

Cluster separability in a partition and applications

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Abstract. The problem of cluster separability in a minimum distance partition based on the squared Euclidean distance is considered. A characterization of a well-separated partition is given and an operational criterion is provided that gives the possibility to measure the quality of cluster separability in a partition. Especially, the analysis of cluster separability in a partition is illustrated by implementation of the k -means algorithm. Also we give an application to construction of a new separation index for searching for a most appropriate number of clusters in a partition. The index is compared with some other known separation indexes. On the basis of experimental results on synthetic and real-world data it is shown that this new separation index is not more inferior in relation to other well-known indexes.