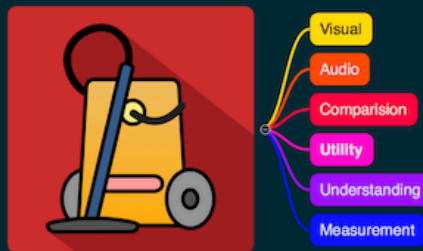


# VACUUM - ( tuneBuildTest\_C\_scale, tuneBuildTest\_C\_scale\_waon)



VISUAL AUDIO COMPARISON UTILITY [FOR] UNDERSTANDING [AND] MEASUREMENT

A testing and analysis workflow

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# Imports

```
Librosa  
IPython  
Numpy  
Scipy  
Matplotlib
```

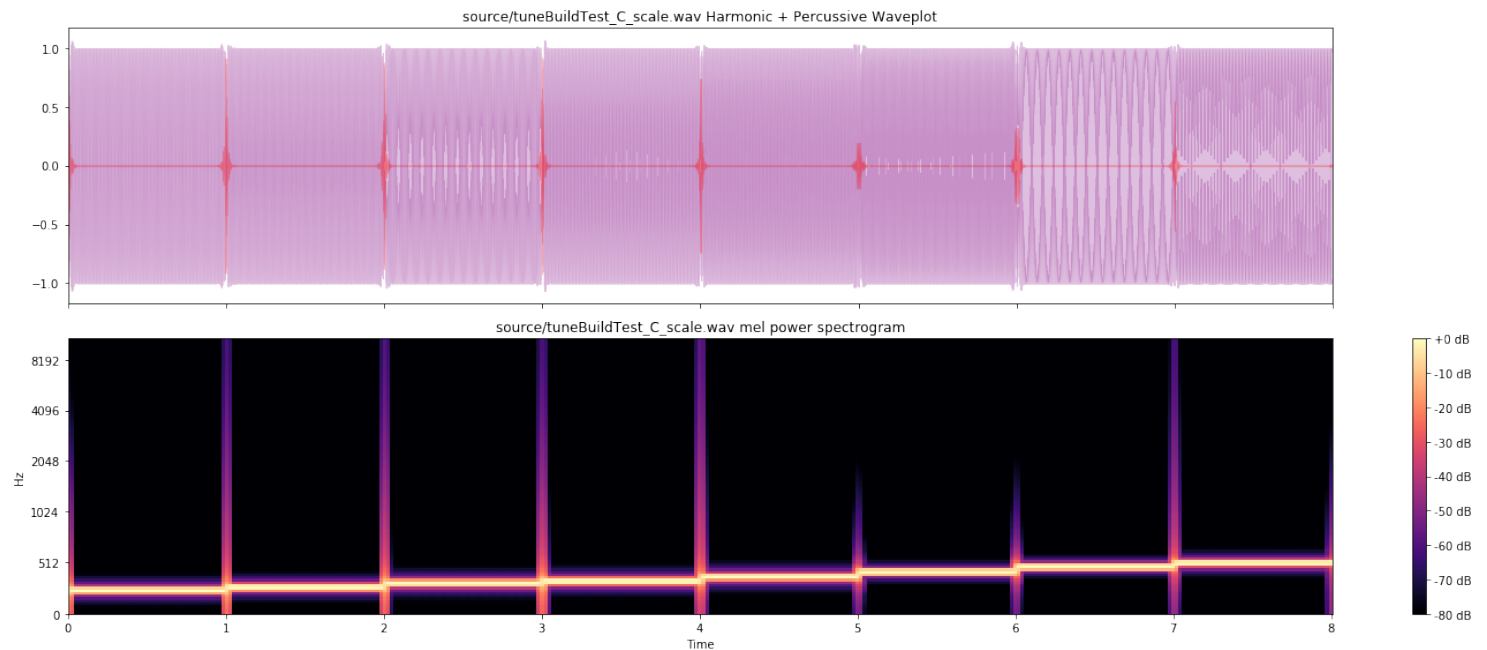
## Let's bring the files in

### Source1 Track ( tuneBuildTest\_C\_scale.wav )

Open Source1, get some basic statistics and create a player

```
File: source/tuneBuildTest_C_scale.wav  
Duration: 8.0000 sec  
Tuning estimate: 0.010000000000000009
```

