

{tag} International Journal of Computer Applications  
Foundation of Computer Science (FCS), NY, USA

[Volume 157](#)

-  
[Number 2](#)

Year of Publication: 2017

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10.5120/ijca2017912640

{bibtex}2017912640.bib{/bibtex}

## Abstract

Speech enhancement is required to enhance the quality of speech corrupted by the background noise and can be used in many applications such as hearing aids, mobile communication etc. In this paper a speech enhancement method is presented in which first Autoregressive (AR) model is applied for the noisy speech signal to find the speech parameters and then Hidden Markov model is applied to model those parameters. Later, the sparsity is encouraged into the model by adding the regularization parameter. The objective results for the proposed method and Wiener filter are compared. Speech quality in non-stationary noise conditions is observed through listening. The average log-likelihood score is obtained for different noises and observed that the performance is improved compared to the reference methods.

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### Index Terms

Computer Science

Information Sciences

### Keywords

Speech enhancement, non-stationary noise, sparse autoregressive hidden markov model (SARHMM).