Paper Title

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1. **Preprocessing: Filtering & Segmentation**

🡪 Using a filter bank.

🡪Denoised (DWT) , QRS-detection (Pan-Tompkins) , ECG-segmentation .

1. **Feature Extraction**

🡪 applied a linear method of discrete wavelet transform (DWT) coefficients with the feature reduction technique of principal component analysis (PCA) to discriminant features between normal and arrhythmia classes.

🡪 Nonlinear method-based high order statistic and multivariate analysis:- HOS cumulant features and nonlinear feature reduction techniques such as ICA were applied.

🡪 Combination of linear and nonlinear methods :- the feature sets from the ECG data set were created by combining the linear and nonlinear features. The combined feature set is formed by appending the twelve PCA of DWT features, sixteen ICA features and HOS cumulant features. It may be reasonable to consider a feature vector to be composed of a linear feature and a nonlinear feature.

1. **Classification & Classifier**

🡪 two different classifiers (SVM-RBF and NN).

1. **Accuracy**

🡪 classifying the N, S, V, F and U arrhythmia classes with high accuracy (98.91%) using a combined support vector machine and radial basis function method.

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

🡪single lead .

1. **Classes**

🡪 5Classes :-

1. non-ectopic beats (N).
2. supra-ventricular ectopic beats (S).
3. ventricular ectopic beats (V).
4. fusion beats (F) and unclassifiable .
5. paced beats (U).