

Document details

[Back to results](#) | 1 of 2 [Next](#)
[Export](#)
[Download](#)
[Print](#)
[E-mail](#)
[Save to PDF](#)
[Add to List](#)
[More...](#)
[Full Text](#)
[View at Publisher](#)

International Journal of Electrical and Computer Engineering
Volume 7, Issue 4, 2017, Pages 1941-1951

Single channel speech enhancement using wiener filter and compressive sensing (Article)

Sulong, A.¹, Gunawan, I.S.², Khalifa, O.O.³, Kartwi, M.⁴, Dao, H.⁴

¹Department of Electrical and Computer Engineering, International Islamic University Malaysia, Jalan Gombak, Kuala Lumpur, Malaysia

²Department of Information Systems, International Islamic University Malaysia, Malaysia

³Institute of Information Technology, University Kuala Lumpur, Malaysia

Abstract

[View references \(29\)](#)

The speech enhancement algorithms are utilized to overcome multiple limitation factors in recent applications such as mobile phone and communication channel. The challenges focus on corrupted speech solution between noise reduction and signal distortion. We used a modified Wiener filter and compressive sensing (CS) to investigate and evaluate the improvement of speech quality. This new method adapted noise estimation and Wiener filter gain function in which to increase weight amplitude spectrum and improve mitigation of interested signals. The CS is then applied using the gradient projection for sparse reconstruction (GPSR) technique as a study system to empirically investigate the interactive effects of the corrupted noise and obtain better perceptual improvement aspects to listener fatigue with noiseless reduction conditions. The proposed algorithm shows an enhancement in testing performance evaluation of objective assessment tests outperform compared to other conventional algorithms at various noise type conditions of 0, 5, 10, 15 dB SNRs. Therefore, the proposed algorithm significantly achieved the speech quality improvement and efficiently obtained higher performance resulting in better noise reduction compare to other conventional algorithms. Copyright © 2017 Institute of Advanced Engineering and Science. All rights reserved.

Author keywords

Compressive sensing PESQ PESQ improvement SNR Speech enhancement Wiener filter

ISSN: 20888708

Source Type: Journal

Original language: English

DOI: 10.11591/ijeec.v7i4.pp1941-1951

Document Type: Article

Publisher: Institute of Advanced Engineering and Science

References (29)

[View in search results format](#)

All [Export](#) [Print](#) [E-mail](#) [Save to PDF](#) [Create bibliography](#)

- 1 Loizou, P.C.
(2013) *Speech Enhancement: Theory and Practice*. Cited 1156 times.
CRC Press

Metrics

0 Citations in Scopus

0 Field-Weighted Citation Impact



PlumX Metrics

Usage, Captures, Mentions,
Social Media and Citations
beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

[Set citation alert](#)

[Set citation feed](#)

Related documents

Speech Enhancement in Non-stationary Noise Using Compressive Sensing

Sulong, A., Gunawan, I.S., Khalifa, O.O.

(2016) *Proceedings - 6th International Conference on Computer and Communication Engineering: Innovative Technologies to Serve Humanity, ICCCE 2016*

A modified a priori SNR for speech enhancement using spectral subtraction rules

Hasan, Md.K., Salahuddin, S., Khan, M.R.

(2004) *IEEE Signal Processing Letters*

An improved speech enhancement algorithm based on Wiener-Filtering

Liu, Y.H., Zhou, D.M., Di, J.

(2014) *Advanced Materials Research*

[View all related documents based on references](#)

[Find more related documents in Scopus based on:](#)

[Authors](#) [Keywords](#)