



## **An Analysis of Brain Tumor detection with different transforms**

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### **ABSTRACT**

Early detection of Brain Tumor which saves so many life and very much helpful to the society in order to give support to the society brain tumor analysis made in this system with analysis of different transform. The MRI brain image taken from open source namely kaggle from that data process the image and input given as image to this system and the system extract the feature and apply the different transforms namely Fourier Transform, Haar Transform and Wavelet Transform to that feature extracted data. Compare with the result and parameter taken for this process Time, Sensitivity, FAR, FRR from that data process the system and conclude the result by justifying from the implementation part.

**Keywords:** Wavelet Transform, Haar Transform, Fourier Transform.

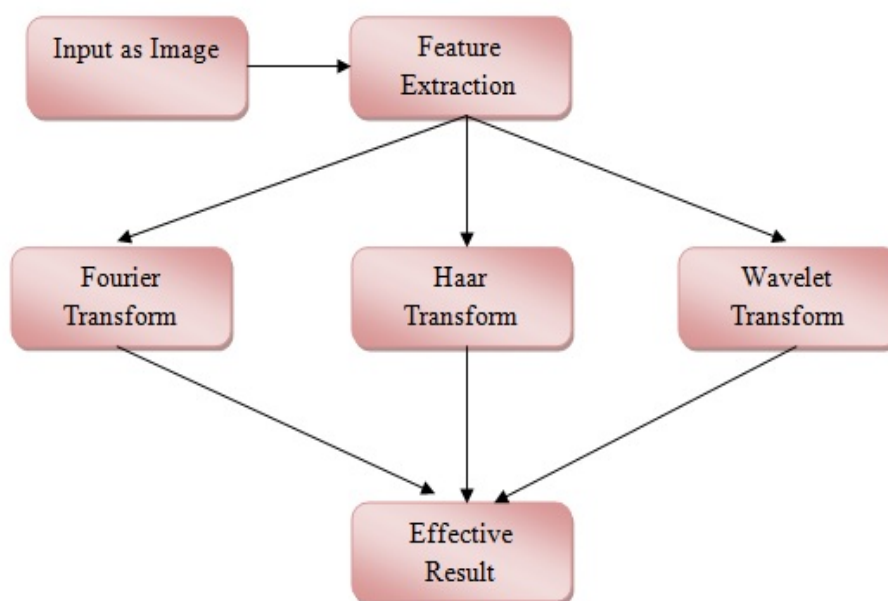
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### **INTRODUCTION**

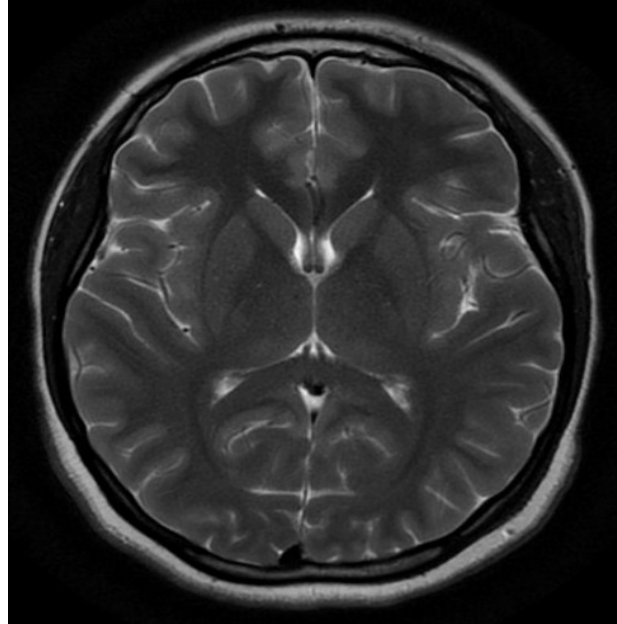
The early detection of Brain tumor is still a difficult task in medical field that to early detection is very difficult to give solution to that problem this analysis is very much helpful to that sector there are several open database are available but for this particular work kaggle database is used for the process and for feature extraction several types available but for this work edge and shape taken for the system and to make detection so many transforms are available for this particular work three transforms are taken namely Wavelet Transform, Haar Transform and Fourier Transform [1][2].



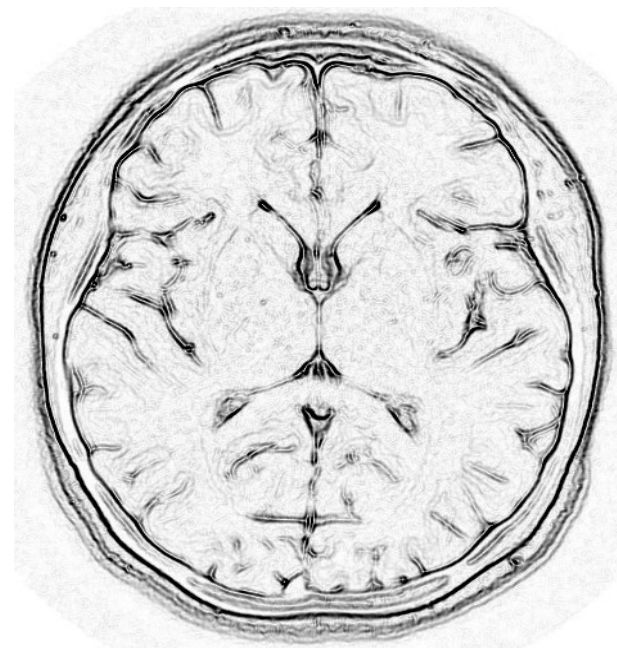
**Figure 1: Workflow of This System**

### MATERIAL AND METHODS

The early detection of brain tumor is a challenging work in order to achieve the result input image as MRI image given to the system then process the data and extract the feature from the image and feature like edge and shape from the image as mentioned in Figure 1. The Figure 2 shows the MRI Brain sample image and Figure 3 shows the MRI feature extracted image [3][4].



