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Intelligent Data Engineering and Automated Learning – IDEAL 2021

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Preface

The International Conference on Intelligent Data Engineering and Automated Learning (IDEAL) is an annual international conference dedicated to emerging and challenging topics in intelligent data analytics and associated machine learning paradigms and systems. The conference provides a unique opportunity and stimulating forum for presenting and discussing the latest theoretical advances and real-world applications in computational intelligence and intelligent data analysis.

After two decades of successful and memorable events, the 22nd edition, IDEAL 2021, was back in Manchester, UK, during November 25–27, 2021, for the third time. Although the organisers had intended to hold it as a traditional physical event, given the uncertainty of the COVID-19 situation and many travel restrictions and difficulties, it was decided in July that it would not be practical. Like the previous year and many other similar conferences, IDEAL 2021 was held as a virtual conference. It was technically co-sponsored by the IEEE Computational Intelligence Society UK and Ireland Chapter as well as the World Federation on Soft Computing.

For the past two decades, IDEAL has served an important role in the data analytics, machine learning, and AI communities. The conference aims to bring together researchers and practitioners to exchange the latest findings, disseminate state-of-the-art results, and share experiences and forge alliances on tackling many real-world challenging problems. Despite the unprecedented turbulence in the last eighteen months around the world, the IDEAL conference has continued to play its role in these communities during challenging times. The core themes of IDEAL 2021, as usual, included big data challenges, machine learning, deep learning, data mining, information retrieval and management, bio-/neuro-informatics, bio-inspired models, agents and hybrid intelligent systems, real-world applications of intelligence techniques, and AI.

In total, IDEAL 2021 received 85 submissions, which subsequently underwent rigorous peer reviews by the Program Committee members and experts. Only the papers judged to be of the highest quality and novelty were accepted and included in the proceedings. These proceedings contain 52 accepted papers for the main track and 9 accepted papers for special sessions, which were presented at IDEAL 2021.

In addition to the IDEAL 2021 main track, there had been a few special session proposals. After submission and peer-review, the following special sessions had sufficient numbers of accepted papers:

Special Session 1: Clustering for Interpretable Machine Learning
Special Session 2: Machine Learning Towards Smarter Multimodal Systems
Special Session 3: Computational Intelligence for Computer Vision and Image Processing

We deeply appreciate the efforts of our distinguished keynote speakers: Francisco Herrera of the University of Granada, Spain, Joaquin Vanschoren of Eindhoven University of Technology, The Netherlands, and Deming Chen of the University of Illinois at Urbana-Champaign, USA. We cannot thank them enough for their stimulating lectures.

We would like to thank our sponsors for their technical support. We would also like to thank all the people who devoted so much time and effort to the successful running of the conference, in particular the members of the Program Committee and reviewers, the organisers of the special sessions, and the authors who contributed to the conference.

A special thank you to the special sessions and workshop chairs, Antonio J. Tallón-Ballesteros and Susana Nascimento, and the publicity chairs, Bing Li, Guilherme Barreto, Jose A. Costa and Yimin Wen, for their fantastic work.

Finally, we are very grateful for the hard work of the local organising team at the University of Manchester and our event management collaborators, Magnifisence, in particular Lisa Carpenter and Gail Crowe. We also greatly appreciate the continued support, collaboration, and sponsorship for the best paper awards from Springer LNCS.

October 2021

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