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# Pattern Recognition and Image Analysis

5th Iberian Conference, IbPRIA 2011  
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Proceedings



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# Preface

IbPRIA 2011 (Iberian Conference on Pattern Recognition and Image Analysis) was the fifth edition of a series of similar events co-organized every two years by AERFAI (Asociación Española de Reconocimiento de Formas y Análisis de Imágenes) and APRP (Associação Portuguesa de Reconhecimento de Padrões). Previous editions took place in Andraxt, Spain (2003), Estoril, Portugal (2005), Girona, Spain (2007) and Póvoa de Varzim, Portugal (2009). In 2011 the event was held in Las Palmas de Gran Canaria, Spain, hosted by the Universidad de Las Palmas de Gran Canaria (ULPGC) and with the support of the ULPGC and ULPGC's Institute SIANI (Institute for Intelligent Systems and Numerical Applications in Engineering).

IbPRIA is a single-track conference that provides an international forum for presentation of ongoing work and new-frontier research in pattern recognition, computer vision, image processing and analysis, speech recognition and applications. It acts as a meeting point for research groups, engineers and practitioners to present recent results, algorithmic improvements, experimental evaluations and promising future directions in related topics.

The response to the call for papers was positive. From 158 full papers submitted, 92 were accepted, 34 for oral presentation and 58 as posters. A high-level international Program Committee carried out the review stage, where each submission was reviewed in a double-blind process by at least two reviewers. We are especially grateful to the Program Committee and to the additional reviewers for the effort and high quality of the reviews, which have been instrumental in preparing this book. We also thank the very valuable contribution of the authors, in answering the call and sharing their work, hopes and enthusiasm to make IbPRIA2011 a successful event.

The conference benefited from the collaboration of three invited speakers: Marcello Pelillo from the Dipartimento di Informatica of Università Ca 'Foscari di Venezia, Irfan Essa from the School of Interactive Computing, Georgia Tech University, Atlanta, USA, and Sven Dickinson from the Department of Computer Science, University of Toronto, Canada. We would like to express our sincere gratitude for their participation.

The work of the eight Area Co-chairs, two for each of the four Conference Areas, was also very valuable. Furthermore, we are very grateful to all members of the Organizing Committee. Their work led to a successful conclusion of both the conference and these proceedings.

Finally, we hope that this book will provide a broad yet comprehensive overview of the research presented at the conference, both for attendees and readers, laying the groundwork for new challenges in our area.

June 2011

J. Vitrià  
J. Sanches  
M. Hernández

# Organization

IbPRIA 2011 was jointly organized by AERFAI (Asociación Española de Reconocimiento de Formas y Análisis de Imágenes), APRP (Associação Portuguesa de Reconhecimento de Padrões) and was locally organized by Universidad de Las Palmas de Gran Canaria through the Institute for Intelligent System and Numerical Applications in Engineering (SIANI).

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