Title: A Pioneering Approach towards Feature Selection for Prediction of Sudden Cardiac Death from ECG Signal

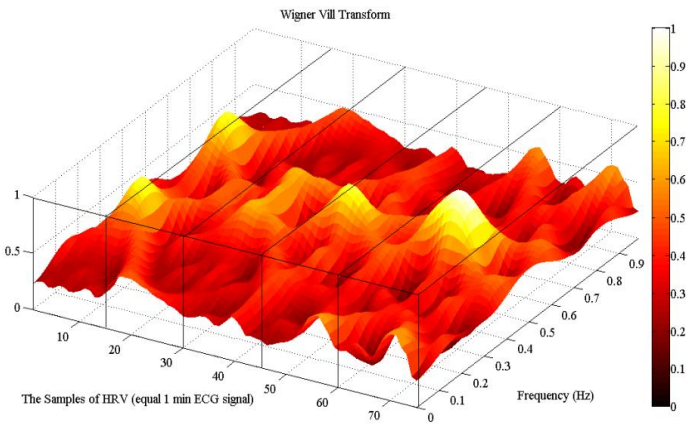
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I. Abstract Body (up to 250 words)

Prediction of Sudden Cardiac Death continues to gain universal attention as a promising approach to saving millions of lives threatened by SCD. This study attempts to promote the literature from mere feature extraction analysis to developing strategies for manipulating the extracted features to target improvement of classification accuracy. To this end, a novel approach to Local Feature Subset Selection is applied using meticulous methodologies developed in previous studies of this team for extracting features from nonlinear, time-frequency and classical processes. We are therefore enabled to select features that differ from one another in each one-minute interval before the incident. Using the proposed algorithm, SCD can be predicted 12 minutes before the onset, thus, more propitious results are achieved. Additionally, through defining a Utility Function and employing statistical analysis, the alarm threshold has effectively been determined as 83%. Having selected the best combination of features, the two classes are classified using the Multilayer Perceptron (MLP) classifier. The most effective features would subsequently be discussed considering their prevalence in the rank-based selection. The results indicate the significant capacity of the proposed method for predicting SCD as well as selecting the appropriate processing method at any time before the incident

II. Image:



III. Reference:

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IV. Biography:

Elias Ebrahimzadeh was born in 1984, obtained his mathematics and physics diploma under supervision of NODET (National Organization for Developing Exceptional Talent) in Tehran in 2003. He has received the B.Sc. Degree in Electronic Engineering in 2008, Tehran, and the M.Sc. Degree in Biomedical Engineering from Shahed University, Tehran, in 2011. He is currently Ph.D. student of Biomedical Engineering, at University of Tehran, Tehran, Iran. His research interest includes biomedical signal processing, Artificial Neural Network Statistical Pattern Recognition, System Identification, Bio Electromagnetic, Machine Learning and Image Processing. He has authored or co-authored more than 20 publications in international journals.

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