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Grey Wolf Optimization Technique for Predictive Analysis of Products in E-Commerce: An Adaptive Approach

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Abstract : E-commerce industries nowadays implement the latest AI, ML Techniques to improve their own performance and prediction accuracy. This helps to gain a huge profit from the online market. Ant Colony Optimization, Genetic algorithm, Particle Swarm Optimization, Neural Network & GWO help many e-commerce industries for up-gradation of their predictive performance. These algorithms are providing optimum results in various applications, such as stock price prediction, prediction of drug-target interaction & user ratings of similar products in e-commerce sites, etc. In this study, customer reviews will play an important role in prediction analysis. People showing much interest in buying a lot of services& products suggested by other customers. This ultimately increases net profit. In this work, a convolution neural network (CNN) is proposed which further is useful to optimize the prediction accuracy of an e-commerce website. This method shows that CNN is used to optimize hyperparameters of GWO algorithm using an appropriate coding scheme. Accurate model results are verified by comparing them to PSO results whose hyperparameters have been optimized by CNN in Amazon's customer review dataset. Here, experimental outcome proves that this proposed system using the GWO algorithm achieves superior execution in terms of accuracy, precision, recovery, etc. in prediction analysis compared to the existing systems.

Keywords : prediction analysis, e-commerce, machine learning, grey wolf optimization, particle swarm optimization, CNN
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