

Genetic Programming IV

Routine Human-Competitive Machine Intelligence

by

John R. Koza

Stanford University, CA

Martin A. Keane

Econometrics Inc., IL

Matthew J. Streeter

Genetic Programming, Inc., CA

William Mydlowec

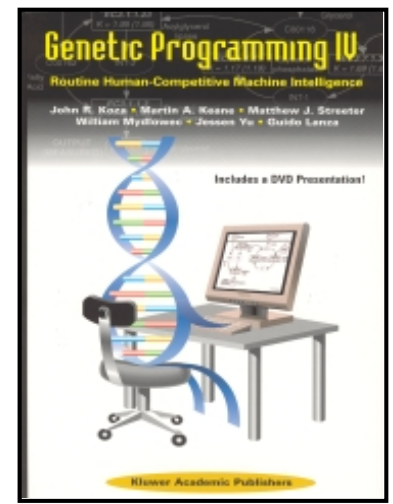
Pharmix Corporation, CA

Jessen Yu

Pharmix Corporation, CA

Guido Lanza

Pharmix Corporation, CA



25% discount off list price!

Genetic programming (GP) is a method for automatically creating computer programs. It starts from a high-level statement of what needs to be done and uses the Darwinian principle of natural selection to breed a population of improving programs over many generations.

Genetic Programming IV: Routine Human-Competitive Machine Intelligence presents the application of GP to a wide variety of problems involving automated synthesis of controllers, circuits, antennas, genetic networks, and metabolic pathways. The book describes fifteen instances where GP has created an entity that either infringes or duplicates the functionality of a previously patented 20th-century invention, six instances where it has done the same with respect to post-2000 patented inventions, two instances where GP has created a patentable new invention, and thirteen other human-competitive results. The book additionally establishes:

- GP now delivers routine human-competitive machine intelligence.
- GP is an automated invention machine.
- GP can create general solutions to problems in the form of parameterized topologies.
- GP has delivered qualitatively more substantial results in synchrony with the relentless iteration of Moore's Law.

Reviews:

"*Genetic Programming IV: Routine Human-Competitive Machine Intelligence* demonstrates the everyday solution of such 'holy grail' problems as the automatic synthesis of analog circuits, the design of automatic controllers, and the automated programming of computers. To specialists in any of the fields covered by this book's sample problem areas, I say read this book and discover the computer-augmented inventions that are your destiny. To remaining skeptics who doubt the inventive competence of genetics and evolution, I say read this book and change your mind or risk the strong possibility that your doubts will soon cause you significant intellectual embarrassment." **David E. Goldberg, University of Illinois**

"The research reported in this book is a tour de force. For the first time since the idea was bandied about in the 1940s and the early 1950s, we have a set of examples of human-competitive automatic programming." **John H. Holland, University of Michigan**

Visit our website at:

www.wkap.nl

For up-to-date information.

quality solutions more effectively. Genetic Programming III: Darwinian Invention and Problem. Solvingâ€”J. R. Koza, F. H Bennett III, D. Andre, and M. A. Keane, Eds.Â Method: The proposed genetic programming algorithm is focused in the induction of mathematical equations, running the process called symbolic regression on data from four male children. Results: It was observed that the generated curve becomes closer of growth curve in the last training points, so with a more number of training data, better the accurate of prediction. Using Genetic Programming in Industrial Statistical Model Building. Pages 31-48. Castillo, Flor (et al.) Preview Buy Chapter 24,95 â‚¬. Population Sizing for Genetic Programming Based on Decision-Making. Pages 49-65. Sastry, Kumara (et al.)Â Using Genetic Programming to Search for Supply Chain Reordering Policies. Pages 207-223. Moore, Scott A. (et al.) Preview. Cartesian Genetic Programming and the Post Docking Filtering Problem. Pages 225-244. Garmendia-Doval, A. Beatriz (et al.) Preview.

Home * Learning * Genetic Programming. Genetic Programming (GP), an evolutionary based methodology inspired by biological evolution to optimize computer programs, in particular game playing programs. It is a machine learning technique used to optimize a population of programs, for instance to maximize the winning rate versus a set of opponents, after modifying evaluation weights or search parameter. Genetic Programming: On the Programming of Computers by Means of Natural Selection. The MIT Press. 7Koza J. R., Bennett, H. B., Andre, D. and Keane, M. A. 1999. Genetic Programming III: Darwinian Invention and Problem Solving. Morgan Kaufmann Publishers. 5. Figure 2: This genetic operation is termed two-ospring crossover. 3.5 Selection Functions.Â Genetic Programming II: Automatic Discovery of Re-usable Programs. The MIT Press. â€¢ Koza J. R., Bennett, H. B., Andre, D. and Keane, M. A. 1999. Genetic Programming: An Introduction and Tutorial, with a Survey of Techniques and Applications. William B. Langdon¹, Riccardo Poli², Nicholas F. McPhee³, and John R. Koza⁴. ¹ Departments of Biological and Mathematical Sciences, University of Essex, UK, wlangdon@essex.ac.uk.Â Genetic programming (GP) is an evolutionary computation (EC) tech-nique that automatically solves problems without having to tell the computer explicitly how to do it.