Feature Engineering Unstructured Data (Audio & Wave Files)

Please find the spectrogram, mel-scaled spectrogram, Short-time Fourier transform (STFT), beat tracker and constant-Q transform of an audio signal.

https://www.nasa.gov/vision/universe/features/halloween_sounds.htmlLinks

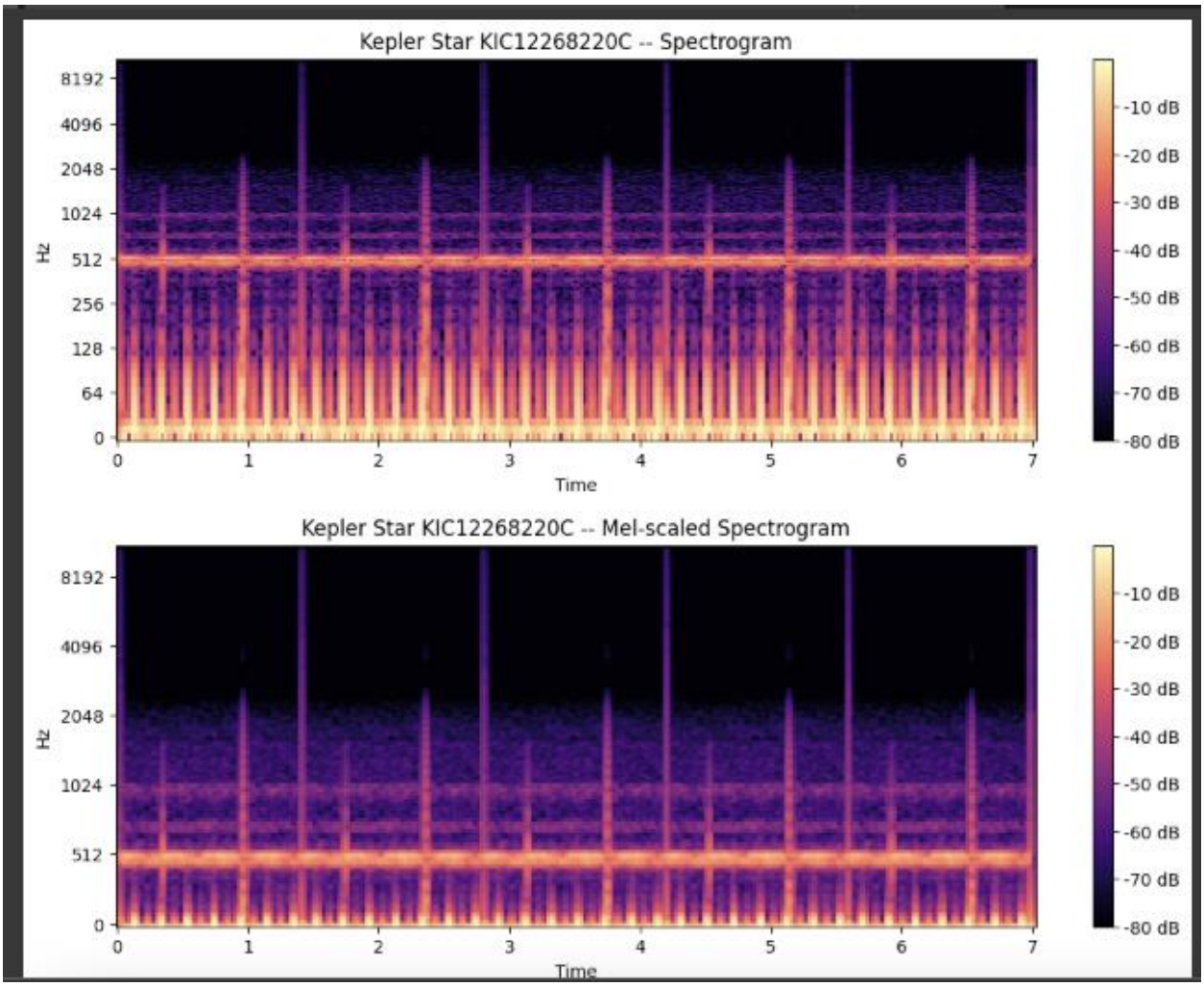
Kepler: Star KIC12268220C Light Curve Waves to Sound

