

ABSTRACT

Fetal electrocardiogram describes a fetal heart rate electrical activity and could become a diagnostic tool of importance indications about fetus health. One way to obtain fetal electrocardiogram is by recording electrocardiogram which is measured on abdomen maternal. The result shows that abdominal ECG not only contains FECG, this recording is complicated by the existence of noise signals, like maternal electrocardiogram, and other signals which are influenced by non cardiac sources.

For getting fetal electrocardiogram, needed a technique that can separate fetal electrocardiogram from abdominal ECG. This research propose a blind source separation problem using Independent Component Analysis. With assumption that source signals are statistically independent this method can estimate the mixing matrix and source signals(maternal electrocardiogram, fetal electrocardiogram, etc) from abdominal electrocardiogram with a blind separation problems.

Experimental result shows that Independent Component Analysis is effective to solve blind source separation of fetal electrocardiogram with the biggest error of maternal electrocardiogram is about 8,1 %. This also gives evidences about independency and uncorrelatedness between signals.

Key words: abdominal electrocardiogram, Blind Source Separation, fetal electrocardiogram, Independent Component Analysis, maternal electrocardiogram, statistically independent.