Patent Search

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Inventor

Name	Address	Country
Dr. M Nagaraju	Assistant Professor, Department of CSE(AI&ML), Institute of Aeronautical Engineering, Dundigal, Hyderabad. Email: m.nagaraju@iare.ac.in	India
Dr. Priyanka Chawla	Associate Professor, Department of CSE, National Institute of Technology, Warangal.Email: priyankac@nitw.ac.in	India
Dr. P. Ashok Babu	Professor, Department of CSE(AI&ML), Institute of Aeronautical Engineering, Dundigal, Hyderabad. Email: p.ashokbabu@iare.ac.in	India

Applicant

Name	Address	Country
Dr. M Nagaraju	Assistant Professor, Department of CSE(AI&ML), Institute of Aeronautical Engineering, Dundigal, Hyderabad. Email: m.nagaraju@iare.ac.in	India
Dr. Priyanka Chawla	Associate Professor, Department of CSE, National Institute of Technology, Warangal.Email: priyankac@nitw.ac.in	India
Dr. P. Ashok Babu	Professor, Department of CSE(AI&ML), Institute of Aeronautical Engineering, Dundigal, Hyderabad. Email: p.ashokbabu@iare.ac.in	India

Abstract:

[1] Our Invention “Speech Enhancement using Wavelet Transform” has been claimed. Wavelet transform has been intensively used in various fields of signal processi advantage of using variable size time-windows for different frequency bands. The tunable Q-factor-based wavelet transform (TQWT) is a novel method employed for enhancement (SE) task. However, in TQWT, the controlling parameters Q-factor and the level of decomposition (J) are kept constant for different noise conditions whi deteriorates the overall performance of SE. Generally, the performance of SE is calculated in terms of quality and intelligibility. However, it has been reported that the evaluation parameters do not always correlate with each other because of the distortions introduced by the SE algorithms. Multiple sources of interference and low s interference ratio are two major challenges to speech-based intelligent driver assistant systems. They will have a serious impact on the performance of voice control To solve this problem, this study proposes a speech enhancement method based on wavelet analysis and blind source separation in a complicated automobile enviro system uses a novel thresholding algorithm, and introduces a new method for threshold selection. Moreover, the efficiency of system has been increased by selecting suitable parameters for voiced, unvoiced and silence regions, separately. The proposed system has been evaluated on different sentences under various noise condit results show a plausible improvement in performance of system, in comparison with similar approaches.

Complete Specification

Description:[16] Modification of Hard thresholding algorithm as another improvement, we have used a refined version of hard thresholding function instead of the standard form of equation. More precisely, instead of setting some wavelet coefficients to zero (which causes observable sharp time frequency discontinuities in th spectrogram), we attenuate the coefficients that are smaller than the threshold value in a nonlinear manner to avoid creating abrupt changesate .

[17] The output of MOPSO is a group of optimal solutions rather than one solution. These solutions are normally categorized as dominated or non-dominated solut The set of non-dominated solutions are called Pareto-optimal solutions and these are placed on the Pareto-front.

[18] For optimizing TQWT parameters, there are limitations that Q and J can take only integer and positive values. Therefore, in the MOPSO implementation, the po and integer part of the values of Q and J is taken in the simulation. The implementation is done using the noisy speech (train station and babble noise) and clean sp taken from the NOIZEUS data set.

[19] Wavelet transform represents a given function f in a very efficient way by using a set of basic functions. In this invention , these basic functions are referred as families. Some of the most famous wavelet families are Daubechies, Biorthogonal, Coiflet and Symlet. Here, we show them by dbN, biorNr.Nd, coifN and sym N, respectively, where N indicates the order. For Biorthogonal family, the decomposition and reconstruction wavelets have different orders and are shown by Nd and N respectively

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