Abstract

Text classification has become one of the most important techniques in text mining. A number of machine learning algorithms have been introduced to deal with automatic text classification. One of the common classification algorithms is the k-NN algorithm which is known to be one of the best classifiers applied for different languages including Arabic language. However, the k-NN algorithm is of low efficiency because it requires a large amount of computational power. Such a drawback makes it unsuitable to handle a large volume of text documents with high dimensionality and in particular in the Arabic language. This paper introduces a high performance parallel classifier for large-scale Arabic text that achieves the enhanced level of speedup, scalability, and accuracy. The parallel classifier is based on the sequential k-NN algorithm. The classifier has been tested using the OSAC corpus. The performance of the parallel classifier has been studied on a multicomputer cluster. The results indicate that the parallel classifier has very good speedup and scalability and is capable of handling large documents collections with higher classification results.

Index Terms

Computer Science

Artificial Intelligence
Keywords
Arabic text classification  k-NN algorithm  parallel classifier  multicomputer cluster