

عنوان مقاله:

Improvement of bagging by increasing probabilistic classifiers' confidence in prediction: A Case study of SAPCO Parts Supply Company

محل انتشار:

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نویسندگان:

Shima Malekpour - *Data Mining Laboratory, Industrial Engineering Department, Faculty of Engineering, College of Farabi, University of Tehran, Tehran, Iran*

Shahrokh Asadi - *Data Mining Laboratory, Industrial Engineering Department, Faculty of Engineering, College of Farabi, University of Tehran, Tehran, Iran*

خلاصه مقاله:

In today's interconnected global marketplace, the success and competitiveness of businesses are intricately tied to the performance of their supply chains. Supplier selection is a crucial component of an effective supply chain management, as it directly impacts the supply chain's efficiency, resilience, and overall performance. Choosing capable suppliers is a strategic imperative that can significantly impact a company's ability to deliver high-quality products, optimize costs, mitigate risks, and foster innovation. Nevertheless, considering various criteria simultaneously, Supplier selection is a challenging process. Studies confirm that Artificial intelligence, particularly machine learning, outperforms traditional methods in certain domains due to its ability to handle complex and unstructured data, make accurate predictions, and adapt to changing conditions. This research, therefore, proposes an improved bagging-based ensemble learning to classify suppliers. In the method, the accuracy of base classifiers is promoted by increasing classifiers' confidence in predicting samples, leading to climbing the accuracy of ensemble learning. The performance of the method was evaluated using a dataset from the supplying Automotive Parts Company (SAPCO) which is responsible for engineering, design, and parts supply of Iran-Khodro (IKCO), the largest industrial group in Iran. Results represent that the proposed method significantly enhances the power of bagging-based ensemble learning in evaluating and classifying suppliers.

کلمات کلیدی:

Ensemble learning, Bagging, DEA Cross efficiency, Supplier selection, Probabilistic classifier

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