

Effect Analysis of an Improved Adaptive Speech Noise Reduction Algorithm in Online Communication Scenarios

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Abstract : With the development of society, there are more and more online communication scenarios such as teleconference and online education. In the process of conference communication, the quality of voice communication is a very important part, and noise may cause the communication effect of participants to be greatly reduced. Therefore, voice noise reduction has an important impact on scenarios such as voice calls. This research focuses on the key technologies of the sound transmission process. The purpose is to maintain the audio quality to the maximum so that the listener can hear clearer and smoother sound. Firstly, to solve the problem that the traditional speech enhancement algorithm is not ideal when dealing with non-stationary noise, an adaptive speech noise reduction algorithm is studied in this paper. Traditional noise estimation methods are mainly used to deal with stationary noise. In this chapter, we study the spectral characteristics of different noise types, especially the characteristics of non-stationary Burst noise, and design a noise estimator module to deal with non-stationary noise. Noise features are extracted from non-speech segments, and the noise estimation module is adjusted in real time according to different noise characteristics. This adaptive algorithm can enhance speech according to different noise characteristics, improve the performance of traditional algorithms to deal with non-stationary noise, so as to achieve better enhancement effect. The experimental results show that the algorithm proposed in this chapter is effective and can better adapt to different types of noise, so as to obtain better speech enhancement effect.

Keywords : speech noise reduction, speech enhancement, self-adaptation, Wiener filter algorithm

Conference Title : ICSLP 2024 : International Conference on Speech and Language Processing

Conference Location : New York, United States

Conference Dates : May 23-24, 2024