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Ting Hu · Nuno Lourenço ·
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Genetic Programming

23rd European Conference, EuroGP 2020
Held as Part of EvoStar 2020
Seville, Spain, April 15–17, 2020
Proceedings

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Preface

The 23rd European Conference on Genetic Programming (EuroGP 2020) took place at the Universidad Pablo de Olavide (UPO) in Sevilla, Spain, 15–17 April, 2020.

Genetic Programming (GP) is an evolutionary computation branch that has been developed to automatically solve design problems, in particular the 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 amount of theoretical and practical contributions are available by consulting the GP bibliography.¹

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 presented the latest advances in the field, also presenting GP-based solutions to complex real-world problems.

EuroGP 2020 received 36 submissions from around the world. The papers have undergone 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, 12 were accepted for full-length oral presentation (33% acceptance rate) and 6 as short talks. 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. With a special focus on GP and artificial intelligence (AI) in 2020, the collection of papers cover interesting topics including designing GP algorithms for ensemble learning, comparing GP with popular machine learning algorithms, and customising GP algorithms for more explainable AI applications to real-world problems.

Together with three other co-located evolutionary computation conferences (EvoCOP 2020, EvoMusArt 2020, and EvoApplications 2020), EuroGP 2020 was part of the EvoStar 2020 event. This meeting could not have taken place without the help of many people. The EuroGP 2020 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 2020 Program Committee. Each year the members freely devote their time and expertise, in order to maintain the high standards of EuroGP and provide constructive feedback to help the authors to improve their papers.
- Francisco Fernández de Vega from the University of Extremadura, Spain, and Federico Divina from UPO, Spain, as well as their local organizing teams.
- João Correia from the University of Coimbra, Portugal, for the EvoStar 2020 publicity and website.
- The School of Engineering at UPO in Sevilla, Spain, for supporting the local organization.
- Our invited speakers, José Antonio Lozano and Roberto Serra, who gave inspiring and enlightening keynote talks.
- The EvoStar 2020 coordinators: Anna I Esparcia-Alcázar, from Universitat Politècnica de València, Spain, and Jennifer Willies.

April 2020

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