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Image Analysis and Processing

ICIAP 2022 Workshops

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Revised Selected Papers, Part I

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Preface

This volume contains 49 of the papers accepted for presentation at the workshops hosted by the 21st International Conference on Image Analysis and Processing (ICIAP 2022), held in Lecce, Italy, during May 23–27, 2022. ICIAP is organized every two years by CVPL, the group of Italian researchers affiliated with the International Association for Pattern Recognition (IAPR). The aim of the conference is to bring together researchers working on image processing, computer vision, and pattern recognition from around the world. Topics traditionally covered are related to computer vision, pattern recognition, and image processing, addressing both theoretical and applicative aspects.

In total, 16 different workshops were selected to complement ICIAP 2022 in Lecce.

All the 16 workshops have received a total of 157 submissions, and after a peer-review selection process, carried out by the individual workshop organizers, ultimately led to the selection of 96 papers, with an overall acceptance rate of 61%.

This volume contains 49 papers (out of 96) from the following workshops:

- Artificial Intelligence and Radiomics in Computer-Aided Diagnosis (AIRCAD)
- GoodBrother workshop on visual intelligence for active and assisted living
- Deep-Learning and High Performance Computing to Boost Biomedical Applications (DeepHealth)
- Intelligent Systems in Human and Artificial Perception (ISHAPE)
- Fine Art Pattern Extraction and Recognition (FAPER)
- PArts can woRth like The whole (PART)

The papers accepted for the other workshops are included in the companion volume (LNCS 13374).

AIRCAD, organized by Albert Comelli (Ri.MED Foundation, Italy), Cecilia Di Ruberto (Università di Cagliari, Italy), Andrea Loddo (Università di Cagliari, Italy), Lorenzo Putzu (Università di Cagliari, Italy), and Alessandro Stefano (IBFM-CNR, Italy), provided an overview of recent advances in the field of biomedical image processing in medical imaging using machine learning, deep learning, artificial intelligence, and radiomics features.

The GoodBrother workshop on visual intelligence for active and assisted living, organized by Sara Colantonio (ISTI-CNR, Italy), Francisco Florez-Revuelta (University of Alicante, Spain), Martin Kampel (Vienna University of Technology, Austria), and Peter Pocta (University of Zilina, Slovacchia), provided a forum for contributions presenting and discussing image- and video-based AAL applications, projects, and research as well as initiatives proposing ethical and privacy-aware solutions.

Deep-Learning and High Performance Computing to Boost Biomedical Applications (DeepHealth), organized by Federico Bolelli (Università degli Studi di Modena e Reggio Emilia, Italy), Jon Ander Gómez Adrián (Universitat Politècnica de València, Spain), and Stefano Allegretti (Università degli Studi di Modena e Reggio Emilia, Italy), aimed at

exploiting heterogeneous HPC and big data architectures, assembled with state-of-the-art techniques in deep learning and computer vision.

The Workshop on Intelligent Systems in Human and Artificial Perception (ISHAPE), organized by Maria Di Summa, Nicola Mosca, and Vito Renò (STIIMA-CNR, Italy), aimed to collect cutting-edge contributions in the field of signal and image processing (e.g., computer vision systems, new algorithms, or machine/deep learning applications) as well as smart data fruition (virtual and augmented reality), ranging from new methodologies to innovative approaches in different domains.

The Workshop on Fine Art Pattern Extraction and Recognition (FAPER), organized by Gennaro Vessio and Giovanna Castellano (Università di Bari, Italy) along with Fabio Bellavia (Università di Palermo, Italy), provided an international forum for those wishing to present advancements in the state of the art, innovative research, ongoing projects, and academic and industrial reports on the application of visual pattern extraction and recognition for a better understanding and fruition of fine arts.

Finally, the PArts can woRth like The whole (PART) workshop, organized by Virginio Cantoni and Piercarlo Dondi (Università di Pavia, Italy) together with Fabio Narducci and Carmen Bisogni (Università di Salerno, Italy), aimed to collect contributions relating to problems that can be solved by segmenting and analyzing parts of an object.

We warmly thank all the workshop organizers who made such an interesting program possible and we hope that ICIAP 2022 has given us a chance to design a future where technologies allow people to live comfortably, healthily, and in peace.

May 2022

Pier Luigi Mazzeo
Emanuele Frontoni

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