DRUM TRANSCRIPTION WITH NON−NEGATIVE SPECTROGRAM FACTORISATION (ThuAmPO2)

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Abstract :

This paper describes a novel method for the automatic transcription of drum sequences. The method is based on separating the target drum sounds from the input signal using non−negative matrix factorisation, and on detecting sound onsets from the separated signals. The separation algorithm factorises the spectrogram of the input signal into a sum of instrument spectrograms, each having a fixed spectrum and a time−varying gain. The spectra are calculated from a set of training signals, and the time−varying gains are estimated with an algorithm stemming from non−negative matrix factorisation. Onset times of the instruments are detected from the estimated time−varying gains. The system gave better results than two state−of−the−art methods in simulations with acoustic signals containing polyphonic drum sequences, and overall hit rate of 96% was accomplished. Demonstrational signals are available at http://www.cs.tut.fi/~paulus/demo/.

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