Abstract

The goal of this paper is to discuss and compare three feature extraction methods: Linear Predictive Coefficients (LPC), Linear Prediction Cepstral Coefficients (LPCC) and Weighted Linear Prediction Cepstral Coefficients (WLPCC) for recognizing the stuttered events. Speech samples from the University College London Archive of Stuttered Speech (UCLASS) were used for our analysis. The stuttered events were identified through manual segmentation and were used for feature extraction. Two simple classifiers namely, k-nearest neighbour (kNN) and Linear Discriminant Analysis (LDA) were employed for speech dysfluencies classification. Conventional validation method was used for testing the reliability of the classifier results. The study on the effect of different frame length, percentage of overlapping, value of ã in a first order pre-emphasizer and different order p were discussed. The speech dysfluencies classification accuracy was found to be improved by applying statistical normalization before feature extraction. The experimental investigation elucidated LPC, LPCC and WLPCC features can be used for identifying the stuttered events and WLPCC features slightly outperforms LPCC features and LPC features.