Abstract

The cardiac diseases have been increasing a lot in recent years. As the heart is the important
Cardiac Cycle Phase Identification in Echocardiography Images using Wavelets and ANN

part of a human body, the functioning of the heart is very important to be in regular. The functioning of the heart is called as cardiac cycle. The cardiac cycle is the combination of two phases of the heart i. e. the actions that happen in between the pumping of the heart. This could also be said as two main states of heart, "diastole and systole". The diastole is the process of blood filled into a chamber of the heart and the systole is the process of blood flowing out from the chamber of the heart. The aim here is to identify the states of the heart and the volume during the cardiac cycle function occurs. In this paper the left ventricle is considered for the project as due to its importance in pumping the oxygenated blood (pure blood) to all parts of the body. This had done by identifying the anatomical information of the heart with the dataset of both the normal and infant cardiac pathology images of the heart. This extracts the information about the given image and also differentiates them under the two categories either the heart left ventricle is in the diastolic state or under the systole state. For identifying this sate the mitral valve position of the heart is considered. The image here consists of noise and is removed by using the median filter as the first scenario and wavelet transform for the edge detection in the second scenario. To extract the data from the image is the third scenario, the mean and SD has been calculated here. To classify the two states of the heart, the Artificial Neural Network (ANN) is used. This is fourth scenario. By training the Neural network classifiers the heart images are classified as diastole and systole.

References


Index Terms

Computer Science
Image Processing
Keywords
Cardiac Cycle  Diastole  Systole  Echocardiography Images  Pathology  Median Filter  Wavelet
Anatomical Information
Ann  Classifiers