

Abstract

This paper presents a new algorithm for automatic assessment of frequency duration of murmurs developed in order to estimate the severity of aortic stenosis. The applied analysis method is based on Hilbert-Huang Transform (HHT). This technique can produce a significant time frequency distribution through Hilbert transform of different Intrinsic Mode Functions (IMF) obtained by the Empirical Mode Decomposition. In this work, the frequency duration of murmurs is computed using the instantaneous mean frequency produced via HHT. The algorithm is tested on 14 cases of heart murmurs with different degrees of severity. Those obtained results are compared with manual measurement through Short Time Fourier Transform (STFT). The obtained results show a very high correlation between the methods with a coefficient of correlation $R = 0.93$