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Ting Hu · Nuno Lourenço ·
Eric Medvet (Eds.)

Genetic Programming

24th European Conference, EuroGP 2021
Held as Part of EvoStar 2021
Virtual Event, April 7–9, 2021
Proceedings

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Preface

The 24th European Conference on Genetic Programming (EuroGP) took place online, due to the COVID-19 pandemic restrictions, between 7–9 April, 2021.

Genetic Programming (GP) is an evolutionary computation branch that has been developed to automatically solve design problems, in particular computer program design, without requiring the user to know or specify the form or structure of the solution in advance. It uses the principles of Darwinian evolution to approach problems in the synthesis, improvement, and repair of computer programs. The universality of computer programs, and their importance in so many areas of our lives, means that the automation of these tasks is an exceptionally ambitious challenge with far-reaching implications. It has attracted a very large number of researchers and a vast number of theoretical and practical contributions are available by consulting the GP bibliography¹.

Since the first EuroGP event in Paris in 1998, EuroGP has been the only conference exclusively devoted to the evolutionary design of computer programs and other computational structures. In fact, EuroGP represents the single largest venue at which GP results are published. It plays an important role in the success of the field, by serving as a forum for expressing new ideas, meeting fellow researchers, and initiating collaborations. It attracts scholars from all over the world. In a friendly and welcoming atmosphere authors present the latest advances in the field, also presenting GP-based solutions to complex real-world problems.

EuroGP 2021 received 27 submissions from around the world. The papers underwent a rigorous double-blind peer review process, each being reviewed by multiple members of an international Program Committee.

Among the papers presented in this volume, 11 were accepted for full-length oral presentation (40% acceptance rate) and 6 for a short talk. Authors of both categories of papers also had the opportunity to present their work in poster sessions, to promote the exchange of ideas in a carefree manner.

The wide range of topics in this volume reflects the current state of research in the field. The collection of papers covers interesting topics including developing new operators for variants of GP algorithms, as well as exploring GP applications to the optimisation of machine learning methods and the evolution of complex combinational logic circuits.

Together with three other co-located evolutionary computation conferences (EvoCOP 2021, EvoMusArt 2021, and EvoApplications 2021), EuroGP 2021 was part of the Evo* 2021 event. This meeting could not have taken place without the help of many people. The EuroGP Organizing Committee is particularly grateful to the following:

¹ <http://iinwww.ira.uka.de/bibliography/Ai/genetic.programming.html>

- SPECIES, the Society for the Promotion of Evolutionary Computation in Europe and its Surroundings, aiming to promote evolutionary algorithmic thinking within Europe and wider, and more generally to promote inspiration of parallel algorithms derived from natural processes.
- The high-quality and diverse EuroGP Program Committee. Each year the members give freely of their time and expertise, in order to maintain high standards in EuroGP and provide constructive feedback to help the authors to improve their papers.
- Nuno Lourenço (University of Coimbra, Portugal) for his dedicated work with the submission and registration system.
- João Correia (University of Coimbra, Portugal) and Francisco Chicano (University of Málaga, Spain) for the Evo* publicity, social media service, and website.
- Sérgio Rebelo (University of Coimbra, Portugal) for his important graphic design work.
- Our invited speakers, Darrell Whitley and Susanna Manrubia, who gave inspiring and enlightening keynote talks.
- Finally, we express our continued appreciation to Anna I. Esparcia-Alcázar, from SPECIES, whose considerable efforts in managing and coordinating Evo* helped towards building a unique, vibrant, and friendly atmosphere.

April 2021

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