

User Authentication via Speaker Identification

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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 of automatic speaker recognition is to deal with the variability of the environments and channels from where the speech is obtained.

This research presents speaker recognition system that has been developed by using artificial neural network. It consists 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.

When considering the first two modules, module two recognizes speaker using Back- propagation Neural Networks (BNN) in which input signals are out coming from a Linear Predictive Coding (LPC) processing method (module one) that characterizes each voice signal. However, these three modules operate separately. One of the important specialty of this system is all three modules were developed using MATLAB programming language. Even for the user interfaces this system has used MATLAB. The reason is we need to prove that, when developing an ANN system it should not depend on the UI developing with another programming language.

The speaker identification accuracy is around 85% for the current developed system. Still this system has limitations The number of users that can use this system is still limited. The user can add new users to the system by using all three modules in order. The range of accept and reject is defined by using the simulation results of the neural network. If the numbers of users increase, the similarity will increase, and cause limitation in this system.

Key words: MATLAB programming language, Back- propagation Neural Networks (BNN), Linear Predictive Coding (LPC) processing