Abstract

Knowing the development and condition of fetus heart on pregnancy period is very importance. Fetal Electrocardiogram (FECG) is heart recording signal for pregnant mother. Information about fetus health condition can be obtained by FECG. Fetal ECG knowable by recording electric signals produced by fetus heart on mother stomach surface, and measuring the signals. In the recording process emerge any noises that very disturbing the fetal ECG, so will be difficult to diagnose. For getting pure fetal ECG signal, needed any mechanisms to remove the noises during the recording process, where Maternal ECG is one of the most influential noise.

One of the methods to extract FECG is wavelet packet decomposition. The subband election on the method still manually, so genetics algorithm will be used for adaptively subband election. Parameter which used for monitoring extraction result quality is Mean Square Error (MSE).

Up orientation ECG signal has best MSE at 4^{th} level, population size on 50, crossover probability on 0.8, and mutation probability on 0.03. While in down orientation ECG signal, best MSE achieved at 4^{th} and 5^{th} level, population size on 20 and 50, crossover probability on 0.5 and 0.8, and mutation probability on 0.03.

Key words : genetics algorithm, wavelet packet decomposition, electrocardiogram (ECG), fetal electrocardiogram (FECG).