### Let's take a first look at the file

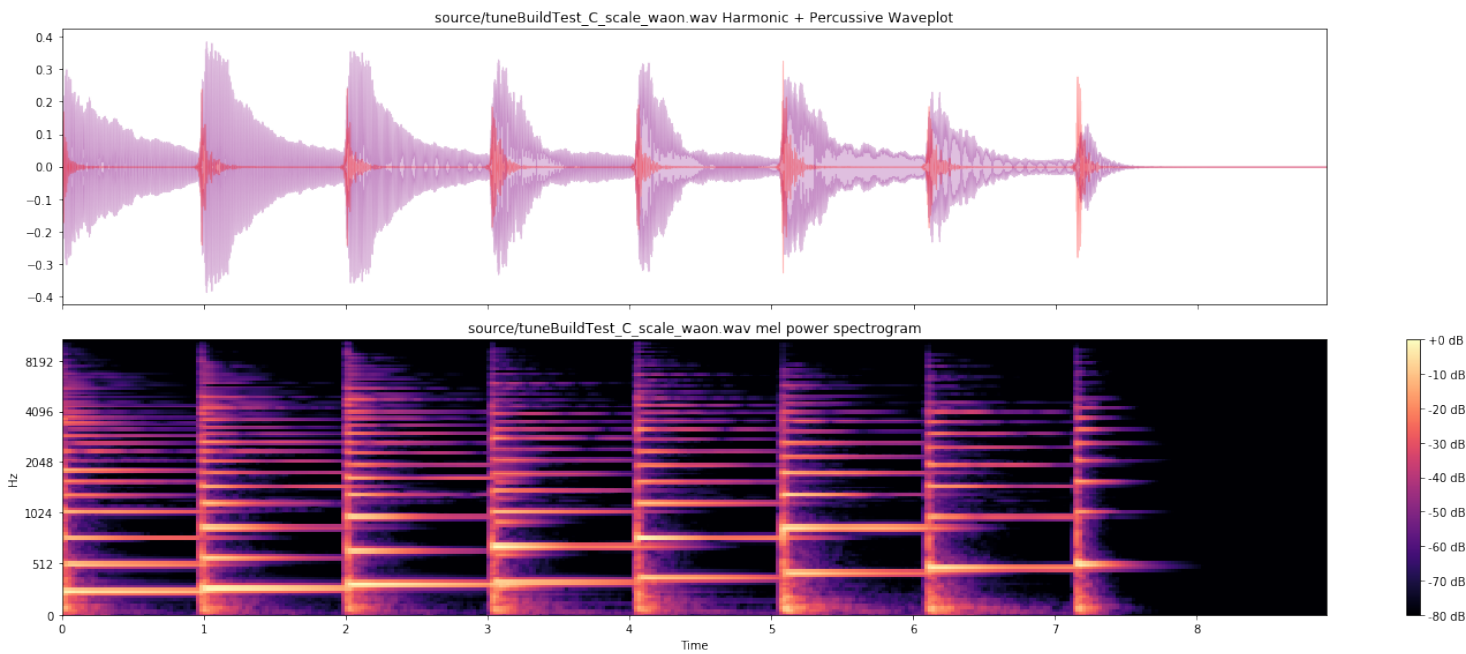


### Source 2 Track ( tuneBuildTest\_C\_scale\_waon.wav )

Open Source2, get some basic statistics and create a player

```
File: source/tuneBuildTest_C_scale_waon.wav  
Duration: 8.9135 sec  
Tuning estimate: 0.030000000000000007
```

