

Giuseppe Maino  
Gian Luca Foresti (Eds.)

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# Image Analysis and Processing – ICIAP 2011

16th International Conference  
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# Image Analysis and Processing – ICIAP 2011

16th International Conference  
Ravenna, Italy, September 14-16, 2011  
Proceedings, Part II

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# Preface

This volume collects the papers accepted for presentation at the International Conference on Image Analysis and Processing (ICIAP 2011), held in Ravenna, Italy, September 14–16, 2011. ICIAP 2011 was the 16th event in a series of conferences organized biennially by the Italian Member Society of the International Association for Pattern Recognition (IAPR). The aim of these conferences is to bring together international researchers for the presentation and discussion of the most recent advances in the fields of pattern recognition, image analysis, and image processing. Following the successful 2009 conference in Vietri sul Mare, ICIAP 2011 was held in the magnificent city of Ravenna, an historical city famous for its artistic and cultural heritage. The 16th ICIAP conference was organized jointly by the Faculty of Preservation of Cultural Heritage of the University of Bologna and the Department of Mathematics and Computer Science (DIMI) of the University of Udine.

Topics for ICIAP 2011 included Image Analysis and Processing, Pattern Recognition and Vision, Multimodal Interaction and Multimedia Processing, Cultural Heritage, and Applications.

There were 175 submissions. Each submission was reviewed by two Program Committee members. The committee decided to accept 121 papers, divided into 10 oral sessions (44 papers) and three poster sessions (77 papers).

The program included a special session on “Low Level Color Image Processing” (organized by M. Emre Celebi, Bogdan Smolka, Gerald Schaefer, and Raimondo Schettini), a demo session, and four invited talks by Jake K. Aggarwal (University of Texas, Department of Electrical and Computer Engineering, USA) on *Recognition of Human Activities*, Horst Bunke (University of Bern, Institute of Computer Science and Applied Mathematics, Switzerland) on *Bridging the Gap between Structural and Statistical Pattern Recognition*, Roberto Cipolla (University of Cambridge, Department of Engineering, UK), on *Novel Applications of 3D Shape from Uncalibrated Images*, and Kevin Karplus (University of California, Santa Cruz, Department of Biomolecular Engineering, USA) on *Protein Structure and Genome Assembly Tools*. These lectures survey established approaches, recent results and directions of future works of different topics of recognition of human activities, structural and statistical pattern recognition, computational vision, bioinformatics, and biomolecular engineering.

Three tutorials were offered, on “Image and Video Descriptors” (by Abdenour Hadid), on “Beyond Features: Similarity-Based Pattern Analysis and Recognition” (by Edwin R. Hancock, Vittorio Murino, and Marcello Pelillo), and on “Video Analytics on Reactive Camera Networks” (by Christian Micheloni).

ICIAP 2011 will also host the First International Workshop on Pattern Recognition in Proteomics, Structural Biology and Bioinformatics, PR PS BB 2011, organized by Virginio Cantoni and Giuseppe Maino.

During the conference, the Caianiello Prize, in memory of Prof. E. Caianiello, was awarded to the best paper by a young author, as at previous events. Also, a prize was awarded to the best paper presented to the conference.

We wish to thank the Italian group of researchers affiliated to the International Association for Pattern Recognition (GIRPR) for giving us the opportunity to organize this conference. We also thank the International Association for Pattern Recognition for the endorsement of ICIAP 2011. A special word of thanks goes to the Program Chairs, to the members of the Program Committee and to the reviewers, who contributed with their work to ensuring the high-quality standard of the papers accepted to ICIAP 2011.

Special thanks go to Claudio Piciarelli, who made a fundamental contribution to this conference, helping in managing, working on, and resolving those many problems that a large event like this presents.

Local organization for events and accommodation was managed by Carla Rossi of the Fondazione Flaminia and Daniela Raule of the NEREA-AIDA spin-off. We are indebted to the Fondazione Flaminia for financial and organization support. A special thanks goes to the members of the Local Organizing Committee, Roberta Menghi and Mariapaola Monti, who also took care of the graphic aspects of the event, Elena Nencini, Lorenza Roversi, and Lisa Volpe for their indispensable contribution to the organization and their help and availability to solve the many practical problems arising during the preparation of ICIAP 2011. Finally, Sara Armaroli, Donatella Lombardo, Mariapaola Monti, and Liu Wan are the young artists that have lent themselves to realize the Vision&Art exhibition accompanying ICIAP 2011.

September 2011

Giuseppe Maino  
Gian Luca Foresti



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