MILTIPITCH ESTIMATION USING SOURCE SEPARATION TECHNIQUES

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ABSTRACT

We propose to tackle the problem of multipitch estimation by using source separation applied iteratively on the original signal. We use the same framework as used for our submission in Audio Melody Extraction for MIREX 2008, and for which the models are described in [1].
We limit the number of possible polyphony to 5 simultaneous pitches. We therefore apply our audio melody extraction 5 times, the last time being slightly modified in order to fit potentially lower tones.
This system thus iteratively provides separated sounds corresponding to different streams as well as the related fundamental frequencies. The framewise accuracy on preliminary tests on the development set is about 50%. The system does not however seem to deal very well with piano songs. The model we propose better suits instruments that have a clear sustain phase in the production of sound, which may explain the performances for both data sets.

1 REFERENCES

[1] Jean-Louis Durrieu, Gael Richard, and Bertrand David. Singer melody extraction in polyphonic signals using source separation methods. In *Acoustics, Speech and Signal Processing, 2008. ICASSP 2008. IEEE International Conference on*, pages 169–172, March 31 2008-April 4 2008.