World Academy of Science, Engineering and Technology
International Journal of Information and Communication Engineering
Vol:13, No:02, 2019

A High Performance Piano Note Recognition Scheme via Precise Onset Detection and Segmented Short-Time Fourier Transform

Authors : Sonali Banrjee, Swarup Kumar Mitra, Aritra Acharyya

Abstract : A piano note recognition method has been proposed by the authors in this paper. The authors have used a comprehensive method for onset detection of each note present in a piano piece followed by segmented short-time Fourier transform (STFT) for the identification of piano notes. The performance evaluation of the proposed method has been carried out in different harsh noisy environments by adding different levels of additive white Gaussian noise (AWGN) having different signal-to-noise ratio (SNR) in the original signal and evaluating the note detection error rate (NDER) of different piano pieces consisting of different number of notes at different SNR levels. The NDER is found to be remained within 15% for all piano pieces under consideration when the SNR is kept above 8 dB.

Keywords : AWGN, onset detection, piano note, STFT
Conference Title : ICECC 2019 : International Conference on Electronics, Computers and Communications
Conference Location : Mumbai, India
Conference Dates : February 07-08, 2019