1. **RELATIVE SPECTRAL PROCESSING (RASTA):**

RASTA is a method of extracting the relevant information from a sound or any audio signal and the main goal of using this technique is to remove the robustness of speech recognition in additive noise or real time environment [1] and it is usually done by using band pass filter of time trajectories of logarithmic value of speech actually it is the extension of original method to the combination of additive noise and convolution noise [2]

Relative spectral processing [RASTA] based speech enhancement involves linear

Filtering of the trajectory of the short-term power spectrum of noisy speech signal, as shown in Figure. The spectral values of input speech signal are compressed by a nonlinear compression rule (a=2/3) before performing the filtering operation and expanded after filtering (b=3/2) [1].

Filter Operation

Nonlinear compression

STFT

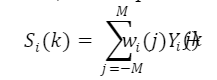
Pre-Processing

RASTA

Synthesis

Expanding

Output of each filter is given as,



Here, Si (K) is estimate of clean speech and Yi (K) is the noisy speech spectrum, WI (j) are the weights of the filter and M is the order of filter.

These values can be set to the required processing or the corresponding set of problem

[1] Deshmukh, Ratnadeep & Kurzekar, Pratik & Waghmare, Dr. Vishal & P. Shrishrimal, Pukhraj. (2014). A Comparative Study of Feature Extraction Techniques for Speech Recognition System. International Journal of Innovative Research in Science, Engineering and Technology. 3. 18006-18016. 10.15680/IJIRSET.2014.0312034.

[2] Hynek Hermansky, and Nelson Morgan, "RASTAA Processing of Speech", IEEE Transactions On Audio, Speech & Language Processing,

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