DOUBLE-TALK ROBUST ACOUSTIC ECHO CANCELLATION WITH CONTINUOUS NEAR-END ACTIVITY (ThuAmPO2)

✱ Author(s) :

Toon Van Waterschoot   (ESAT-SCD, Katholieke Universiteit Leuven, Belgium)
Marc Moonen   (ESAT-SCD, Katholieke Universiteit Leuven, Belgium)

✱ Abstract :

In some acoustic echo cancellation scenarios, such as an automatic gain adjustment application, near-end noise may be continuously present. In this case a double-talk detector cannot be applied and the adaptive algorithm should behave in a robust way w.r.t. the disturbing near-end signal. From linear estimation theory it is known that the variance of the room impulse response estimate may be decreased by taking into account the near-end signal characteristics. From the expression for the best linear unbiased estimate, we derive a prediction error criterion from which the near-end signal model and the room impulse response can be estimated concurrently. We propose a new recursive identification algorithm for minimization of the proposed prediction error criterion. The proposed algorithm is in fact a variant of a prediction error identification algorithm that was developed recently for adaptive feedback cancellation. Simulation results indicate that indeed a fast converging echo cancellation algorithm may be obtained with the proposed method, as compared to ordinary RLS and NLMS adaptive algorithms.

Menu