

# MIREX 2015 submissions

Sebastian Böck, Florian Krebs, Filip Korzeniowski and Gerhard Widmer

Department of Computational Perception  
Johannes Kepler University, Linz, Austria

sebastian.boeck@jku.at

## ABSTRACT

In extended abstract describes the MIREX 2015 submissions for onset detection, beat tracking and tempo estimation.

Reference implementations of the algorithms are available at <https://github.com/CPJKU/madmom>.

## 1. ONSET DETECTION

### 1.1 SB2

The *OnsetDetector.2015* is an improved version of the system introduced in [8].

### 1.2 SB3

The *OnsetDetectorLL.2015* is an improved version of the system introduced in [1] with updated peak-picking parameters.

### 1.3 SB4

The *SuperFlux.2015* is an improved version of the system introduced in [7] with updated peak-picking parameters.

### 1.4 SB5

The *ComplexFlux.2015* is an improved version of the system introduced in [6] with updated peak-picking parameters.

### 1.5 BK7

The *LogFiltSpecFlux.2015* is an improved version of the system introduced in [2] with updated peak-picking parameters.

## 2. BEAT TRACKING

### 2.1 BK1

The *DBNBeatTracker.2015* is an improved version of the system introduced in [3], without the multi-model selection stage. It uses neural network models trained on a broader range of music styles.

### 2.2 BK2

The *CRFBeatDetector.2015* is an improved version of the system introduced in [9]. It uses the same neural network models as BK1 (Section 2.1) as well as the comb filter tempo estimation introduced in [4].

### 2.3 BK3

The *DBNBeatTracker.2015* is an improved version of the system introduced in [3]. It uses the same neural network models as BK1 (Section 2.1).

### 2.4 BK4

The *DBNBeatTracker.2014v2* is the same as BK1 (Section 2.1), but with the same neural networks as last year's submission.

### 2.5 BK5

The *CRFBeatDetector.2014v2* is the same as BK2 (Section 2.2), but with the same neural networks as last year's submission. Thus the results compared to last year show the impact of the comb filter tempo method [4] compared to the old autocorrelation based temp detection.

### 2.6 BK6

The *MMBeatTracker.2014v2* is the same as BK3 (Section 2.3), but with the same neural networks as last year's submission. Thus the results compared to last year show the impact of the state space and transition model of [10].

## 3. TEMPO ESTIMATION

### 3.1 SB8

The *TempoDetector.2015* is an improved version of the system introduced in [4], with newly trained networks, the same as used for for the beat tracking algorithms BK1 through BK2 (Section 2.1, 2.2 and 2.3).

### 3.2 SB9

The *ACFTempoDetector.2015* is the same as SB8 (Section 3.1), but uses the autocorrelation based tempo estimation introduced in [5] to build the tempo histogram. This algorithm is supposed to get inferior results than SB8 (Section 3.1) and included only to get comparative results on the McKinney [11] dataset.



### 3.3 SB10

The *DBNTempoDetector.2015* is the same as SB8 (Section 3.1), but uses the tempo states of the dynamic Bayesian network of the BK1 system (Section 2.1) to build the tempo histogram. This algorithm is supposed to get inferior results than SB8 (Section 3.1) and included only to get comparative results on the McKinney [11] dataset.

## 4. 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.

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