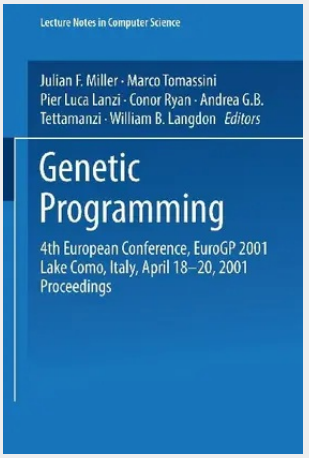
Miller / Tomassini / Lanzi

Genetic Programming

4th European Conference, EuroGP 2001 Lake Como, Italy, April 18-20, 2001 Proceedings



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In this volume are the proceedings of the fourth European conference on - netic Programming (EuroGP 2001) which took place at Lake Como in Italy on April, 18{20 2001. EuroGP has become r mly established as the premier - ropean event devoted to Genetic Programming. EuroGP began life in 1998 as an international workshop and was held in Paris (14{15 April, LNCS 1391). - ter that it was held in Got ¨ eborg, Sweden (26{27 May 1999, LNCS 1598). Its r st appearance as a conference was last year in Edinburgh in Scotland (15{ 16 April, LNCS 1802). Each year EuroGP has been co-located with a series of specialist workshops (LNCS 1468, 1596, 1803). This year was no exception and EvoWorkshops 2001 were also held at Lake Como (18-19 April, LNCS 2037). Genetic Programming (GP) refers to a branch of Evolutionary Compu- tion in which computer programs are automatically generated over a period of time using a process that mimics Darwinian evolution. The 30 papers in these proceedings more than amply demonstrate the wide and varied applicability of GP. There are papers that apply GP to robotics, artic ial retina, character recognition, nancialprediction, digitall terandelectronic circuitdesign,image processing, data fusion, and biosequencing. In addition there are many papers that address foundational and theoretical issues. Arigorousdouble-blindrefereeing systemwasappliedtothe42submitted- pers. This resulted in 17 plenary talks(40% of those submitted) and 13 research posters.

Talks.- Heuristic Learning Based on Genetic Programming.- Evolving Color Constancy for an Artificial Retina.- Adaptive Genetic Programming Applied to New and Existing Simple Regression Problems.- An Evolutionary Approach to Automatic Generation of VHDL Code for Low-Power Digital Filters.- Studying the Influence of Communication Topology and Migration on Distributed Genetic Programming.- CAGE: A Tool for Parallel Genetic Programming Applications.- Ripple Crossover in Genetic Programming.- Evolving Receiver Operating Characteristics for Data Fusion.- An Adaptive Mapping for Developmental Genetic Programming.- A Schema Theory Analysis of the Evolution of Size in Genetic Programming with Linear Representations.- Exact Schema Theorems for GP with One-Point and Standard Crossover Operating on Linear Structures and Their Application to the Study of the Evolution of Size.- General Schema Theory for Genetic Programming with Subtree-Swapping Crossover.- Evolving Modules in Genetic Programming by Subtree Encapsulation.- Evolution of Affine Transformations and Iterated Function Systems Using Hierarchical Evolution Strategy.- Evolving Turing Machines for Biosequence Recognition and Analysis.- Neutrality and the Evolvability of Boolean Function Landscape.- Polymorphism and Genetic Programming.- Posters.- Programmable Smart Membranes: Using Genetic Programming to Evolve Scalable Distributed Controllers for a Novel Self-Reconfigurable Modular Robotic Application.- A GP Artificial Ant for image processing: preliminary experiments with EASEA..- Feature Extraction for the k-Nearest Neighbour Classifier with Genetic Programming.- An Indirect Block-Oriented Representation for Genetic Programming.- Raising the Dead: Extending Evolutionary Algorithms with a Case-Based Memory.- Layered Learning in Genetic Programming for a Cooperative Robot Soccer Problem.- Linear-Tree GP and Its Comparison with Other GP Structures.- Evolving Hand-Eye Coordination for a Humanoid Robot with Machine Code Genetic Programming.- Adaption of Operator Probabilities in Genetic Programming.- Crossover in Grammatical Evolution: The Search Continues.- Computational Complexity, Genetic Programming, and Implications.- Genetic Programming for Financial Time Series Prediction.- Active Handwritten Character Recognition Using Genetic Programming.

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