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INTERVAL-VALUED INTUITIONISTIC HESITANT FUZZY EINSTEIN GEOMETRIC AGGREGATION OPERATORS

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ABSTRACT

Aggregation of fuzzy information in hesitant fuzzy environment is a new branch of hesitant fuzzy set (HFS) theory. HFS theory introduced by Torra and Narukowa has attracted significant interest from researchers in recent years. In this paper, we investigate the interval valued intuitionistic hesitant fuzzy (IVIHF) aggregation operators with the help of Einstein operations. First some new operations such as Einstein sum, Einstein product, and Einstein scalar multiplication on the interval valued intuitionistic hesitant fuzzy elements (IVIHFEs) are introduced. Then, some IVIHF aggregation operators such as interval valued intuitionistic hesitant fuzzy Einstein weighted geometric (IVIHFWG$^\epsilon$) operators and the interval valued intuitionistic hesitant fuzzy Einstein ordered weighted geometric (IVIHFOWG$^\epsilon$) operator are developed. Some of the properties of IVIHFEs are discussed in detail.

KEYWORDS: Einstein Operations, Hesitant Fuzzy Set, Interval Valued Intuitionistic Hesitant Fuzzy Elements, Interval Valued Intuitionistic Hesitant Fuzzy Einstein Weighted Geometric (IVIHFWG$^\epsilon$) Operators