Abstract

Conventional Speaker Identification (SI) Systems uses individual Gaussian Mixture Models (GMM) for every speaker. If this method used for the large population Speaker identification systems, then during identification, likelihood computations between an unknown speaker’s test feature vectors and speaker models has become a time-consuming process. This approach also increases the computational complexity and the training time. To overcome these problems this paper proposes an clustering method named as, Optimized Hierarchical mixture Clustering (OHMC) in combination with Maximum A posteriori (MAP) and Maximum Linear Log Regression (MLLR) Adaptation. In this approach, during training phase, speaker independent model (Universal Background Model) was generated and then individual speaker models has been built using supervised adaptation. Then OHMC method used to group the similar speakers. During testing phase, log-likelihood needs to be calculated only for the cluster which is scored high among all the clusters, and subsequently for all speakers within that cluster. This method uses Kullback - Leibler divergence as the distance measure. Hence this combined approach performs well when compared to other conventional approaches by reduced the computational complexity and increased the identification speed.

References
Efficient Text-Independent Speaker Identification using Optimized Hierarchical Mixture Clustering


Index Terms

Computer Science
Applied Mathematics

Keywords

Speaker Identification  Optimized Hierarchical Mixture Clustering  Map And Mllr Adaptation