

## Abstract

Electrocardiogram signal recognition system has widely develop. There are several approach which are used like waveform detection (Pam Tomskin algorithm and Threshold Method), template matching, neural network approach, and probabilistic model approach.

In this term, Hidden Markov Model which is use probabilistic model approach, will be used in heart signal recognition. In this system there are two process within it, modelling process and recognition process. During modelling process system will make labelitation model of ECG signal while counting HMM parameters, initial state probability, transtition state probability, and observation state probability. After getting optimal score from each parameter, for each type heart signal is made HMM model. Genetic Algorithm is used to optimize model, therefore model is made using standard HMM and Hybrid HMMGA.

While heart signal recognition process is proceed for each ECG data counting every likelihood from testing data which are recognized for every trained model. With accurate labelitation and optimal observation probability score, HMM can use to recognize heart signal type.

From testing, system accuration with HMMGA is more optimize 20% than HMM standard model.

**Keywords:** Hidden Markov Model, Genetic Algorithm, *electrocardiogram*