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Genetic Programming

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Proceedings



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Cover illustration: *Triangular Urchin*, by Chaps (www.cetoine.com). Chaps has obtained an MSc in Physics at the Swiss Federal Institute of Technology. He is the developer of the ArtiE-Fract software that was used to create *Triangular Urchin*. *Triangular Urchin* (an Iterated Functions System of 2 polar functions) emerged from an urchin structure after a few generations using ArtiE-Fract. The evolutionary process was only based on soft mutations, some of them directly induced by the author.

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Preface

In this volume we present the contributions for the 18th European Conference on Genetic Programming (EuroGP 2005). The conference took place from 30 March to 1 April in Lausanne, Switzerland. EuroGP is a well-established conference and the only one exclusively devoted to genetic programming. All previous proceedings were published by Springer in the LNCS series. From the outset, EuroGP has been co-located with the EvoWorkshops focusing on applications of evolutionary computation. Since 2004, EvoCOP, the conference on evolutionary combinatorial optimization, has also been co-located with EuroGP, making this year's combined events one of the largest dedicated to evolutionary computation in Europe.

Genetic programming (GP) is evolutionary computation that solves complex problems or tasks by evolving and adapting a population of computer programs, using Darwinian evolution and Mendelian genetics as its sources of inspiration. Some of the 34 papers included in these proceedings address foundational and theoretical issues and there is also a wide variety of papers dealing with different application areas, such as computer science, engineering, language processing, biology and computational design, demonstrating that GP is a powerful and practical problem-solving paradigm.

A rigorous, double-blind, peer-review selection mechanism was applied to 64 submitted papers. This resulted in the acceptance of 20 plenary talks and 14 poster presentations. Each paper was reviewed by three or four members of the international Programme Committee who were selected as fairly as possible by matching a reviewer's particular interests and special expertise to the topics covered by the paper. The results of this process are reflected in the quality of the contributions published within this volume. This year the overall acceptance rate for talks and poster presentations was 53%.

We would like to express our sincere gratitude to the two internationally renowned invited speakers who gave keynote talks at the conference: Prof. Matteo Fischetti of the University of Padova, Italy and Prof. Alberto Piazza from the University of Torino.

The success of any conference results from the input of many people, to whom we would like to express our appreciation. Firstly, we would like to thank the members of the Programme Committee for their attentiveness, perseverance and willingness to provide high-quality reviews. The local team (Mario Giacobini, Leslie Luthi, Denis Rochat and Leonardo Vanneschi), headed by Prof. Marco Tomassini, must also be thanked: the smooth development of the conference has been their feat. Finally, we would also like to thank

Jennifer Willies for her continuous efforts and support, as well as for her valuable and professional help with all the organizational and logistic aspects of organizing the event.

April 2005

Maarten Keijzer
Andrea Tettamanzi
Pierre Collet
Jano van Hemert
Marco Tomassini

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EuroGP 2005 was organized by EvoGP, the EvoNet Working Group on Genetic Programming.

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