Abstract

Heart rate variability (HRV), is defined as the variations in heart rate about its mean value. The human heart is a non linear system as the heart rhythm is modulated by the Autonomic nervous system (ANS). The extracted and analyzed HRV signal parameters are highly useful in diagnosis. Entropy based methods, present a good performance as irregularity measures as well as properties that make them suitable for physiological data analysis. The objective of this work is to develop and implement an algorithm for symbolic entropy and further compare it with Approximate Entropy (ApEn), and Correlation Dimension by analyzing three sets of subjects. Three cases that are taken for the analysis are the first case is with healthy subjects, second case is subjects with some cardiac related problems and third case is with thyroid affected and depressed affected subjects. It may be concluded that Symbolic Entropy is best suited for small datasets and clearly demarks the healthy and disease subjects such as Atrial
Fibrillations (AF), Congestive heart failure (CHF) and Premature ventricular Complex (PVC) subjects and also for subjects having seizures as compared to ApEn. For case of thyroid the values are same as ApEn. For Asthma subjects the Symbolic entropy is not suitable to demark.

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**Index Terms**

Computer Science  
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**Key words**

HRV  
Symbolic Entropy  
Approximate Entropy  
ANS

Thyroid