M A Al-Manie et al., J Bioengineer & Biomedical Sci 2015, 5:1
http://dx.doi.org/10.4172/2155-9538.S1.002

OMICS International
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International Conference on
Significant Advances in Biomedical Engineering
April 27-29, 2015 Philadelphia, USA

Biomedical signals analysis using a modified S-transform

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The S-transform (ST) is a time-frequency analysis distribution approach with a number of desirable properties such as phase information referenced to the origin. Also, the ST offers high spectral resolution similar to the wavelet transform (WT) and other well known time-frequency representations. However this procedure has some disadvantages seen as poor energy concentration for some type of signals. In this paper, a modification to the standard ST is proposed for the purpose of improving the performance of the distribution. This is accomplished by adding new parameters to control the window's width which can greatly improve the signal representation in the time-frequency plane. The desired features of the ST that include invert-ability and phase information are still preserved. The resulting estimator is used for biomedical signals analysis (ECG data).

Biography

Mohammed A. Al-Manie completed Doctorate of Philosophy in Electrical Engineering (Signal Processing) from the University of Pittsburgh, Pittsburgh, PA. U.S.A. in August 2001. Currently; working as a research associate professor in the National Center for Computer Technology and Applied Math at King Abdulaziz City for Science and Technology in Riyadh, Saudi Arabia. Carried out applied research in areas related to signal processing applications such as Arabic speech processing and sound detection. Refereed a number of applied research projects.

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