

# Meta-Heuristic Application in Suppression of Noise



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**Abstract** Enhancement of Speech or Suppression of Noise from speech signal is considered as the practical and beneficial method for removing the unwanted disturbance and background noise from speech signal that results in the refinement of standards including quality and intelligibility of signal while communication from source to destination. Speech quality is a subjective performance measure which evaluates how fine the speech sounds and include the characteristics as naturalness and roughness of noise etc. and intelligibility is an objective performance measure which determines how much the signal is understood. Speech Enhancement aims at improving the communication system characteristics and performance with the input and output signals being degraded by unwanted noise that are encountered while transmission and reception of speech signal. Applications of speech communication requiring the noise reduction algorithms include answering machines, freehand communication, hard-of-hearing aids, localized and remote distance telecommunications, mobile and car phones, multiparty conferencing, noisy manufacturing and cockpits, teleconferencing systems, and Voice over Internet Protocol (VoIP). As the suppression of noise from corrupted speech signal brings in perceptible distortion to enhanced signal, causing impairment in its intelligibility. The main challenge in reducing the background noise from speech signal is to achieve Noise Suppression techniques suitable in enhancing the quality of signal except reduction in the intelligibility of signal. This involves a trade-off between speech distortion and noise reduction. Speech Enhancement techniques involve various methods for reducing the background noise from signal, providing an improvement in quality and intelligibility of speech signal.

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H. Malik et al. (eds.), *Metaheuristic and Evolutionary Computation: Algorithms  
and Applications*, Studies in Computational Intelligence 916,  
[https://doi.org/10.1007/978-981-15-7571-6\\_4](https://doi.org/10.1007/978-981-15-7571-6_4)

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