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ABSTRACT

This extended abstract describes the beat tracking submission: *BeatTracker.2016*.

1. DESCRIPTION

For technical details of the algorithm, please refer to [3]. The network structure has been modified to use three bidirectional hidden layers with 25 LSTM units each. As features, logarithmically filtered and scaled magnitude spectrogram and their first order differences are used. Instead of the originally proposed tempo detection method based on autocorrelation (ACF), it uses the comb-filter method described in [2].

2. SOURCE CODE

Code of a reference implementation of this algorithm is included in the *madmom* library [1]. It can be found online on GitHub: `http://github.com/CPJKU/madmom`.

3. REFERENCES

[1] Sebastian Böck, Filip Korzeniowski, Jan Schlüter, Florian Krebs, and Gerhard Widmer. madmom: a new Python Audio and Music Signal Processing Library. arXiv:1605.07008, 2016.

[2] Sebastian Böck, Florian Krebs, and Gerhard Widmer. Accurate tempo estimation based on recurrent neural networks and resonating comb filters. In *Proceedings of the 16th International Society for Music Information Retrieval Conference (ISMIR 2015)*, pages 625–631, Malaga, Spain, 10 2015.

[3] Sebastian Böck and Markus Schedl. Enhanced Beat Tracking with Context-Aware Neural Networks. In *Proceedings of the 14th International Conference on Digital Audio Effects (DAFx-11)*, pages 135–139, Paris, France, 9 2011.