd Neumann	University of Hamburg, Germany
Giulio Sandini	University of Genova, Italy
David Vernon	Trinity College, Dublin, Ireland

Program Chairs

Anders Heyden	Lund University, Sweden
Gunnar Sparr	Lund University, Sweden

Area Chairs

Ronen Basri	Weizmann Institute, Israel
Michael Black	Brown University, USA
Andrew Blake	Microsoft Research, UK
Rachid Deriche	INRIA, Sophia Antipolis, France
Jan-Olof Eklundh	Royal Institute of Technology, Sweden
Lars Kai Hansen	Denmark Technical University, Denmark
Steve Maybank	University of Reading, UK
Theodore Papadopoulo	INRIA, Sophia Antipolis, France
Cordelia Schmid	INRIA, Rhône-Alpes, France
Amnon Shashua	The Hebrew University of Jerusalem, Israel
Stefano Soatto	University of California, Los Angeles, USA
Bill Triggs	INRIA, Rhône-Alpes, France
Luc van Gool	K.U. Leuven, Belgium & ETH, Zürich, Switzerland
Joachim Weichert	Saarland University, Germany
Andrew Zisserman	University of Oxford, UK

Program Committee

Luis Alvarez	University of Las Palmas, Spain
Padmanabhan Anandan	Microsoft Research, USA
Helder Araujo	University of Coimbra, Portugal
Serge Belongie	University of California, San Diego, USA
Marie-Odile Berger	INRIA, Lorraine, France
Aaron Bobick	Georgia Tech, USA
Terry Boult	Leheigh University, USA
Francois Chaumette	INRIA, Rennes, France
Laurent Cohen	Université Paris IX Dauphine, France
Tim Cootes	University of Manchester, UK
Kostas Daniilidis	University of Pennsylvania, USA
Larry Davis	University of Maryland, USA
Frank Ferrie	McGill University, USA
Andrew Fitzgibbon	University of Oxford, UK
David J. Fleet	Xerox Palo Alto Research Center, USA
David Forsyth	University of California, Berkeley, USA
Pascal Fua	EPFL, Switzerland
Richard Hartley	Australian National University, Australia
Vaclav Hlavac	Czech Technical University, Czech Republic
Michal Irani	Weizmann Institute, Israel
Allan Jepson	University of Toronto, Canada
Peter Johansen	Copenhagen University, Denmark
Fredrik Kahl	Lund University, Sweden
Sing Bing Kang	Microsoft Research, USA
Ron Kimmel	Technion, Israel
Kyros Kutulakos	University of Rochester, USA
Tony Lindeberg	Royal Institute of Technology, Sweden
Jim Little	University of Brittish Columbia, Canada
Peter Meer	Rutgers University, USA
David Murray	University of Oxford, UK
Nassir Navab	Siemens, USA
Mads Nielsen	IT-University of Copenhagen, Denmark
Patrick Perez	Microsoft Research, UK
Pietro Perona	California Insititute of Technology, USA
Marc Pollefeys	K.U. Leuven, Belgium
Long Quan	Hong Kong University of Science and Technology, Hong Kong
Ian Reid	University of Oxford, UK
Nicolas Rougon	Institut National des Télécommunications, France
José Santos-Victor	Instituto Superior Técnico, Lisbon, Portugal
Guillermo Sapiro	University of Minnesota, USA
Yoichi Sato	IIS, University of Tokyo, Japan
Bernt Schiele	ETH, Zürich, Switzerland
Arnold Smeulders	University of Amsterdam, The Netherlands

Gerald Sommer	University of Kiel, Germany
Peter Sturm	INRIA, Rhône-Alpes, France
Tomas Svoboda	Swiss Federal Institute of Technology, Switzerland
Chris Taylor	University of Manchester, UK
Phil Torr	Microsoft Research, UK
Panos Trahanias	University of Crete, Greece
Laurent Younes	CMLA, ENS de Cachan, France
Alan Yuille	Smith-Kettlewell Eye Research Institute, USA
Josiane Zerubia	INRIA, Sophia Antipolis, France
Kalle Åström	Lund University, Sweden

Additional Referees

Henrik Aanaes	Jeffrey E. Boyd	Michael Elad
Manoj Aggarwal	Edmond Boyer	Ahmed Elgammal
Motilal Agrawal	Yuri Boykov	Ronan Fablet
Aya Aner	Chen Brestel	Ayman Farahat
Adnan Ansar	Lars Bretzner	Olivier Faugeras
Mirko Appel	Alexander Brook	Paulo Favaro
Tal Arbel	Michael Brown	Xiaolin Feng
Okan Arikan	Alfred Bruckstein	Vittorio Ferrari
Akira Asano	Thomas Buelow	Frank Ferrie
Shai Avidan	Joachim Buhmann	Mario Figueireda
Simon Baker	Hans Burkhardt	Margaret Fleck
David Bargeron	Bernard Buxton	Michel Gangnet
Christian Barillot	Nikos Canterakis	Xiang Gao
Kobus Barnard	Yaron Caspi	D. Geiger
Adrien Bartoli	Alessandro Chiuso	Yakup Genc
Benedicte Bascle	Roberto Cipolla	Bogdan Georgescu
Pierre-Louis Bazin	Dorin Comaniciu	J.-M. Geusebroek
Isabelle Begin	Kurt Cornelis	Christopher Geyer
Stephen Benoit	Antonio Criminisi	Peter Giblin
Alex Berg	Thomas E. Davis	Gerard Giraudon
James Bergen	Nando de Freitas	Roman Goldenberg
Jim Bergen	Fernando de la Torre	Shaogang Gong
Marcelo Bertamlmio	Daniel DeMenthon	Hayit Greenspan
Rikard Berthilsson	Xavier Descombes	Lewis Griffin
Christophe Biernacki	Hagio Djambazian	Jens Guehring
Armin Biess	Gianfranco Doretto	Yanlin Guo
Alessandro Bissacco	Alessandro Duci	Daniela Hall
Laure Blanc-Feraud	Gregory Dudek	Tal Hassner
Ilya Blayvas	Ramani Duraiswami	Horst Haussecker
Eran Borenstein	Pinar Duygulu	Ralf Hebrich
Patrick Bouthemy	Michael Eckmann	Yacov Hel-Or
Richard Bowden	Alyosha Efros	Lorna Herda

