
Preface

In the last two decades, there has been a huge trend towards building intelligent systems that are inspired by biological systems from nature. Many nature-inspired algorithms and approaches have been developed and have become popular for designing intelligent systems with application to various real-world problems. Evolutionary computing paradigms, which are powerful search techniques inspired from natural genetics, proved to be at the forefront of this endeavour.

Undoubtedly, many authored and edited books have already revealed the field of evolutionary computing from many facets, which include deep theoretical analyses as well as more application-oriented studies. Edited volumes containing conference papers on the theory and application of evolutionary computing have also been very popular. In this book, the editors tried to put together a collection of extended and consistent chapters presenting original and latest research work from leading researchers on evolutionary computing. The focus of the book was to present challenging real-world applications of evolutionary computing paradigms as well as to provide an up-to-date reference manual for someone interested to use evolutionary techniques to system design.

This edited book consists of thirteen chapters covering a wide area of topics on evolutionary computing and applications. The application areas are diverse and include system control, bioinformatics, hardware optimization, traffic grooming, games theory, grid computing, and so on. Challenging and captivating theoretical issues are also introduced and discussed. These refer especially to the use of evolutionary computing techniques in conjunction with other machine learning approaches, and include: evolutionary neuro-fuzzy systems, fuzzy systems and genetic algorithms, evolutionary algorithms and immune learning for neural network design, evolutionary techniques for multiple classifier design, hybrid multi-objective evolutionary algorithms, evolutionary particle swarms.

Our hope is that this book will serve as a reference to researchers in evolutionary computing and to system designers and practitioners working

VI Preface

in various application domains who are interested in using evolutionary computing paradigms in system design and implementation. This book can also be used by students and lecturers as an advanced reading material for courses on evolutionary computing.

The editors are grateful to the authors for their excellent contributions to the book. Thanks are due to the reviewers for providing precious feedback. The editorial support provided by Springer-Verlag is acknowledged. We hope that this book on evolutionary computing in system design will prove valuable to its readers.

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