

ABSTRACT

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In this study, a new optimization algorithm called the Hitchcock Bird Inspired Algorithm (AIPH) is introduced, inspired by the aggressive bird behavior portrayed by Alfred Hitchcock in the 1963 thriller “The birds”. When gathering elements about the phenomenon of birds throughout the film, it is possible to enumerate characteristics of the behavior of the birds that Hitchcock portrayed in the film. AIPH is a stochastic swarm intelligence algorithm that captures the essence of the fictional behavior of birds exposed by Hitchcock and model an optimization mechanism. The algorithm was based on the attack pattern of birds in the film, which has the stages of stalking, attack and reorganization, defined by the initialization, movement strategies in the search space and strategy of local minimum escape, respectively. The technique has as differential the use of adaptive parameters, a discretized random initialization and the use of the Beta distribution. The performance of the algorithm is verified for 8 cost functions for *benchmark*, with scenarios of 10, 60 and 600 dimensions. In order to evaluate the results of the AIPH, 14 swarm intelligence based optimization techniques in the literature were chosen, considering different types of inspiration, such as principles of mathematics, human relations, physics and biology. The obtained average results with 30 repetitions of each algorithm observed for performance analysis. The AIPH produced satisfactory and balanced results in different dimensions of the chosen cost functions, being able to stand out in high dimensionality scenarios.

Keywords: Optimization; Metaheuristic; Swarm Intelligence; Adaptative Algorithm.