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Preface

Genetic and evolutionary algorithms (GEA) are efficient nature-inspired planning and optimization methods based on the principles of natural evolution and genetics. Due to their efficiency and the simple underlying principles, these methods are used for a large number of problems in the context of problem solving, optimization, and machine learning. The book at hand presents a careful selection of papers that address the latest trends and hot topics in GEAs.

All papers in this book have been presented at the workshop sessions at the Genetic and Evolutionary Computation Conference (GECCO) 2005. The format and style of the workshops was varying. The common property of the workshops was that they addressed current trends and hot topics in GEA research and application.

The GECCO 2005 workshops, of which this volume contains the proceedings, were held in Washington, D.C., USA, on June 25-26, 2005. The GECCO 2005 workshop series consisted of the following individual workshops:

- *BioGEC 2005*, the Fourth annual Workshop on Biological Applications of Genetic and Evolutionary Computation,
- *EvoDOP 2005*, the First Workshop on Evolutionary Algorithms for Dynamic Optimization Problems,
- *IWLCS 2005*, The Eighth International Workshop on Learning Classifier Systems,
- *MedGEC 2005*, the First Workshop on Medical Applications of Genetic and Evolutionary Computation,
- *MSAEC 2005*, the Second Workshop on Military and Security Applications of Evolutionary Computation,
- *OBUPM 2005*, the Fourth Workshop on Optimization by Building and Using Probabilistic Models,
- *PSGEA 2005*, the First Workshop on Parameter setting in Genetic and Evolutionary Algorithms,
- *SEEDS 2005*, the First Workshop on Scalable, Evolvable, Emergent Design and Developmental Systems,
- *SOEA 2005*, the Second Workshop On Self-Organization in Representations For Evolutionary Algorithms: Building complexity from simplicity, and
- *TheoryRep 2005*, the First Workshop on Theory of Representations.

In addition, attendees of the GECCO 2005 workshop sessions could also attend the "Ask the consultant" workshop organized by Dave Davis and the "Coevolution Discussion Forum" organized by Anthony Bucci, Edwin de Jong, and R. Paul Wiegand.

The GECCO 2005 workshop series also includes two student-oriented workshops:

- *GWS 2005*, the Graduate Student Workshop, and
- *UGWS 2005*, the Undergraduate Student Workshop on Evolutionary Computation.

Both workshops were an important link between students and researchers and gave students the opportunity to present interesting and high-quality work.

I would like to thank all members of the program committees for their quick and thorough work. Furthermore, special thanks to the workshop organizers and everybody who was involved in the preparation of the various workshops. I hope that everybody had a pleasant workshop and learned about the latest trend in GEA research and practice.

May 2005 Franz Rothlauf

Organization

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