Record Nr. UNINA9910462795603321 Metaheuristic applications in structures and infrastructures [[electronic **Titolo** resource] /] / edited by Amir Hossein Gandomi ... [et al.] London, : Elsevier, 2013 Pubbl/distr/stampa **ISBN** 0-12-398379-7 1-299-19305-6 Edizione [1st ed.] Descrizione fisica 1 online resource (577 p.) Collana Elsevier insights Altri autori (Persone) GandomiAmir Hossein Disciplina 620.00151964 Soggetti Infrastructure (Economics) Electronic books. Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references. Nota di contenuto Front Cover: Metaheuristic Applications in Structures and Infrastructures; Copyright Page; Contents; List of Contributors; 1 Metaheuristic Algorithms in Modeling and Optimization; 1.1 Introduction; 1.2 Metaheuristic Algorithms; 1.2.1 Characteristics of Metaheuristics: 1.2.2 No Free Lunch Theorems: 1.3 Metaheuristic Algorithms in Modeling; 1.3.1 Artificial Neural Networks; 1.3.1.1 Multilayer Perceptron Network; 1.3.1.2 Radial Basis Function; 1.3.2 Genetic Programming; 1.3.2.1 Linear-Based GP; 1.3.2.1.1 Linear Genetic Programming; 1.3.2.1.2 Gene Expression Programming 1.3.2.1.3 Multiexpression Programming1.3.3 Fuzzy Logic; 1.3.4 Support Vector Machines: 1.4 Metaheuristic Algorithms in Optimization: 1.4.1 Evolutionary Algorithms; 1.4.1.1 Genetic Algorithm; 1.4.1.2 Differential Evolution; 1.4.1.3 Harmony Search; 1.4.2 Swarm-Intelligence-Based Algorithms; 1.4.2.1 Particle Swarm Optimization; 1.4.2.2 Ant Colony Optimization; 1.4.2.3 Bee Algorithms; 1.4.2.4 Firefly Algorithm; 1.4.2.5 Cuckoo Search; 1.4.2.6 Bat Algorithm; 1.4.2.7 Charged System Search; 1.4.2.8 Krill Herd; 1.5 Challenges in Metaheuristics: References 2 A Review on Traditional and Modern Structural Optimization: Problems and Techniques2.1 Optimization Problems; 2.2 Optimization

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Sommario/riassunto

Due to an ever-decreasing supply in raw materials and stringent constraints on conventional energy sources, demand for lightweight, efficient and low-cost structures has become crucially important in modern engineering design. This requires engineers to search for optimal and robust design options to address design problems that are commonly large in scale and highly nonlinear, making finding solutions challenging. In the past two decades, metaheuristic algorithms have shown promising power, efficiency and versatility in solving these difficult optimization problems. This book examin