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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Papers -- Evaluation of Chess Position by Modular Neural Network Generated by Genetic Algorithm -- Coevolution of Algorithms and Deterministic Solution of Equations in Free Groups -- Designing Optimal Combinational Digital Circuits Using a Multiple Logic Unit Processor -- A Data Structure for Improved GP Analysis via Efficient Computation and Visualisation of Population Measures -- Boosting Technique for Combining Cellular GP Classifiers -- Co-evolving Faults to Improve the Fault Tolerance of Sorting Networks -- Toward an Alternative Comparison between Different Genetic Programming Systems -- Lymphoma Cancer Classification Using Genetic

Programming with SNR Features -- A Practical Approach to Evolving Concurrent Programs -- Evolutionary Induction of Grammar Systems for Multi-agent Cooperation -- Genetic Programming Applied to Mixed Integer Programming -- Efficient Crossover in the GAuGE System -- Grammatical Evolution by Grammatical Evolution: The Evolution of Grammar and Genetic Code -- Constrained Molecular Dynamics as a Search and Optimization Tool -- On the Performance of Genetic Operators and the Random Key Representation -- Analysis of GP Improvement Techniques over the Real-World Inverse Problem of Ocean Color -- Evolution and Acquisition of Modules in Cartesian Genetic Programming -- How to Choose Appropriate Function Sets for Genetic Programming -- Improving Grammar-Based Evolutionary Algorithms via Attributed Derivation Trees -- Posters -- Evolved Matrix Operations for Post-processing Protein Secondary Structure Predictions -- Genetic Programming for Natural Language Parsing -- Comparing Hybrid Systems to Design and Optimize Artificial Neural Networks -- An Evolutionary Algorithm for the Input-Output Block Assignment Problem -- Genetic Programming for Subjective Fitness Function Identification -- Saving Effort in Parallel GP by Means of Plagues -- Sampling of Unique Structures and Behaviours in Genetic Programming -- The Evolution of Concurrent Control Software Using Genetic Programming -- Extending Grammatical Evolution to Evolve Digital Surfaces with Genr8 -- Evolving Text Classifiers with Genetic Programming -- Automatic Synthesis of Instruction Decode Logic by Genetic Programming -- Alternatives in Subtree Caching for Genetic Programming -- Structural Risk Minimization on Decision Trees Using an Evolutionary Multiobjective Optimization -- Global Distributed Evolution of L-Systems Fractals -- Reusing Code in Genetic Programming -- Exploiting Reflection in Object Oriented Genetic Programming -- Evolutionary Feature Construction Using Information Gain and Gini Index -- On the Evolution of Evolutionary Algorithms -- Genetic Programming with Gradient Descent Search for Multiclass Object Classification.

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## Sommario/riassunto

In this volume we present the accepted contributions for the 7th European Conference on Genetic Programming (EuroGP 2004). The conference took place on 5–7 April 2004 in Portugal at the University of Coimbra, in the Department of Mathematics in Praa Dom Dinis, located on the hill above the old town. EuroGP is a well-established conference and the sole one exclusively devoted to Genetic Programming. Previous proceedings have all been published by Springer-Verlag in the LNCS series. EuroGP began as an international workshop in Paris, France in 1998 (14–15 April, LNCS 1391). Subsequently the workshop was held in Gteborg, Sweden in 1999 (26–27 May, LNCS 1598) and then EuroGP became an annual conference: in 2000 in Edinburgh, UK (15–16 April, LNCS 1802), in 2001 at Lake Como, Italy (18–19 April, LNCS 2038), in 2002 in Kinsale, Ireland (3–5 April, LNCS 2278), and in 2003 in Colchester, UK (14–16 April, LNCS 2610). From the outset, there have always been specialized workshops, co-located with EuroGP, focusing on applications of evolutionary algorithms (LNCS 1468, 1596, 1803, 2037, 2279, and 2611). This year the EvoCOP workshop on combinatorial optimization transformed itself into a conference in its own right, and the two conferences, together with the EvoWorkshops, EvoBIO, EvoIASP, EvoMUSART, EvoSTOC, EvoHOT, and EvoCOMNET, now form one of the largest events dedicated to Evolutionary Computation in Europe.

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