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Aurélio Campilho · Fakhri Karray (Eds.)

# Image Analysis and Recognition

13th International Conference, ICIAR 2016  
in Memory of Mohamed Kamel  
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## Preface

The 2016 International Conference on Image Analysis and Recognition (ICIAR 2016) along with these proceedings are dedicated to the memory of the founding chair of this conference, the late Mohamed Kamel, University Research Chair Professor at the University of Waterloo, Canada. Mohamed Kamel passed away peacefully on December 4, 2015. Mohamed was a friend, a research partner, and an enthusiast of this series of conferences, held periodically in Portugal and Canada, and which ran its 13th edition this year. Mohamed's passing was a great loss to our research community, and during this conference we organized in his honor, a special session dedicated to his memory and entitled: "Advances in Data Analytics and Pattern Recognition with Applications."

This series of annual conferences offers an opportunity for the participants to interact and present their latest research in theory, methodology, and applications of image analysis and recognition. ICIAR 2016, the International Conference on Image Analysis and Recognition, was held in Póvoa do Varzim, Portugal, July 13–15, 2016. ICIAR is organized by AIMI—Association for Image and Machine Intelligence—a not-for-profit organization registered in Ontario, Canada.

We received a total of 167 papers, 144 regular and 23 short papers, from 38 countries. Before the review process all the papers were checked for similarity using a comparison database of scholarly work. The review process was carried out by members of the Program Committee alongside other expert reviewers in the field of the conference. Each paper was reviewed by at least two reviewers, and checked by the conference chairs. A total of 89 papers (79 regular and 10 short) were finally accepted and appear in these proceedings. We would like to express our gratitude to the authors for their contribution, and we kindly thank the reviewers for the careful evaluation and feedback provided to the authors. It is this collective effort that resulted in the strong conference program and high-quality proceedings we are producing.

We were very pleased to include in our program, four outstanding keynote talks: "Computational Medicine: Towards Integrated Management of Cerebral Aneurysms" by Alexandro Frangi, University of Sheffield, UK; "Face Analysis for Intelligent Human–Computer Interaction" by Matti Pietikäinen, University of Oulu, Finland; "Novel Formulations of Large-Scale Image Retrieval" by Jiri Matas, Czech Technical University, Prague, Czech Republic; and "Sequence-Based Estimation of Multinomial Random Variables" by John Oommen, Carleton University, Ottawa, Canada. We would like to express our gratitude to the keynote speakers for accepting our invitation to share their vision and recent advances in their areas of expertise.

We would like to thank warmly Khaled Hammouda, the webmaster of the conference, for maintaining the website, interacting with the authors, and preparing the proceedings. We are also grateful to Springer's editorial staff, for supporting this publication in the LNCS series. We also would like to acknowledge the professional

service of Viagens Abreu in taking care of the registration process and the special events of the conference.

Finally, we were very pleased to welcome all the participants to ICIAR 2016. For those who were not able to attend, we hope this publication provides a good insight into the research work presented at the conference, and we look forward to meeting you at the next ICIAR conference.

July 2016

Aurélio Campilho  
Fakhri Karray

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