1. Record Nr. UNINA9911003590403321 Autore Cuevas Erik Titolo Advanced Metaheuristics: Novel Approaches for Complex Problem Solving / / by Erik Cuevas, Nahum Aguirre, Oscar Barba-Toscano, Mario Vásquez-Franco Cham:,: Springer Nature Switzerland:,: Imprint: Springer,, 2025 Pubbl/distr/stampa **ISBN** 3-031-89284-4 Edizione [1st ed. 2025.] Descrizione fisica 1 online resource (XVI, 228 p. 54 illus., 26 illus. in color.) Collana Studies in Computational Intelligence, , 1860-9503;; 1210 Disciplina 006.3 Soggetti Computational intelligence Artificial intelligence Computational Intelligence Artificial Intelligence Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia

Optimization -- Metaheuristic Algorithms -- Population initialization Nota di contenuto for metaheuristic algorithm based on the Gibbs sampling methodology -- Metaheuristic optimization with dynamic strategy adaptation --Harnessing Locust Swarm Dynamics for Optimization Algorithms --Diversity-Opposition hybridization of the Cheetah Optimizer for global

optimization.

Sommario/riassunto This book examines a series of strategies designed to enhance

metaheuristic algorithms, focusing on critical aspects such as initialization methods, the incorporation of Evolutionary Game Theory to develop novel search mechanisms, and the application of learning concepts to refine evolutionary operators. Furthermore, it emphasizes the significance of diversity and opposition in preventing premature convergence and improving algorithmic efficiency. These strategies collectively contribute to the development of more adaptive and robust optimization techniques. The book was designed from a teaching standpoint, making it suitable for undergraduate and postgraduate students in Science, Electrical Engineering, or Computational Mathematics. Furthermore, engineering practitioners unfamiliar with

metaheuristic computations will find value in the application of these

techniques to address complex real-world engineering problems, extending beyond theoretical constructs.