**RELATED WORK**

Although the majority vote rule make the kNN algorithm more simple and easier to carry, it is based on a assumption that each of the K nearest neighbors is equally important. In practice, the circumstances can be more complex.Intuitively, the closer the neighbor, the more possible that the unknown vector f will be in the class of this neighbor. In 1995, Thierry Denœux[3] unprecedentedly define the frame of discernment [10] of a kNN method, and used the distance of samples to measure the mass function of one sample. Our own work is a extend to his work.

To replace the majority vote rule, some researchers are also prone to looking on the relationship between the global and local probability distribution. For a small training data, Sunsern Cheamanunkul [11] propose a simple k-NN rule that takes into account the labels of all of the neighbors, rather than just the most common label. In his approach, relative entropy is used to measure the relationship between the global and local probability distribution.