SMOOTHED SUBSPACE BASED NOISE SUPPRESSION WITH APPLICATION TO SPEECH ENHANCEMENT (ThuAmPO4)

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Abstract :

Subspace based noise suppression schemes typically rely on eigenvalue estimates of covariance matrices of successive noisy signal frames. We propose in this paper a scheme for improving these estimates, and, consequently, the performance of the noise suppressor. More specifically, the presented scheme aims at combining past and current eigenvalue estimates into approximately stationary time series in order to obtain a smoothed eigenvalue estimator with a reduced variance. The scheme is general in the sense that it is applicable to essentially any subspace−based noise suppression scheme. In simulation experiments with speech signals degraded by additive white Gaussian noise, the proposed scheme shows improvements over the traditional non−smoothed approach for a range of objective quality measures. Further, in a subjective preference test, the proposed method was preferred in more than 90% of the cases.

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