

OnsetDetection

April 18, 2018

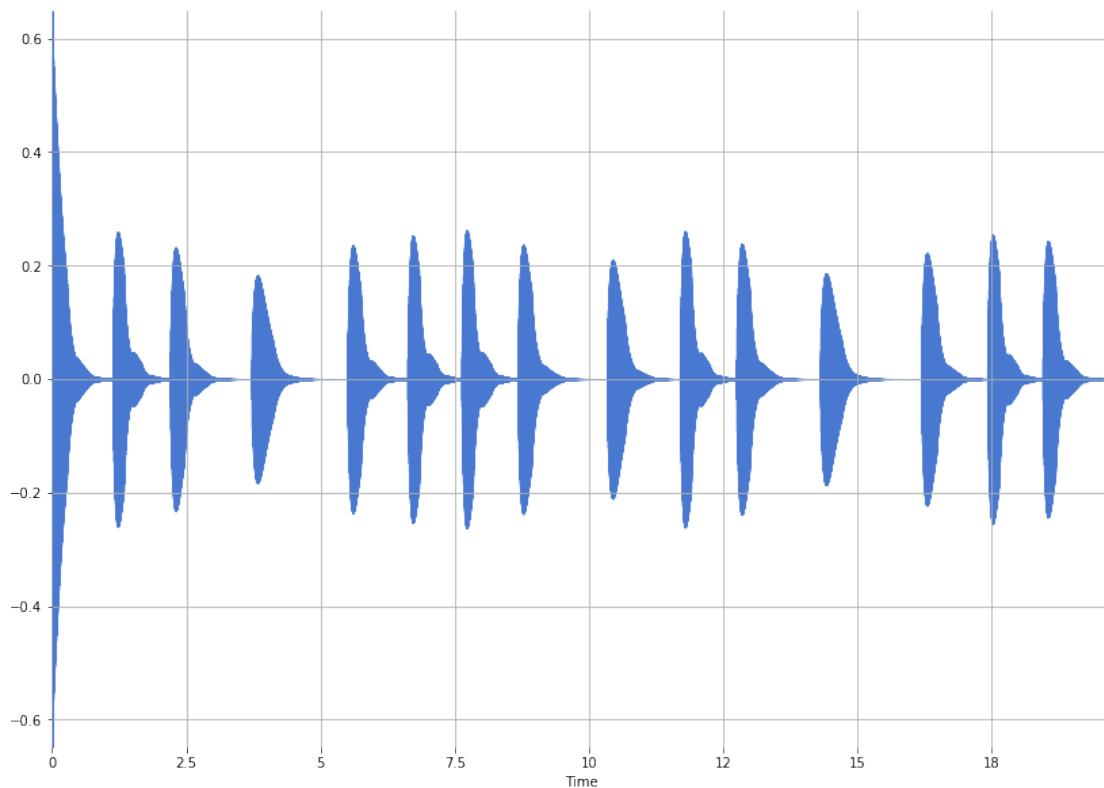
```
In [2]: %matplotlib inline
import numpy, scipy, matplotlib.pyplot as plt, IPython.display as ipd
import librosa, librosa.display
import stanford_mir; stanford_mir.init()
```

```
In [122]: x, sr = librosa.load('/Users/nickpourazima/GitHub/he-sm/AudioFiles/dynamic_swing_cli
print(x.shape, sr)
```

(434606,) 22050

```
In [123]: plt.figure(figsize=(14, 10))
librosa.display.waveplot(x, sr)
```

Out[123]: <matplotlib.collections.PolyCollection at 0x143116a58>



```
In [124]: onset_frames = librosa.onset.onset_detect(x, sr=sr)
          print(onset_frames) # frame numbers of estimated onsets
```

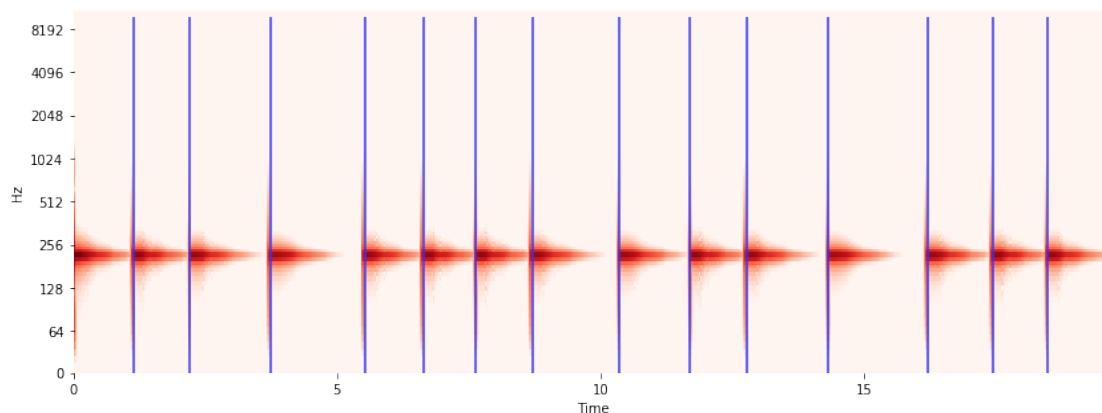
```
[ 49  95 161 238 286 329 375 446 504 550 617 698 751 796]
```

```
In [125]: onset_times = librosa.frames_to_time(onset_frames)
          print(onset_times)
```

```
[ 1.13777778  2.20589569  3.7384127   5.52634921  6.64090703  7.63936508
  8.70748299 10.35609977 11.70285714 12.77097506 14.32671202 16.20752834
 17.43818594 18.4830839 ]
```

```
In [126]: S = librosa.stft(x)
          logS = librosa.amplitude_to_db(abs(S))
          plt.figure(figsize=(14, 5))
          librosa.display.specshow(logS, sr=sr, x_axis='time', y_axis='log', cmap='Reds')
          plt.vlines(onset_times, 0, 10000, color='#3333FF')
```

```
Out[126]: <matplotlib.collections.LineCollection at 0x1454fd400>
```



```
In [127]: plt.figure(figsize=(14, 5))
          librosa.display.waveplot(x, sr=sr)
          plt.vlines(onset_times, -0.8, 0.79, color='r', alpha=0.8)
```

```
Out[127]: <matplotlib.collections.LineCollection at 0x13b4bcef0>
```