**Figure 2: MRI Brain sample image**



**Figure 3: Feature extracted MRI Brain sample image**

After the feature extraction completed next process of detection with three transforms take place namely wavelet Transform, Haar Transform and Fourier Transform using this transform detect the tumor from the MRI brain image and compare the result among those three transform and indentify the best transform from the result in order to maintain the quality of the transform parameters like FAR, FRR, time and sensitivity take place for the justification in result part [5][6].

**RESULT AND DISCUSSION**

This implementation part which give result for the comparison among the transform with parameter like FAR, FRR, Time and Sensitivity taken into account for the effective identification of the result. The Table 1 shows the comparison among the implemented transforms [7][8].

TABLE 1: COMPARISON AMONG TRANSFORMS

S.No	Transforms	FAR (%)	FRR (%)	Time (Sec)	Sensitivity (%)
1.	Wavelet	98.98	100	0.11	98.98
2.	Haar	98.98	98.98	0.12	98.98
3.	Fourier	98.98	98.98	0.11	98.98

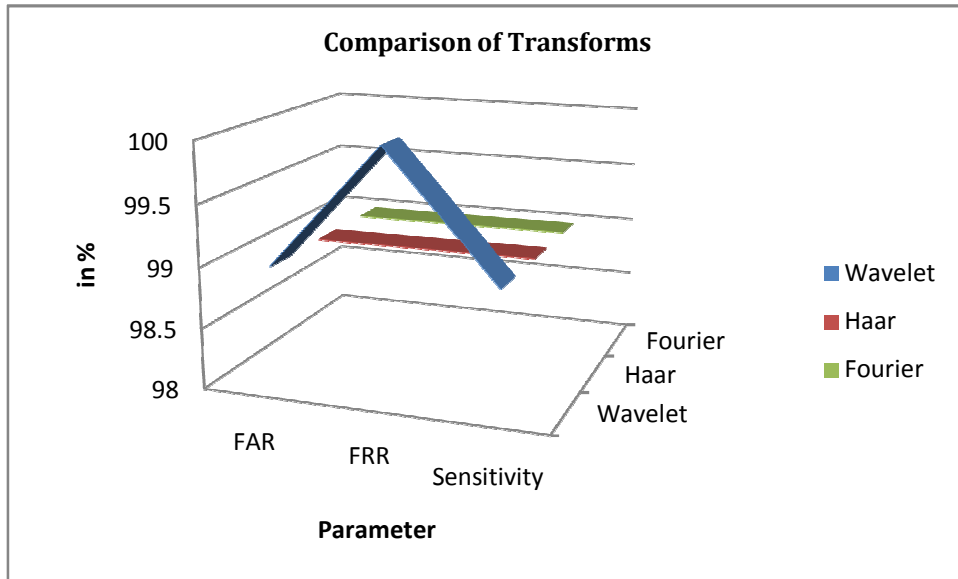


Figure 4: Variation in FAR, FRR and Sensitivity

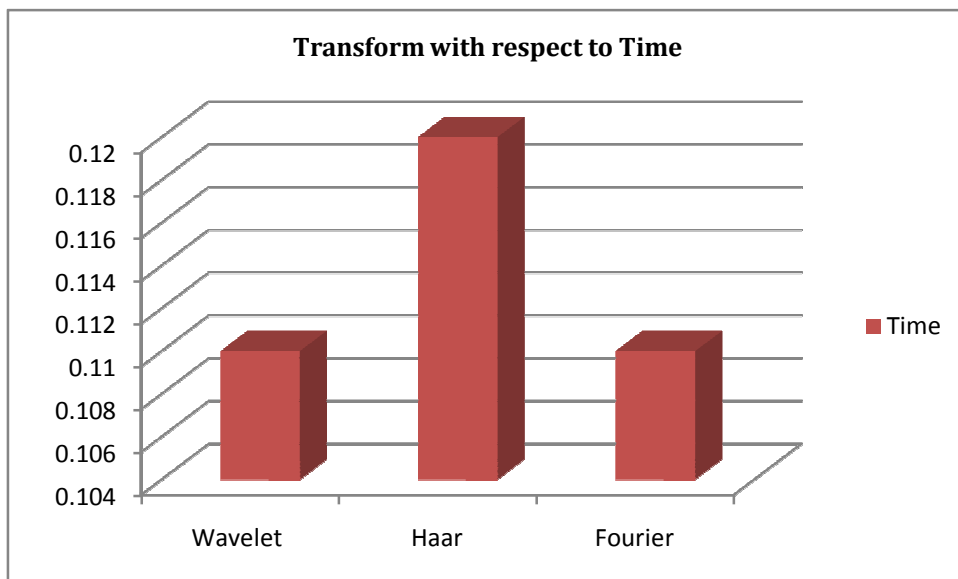


Figure 5: Variation in Time

The implementation result shows the variation in transform mentioned in Figure 4 & Figure 5. Totally 98 images taken for the entire process from the kaggle open database for the entire process and the system result shown in all aspects namely FAR, FRR, Sensitivity and Time. To give more contribution to the society [9].

## CONCLUSION

The early detection process in brain tumor is very difficult in present technology in order to give support to that this system identify the effective result of transform for identification of brain tumor in early stage by comparison among the several transform namely Haar, Wavelet and fourier from the result justification Wavelet transform is an effective transform for the better result in brain tumor from the implementation part itself justified.

## CONFLICT OF INTEREST

Declare no conflict of interest.

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