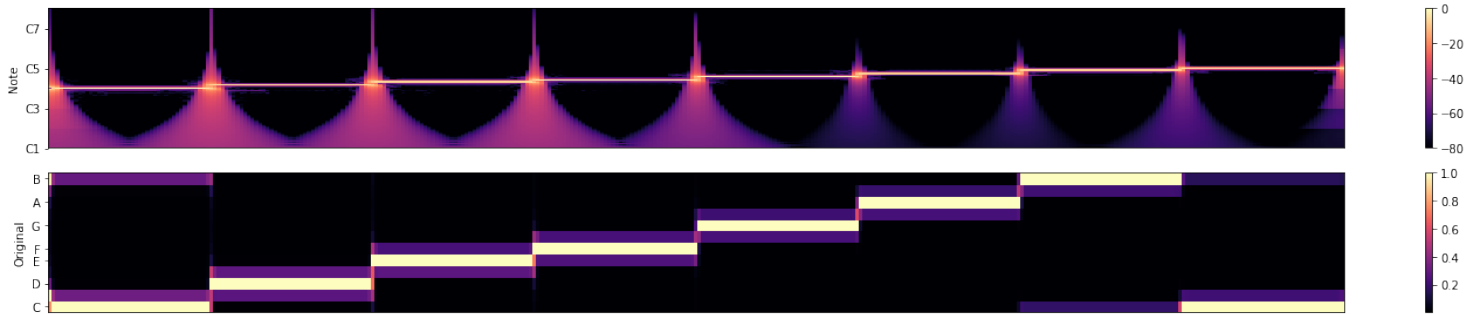
Let’s take a first look at the file



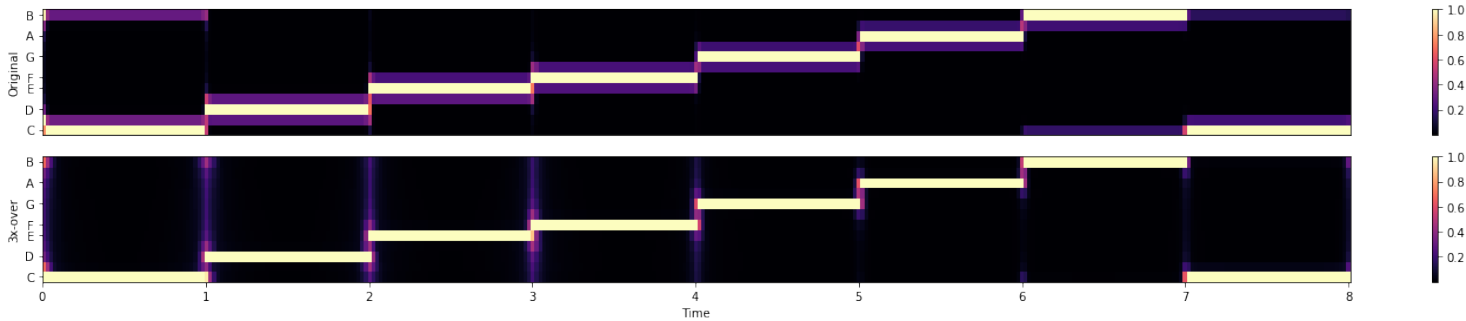
Enhanced chroma and chroma variants (source1)

