<u>Review Article</u>

HEART DISEASE DIAGNOSIS PROCESS USING MRI SEGMENTATION AND LASSO NET CLASSIFICATION ML

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Abstract
In this work, heart disease prediction and classification mechanism is proposed based on MRI local segmentation and Lasso net classification (LSLN) machine learning technique. In the brain MRI scan model, segmentation is generally utilized measuring technique. The heart visualization of the anatomical segment can give the tumour or disease information. After the pre-processing stage image has been processed for classification state, in this lasso net regression model is used for regression and classifier. The leadingimportant of this investigation work remains to find out the heart disease diagnosis and classify the disease. The performance metrics have calculated at final such as PSNR, efficiency, throughput, F1-score as 96.12%, 98.74%, 97.25%, and 97.48% respectively. The outcomes which are obtained have more improvement, and these are competing with current technology.

Keywords: heart MRI image, local segmentation, Lasso classification, Machine learning algorithm.

INTRODUCTION

Heart valve segmentation seeks to separate healthy tissue from tumorous regions. This is an essential step in diagnosis and treatment planning in order to maximize the likelihood of successful treatment. Due to the slow and tedious nature of manual segmentation, computer algorithms that do it faster and accurately are required [1]. Because of the erraticarrival plusfigure of a heart, segmenting Heart valvefrom imaging data remains one of the maximumstimulating tasks in medical image analysis. Segmentation of the Heart valve and classify it as either Heart valves shown in fig.1

BACKGROUND

The heart is a complex organ since it consists of more than 10 billion running heart Cells. The primary Heart valve may be both malignant (include cancer cells) or heart (do not comprise most cancers cells). A number one Heart valve is a disease which hearts inside the coronary heart tissue. If a cancerous valve begins some other place in the body, it may spread cancer cells, which grow inside the coronary heart [2]. These sorts of the disease are called secondary or metastatic Heart valves. The malignant sickness tends to Grow and spread in a speedy and uncontrolled way which could reason dying, and the disease is graded in keeping with how competitive
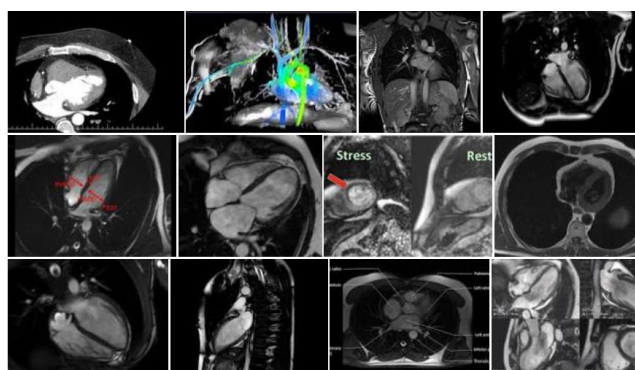

Figure: 1. Heart MRI images

. They are as

- LGG: Low-Grade diesis (Benign stage)

- HGG: High-Grade diesis (Malignant stage)

RELATED WORK

A research paper talks about using a Genetic Algorithm to segment the MRI Heart valve images. Pre-processing was done

using Wiener Filter (a 2D adaptive soundexclusion filter and the situationusages pixel-wise adaptive wienersystem) [1]. LSLN features are extracted from segmented images and given to the LSLN Classifier which gets trained and ready for classifying test images[3-5]. Another research paper by way of Alan Jose [2] did Heart valve Segmentation us/ing K-Means Clustering and Fuzzy C-Means Algorithms and Its Area Calculation. After the segmentation, (which is completed via