



in the next decade.

A new metaheuristic optimization algorithm, called krill herd (KH), has been recently proposed by Gandomi and Alavi. In this study, KH is introduced for structural optimization. For more verification, KH is subsequently applied to three design problems reported in the literature. The performance of the KH algorithm is further compared with various algorithms representative of the state of the art in the area. The comparisons show that the results obtained by KH can be better than the best solutions obtained by the existing methods in these three case studies.

Swarm intelligence refers to collective intelligence. Biologists and natural scientist have been studying the behavior of social insects due to their efficiency of solving complex problems such as finding the shortest path between their nest and food source or organizing their nests. In spite of the fact that these insects are unsophisticated individually, they make wonders as a swarm by interaction with each other and their environment. In last two decades, the behaviors of various swarms that are used in finding preys or mating are simulated into a numerical

summarized and their working steps are listed. These techniques are ant colony optimizer, particle swarm optimizer, artificial bee colony algorithm, glowworm algorithm, firefly algorithm, cuckoo search algorithm, bat algorithm, and hunting search algorithm. Two optimization problems taken from the literature are solved by all these eight algorithms and their performance are compared. It is noticed that most of the swarm intelligence-based algorithms are simple and robust techniques that determine the optimum solution of optimization problems efficiently with

in recent years bio-inspired computational theories and tools have developed to assist people in extracting knowledge from high dimensional data. These differ in how they take a more evolutionary approach to learning, as opposed to traditional artificial intelligence (AI) and what could be described as 'creationist' methods. Instead bio-inspired computing takes a bottom-up, de-centralized approach that often involves the method of specifying a set of simple rules, a set of simple organisms which adhere to those rules, and of iteratively applying those rules. Bio-

theories in image and video processing. It addresses the growing demand for image and video processing in diverse application areas, such as secured biomedical imaging, biometrics, remote sensing, texture understanding, pattern recognition, content-based image retrieval, and more. This book is perfect for students following this topic at both undergraduate and postgraduate level. It will also prove indispensable to researchers who have an interest in image processing using bio-inspired computing.

19. Improvement of PSO Algorithm by Memory-Based Gradient Search—Application in Inventory Management