Improved Dynamic Speaker Recognition System using NLMS Adaptive Filter

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 148
Number 10

Year of Publication: 2016

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10.5120/ijca2016911278

Abstract

In a controlled environment, we can implement a speaker recognition system using MFCC and Vector Quantization. So, the main objective of this paper is to develop a speaker recognition system using MFCC and Vector Quantization (VQ) in a noisy environment, when the input speech utterance is given through a microphone. Normalised Least Mean Square Adaptive (NLMS) Filter is used to improve the performance of the system in noisy environment. So the NLMS Adaptive filter is used to reduce the background noise from input speech signal and then the filtered signal is given to the Feature Extraction phase. For implementation simplicity, it is developed as Text-Dependent Speaker Recognition System with 10 speakers, each speaker locally recorded database is used for training. The performance of the proposed system tested in noisy environment with and without using the NLMS adaptive filter and improved recognition evaluated using Equal Error Rate (EER).

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Index Terms

Computer Science Pattern Recognition

Keywords

Least Mean Square, NLMS Adaptive Filter, Vector Quantization, Equal Error Rate (EER).