

## **A LINEAR FILTER BANK APPROACH TO DISTINGUISH BETWEEN NORMAL SINUS RHYTHM AND ATRIAL FIBRILLATION**

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### **ABSTRACT**

Heart rate variability (HRV) is an indicator of cardiac health. In fact, it provides a powerful tool for observing the relationship between the sympathetic and parasympathetic nervous systems. For HRV analysis RR interval detection is an important step. In our work, eightchannel linear filter bank is designed and its features from analysis filter bank are used for detection of the QRS complexes of ECG signals using five level algorithm. All RR intervals are calculated by using timing information from level five. With these RR intervals, the time domain and frequency domain parameters are calculated. Comparison of all these parameters is done to classify atrial fibrillation from normal sinus rhythm. The study is based on 60 minutes ECG from MIT-BIH Atrial Fibrillation database and MIT-BIH Normal Sinus Rhythm database.

**KEYWORDS:** ECG, Filter Bank, Heart Rate Variability (HRV), QRS Complex