

## Intuitionistic Fuzzy Sets Spherical Representation And

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### Intuitionistic Fuzzy Sets Spherical Representation

between two intuitionistic fuzzy sets are introduced. We call these distances spherical distances because their definition is based on a spherical representation of intuitionistic fuzzy sets. The paper is set out as follows. In the following section, some preliminary definitions and

### Intuitionistic Fuzzy Sets: Spherical Representation and ...

Most existing distances between intuitionistic fuzzy sets are defined in linear plane representations in 2D or 3D space. Here, we define a new interpretation of intuitionistic fuzzy sets as a restricted spherical surface in 3D space. A new spherical distance for intuitionistic fuzzy sets is introduced. We prove that the spherical distance is different from those existing distances in that it is nonlinear with respect to the change of the corresponding fuzzy membership degrees. © 2009 Wiley ...

### Intuitionistic fuzzy sets: Spherical representation and ...

Most existing distances between intuitionistic fuzzy sets are defined in linear plane representations in 2D or 3D space. Here, we define a new interpretation of intuitionistic fuzzy sets as a...

### Intuitionistic Fuzzy Sets: Spherical Representation and ...

between intuitionistic fuzzy sets may be more adequate to capture the semantic difference. Here, new nonlinear distances between two intuitionistic fuzzy sets are introduced. We call these distances spherical distances because their definition is based on a spherical representation of intuitionistic fuzzy sets.

### Intuitionistic Fuzzy Sets: Spherical Representation and ...

Abstract Most existing distances between intuitionistic fuzzy sets are defined in linear plane rep-resentations in 2D or 3D space. Here, we define a new interpretation of intuitionistic fuzzy sets as a restricted spherical surface in 3D space. A new spherical distance for intuitionistic fuzzy sets is introduced.

### Intuitionistic Fuzzy Sets: Spherical Representation and ...

Spherical fuzzy set is a direct generalization of fuzzy set, intuitionistic fuzzy set and picture fuzzy set. A question arises that why we need spherical fuzzy set or what are the boundaries of PFSs that leads us to spherical fuzzy sets? The main downside of PFSs is the restriction on it, i.e.,

### Spherical fuzzy sets and its representation of spherical ...

intuitionistic fuzzy sets spherical representation and today will concern the morning thought and well along thoughts. It means that everything gained from reading wedding album will be long last mature investment. You may not compulsion to acquire experience in real condition that will spend more money, but you can Page 4/6

### Intuitionistic Fuzzy Sets Spherical Representation And

Yang and Chiclana proposed a spherical representation, which allowed usto define a distance function between intuitionistic fuzzy sets. They have shown that the spherical distance is different from those existingdistances in that it is nonlinear with respect to the change of the corresponding fuzzymembership degrees, and thus it seems more appropriate than usual linear distances for nonlinear contexts in 3D spaces.

### Spherical fuzzy sets and spherical fuzzy TOPSIS method ...

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### Intuitionistic Fuzzy Sets Spherical Representation And

In this article, a representation of the intuitionistic fuzzy systems based on complex numbers (IFS-C) in the polar form by a new way is proposed to overcome the above restrictions. Specifically, an intuitionistic fuzzy set is characterized by the two functions of modulus and argument. A new order relation, set-theoretic operations, and a new ...

### A New Representation of Intuitionistic Fuzzy Systems and ...

Abstract. The extensions of ordinary fuzzy sets such as intuitionistic fuzzy sets (IFS), Pythagorean fuzzy sets (PFS), and neutrosophic sets (NS), whose membership functions are based on three dimensions, aim to describe expert's judgments more informatively and explicitly. Introduction of generalized three dimensional spherical fuzzy sets (SFS) including some essential differences from the other fuzzy sets is presented in the literature with their arithmetic, aggregation, and ...

### Spherical Fuzzy Sets and Decision Making Applications ...

Multi-valued spherical fuzzy sets Intuitionistic Fuzzy Sets Neutrosophic Sets Pythagorean Fuzzy Sets Power aggregation operators Spherical representation Spherical distance Fuzzy Analytic Hierarchy Process Multi-valued spherical fuzzy sets Fuzzy Multi-Criteria Decision Making Data Envelopment Analysis with Spherical Fuzzy Sets Interval Spherical Sets Optimal site selection Spherical fuzzy ...

### Decision Making with Spherical Fuzzy Sets | SpringerLink

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### Intuitionistic fuzzy sets: Spherical representation and ...

3 Presentation of Intuitionistic Fuzzy Numbers and Its Properties Definition 3.1 Intuitionistic Fuzzy Number: An IFN  $\tilde{A}$  is defined as follows: i) an intuitionistic fuzzy subset of the real line ii) normal, i.e., there is any  $x \in \mathbb{R}$  such that  $\mu_{\tilde{A}}(x) + \nu_{\tilde{A}}(x) \leq 1$  (so  $0 \leq \mu_{\tilde{A}}(x) \leq 1$ ) iii) a convex set for the membership function  $\mu_{\tilde{A}}$ , i.e.,

### Intuitionistic Fuzzy Number and Its Arithmetic Operation ...

Several extensions and generalizations of fuzzy sets have been introduced in the literature, for example, Atanassov's intuitionistic fuzzy sets, type 2 fuzzy sets, and fuzzy multisets. In this paper, we propose hesitant fuzzy sets.

### Hesitant fuzzy sets - Torra - 2010 - International Journal ...

A geometrical representation of an intuitionistic fuzzy set is a point of departure for our proposal of distances between intuitionistic fuzzy sets. ... A new spherical distance for intuitionistic ...

### An application of intuitionistic fuzzy sets in medicine ...

this problem, intuitionistic fuzzy Petri nets (IFPNs) were presented for knowledge representation and reasoning. First, the IFPN model was constructed for knowledge rep-resentation by combining intuitionistic fuzzy sets theory with Petri nets theory. Second, an algorithm based on IFPN was proposed, and the matrix operation was intro-

### Intuitionistic Fuzzy Petri Nets for Knowledge ...

In mathematics, fuzzy sets (a.k.a. uncertain sets) are somewhat like sets whose elements have degrees of membership. Fuzzy sets were introduced independently by Lotfi A. Zadeh and Dieter Klaua [] in 1965 as an extension of the classical notion of set. At the same time, Salii (1965) defined a more general kind of structure called an L-relation, which he studied in an abstract algebraic context.