

Abstract

Heart has very important part in life, so that it should be in good condition, but sometimes we do not know exactly the condition of our heart. In medical, the instrument to detect heart condition is called Electrocardiograf (EKG). EKG can produce elektrokardiogram wave to represent heart electric pattern changes. Elektrokardiogram wave consists of complex QRS wave that represents condition of our heart – whether normal or not. This wave detection needs special ability to read it, while this QRS wave has specific pattern for each heart condition. Therefore, manual signal reading can be replaced by using signal analyze theorem to minimize error reading in order to get an accurate and fast data of heart condition.

In this final project, I made software that can detect electrocardiogram wave using wavelet decomposition and support vector machine (SVM). Wavelet decomposition make input signal to be unique – in form of energy – so that the signal can be categorized easier. Wavelet Daubechies2 as mother wavelet. While, svm is used to search the best separated layer so that it can decrease empirical risk and also can get a good generalization. Support vectort machine (SVM) was introduced first by Vapnik in 1992 as a harmonic series of best concept in pattern recognition. Until now, svm is the newest growing method and can produce good classification. From five heart condition datas – Normal Sinus Rhytm (NSR), Atrial Fibrilation (AF), Congestive Heart Failure (CHF), Supraventricular Arrhythmia (SA), Ventricular Tachyarrhythmia (VT), I got 98.89% of recognition accuracy. Therefore, this method is good enough as a representation in recognizing EKG signal samples.

Keywords: heart, electrocardiograf, wavelet decomposition, SVM