Enhanced chroma and chroma variants

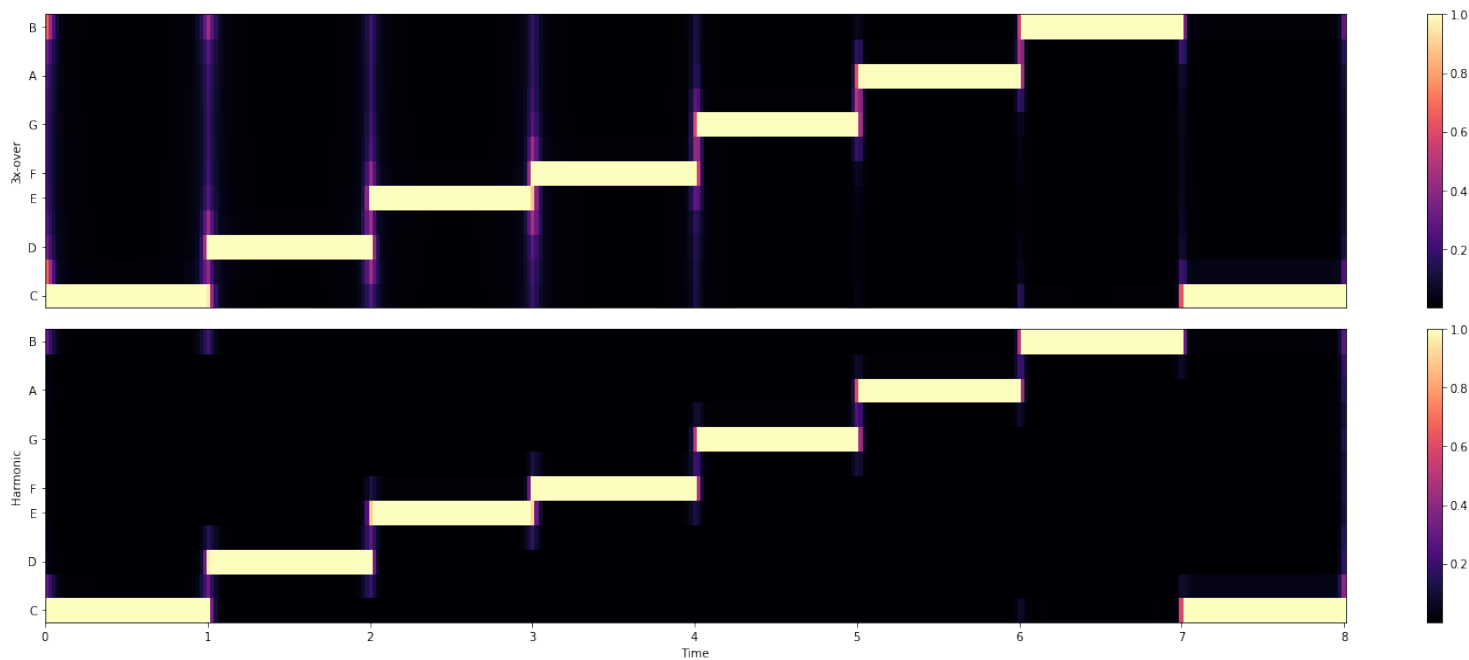
Original source1



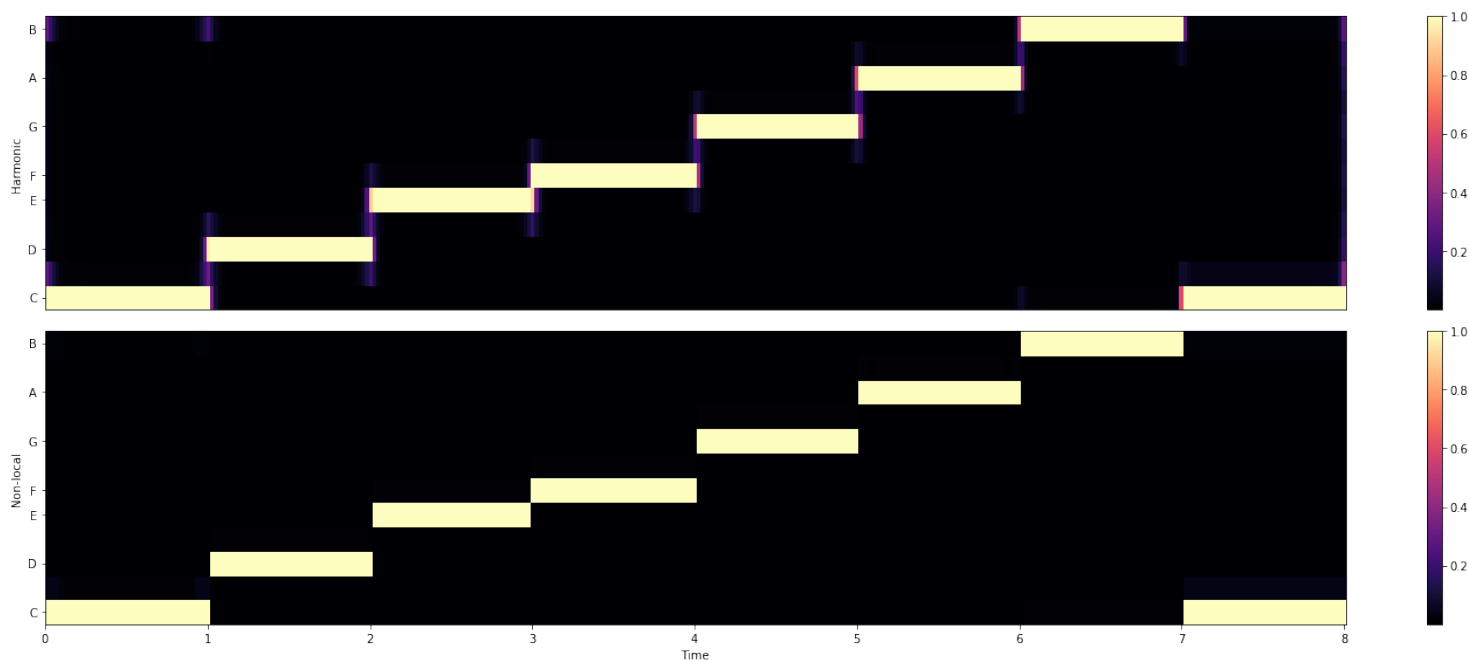
Correct Tuning Deviations



