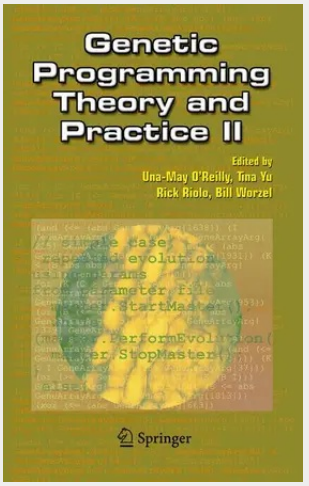
O'Reilly / Yu / Riolo

Genetic Programming Theory and Practice II



This volume explores the emerging interaction between theory and practice in the cutting-edge, machine learning method of Genetic Programming (GP). The contributions developed from a second workshop at the University of Michigan's Center for the Study of Complex Systems where leading international genetic programming theorists from major universities and active practitioners from leading industries and businesses met to examine how GP theory informs practice and how GP practice impacts GP theory. Chapters include such topics as financial trading rules, industrial statistical model building, population sizing, the roles of structure in problem solving by computer, stock picking, automated design of industrial-strength analog circuits, topological synthesis of robust systems, algorithmic chemistry, supply chain reordering policies, post docking filtering, an evolved antenna for a NASA mission and incident detection on highways.

The work described in this book was first presented at the Second Workshop on Genetic Programming, Theory and Practice, organized by the Center for the Study of Complex Systems at the University of Michigan, Ann Arbor, 13-15 May 2004. The goal of this workshop series is to promote the exchange of research results and ideas between those who focus on Genetic Programming (GP) theory and those who focus on the application of GP to various re- world problems. In order to facilitate these interactions, the number of talks and participants was small and the time for discussion was large. Further, participants were asked to review each other's chapters before the workshop. Those reviewer comments, as well as discussion at the workshop, are reflected in the chapters presented in this book. Additional information about the workshop, addendums to chapters, and a site for continuing discussions by participants and by others can be found at http://cscs.umich.edu:8000/GPTP-20041. We thank all the workshop participants for making the workshop an exciting and productive three days. In particular we thank all the authors, without whose hard work and creative talents, neither the workshop nor the book would be possible. We also thank our keynote speakers Lawrence ("Dave") Davis of NuTech Solutions, Inc., Jordan Pollack of Brandeis University, and Richard Lenski of Michigan State University, who delivered three thought-provoking speeches that inspired a great deal of discussion among the participants.

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