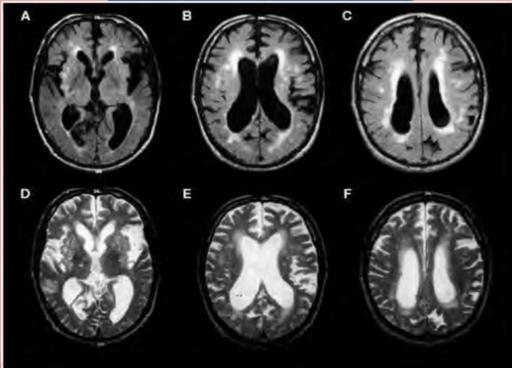
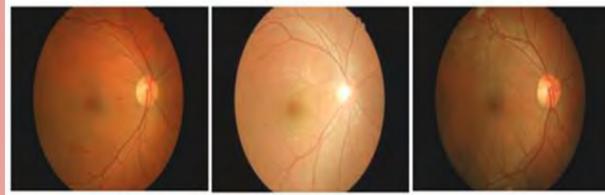


## Problems in Biomedical Images

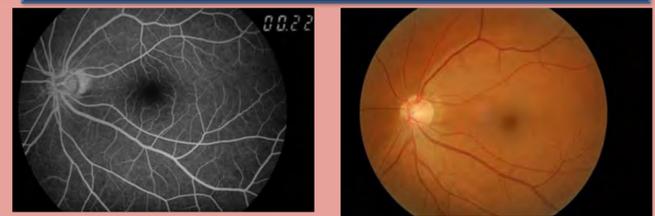
MRI Brain Images



Retinal Fundus Images



Colour Fundus Images Vs FFA Images



Biomedical Images are suffered from noise , low and varied contrast. Properly Analysis and Diagnose the disease , it is very important to handle the noise level as well as low varying contrast.

## PROBLEM FORMULATION

### Challenges & Research Issues in the Retinal Fundus Images

- 1 The colour fundus images are suffered from the noise and low varying contrast. It is challenge to develop novel image denoising cum with image enhancement technique to over these problems
- 2 Development of a reliable DR detection and grading system based on DR pathologies.

### Challenges & Research Issues in the MRI Brain Images

- 1 There are two main factors noise and varying contrast affect the performance of proper detection of brain lesion and it make difficult to detect the brain tumor.
- 2 The proper segmentation method is occurred to be used MRI images to carry out any improved diagnosis and treatment.

## RESEARCH HYPOTHESIS

- 1 There is requirement for grading of retinal blood vessel to develop image enhancement technique and apply on different database and get uniform contrast improvement on all grading stage. The implementation of algorithm of the automated segmentation of retinal blood vessels by applying newly developed non-invasive enhancement technique before extraction technique of blood vessels and it may give more improved accurate detection of retinal vessels end points as compared to previous algorithms. It may help for proper grading of disease.
- 2 Image enhancement technique can be tested on other biomedical colour images like acnes images ultrasound images and ulcer images to determine the proper detection of disease lesion.
- 3 The non-invasive image denoising and image normalisation is required to reduce the noise level of MRI brain image and uniform the contrast before applying any segmentation method for detection of brain lesion or brain tumor, It may give better improved computerised based system of brain tumor detection as compared to other existing system.

## RESEARCH OBJECTIVES

- 1 The develop the non-invasive image enhancement technique for retinal fundus image and determine the higher contrast improvement factor as compared to other existing image enhancement techniques.
- 2 Determine the accurate retinal blood vessels segmentation for proper diagnoses the eye relate disease.
- 3 Study the noise level of MRI images and develop MRI brain image probabilistic model for handling noise level.
- 4 Develop the computerised system for MRI brain images segmentation for proper diagnosis of brain tumors and other abnormalities in MRI brain images.