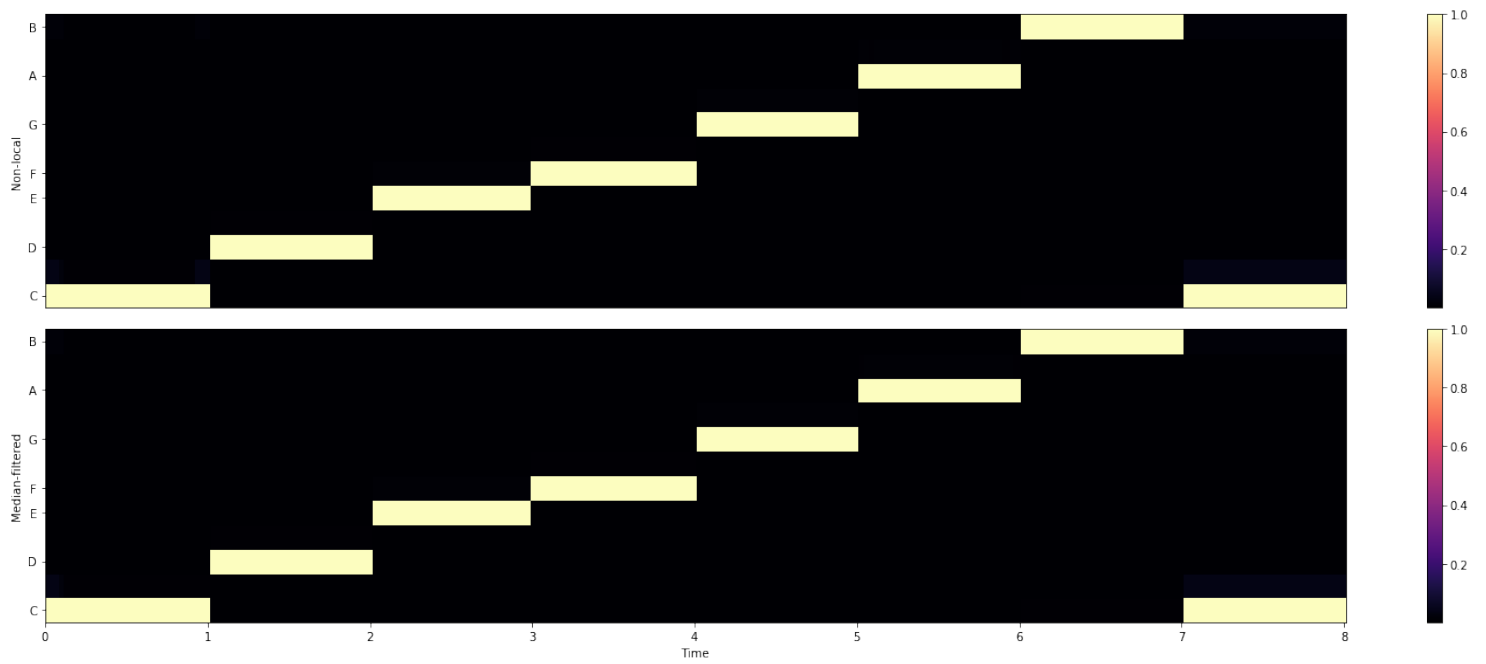
Isolate harmonic component



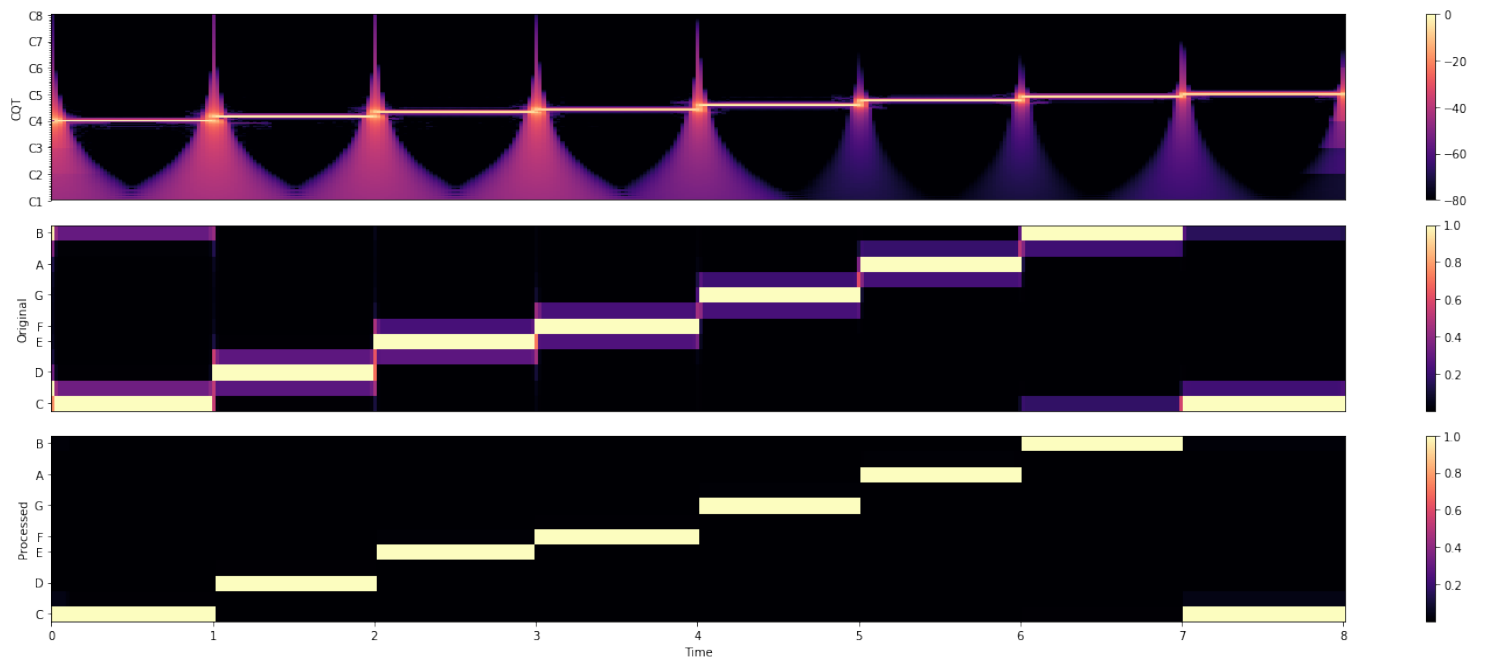
## Non-local filtering



## Horizontal Median Filter

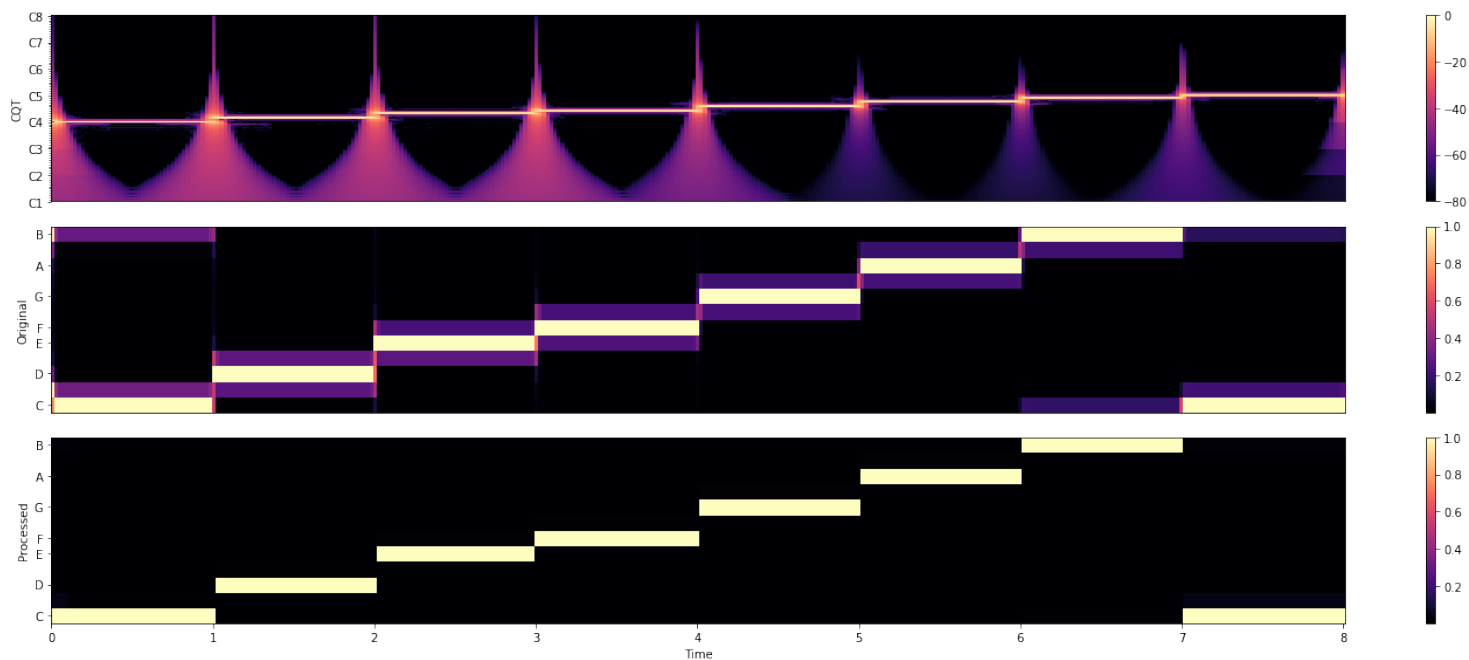


