Record Nr. UNINA9910824287603321 Autore Subbu Raj Titolo Network-based distributed planning using coevolutionary algorithms / / Raj Subbu, Arthur C Sanderson River Edge, NJ,: World Scientific, 2004 Pubbl/distr/stampa 1-281-93474-7 **ISBN** 9786611934743 981-279-485-9 Edizione [1st ed.] Descrizione fisica 1 online resource (193 p.) Series in intelligent control and intelligent automation;; v. 13 Collana SandersonA. C (Arthur C.) Altri autori (Persone) Disciplina 004 005.2/76 005.276 Soggetti Electronic data processing - Distributed processing **Algorithms** Intelligent agents (Computer software) Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di bibliografia Includes bibliographical references (p. 159-168) and index. Nota di contenuto Contents ; Foreword : Preface ; 1. Introduction ; 1.1 Motivation ; 1.2 Approach : 1.3 Principal Contributions : 1.4 Book Outline ; 2. Background and Related Work ; 2.1 Collaborative Manufacturing ; 2.1.1 Concurrent Engineering ; 2.1.2 Agile Manufacturing 2.2 Combinatorial Optimization 2.2.1 **Deterministic Algorithms** ; 2.2.2 Stochastic ; 2.3 Evolutionary Algorithms **Algorithms** ; 2.3.1 Principal Techniques ; 2.3.2 Theory and **Applications** ; 2.3.3 Techniques for Constrained Optimization : 2.3.4 Multi-Node Algorithms 2.3.5 Techniques for Dynamic Environments ; 2.5 Distributed Problem Solving 2.4 Agents ; 3. Problem Formulation and Analysis ; 3.1 ; 3.2 General Problem Formulation Introduction

; 3.2.1 Constraints ; 3.2.2 Objectives 3.2.3 Optimization Problem : 3.2.4 Complexity **Analysis** 3.3 Printed Circuit Assembly Problem 3.3.1 Complexity Analysis ; 3.4 Algorithm Applicability **Analysis** : 3.4.1 Rationale 3.4.2 Problem Structure ; 3.4.3 Evaluation of Alternative Algorithms : 3.4.4 ; 4. Theory and Analysis of Evolutionary Discussion Optimization ; 4.1 Introduction 4.2 Theoretical Foundation 4.2.1 Notation ; 4.2.2 General Algorithm ; 4.2.3 Basic Results ; 4.3 Convergence Analysis ; 4.3.1 Convergence for a Unimodal Objective ; 4.3.2 Convergence for a Bimodal Objective ; 5. Theory and Analysis of Distributed Coevolutionary Optimization 5.1 Introduction

## Sommario/riassunto

In this book, efficient and scalable coevolutionary algorithms for distributed, network-based decision-making, which utilize objective functions are developed in a networked environment where internode communications are a primary factor in system performance. A theoretical foundation for this class of coevolutionary algorithms is introduced using techniques from stochastic process theory and mathematical analysis. A case study in distributed, network-based decision-making presents an implementation and detailed evaluation of the coevolutionary decision-making framework that incorporates di