



链滴

## 【光雅集】3

作者: [yangchaoyue](#)

原文链接: <https://ld246.com/article/1618471373477>

来源网站: 链滴

许可协议: [署名-相同方式共享 4.0 国际 \(CC BY-SA 4.0\)](#)

## audio时频绘图

```
yum -y install freetype-devel libxml2-devel expat-devel
```

```
[root@localhost mysoul]# ls  
Cargo.lock Cargo.toml src target test
```

```
[root@localhost mysoul]# cat Cargo.toml  
[package]  
name = "mysoul"  
version = "0.1.0"  
edition = "2018"
```

```
# See more keys and their definitions at https://doc.rust-lang.org/cargo/reference/manifest.html
```

```
[dependencies]  
png = "0.16.8"  
minimp3 = "0.5.1"  
audio-visualizer = "0.2.2"
```

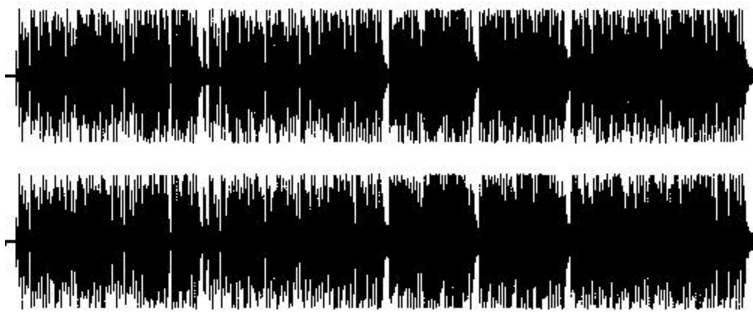
```
[root@localhost mysoul]# cat src/main.rs  
use minimp3::{Decoder as Mp3Decoder, Frame as Mp3Frame, Error as Mp3Error};  
use audio_visualizer::ChannelInterleavement;  
use audio_visualizer::Channels;  
use audio_visualizer::waveform::static::png_file::waveform_static_png_visualize;  
use std::path::PathBuf;  
use std::fs::File;  
use std::collections::BTreeMap;  
use audio_visualizer::spectrum::static::png_file::spectrum_static_png_visualize;
```

```
fn main() {  
    let mut path = PathBuf::new();  
    path.push("test/samples");  
    path.push("mysoul.mp3");  
    let mut decoder = Mp3Decoder::new(File::open(path).unwrap());  
  
    let mut lrlr_mp3_samples = vec![];  
    loop {  
        match decoder.next_frame() {  
            Ok(Mp3Frame { data: samples_of_frame, .. }) => {  
                for sample in samples_of_frame {  
                    lrlr_mp3_samples.push(sample);  
                }  
            }  
            Err(Mp3Error::Eof) => break,  
            Err(e) => panic!("{:?}", e),  
        }  
    }  
  
    waveform_static_png_visualize(  
        &lrlr_mp3_samples,  
        Channels::Stereo(ChannelInterleavement::LRLR),  
        "test/out",  
    )  
}
```

```
    "mysoul_waveform.png"  
);  
  
let mut spec = BTreeMap::new();  
  
spectrum_static_png_visualize(  
    &spec,  
    "test/out",  
    "mysoul_spectrum.png",  
    &[]  
);  
}
```

