speech signal

<https://www.sciencedirect.com/science/article/abs/pii/S0957417415007435>

<https://www.researchgate.net/publication/342934327_Development_of_statistical_estimators_for_speech_enhancement_using_multi-objective_grey_wolf_optimizer>

<https://www.baeldung.com/cs/grey-wolf-optimization>

Development ofstatistical estimators forspeech enhancement using multi‑objective grey wolf optimizerTusarKantiDash1,2 · SandeepSinghSolanki1· GanapatiPanda2· SureshChandraSatapathy3Received: 19 March 2020 / Revised: 7 June 2020 / Accepted: 27 June 2020 / Published online: 14 July 2020 © Springer-Verlag GmbH Germany, part of Springer Nature 2020AbstractStatistical Estimation using the SNR uncertainty technique is one of the eﬀective Speech Enhancement (SE) algorithms. In this method, the Gain function plays a crucial role and it depends on the proper selection of the smoothing and threshold constants. In the literature, the values of these constants have been optimized by considering a single objective function of maximization of speech quality for a speciﬁc noise condition. But in practice, the noise magnitude varies and one set of optimized parameters cannot always provide consistent performance. In this paper, this problem has been addressed and solved in three steps. The ﬁrst step is multi-objective optimization to ﬁnd the best set of values of smoothing and threshold constants at diﬀerent noise levels by considering the objectives of maximization of speech quality, intelligibility, and mini-mization of mean square error. The second step is the classiﬁcation of the noisy speech into four SNR levels such as 0dB, 5dB, 10dB, and 15dB by using appropriate audio features. The values obtained in steps one and two are stored and in the third step, when the unknown noisy speech signal is to be enhanced the best-chosen values of the smoothing and threshold constants are selected for this task. Finally, the performance of the proposed method is evaluated in two diﬀerent speech datasets. Then, comparative performance and statistical analysis are carried out using six other standard SE algorithms and it is demonstrated that the proposed approach provides superior performance than others.Keywords Speech enhancement· Statistical estimators· Bio-inspired techniques· Quality· Intelligibility· MOGWO· Fuzzy logic

infant cry

<https://asmp-eurasipjournals.springeropen.com/articles/10.1186/s13636-021-00197-5#Sec4>

face recognition

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