

A Feasibility Study on Feature Analysis for classification of heart murmur grades

Abstract: The grading of murmurs holds significant importance for analyzing the clinical relevance of murmurs and facilitating more accurate diagnosis and analysis. In this study, we focus on the differences between murmurs of different grades. The CirCor DigiScope Phonocardiogram Dataset was employed in this study, which comprises data without murmurs and data with murmurs of three different grades. We conducted significance analysis of the features among different grades of murmurs. Six features, namely cepstral coefficients c_0 and c_1 , energy ratio above 200Hz to energy between 45-200Hz, wavelet entropy, sample entropy, and fuzzy entropy, were extracted for different grades of murmurs. Significance was observed in the overall differences of the six features within all groups. However, inconsistency in significance was observed among pairwise comparisons between groups for these features. The observation of significance and inconsistency in the features across different grades of heart murmurs provide valuable insights and guidance for future research on automating the grading of murmurs.