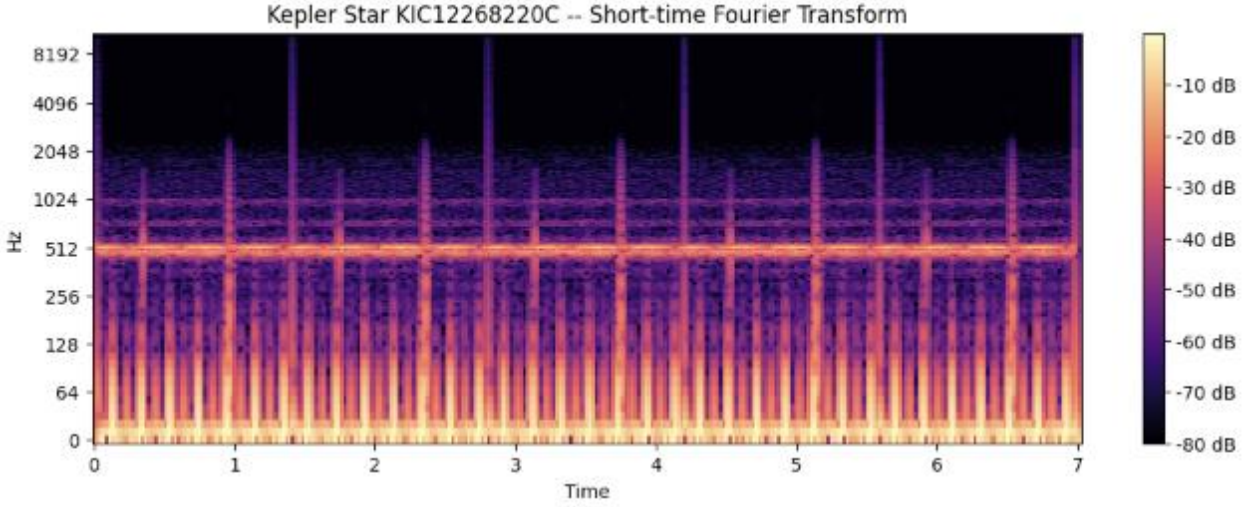
NASA - Kepler: Star KIC7671081B Light Curve Waves to

