SPEAKER IDENTIFICATION BASED USER AUTHENTICATION SYSTEM

A.K.N.L Aththanagoda

Postgraduate Institute of Science, University of Peradeniya, Peradeniya, Sri Lanka
Department of Statistics and Computer Science, University of Peradeniya,Peradeniya,Sri Lanka

Speech is the primary mode of communication among humans, and voice modalities seem to be the most convenient for the users in such authentication system. Therefore the concept of automatic speech identification was developing rapidly in last few decades. The automatic speaker recognition technologies have become more important and speech aided applications are being used for many researches. The main challenge for automatic speaker recognition is to deal with the variability of the environments and channels from where the speech is obtained.

This research presents a speaker recognition system that has been developed by using artificial neural networks. It consist of three main modules namely LPC module, neural network module and final GUI module. The final user identification module presents the output generated by the other modules. The proposed method uses a Back propagation Neural Networks (BNN) in which input signals are coming from a Linear Predictive Coding (LPC) processing method that characterizes each voice signal. In live recording Daubechies' scaling and wavelet filtering method has been used to remove noise. The speaker identification accuracy is around 85% for the proposed system. However this system has some limitations. The system has been trained using limited number of samples. Accuracy could be increased by increasing the number of training samples.