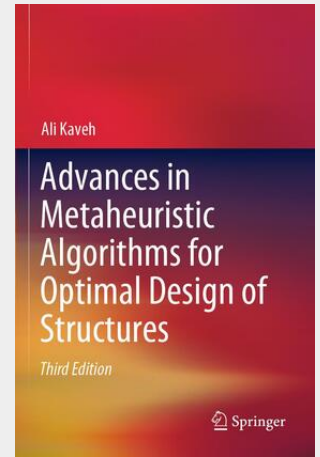


Kaveh

Advances in Metaheuristic Algorithms for Optimal Design of Structures

This book presents efficient metaheuristic algorithms for optimal design of structures. Many of these algorithms are developed by the author and his graduate students, consisting of Particle Swarm Optimization, Charged System Search, Magnetic Charged System Search, Field of Forces Optimization, Democratic Particle Swarm Optimization, Dolphin Echolocation Optimization, Colliding Bodies Optimization, Ray Optimization. These are presented together with algorithms which are developed by other authors and have been successfully applied to various optimization problems. These consist of Partical Swarm Optimization, Big Band Big Crunch algorithm, Cuckoo Search Optimization, Imperialist Competitive Algorithm and Chaos Embedded Metaheuristic Algorithm. Finally a multi-objective Optimization is presented to Solve large scale structural problems based on the Charged System Search algorithm, In the second edition seven new chapters are added consisting of Enhance colliding bodies optimization, Global sensitivity analysis, Tug of War Optimization, Water evaporation optimization, Vibrating System Optimization and Cyclical Parthenogenesis Optimization algorithm. In the third edition, five new chapters are included consisting of the recently developed algorithms. These are Shuffled Shepherd Optimization Algorithm, Set Theoretical Shuffled Shepherd Optimization Algorithm, Set Theoretical Teaching-Learning-Based Optimization Algorithm, Thermal Exchange Metaheuristic Optimization Algorithm, and Water Strider Optimization Algorithm and Its Enhancement. The concepts and algorithm presented in this book are not only applicable to optimization of skeletal structure, finite element models, but can equally be utilized for optimal design of other systems such as hydraulic and electrical networks.



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