

MIREX 2014 SUBMISSIONS

Sebastian Böck, Filip Korzeniowski and Florian Krebs

Department of Computational Perception

Johannes Kepler University, Linz, Austria

sebastian.boeck@jku.at

ABSTRACT

This shortened abstract describes the MIREX 2014 submissions.

1. TEMPO ESTIMATION

1.1 SB1

The *TempoDetector.2014* is a new version of the system introduced in [3], with updated input features and a bank of comb filters for the estimation of the most dominant tempi.

2. ONSET DETECTIONS

2.1 SB2

The *SuperFlux.2014* is a new version of the system introduced in [5] with updated peak-picking parameters. The source code can be found at <https://github.com/CPJKU/SuperFlux>.

2.2 SB3

The *SuperFluxNN* is the system introduced in [6].

2.3 SB4

The *ComplexFlux* is a new version of the system introduced in [7] with updated peak-picking parameters.

2.4 SB8

The *OnsetDetector.2014* is a new version of the system introduced in [1], with the same input features as used for the *SuperFlux* system [5].

2.5 SB9

The *OnsetDetectorLL.2014* is a new version of the system introduced in [4], with the same input features as used for the *SuperFlux* system [5].

3. MF0 ESTIMATION

3.1 SB5

The *The PianoTranscriptor.2014* is a simplified version of the system introduced in [3] which uses *tanh* units instead of the originally proposed *LSTM* units.

4. BEAT TRACKING

4.1 SB6

The *BeatTracker.2014* is a new version of the system introduced in [2] with the updated tempo estimation of the *TempoDetector.2014* which can follow tempo changes.

4.2 SB7

The *BeatDetector.2014* is a new version of the system introduced in [2] with the updated tempo estimation of the *TempoDetector.2014* which assumes a constant tempo of the piece.

4.3 BK5

The *CRFBeatDetector* is the system described in [9].

4.4 BK6

The *MMBeatTracker* is the system described in [8].

5. ACKNOWLEDGMENTS

This work is supported by the European Union Seventh Framework Programme FP7 / 2007-2013 through the GiantSteps project (grant agreement no. 610591) and the Austrian Science Fund (FWF) project Z159.

6. REFERENCES

- [1] F. Eyben, S. Böck, B. Schuller, and A. Graves. Universal onset detection with bidirectional long short-term memory neural networks. In *Proceedings of the 11th International Society for Music Information Retrieval Conference (ISMIR 2010)*, Utrecht, Netherlands, August 2010.
- [2] S. Böck and M. Schedl. Enhanced Beat Tracking with Context-Aware Neural Networks. In *Proceedings of the 14th International Conference on Digital Audio Effects (DAFx-11)*, Paris, France, September 2011.
- [3] S. Böck and M. Schedl. Polyphonic Piano Note Transcription with Recurrent Neural Networks. In *Proceedings of the 37th International Conference on Acoustics, Speech and Signal Processing (ICASSP 2012)*, Kyoto, Japan, March 2012.



© Sebastian Böck, Filip Korzeniowski and Florian Krebs. Licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0). **Attribution:** Sebastian Böck, Filip Korzeniowski and Florian Krebs. "MIREX 2014 submissions", 15th International Society for Music Information Retrieval Conference, 2014.

- [4] S. Böck, A. Arzt, F. Krebs, and M. Schedl. Online real-time onset detection with recurrent neural networks. In *Proceedings of the 15th International Conference on Digital Audio Effects (DAFx-12)*, York, UK, September 2012.
- [5] S. Böck and G. Widmer. Maximum filter vibrato suppression for onset detection. In *Proceedings of the 16th International Conference on Digital Audio Effects (DAFx-13)*, Maynooth, Ireland, September 2013.
- [6] S. Böck, J. Schlüter, and G. Widmer. Enhanced peak picking for onset detection with recurrent neural networks. In *Proceedings of the 6th International Workshop on Machine Learning and Music*, Prague, Czech Republic, September 2013.
- [7] S. Böck and G. Widmer. Local group delay based vibrato and tremolo suppression for onset detection. In *Proceedings of the 14th International Society for Music Information Retrieval Conference (ISMIR 2013)*, Curitiba, Brazil, November 2013.
- [8] S. Böck, F. Krebs, and G. Widmer. A multi-model approach to beat tracking considering heterogeneous music styles. In *Proceedings of the 15th International Society for Music Information Retrieval Conference (ISMIR 2014)*, Taipei, Taiwan, October 2014.
- [9] F. Korzeniowski, S. Böck, and G. Widmer. Probabilistic extraction of beat positions from a beat activation function. In *Proceedings of the 15th International Society for Music Information Retrieval Conference (ISMIR 2014)*, Taipei, Taiwan, October 2014.