## Before and After

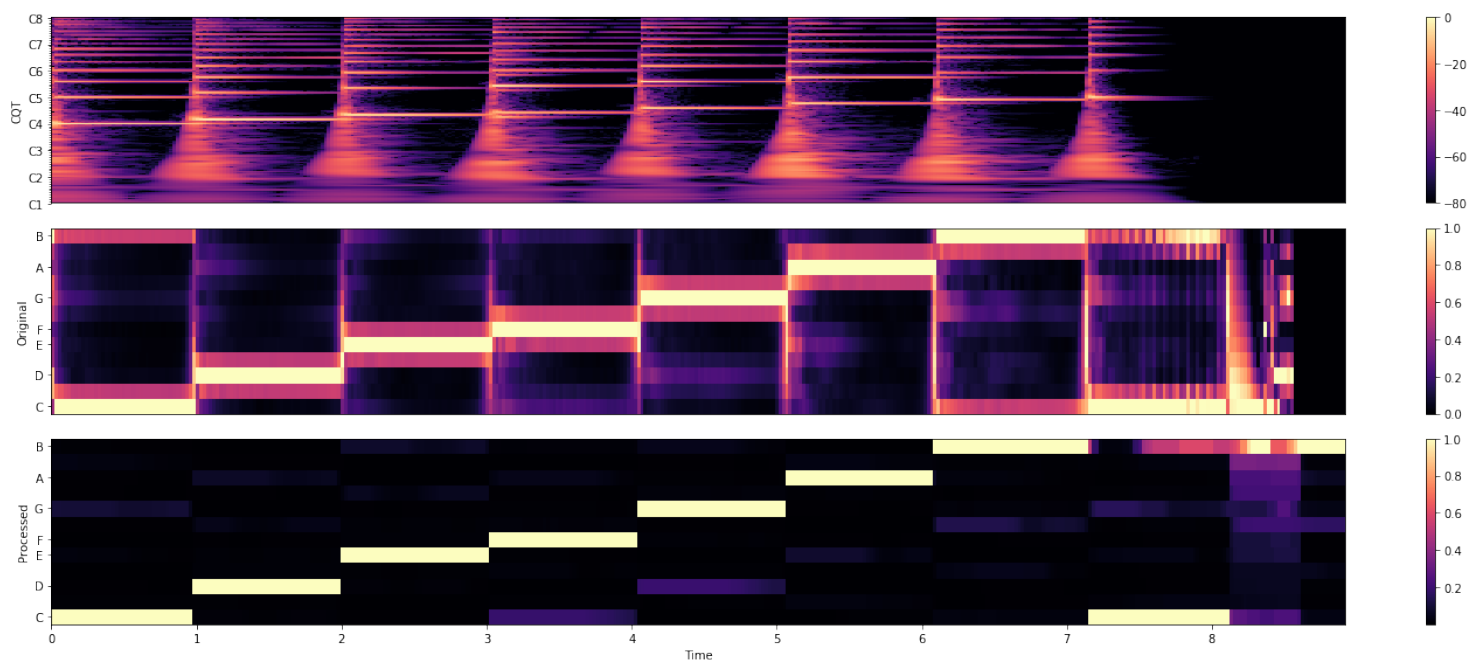


# Applying chroma enhancement techniques to source files

## Source1

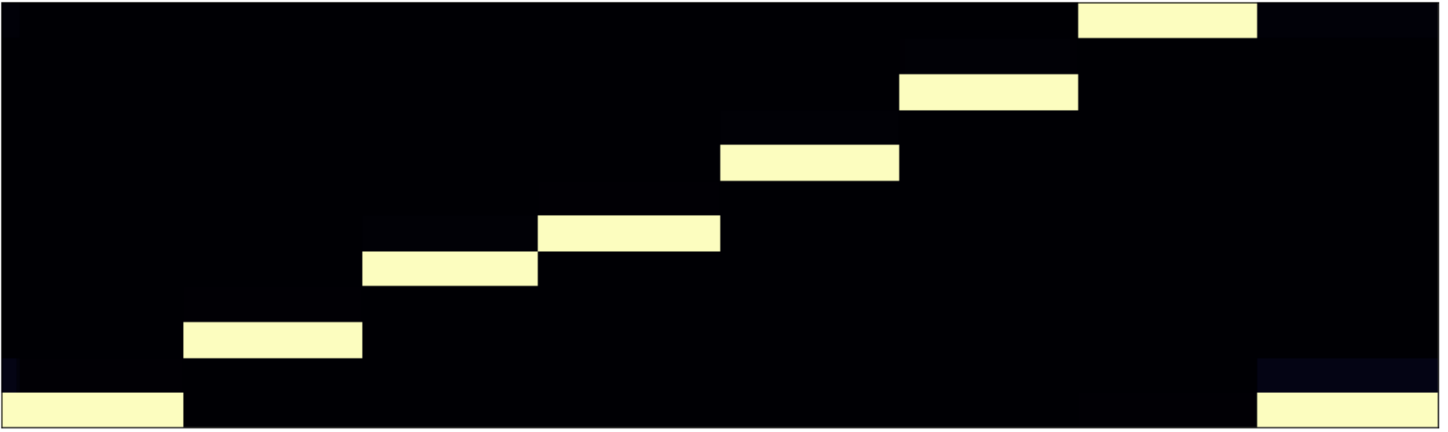


