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Image Analysis and Recognition

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Proceedings, Part I

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Preface

ICIAR 2019 was the 16th edition of the series of annual conferences on image analysis and recognition, offering a forum for participants to interact and present their latest research contributions in the theory, methodology, and applications of image analysis and recognition. ICIAR 2019, the International Conference on Image Analysis and Recognition, was held in Waterloo, Ontario, Canada, August 27–29, 2019. ICIAR is organized by AIMI, the Association for Image and Machine Intelligence, a not-for-profit organization registered in Ontario, Canada.

We received a total of 142 papers from 27 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 and other reviewers. Each paper was reviewed by at least two reviewers (most articles received three professional reviews), and checked by the conference chairs. A total of 84 papers were finally accepted and appear in these proceedings. We would like to sincerely thank the authors for responding to our call, and to 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 were very pleased to include four outstanding keynote talks: “Image Synthesis and Its Growing Role in Medical Imaging” by Professor Jerry Prince of Johns Hopkins University, USA; “Exploiting Data Sparsity and Machine Learning in Medical Imaging” by Professor Michael Insana, of the University of Illinois at Urbana Champaign, USA; “Knowledge Discovery: Can We Do Better than Deep Neural Networks” by Professor Ling Guan of Ryerson University, Toronto, Canada; and “Palmpoint Authentication—Research and Development” by Professor David Zhang of Chinese University of Hong Kong (Shenzhen), Hong Kong. We would like to express our gratitude to our distinguished keynote speakers for accepting our invitation to share their vision and recent advances in their areas of expertise.

Besides the standard sessions, the program included five special sessions in the theory and applications of tools of image analysis and recognition:

- Image Analysis and Recognition for Automotive Industry
- Deep Learning on the Edge
- Medical Imaging and Analysis Using Deep Learning and Machine Intelligence
- Adaptive Methods for Ultrasound Beamforming and Motion Estimation
- Signal Processing Techniques for Ultrasound Tissue Characterization and Imaging in Complex Biological Media

We would like to thank the program co-chairs, Dr. Wail Gueaieb, of the University of Ottawa, and Dr. Shady Shehata of YourIKA Inc., who secured a high-quality program, Dr. Mark Crowley of the University of Waterloo and Dr. Chahid Ouali of YourIKA Inc., for helping with the local logistics with precious assistance from Nichola Harrillall, of the Waterloo AI Institute, and Dr. Khaled Hammouda, the

publications chair and webmaster of the conference, for maintaining the website, managing the registrations, 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. Additionally, we would like to thank the precious sponsorship and support of the Faculty of Engineering, at the University of Waterloo, notably, Dean Pearl Sullivan, the Faculty of Engineering at the University of Porto, the Institute for Systems and Computer Engineering, Technology and Science (INESC TEC), Portugal, the Waterloo AI Institute at the University of Waterloo, the Center for Pattern Analysis and Machine Intelligence at the University of Waterloo, and the Center for Biomedical Engineering Research at INESC TEC. We also appreciate the valuable co-sponsorship of the IEEE Computational Intelligence Society, Waterloo-Kitchener Chapter.

We were very pleased to welcome all the participants to ICIAR 2019. For those who were not able to attend, we hope this publication provides a good overview of the research presented at the conference, and we look forward to meeting you at the next ICIAR conference.

August 2019

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