



## Applications of multi-objective evolutionary algorithms /

Coello Coello, Carlos A.  
Lamont, Gary B.

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Monografía

This book presents an extensive variety of multi-objective problems across diverse disciplines, along with statistical solutions using multi-objective evolutionary algorithms (MOEAs). The topics discussed serve to promote a wider understanding as well as the use of MOEAs, the aim being to find good solutions for high-dimensional real-world design applications. The book contains a large collection of MOEA applications from many researchers, and thus provides the practitioner with detailed algorithmic direction to achieve good results in their selected problem domain

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**Contenido:** FOREWORD; PREFACE; CONTENTS; CHAPTER 1 AN INTRODUCTION TO MULTI-OBJECTIVE EVOLUTIONARY ALGORITHMS AND THEIR APPLICATIONS; 1.1. Introduction; 1.2. Basic Concepts; 1.3. Basic Operation of a MOEA; 1.4. Classifying MOEAs; 1.4.1. Aggregating Functions; 1.4.2. Population-Based Approaches; 1.4.3. Pareto-Based Approaches; 1.5. MOEA Performance Measures; 1.6. Design of MOEA Experiments; 1.6.1. Reporting MOEA Computational Results; 1.7. Layout of the Book; 1.7.1. Part I: Engineering Applications; 1.7.2. Part II: Scientific Applications; 1.7.3. Part III: Industrial Applications 1.7.4. Part IV: Miscellaneous Applications 1.8. General Comments; References; CHAPTER 2 APPLICATIONS OF MULTI-OBJECTIVE EVOLUTIONARY ALGORITHMS IN ENGINEERING DESIGN; 2.1. Introduction; 2.2. Multi-Objective Evolutionary Algorithm; 2.2.1. Algorithms; 2.3. Examples; 2.3.1. Design of a Welded Beam; 2.3.2. Preliminary Design of Bulk Carrier; 2.3.3. Design of Robust Airfoil; 2.4. Summary and Conclusions; References; CHAPTER 3 OPTIMAL DESIGN OF INDUSTRIAL ELECTROMAGNETIC DEVICES: A MULTIOBJECTIVE EVOLUTIONARY APPROACH; 3.1. Introduction; 3.2. The Algorithms 3.2.1. Non-Dominated Sorting Evolution Strategy Algorithm (NSES) 3.3. Case Studies; 3.3.1. Shape Design of a Shielded Reactor; 3.3.2. Shape Design of

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**Autores:** Coello Coello, Carlos A. Lamont, Gary B.

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## Baratz Innovación Documental

- Gran Vía, 59 28013 Madrid
- (+34) 91 456 03 60
- [informa@baratz.es](mailto:informa@baratz.es)