**SPEECH ENHANCEMENT BASED ON A ROBUST ADAPTIVE KALMAN FILTER**

**ABSTRACT**

This paper deals with the problem of Adaptive Noise Cancellation (ANC) when only a corrupted speech signal with an additive Gaussian white noise is available for processing. Kalman filtering is known as an effective speech enhancement technique, in which speech signal is usually modeled as autoregressive (AR) model and represented in the state-space domain. All the approaches based on the Kalman filter proposed in the past, in this context, operate in two steps: they first estimate the noise variances and the parameters of the signal model and secondly estimate the speech signal. In this paper the estimation of the noise variances is made by reformulating and adapting the Mehra approach. The estimation of time-varying AR signal model is based on robust recursive least-square algorithm with variable forgetting factor. The proposed algorithm provides improved state estimates at little computational expense.