Improved Evidence Theoretic kNN Classifier based on Theory of Evidence

Abstract

The k-nearest neighbor rule is one of the simplest and most attractive pattern classification algorithms. However, it faces serious challenges when patterns of different classes overlap in some regions in the feature space. In the past, many researchers have developed various methods to improve its performance. In this paper, we propose an improved evidence theoretic
Improved Evidence Theoretic kNN Classifier based on Theory of Evidence

kNN algorithm which combines Dempster Shafer theory of evidence and k nearest neighbour rule with distance metric based neighborhood. It is shown that the proposed algorithm significantly improves the performance of the k-nearest neighbor rule. In experiments this algorithm performed better than voting, distance weighted and extended k nearest neighbours algorithms with best k, and it achieved highest performance when number of neighbours considered is seven.

Reference


Index Terms

Computer Science Pattern Recognition
Key words

Dempster Shafer Theory
Nearest Neighbor Rule

Classification