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# Genetic Programming

10th European Conference, EuroGP 2007  
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# Preface

In 2007 the European Conference on Genetic Programming (EuroGP) reached in its tenth year. What started out as a small workshop in 1998 in Paris has grown considerably in size over the years both in number of attendees as well as number of submissions. EuroGP is the only conference worldwide devoted exclusively to genetic programming and all aspects of evolutionary generation of computer programs. For the tenth year we came together to exchange our ideas on the automatic generation of programs inspired by Darwinian evolution. The main operators are reproduction, variation and selection. In nature, heritable traits are passed from one generation to the next. Variations are introduced through accidental mutations or by recombining genetic material from parents. Selection occurs as a result of limited resources. The very same process is used when trying to evolve programs using artificial evolution. The desired task for the programs to perform is specified via the fitness function.

This year we received a record number of 71 submissions. A rigorous, double-blind, selection mechanism was applied to the submitted papers. We accepted 21 plenary talks (30% acceptance rate) and 14 poster presentations (49% global acceptance rate for talks and posters). Each submissions was reviewed by at least three members of the international Program Committee from 19 different countries. Each reviewer was asked for keywords specifying their own area of expertise. Submissions were then appropriately matched to the reviewers based on their expertise using the optimal assignment of the conference management software (MyReview) originally developed by Philippe Rigaux, Bertrand Chardon and colleagues from the Université Paris-Sud Orsay, France. This version of the MyReview system has been developed with funding from the European Coordinated Action ONCE-CS (Open Network Connecting Excellence in Complex Systems), funded under FP6 framework by the FET division (contract 15539). Only small adjustments were then made manually to balance the work load better.

Papers were accepted for presentation at the conference based on the reviewers' recommendations and also taking into account originality, significance of results, clarity of representation, replicability, writing style, bibliography and relevance to the conference. As a result, 35 high-quality papers are included in these proceedings which address fundamental and theoretical issues such as crossover bias, issues such as chess game playing, real-time evaluation of VoIP, multi-objective optimization, evolution of recursive sorting algorithms, density estimation for inverse problem solving, image filter evolution, predicting prime numbers, data mining, grammatical genetic programming, layered learning, expression simplification, neutrality and evolvability, iterated function systems, particle swarm optimization, or open-ended evolution. The use of genetic

programming for several different applications shows that the method is a very general problem-solving paradigm.

The 10th European Conference on Genetic Programming took place during April 2007 11–13 in Valencia, Spain. The present volume contains all contributions that were accepted for publication either as talks or posters. All previous proceedings have been published by Springer in the *Lecture Notes in Computer Science* series. EuroGP was co-located with EvoCOP 2007, the seventh European Conference on Evolutionary Computation in Combinatorial Optimization, and also EvoBIO, fifth European Conference on Evolutionary Computation, Machine Learning and Data Mining in Bioinformatics, and the series of EvoWorkshops, focusing on applications of evolutionary computation. Evo\* (pronounced EvoStar) is the new umbrella name for the three co-located conferences and the EvoWorkshops series, the increasingly important international event exclusively dedicated to all aspects of evolutionary computing.

Many people helped to make the conference a success. We would like to express our gratitude to the members of the Program Committee for their thorough reviews of all papers submitted to the conference. Their constructive comments made it possible for the authors to improve their original submissions for final publication. We also thank the following institutions. The Universidad Politécnica de Valencia provided institutional and financial support, as well as the lending of their premises and also helped with the organization and administration. The Instituto Tecnológico de Informática cooperated with regard to the local organization. The Spanish Ministerio de Educación y Ciencia also provided financial support for which we are very grateful. We are thankful to Marc Schoenauer, INRIA, France, for managing the MyReview conference management software.

We especially thank Jennifer Willies and the School of Computing, Napier University. Without her dedicated work and continued involvement with the EuroGP conference from the initial start in 1998 to what now has become Evo\*, this event would not be what it is today.

April 2007

Marc Ebner  
Michael O'Neill  
Anikó Ekárt  
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Administrative details were handled by Jennifer Willies, Napier University, School of Computing, Scotland, UK.

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