Abstract

In speech processing gender clustering and classification is the most outstanding and challenging task. In both gender clustering and classification, one the most vital processes carried out is the selection of features. In speech processing, pitch is the most often used feature for gender clustering and classification. It is essential to note that compared to a female speech the pitch value of a male speech is much different. Also, in terms of frequency there is a considerable dissimilarity between the male and female speech. In some situations, either the frequency of male is almost same as female or the frequency of female is same as male. It is difficult to find out the exact gender in such conditions. This paper focuses on rectifying these practical obstacles by extracting three significant features, namely, energy entropy, zero crossing rate, and short time energy. Gender clustering is performed based on these features. However, by means of Euclidean distance, Mahalanobis distance, Manhattan distance & Bhattacharyya distance methods the clustering performance is analyzed. Using fuzzy logic, neural network, hybrid neuro-fuzzy, and support vector machine the gender classification is done. A benchmark dataset and real-time dataset is used for testing to make sure the reliability of the performance. The test results show the performance of various techniques and distance
Gender Clustering and Classification Algorithms in Speech Processing: A Comprehensive Performance Analysis

algorithms for different datasets

References

- Theodoros Giannakopoulos, Aggelos Pikrakis, and Sergios Theodoridis, "A Speech/Music Discriminator for Radio Recordings using Bayesian Networks," In
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Index Terms

Computer Science
Artificial Intelligence
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Keywords

Mahalanobis distance  Manhattan distance  Bhattacharyya distance  Neuro fuzzy
Support vector machine