عنوان مقاله:

New distance and similarity measures for hesitant fuzzy soft sets

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خلاصه مقاله:

The hesitant fuzzy soft set (HFSS), as a combination of hesitant fuzzy and soft sets, is regarded as a useful tool for dealing with the uncertainty and ambiguity of real-world problems. In HFSSs, each element is defined in terms of several parameters with arbitrary membership degrees. In addition, distance and similarity measures are considered as the important tools in different areas such as pattern recognition, clustering, medical diagnosis, and the like. For this purpose, the present study aimed to evaluate the distance and similarity measures for HFSSs by using well-known Hamming, Euclidean, and Minkowski distance measures. Further, some examples were used to demonstrate that these measures fail to perform well in some applications. Accordingly, new distance and similarity measures were proposed by considering a hesitance index for HFSSs and the effect of considering hesitance index was shown by using an example of pattern recognition. Finally, the application of the proposed measures and hesitance index was investigated in the clustering and decision-making problem, respectively. In conclusion, the use of the proposed measures in clustering and hesitance index in decision-making can provide better and more reasonable results.

کلمات کلیدی:

hesitant fuzzy set, Hesitant fuzzy soft set, Hesitance index, distance measure, Similarity measure, Clustering