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Proceedings, Part II

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Preface

ICIAR 2020 was the 17th edition of the series of annual conferences on Image Analysis and Recognition, organized, this year, as a virtual conference due to the pandemic outbreak of Covid-19 affecting all the world, with an intensity never felt by the humanity in the last hundred years. These are difficult and challenging times, nevertheless the situation provides new opportunities for disseminating science and technology to an even wider audience, through powerful online mediums. Although organized as a virtual conference, ICIAR 2020 kept a forum for the participants to interact and present their latest research contributions in theory, methodology, and applications of image analysis and recognition. ICIAR 2020, the International Conference on Image Analysis and Recognition took place during June 24–26, 2020. ICIAR is organized by the Association for Image and Machine Intelligence (AIMI), a not-for-profit organization registered in Ontario, Canada.

We received a total of 123 papers from 31 countries. The review process was carried out by members of the Program Committee and other external reviewers. Each paper was reviewed by at least two reviewers, and checked by the conference co-chairs. A total of 73 papers were accepted and appear in these proceedings. We would like to sincerely thank the authors for their excellent research work and for responding to our call, and to thank the reviewers for dedicating time to the review process and for the careful evaluation and the feedback provided to the authors. It is this collective effort that resulted in a strong conference program and a high-quality proceedings.

We were very pleased to include three outstanding keynote talks: “Deep Learning and The Future of Radiology” by Daniel Rueckert (Imperial College London, UK); “Towards Human-Friendly Explainable Artificial Intelligence” by Hani Hagras (University of Essex, UK); and “Embedded Computer Vision and Machine Learning for Drone Imaging” by Ioannis Pitas (Aristotle University of Thessaloniki, Greece). We would like to express our gratitude to the keynote speakers for accepting our invitation to share their vision and recent advances made in their areas of expertise.

This virtual conference was organized in two parallel tracks, corresponding to nine sessions, each one corresponding to the following chapters in this proceedings with two volumes:

1. Image Processing and Analysis
2. Video Analysis
3. Computer Vision
4. 3D Computer Vision
5. Machine Learning
6. Medical Image Analysis
7. Analysis of Histopathology Images
8. Diagnosis and Screening of Ophthalmic Diseases
9. Grand Challenge on Automatic Lung Cancer Patient Management

Chapter 8 and 9 correspond to two successful parallel events: Special Session on “Novel Imaging Methods for Diagnosis and Screening of Ophthalmic Diseases” co-chaired by Ana Mendonça (University of Porto, Portugal) and Koen Vermeer (Rotterdam Eye Hospital, The Netherlands); and “Grand Challenge on Automatic Lung Cancer Patient Management” organized by João Pedrosa, Carlos Ferreira, and Guilherme Aresta from Institute for Systems and Computer Engineering, Technology and Science (INESC TEC), Portugal.

We would like to thank the program area chairs: Armando Pinho (University of Aveiro, Portugal) and Ed Vrscay (University of Waterloo, Canada), chairs for the area on Image Processing and Analysis; José Santos Victor (Instituto Superior Técnico, University of Lisbon, Portugal) and Petia Radeva (University of Barcelona, Spain), chairs for the area on Computer Vision; Jaime Cardoso (University of Porto, Portugal) and J. Salvador Sanchez Garreta (University of Jaume I, Spain), chairs for the area on Machine Learning; and Ana Mendonça (University of Porto, Portugal) and Roberto Hornero (University of Valladolid, Spain), chairs for the area on Medical Image Analysis; who have secured a high-quality program. We also would like to thank the members of the Organizing Committee from INESC TEC, for helping with the local logistics, and the publications and web chairs, Carlos Ferreira and Khaled Hammouda, 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. As well, we would like to thank the precious sponsorship and support of the INESC TEC, the Faculty of Engineering at the University of Porto, Portugal, the Waterloo Artificial Intelligence Institute, the Faculty of Engineering of the University of Waterloo, and the Center for Pattern Analysis and Machine Intelligence at the University of Waterloo. We also appreciate the valuable co-sponsorship of the IEEE EMB Portugal Chapter, the IEEE Computational Intelligence Society, Kitchener-Waterloo Chapter, and the Portuguese Association for Pattern Recognition. We also would like to acknowledge Lurdes Catalino from Abreu Events for managing the registrations.

We were very pleased to welcome all the participants to ICIAR 2020, a virtual conference edition. For those who were not able to attend, we hope this publication provides a good overview into the research presented at the conference.

June 2020

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