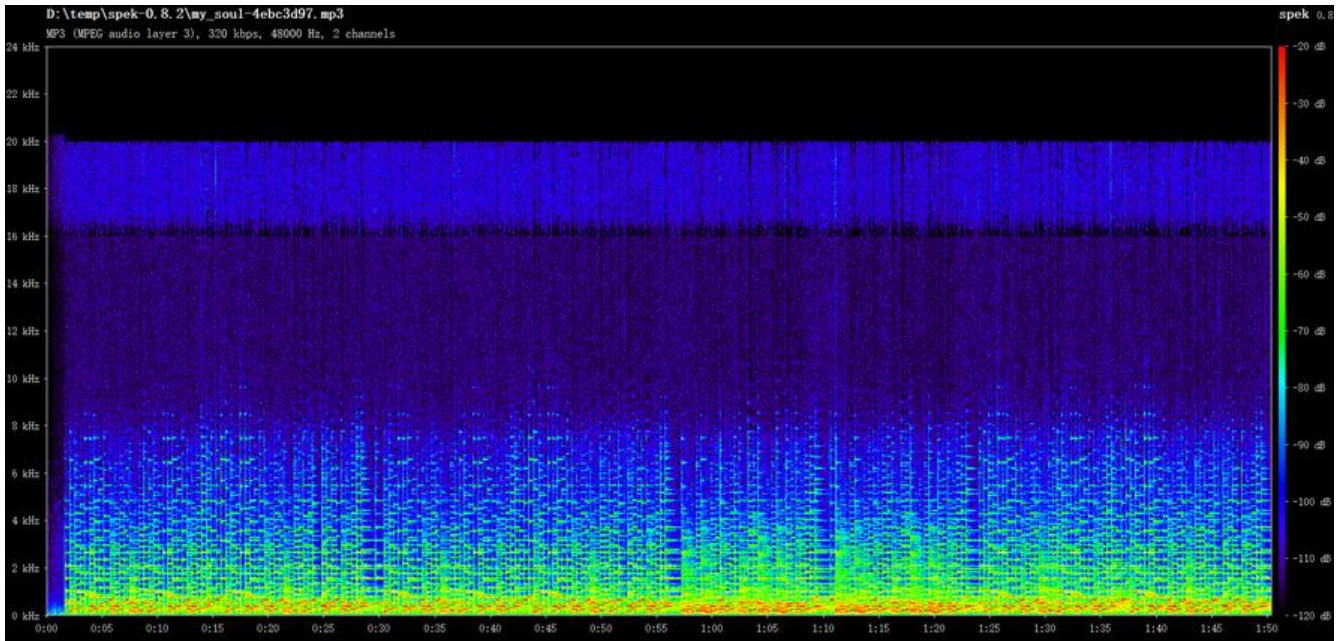
```
[root@localhost mysoul]# ls test  
out samples
```

左右声道可见



频率不可见

使用spek可见



对比频率图表

以A4=440Hz为准

Note gth (cm)	Frequency (Hz)	Wavele
C <sup>0</sup> —	16.35	2109.89
C <sup>#</sup> <sup>0</sup> —— /D <sup>b</sup> <sup>0</sup> ——	17.32	
991.47		
D <sup>0</sup> —	18.35	1879.69
D <sup>#</sup> <sup>0</sup> —— /E <sup>b</sup> <sup>0</sup> ——	19.45	
774.20		
E <sup>0</sup> —	20.60	1674.62
F <sup>0</sup> —	21.83	1580.63
F <sup>#</sup> <sup>0</sup> —— /G <sup>b</sup> <sup>0</sup> ——	23.12	
491.91		
G <sup>0</sup> —	24.50	1408.18
G <sup>#</sup> <sup>0</sup> —— /A <sup>b</sup> <sup>0</sup> ——	25.96	
329.14		
A <sup>0</sup> —	27.50	1254.55
A <sup>#</sup> <sup>0</sup> —— /B <sup>b</sup> <sup>0</sup> ——	29.14	
184.13		
B <sup>0</sup> —	30.87	1117.67
C <sup>1</sup> —	32.70	1054.94
C <sup>#</sup> <sup>1</sup> —— /D <sup>b</sup> <sup>1</sup> ——	34.65	
95.73		
D <sup>1</sup> —	36.71	939.85
D <sup>#</sup> <sup>1</sup> —— /E <sup>b</sup> <sup>1</sup> ——	38.89	

87.10

E1—	41.20	837.31
F1—	43.65	790.31
F <sup>#^1</sup> —— /G <sup>b^1</sup> ——		46.25
45.96		
G1—	49.00	704.09
G <sup>#^1</sup> —— /A <sup>b^1</sup> ——		51.91
64.57		
A1—	55.00	627.27
A <sup>#^1</sup> —— /B <sup>b^1</sup> ——		58.27
92.07		
B1—	61.74	558.84
C2—	65.41	527.47
C <sup>#^2</sup> —— /D <sup>b^2</sup> ——		69.30
97.87		
D2—	73.42	469.92
D <sup>#^2</sup> —— /E <sup>b^2</sup> ——		77.78
43.55		
E2—	82.41	418.65
F2—	87.31	395.16
F <sup>#^2</sup> —— /G <sup>b^2</sup> ——		92.50
72.98		
G2—	98.00	352.04
G <sup>#^2</sup> —— /A <sup>b^2</sup> ——		103.83
32.29		
A2—	110.00	313.64
A <sup>#^2</sup> —— /B <sup>b^2</sup> ——		116.54
96.03		
B2—	123.47	279.42
C3—	130.81	263.74
C <sup>#^3</sup> —— /D <sup>b^3</sup> ——		138.59
48.93		
D3—	146.83	234.96
D <sup>#^3</sup> —— /E <sup>b^3</sup> ——		155.56
21.77		
E3—	164.81	209.33
F3—	174.61	197.58
F <sup>#^3</sup> —— /G <sup>b^3</sup> ——		185.00
86.49		
G3—	196.00	176.02

