

人工智能

基于多专家区间数的多属性群决策方法

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摘要: 针对区间数的多专家多属性决策问题,提出了一种基于非线性规划模型的群决策方法。该方法建立如下准则:在不同对象和属性下,当某专家的估计值与所有专家估计值的均值越靠近时,则其专家权重就越大;反之就越小。基于该准则利用区间距离公式和规划模型解决了专家权重难以确定的问题。结合集成算子理论,利用区间数算术平均算子将决策矩阵集成为综合决策矩阵,再利用属性权重将其集成为综合属性值,通过二维可能度建立比较可能度矩阵,然后利用排序向量法进行排序。最后通过实例分析验证了该方法的可行性和合理性。

关键词: 区间数 群决策 专家权重 算子集成理论 可能度

Method for multi-attribute group decision-making based on multi-experts' interval numbers

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Abstract: A group decision-making method based on non-linear programming model was proposed for multi-attribute problem based on multi-experts' interval numbers. This method had constructed the following principles: under different objects and attribute conditions, the weight of an expert would be bigger if his evaluation value was close to the mean value of all experts' evaluation; on the other hand, smaller. Based on this, the problem that experts' weights were hard to be determined had been solved successfully with interval distance formula and programming model. According to aggregated operator theory, decision-making matrices had be aggregated into a collective decision-making matrix by use of interval weighted arithmetic aggregated operator, then aggregated into an overall attribute value by attribute weights, and with two-dimensions possibility degree, a possibility degree matrix had been constructed to rank all objects by ranking vectors method. Finally, a case study was presented to verify the proposed method's feasibility and rationality.

Keywords: interval number group decision-making experts' weight aggregated operator theory possibility degree

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