BEST BASIS SELECTION OF MOTHER WAVELET ON SPEECH SIGNAL FOR CHORDAE VOCALIS DISORDER SUFFERER

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Abstract

One of the factors causing the change in the sound generated from the normal state is the presence of abnormalities of the vocal cords (chordae vocalis). Changes in the characteristics of voice signals can be used as a benchmark for determining the type and level of severe vocal cord abnormalities using wavelet transform. The purpose of this research is to find the best base is shown by the average squared error that can be obtained from the original signal from the patient's vocal cord diseases and disorders that have been reconstructed voice signal. After obtaining the best base is expected to reduce the error diagnosis of the disease and to help identify the characteristics and early diagnosis of vocal cord disorder, such as vocal nodules, polyps, paresis, carcinoma, and cysts by using non-invasive tool. Sound data acquisition was conducted in patients with a soundproof room. Patients were asked to say the pronunciation of 'a' in accordance with the lung capacity that is owned and voice data decomposed and reconstructed by using different wavelet bases such as Haar, Daubechies, Symlet, coiflet, biorthogonal, reverse biorthogonal, and discrete Meyer. The best base is obtained by comparing the MSE of each base. MSE can be obtained with the formula of expectations between the signal source and signal reconstruction. Results showed the smallest owned by Biorthogonal 2.4 with the MSE of $2.48 \times 10^{-15}$

Keywords: Best Basis, MSE, Vocal Fold Disease,