Paper Title

**Application of principal component analysis to ECG signals for automated diagnosis of cardiac health**

1. **Preprocessing: Filtering & Segmentation**

[(DWT) discrete wavelet transform] is computed to obtain denoised ECG

1. **Feature Extraction**

\* principal components of segmented ECG beats. <-- the accuracy [used in this paper]

-average sensitivity of 99.90%

-specificity of 99.10%

-PPV of 99.61%

\*components of error signals of linear prediction model.

\*Discrete Wavelet Transform (DWT) coefficients

1. **Classification & Classifier**

- classification accuracy of 98.11%

\*classified using fully connected feed forward neural Network (NN).

\*Least Square Support Vector Machine (LS-SVM).

**In this work : [NN , LS - SVM]**

1. **Accuracy**

\*average accuracy of 98.11%.

\*sensitivity and specificity of 99.90%.

\*99.10% respectively.

1. **Two Leads or One Lead ? In case of two leads .. how classification of two leads is merged to have final decision ?**

Single lead

**6 – Classes [5]**

1- Normal

2- RBBB

3- VPC

4- APC

5-LBBB

**7- NOTES :**

- A minicomputer system was designed to analyze three types of

beats : (Normal

, Supraventricular ectopic beats (SVEB)

and ventricular ectopic beats (VEB)

- in this work : [The dataset is sampled at 360 Hz.]

- First the raw ECG signal was subjected to wavelet based denoising using db6 wavelet.

- complex detection using Pan Tompkins algorithm

- PCA analysis is effectively used as a noninvasive tool for the classification