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Applications of Evolutionary Computation

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Proceedings

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Preface

This volume contains the proceedings of *EvoApplications 2021*, the *International Conference on the Applications of Evolutionary Computation*. The conference was part of *Evo**, the leading event on bio-inspired computation in Europe, and was held on-line due to the COVID-19 pandemic, between Wednesday, April 7 and Friday, April 9.

EvoApplications, formerly known as EvoWorkshops, aims to bring together high-quality research with a focus on applied domains of bio-inspired computing. At the same time, under the *Evo** umbrella, *EuroGP* focused on the technique of genetic programming, *EvoCOP* targeted evolutionary computation in combinatorial optimization, and *EvoMUSART* was dedicated to evolved and bio-inspired music, sound, art, and design. The proceedings for all of these co-located events are available in the LNCS series.

EvoApplications received this year 78 high-quality submissions distributed among the main session *Applications of Evolutionary Computation* and eight additional special sessions chaired by leading experts on the different areas: Applications of Bio-inspired Techniques on Social Networks Learning, Applications of Deep Bioinspired Algorithms, Applications of Nature-inspired Computing for Sustainability and Development, Evolutionary Computation in Image Analysis, Signal Processing and Pattern Recognition, Evolutionary Machine Learning, Machine Learning and AI in Digital Healthcare and Personalized Medicine, Parallel and Distributed Systems, and Soft Computing applied to Games. We selected 34 of these papers for full oral presentation, while a further 17 works were presented in short oral presentation and as posters. All contributions, regardless of the presentation format, appear as full papers in this volume (LNCS 12694).

Obviously, an event of this kind would not be possible without the contribution of a large number of people.

- We express our gratitude to the authors for submitting their works and to the members of the program committee for devoting their selfless efforts to the review process.
- We would also like to thank Nuno Lourenço (University of Coimbra, Portugal) for his dedicated work with the submission and registration system and Sérgio Rebelo (University of Coimbra, Portugal) for his important graphic design work.
- We are grateful to José Francisco Chicano García (University of Málaga, Spain) for managing and maintaining the *Evo** website and João Correia (University of Coimbra, Portugal) handling publicity did an impressive job.
- We credit the invited keynote speakers, Darrell Whitley (Colorado State University, USA) and Susanna Manrubia (Spanish National Centre for Biotechnology, CSIC, Spain), for their fascinating and inspiring presentations.
- We would like to express our gratitude to the Steering Committee of EvoApplications for helping with the organization of the conference.

- We are grateful for the support provided by *SPECIES*, the Society for the Promotion of Evolutionary Computation in Europe and its Surroundings, and its individual members Marc Schoenauer (President), Anna I. Esparcia-Alcázar, (Secretary and Vice-President), and Wolfgang Banzhaf (Treasurer), for handling the coordination and financial administration.

Finally, we express our continued appreciation to Anna I. Esparcia-Alcázar, from SPECIES, Europe, whose considerable efforts in managing and coordinating *Evo** helped towards building a unique, vibrant, and friendly atmosphere.

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