

I am currently researching how to find the BPM of a song below are some formula I was recommended.

1 On-Set Detection

1.1 Sound energy algorithm

From link below

The algorithm divides the data into blocks of samples and compares the energy of a block with the energy of a preceding window of blocks. The energy of a block is used to detect a beat. If the energy is above a certain threshold then the block is considered to contain a beat. The threshold is defined starting from the average energy of the window of blocks preceding the one we are analyzing. If a block j is made of 1024 samples and the song is stereo, its energy can be computed as:

$$E_j = \sum_{i=0}^{1023} left[i]^2 + right[i]^2$$

This technique was deemed imprecise by the article.

2 Terms

If any are left blank go look em up!

Sampling Frequency - the number of samples per second in a Sound

Discrete wavelet transform -

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3 Links to research

<http://mziccard.me/2015/05/28/beats-detection-algorithms-1/>

<http://archive.gamedev.net/archive/reference/programming/features/beatdetection/index.html>

<http://shepazu.github.io/Audio-EQ-Cookbook/audio-eq-cookbook.html>