G <sup>#</sup> 3 — / A <sup>b</sup> 3 —	207.65	
66.14		
A3 —	220.00	156.82
A <sup>#</sup> 3 — / B <sup>b</sup> 3 —	233.08	
48.02		
B3 —	246.94	139.71
C4 —	261.63	131.87
C <sup>#</sup> 4 — / D <sup>b</sup> 4 —	277.18	
24.47		
D4 —	293.66	117.48
D <sup>#</sup> 4 — / E <sup>b</sup> 4 —	311.13	
10.89		
E4 —	329.63	104.66
F4 —	349.23	98.79
F <sup>#</sup> 4 — / G <sup>b</sup> 4 —	369.99	
3.24		
G4 —	392.00	88.01
G <sup>#</sup> 4 — / A <sup>b</sup> 4 —	415.30	
3.07		
A4 —	440.00	78.41
A <sup>#</sup> 4 — / B <sup>b</sup> 4 —	466.16	
4.01		
B4 —	493.88	69.85
C5 —	523.25	65.93
C <sup>#</sup> 5 — / D <sup>b</sup> 5 —	554.37	
2.23		
D5 —	587.33	58.74
D <sup>#</sup> 5 — / E <sup>b</sup> 5 —	622.25	
5.44		
E5 —	659.25	52.33
F5 —	698.46	49.39
F <sup>#</sup> 5 — / G <sup>b</sup> 5 —	739.99	
6.62		
G5 —	783.99	44.01
G <sup>#</sup> 5 — / A <sup>b</sup> 5 —	830.61	
1.54		
A5 —	880.00	39.20
A <sup>#</sup> 5 — / B <sup>b</sup> 5 —	932.33	
7.00		
B5 —	987.77	34.93
C6 —	1046.50	32.97

C <sup>#</sup> 6 / D <sup>b</sup> 6	1108.73	
1.12		
D6	1174.66	29.37
D <sup>#</sup> 6 / E <sup>b</sup> 6	1244.51	
7.72		
E6	1318.51	26.17
F6	1396.91	24.70
F <sup>#</sup> 6 / G <sup>b</sup> 6	1479.98	
3.31		
G6	1567.98	22.00
G <sup>#</sup> 6 / A <sup>b</sup> 6	1661.22	
0.77		
A6	1760.00	19.60
A <sup>#</sup> 6 / B <sup>b</sup> 6	1864.66	
8.50		
B6	1975.53	17.46
C7	2093.00	16.48
C <sup>#</sup> 7 / D <sup>b</sup> 7	2217.46	
5.56		
D7	2349.32	14.69
D <sup>#</sup> 7 / E <sup>b</sup> 7	2489.02	
3.86		
E7	2637.02	13.08
F7	2793.83	12.35
F <sup>#</sup> 7 / G <sup>b</sup> 7	2959.96	
1.66		
G7	3135.96	11.00
G <sup>#</sup> 7 / A <sup>b</sup> 7	3322.44	
0.38		
A7	3520.00	9.80
A <sup>#</sup> 7 / B <sup>b</sup> 7	3729.31	
.25		
B7	3951.07	8.73
C8	4186.01	8.24
C <sup>#</sup> 8 / D <sup>b</sup> 8	4434.92	
.78		
D8	4698.63	7.34
D <sup>#</sup> 8 / E <sup>b</sup> 8	4978.03	
.93		
E8	5274.04	6.54
F8	5587.65	6.17

F <sup>#</sup> 8 / G <sup>b</sup> 8		5919.91	
.83			
G8	6271.93		5.50
G <sup>#</sup> 8 / A <sup>b</sup> 8		6644.88	
.19			
A8	7040.00		4.90
A <sup>#</sup> 8 / B <sup>b</sup> 8		7458.62	
.63			
B8	7902.13		4.37

raising\_hand

如何表格中上色?