
Contents

Part I Introduction

A Selected Introduction to Evolutionary Computation <i>Xin Yao</i>	3
--	---

Part II Knowledge Incorporation in Initialization, Recombination and Mutation

The Use of Collective Memory in Genetic Programming <i>Keith Bearpark, Andy J. Keane</i>	15
--	----

A Cultural Algorithm for Solving the Job Shop Scheduling Problem <i>Ricardo Landa Becerra, Carlos A. Coello Coello</i>	37
--	----

Case-Initialized Genetic Algorithms for Knowledge Extraction and Incorporation <i>Judy Johnson, Sushil J. Louis</i>	57
---	----

Using Cultural Algorithms to Evolve Strategies in A Complex Agent-based System <i>David A. Ostrowski, Robert G. Reynolds</i>	81
--	----

Methods for Using Surrogate Models to Speed Up Genetic Algorithm Optimization: Informed Operators and Genetic Engineering <i>Khaled Rasheed, Xiao Ni, Swaroop Vattam</i>	103
--	-----

Fuzzy Knowledge Incorporation in Crossover and Mutation <i>Jun Zhang, Henry S.H. Chung, Alan W.L. Lo, B.J. Hu</i>	123
---	-----

Part III Knowledge Incorporation in Selection and Reproduction

Learning Probabilistic Models for Enhanced Evolutionary Computation	
<i>Peter A.N. Bosman, Dirk Thierens</i>	147
Probabilistic Models for Linkage Learning in Forest Management	
<i>Els I. Ducheyne, B. De Baets, R. De Wulf</i>	177
Performance-Based Computation of Chromosome Lifetimes in Genetic Algorithms	
<i>Adnan Acan, Yüce Tekol</i>	195
Genetic Algorithm and Case-Based Reasoning Applied in Production Scheduling	
<i>Pei-Chann Chang, Jih-Chang Hsieh, Yen-Wen Wang</i>	215
Knowledge-Based Evolutionary Search for Inductive Concept Learning	
<i>Federico Divina, Elena Marchiori</i>	237
An Evolutionary Algorithm with Tabu Restriction and Heuristic Reasoning for Multiobjective Optimization	
<i>E. F. Khor, K. C. Tan, Y.J. Yang</i>	255

Part IV Knowledge Incorporation in Fitness Evaluations

Neural Networks for Fitness Approximation in Evolutionary Optimization	
<i>Yaochu Jin, Michael Hüskens, Markus Olhofer, Bernhard Sendhoff</i>	281
Surrogate-Assisted Evolutionary Optimization Frameworks for High-Fidelity Engineering Design Problems	
<i>Yew Soon Ong, P. B. Nair, A. J. Keane, K. W. Wong</i>	307
Model Assisted Evolution Strategies	
<i>Holger Ulmer, Felix Streichert, Andreas Zell</i>	333

Part V Knowledge Incorporation through Life-time Learning and Human-Computer Interactions

Knowledge Incorporation Through Lifetime Learning	
<i>Kim W. C. Ku, M. W. Mak</i>	359

Local Search Direction for Multi-Objective Optimization Using Memetic EMO Algorithms <i>Tadahiko Murata, Shiori Kaige and Hisao Ishibuchi</i>	385
Fashion Design Using Interactive Genetic Algorithm with Knowledge-based Encoding <i>Hee-Su Kim, Sung-Bae Cho</i>	411
Interactive Evolutionary Design <i>Ian C. Parmee, Johnson A. Abraham</i>	435
<hr/>	
Part VI Preference Incorporation in Multi-objective Evolutionary Computation	
<hr/>	
Integrating User Preferences into Evolutionary Multi- Objective Optimization <i>Jürgen Branke, Kalyanmoy Deb</i>	461
Human Preferences and their Applications in Evolutionary Multi-Objective Optimization <i>Dragan Cvetković, Carlos A. Coello Coello</i>	479
An Interactive Fuzzy Satisficing Method for Multiobjective Integer Programming Problems through Genetic Algorithms <i>Kosuke Kato, Cahit Perkgoz, Masatoshi Sakawa</i>	503
Interactive Preference Incorporation in Evolutionary Engineering Design <i>Jiachuan Wang, Janis P. Terpenney</i>	525
Index	545