## Source2

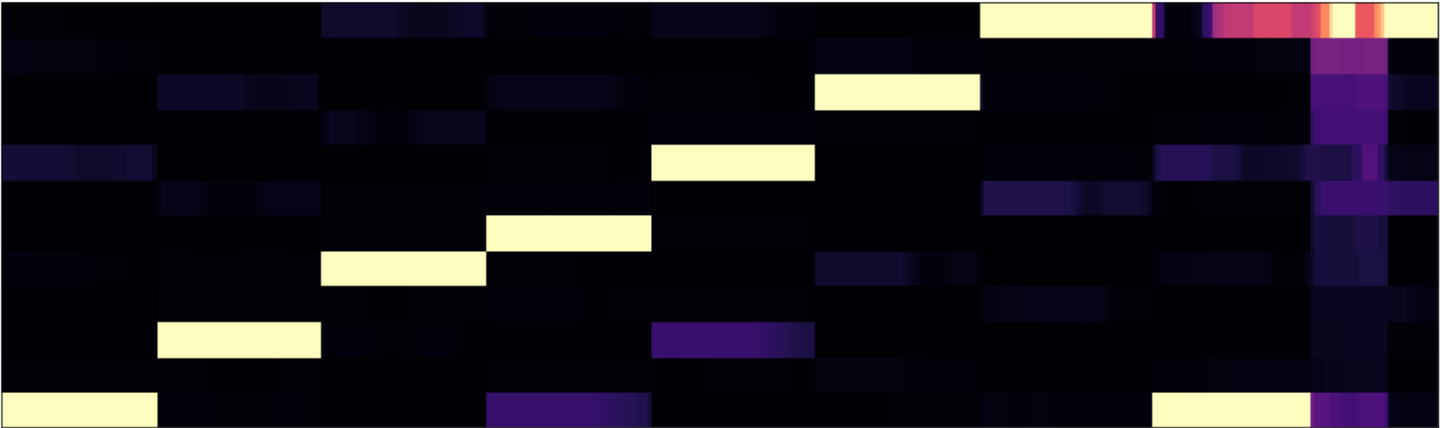


## Output comparisons for testing

Source1



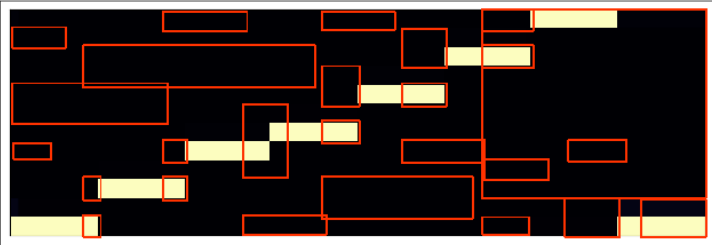
Source2



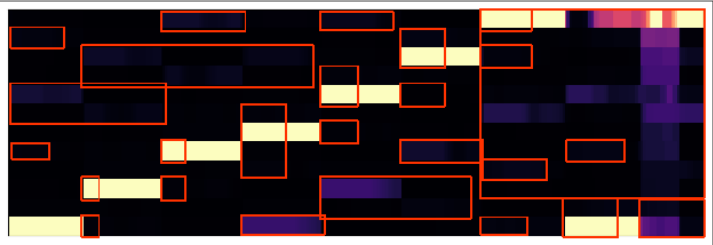
# Run imageDiff

SSIM: 0.6378025534202998

Source1tuneBuildTest\_C\_scale.wav



Source2tuneBuildTest\_C\_scale\_waon.wav



Diff



Threshold

