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Speech Dereverberation Enhancement

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Abstract

Reverberation is the process of multi-path propagation of a sound from its source to a receiver. It is a blind problem where the source signal is unknown and non-stationary as well as the acoustic channel also unknown and time-varying. Therefore, the effect of reverberation on speech causes sound distant and spectrally distorted and can also reduce intelligibility. Dereverberation is therefore an important speech enhancement. However, different methods were proposed to reduce the noise with keeping the original signal as natural as possible. In this paper, a method was proposed using Wiener filter approach to enhance the reverberated speech signals. The mechanism and the theories of the Wiener filter on how to enhance the speech is fully explained. In addition, Discrete Fourier Transformation, linear spectrum normalization, correlation algorithms are explained in detail. The techniques of Wiener filter have been implemented and the desired results of enhanced speech have been obtained successfully. © 2022, The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd.

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