Shinsaku Hiura
Jesse Hoey
Stephen Hsu
Du Huynh
Naoyuki Ichimura
Slobodan Ilic
Sergey Ioffe
Michael Isard
Volkan Isler
David Jacobs
Bernd Jaehne
Ian Jermyn
Hailin Jin
Marie-Pierre Jolly
Stiliyan-N. Kalitzin
Behrooz Kamgar-Parsi
Kenichi Kanatani
Danny Keren
Erwan Kerrien
Charles Kervrann
Renato Keshet
Ali Khamene
Shamim Khan
Nahum Kiryati
Reinhard Koch
Ullrich Koethe
Esther B. Koller-Meier
John Krumm
Hannes Kruppa
Murat Kunt
Prasun Lala
Michael Langer
Ivan Laptev
Jean-Pierre Le Cadre
Bastian Leibe
Ricahrd Lengagne
Vincent Lepetit
Thomas Leung
Maxime Lhuillier
Weiliang Li
David Liebowitz
Georg Lindgren
David Lowe
John MacCormick
Henrik Malm
Roberto Manduchi
Petros Maragos
Eric Marchand
Jiri Matas
Bogdan Matei
Esther B. Meier
Jason Meltzer
Etienne Mémin
Rudolf Mester
Ross J. Micheals
Anurag Mittal
Hiroshi Mo
William Moran
Greg Mori
Yael Moses
Jane Mulligan
Don Murray
Masahide Naemura
Kenji Nagao
Mirko Navara
Shree Nayar
Oscar Nestares
Bernd Neumann
Jeffrey Ng
Tat Hieu Nguyen
Peter Nillius
David Nister
Alison Noble
Tom O'Donnell
Takayuki Okatani
Nuria Olivier
Ole Fogh Olsen
Magnus Oskarsson
Nikos Paragios
Ioannis Patras
Josef Pauli
Shmuel Peleg
Robert Pless
Swaminathan Rahul
Deva Ramanan
Lionel Reveret
Dario Ringach
Ruth Rosenholtz
Volker Roth
Payam Saisan
Garbis Salgian
Frank Sauer
Peter Savadjiev
Silvio Savarese
Harpreet Sawhney
Frederik Schaffalitzky
Yoav Schechner
Chrostoph Schnoerr
Stephan Scholze
Ali Shahrokri
Doron Shaked
Eitan Sharon
Eli Shechtman
Jamie Sherrah
Akinobu Shimizu
Ilan Shimshoni
Kaleem Siddiqi
Hedvig Sidenbladh
Robert Sim
Denis Simakov
Philippe Simard
Eero Simoncelli
Nir Sochen
Yang Song
Andreas Soupliotis
Sven Spanne
Martin Spengler
Alon Spira
Thomas Strömberg
Richard Szeliski
Hai Tao
Huseyin Tek
Seth Teller
Paul Thompson
Jan Tops
Benjamin J. Tordoff
Kentaro Toyama
Tinne Tuytelaars
Shimon Ullman
Richard Unger
Raquel Urtasun
Sven Utcke
Luca Vacchetti
Anton van den Hengel
Geert Van Meerbergen

Pierre Vandergheynst
Zhizhou Wang
Baba Vemuri
Frank Verbiest
Maarten Vergauwen
Jaco Vermaak
Mike Werman
David Vernon
Thomas Vetter
Rene Vidal
Michel Vidal-Naquet
Marta Wilczkowiak
Ramesh Visvanathan
Dan Witzner Hansen
Julia Vogel
Lior Wolf
Bob Woodham
Robert J. Woodham
Chenyang Xu
Yaser Yacoob
Anthony Yezzi
Ramin Zabih
Hugo Zaragoza
Lihi Zelnik-Manor
Ying Zhu
Assaf Zomet

Table of Contents, Part I

Active and Real-Time Vision

Image Features

Image Features / Visual Motion

Visual Motion

Table of Contents, Part II

Surface Geometry

Grouping and Segmentation

Structure from Motion / Stereoscopic Vision / Surface Geometry / Shape

Structure from Motion

Table of Contents, Part III

Shape

Stereoscopic Vision I

Texture Shading and Colour / Grouping and Segmentation / Object Recognition

Stereoscopic Vision II

Table of Contents, Part IV

Object Recognition / Vision Systems Engineering and Evaluation

Statistical Learning

Calibration / Active and Real-Time and Robot Vision / Image and Video Indexing / Medical Image Understanding / Vision Systems / Engineering and Evaluations / Statistical Learning

Texture, Shading, and Colour