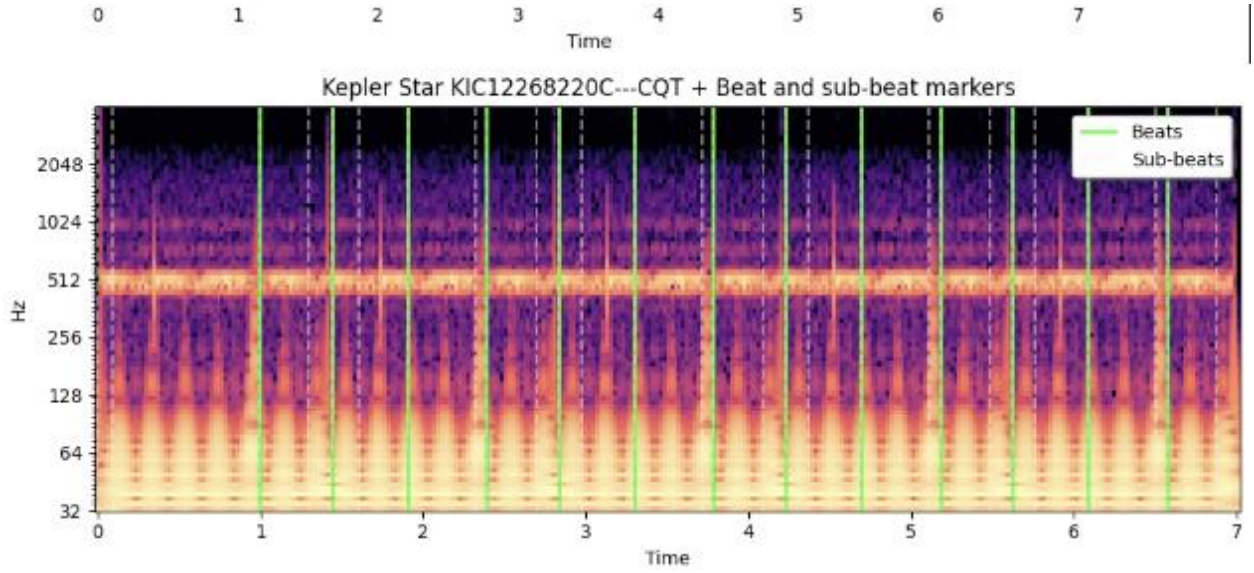
NASA - Whistler Waves

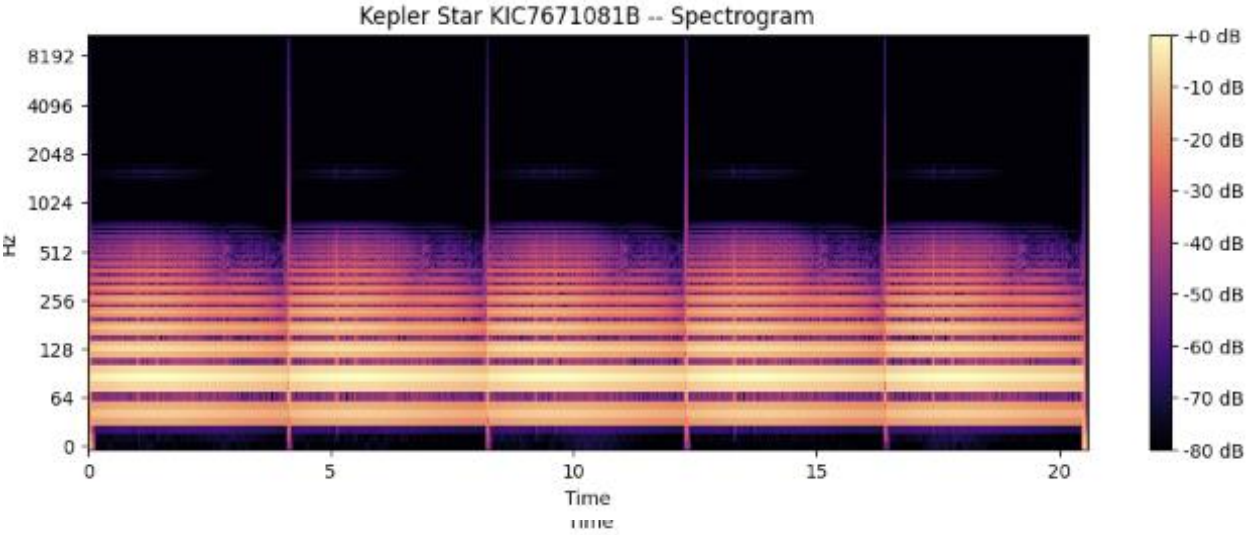
Johns Hopkins APL - Parker Solar Probe - Whistler Mode Waves 2

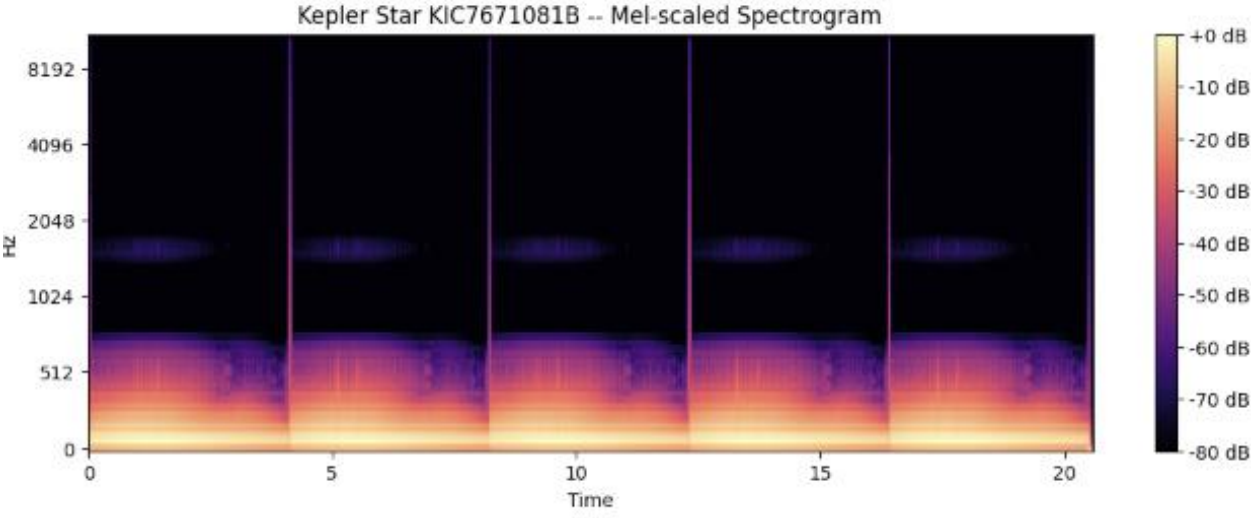
NASA - Audio from NASA’s Juno Mission: Europa Flyby

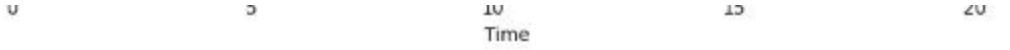

Kepler Star KIC12268220C -- Spectrogram
8192
4096
2048
1024
512
256
128
64
0
Hz
0
1
2
3
4
5
6
7
Time
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
-60 dB
-70 dB
-80 dB
Kepler Star KIC12268220C -- Mel-scaled Spectrogram
8192
4096
2048
1024
512
0
Hz
0
1
2
3
4
5
6
7
Time
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
-60 dB
-70 dB
-80 dB

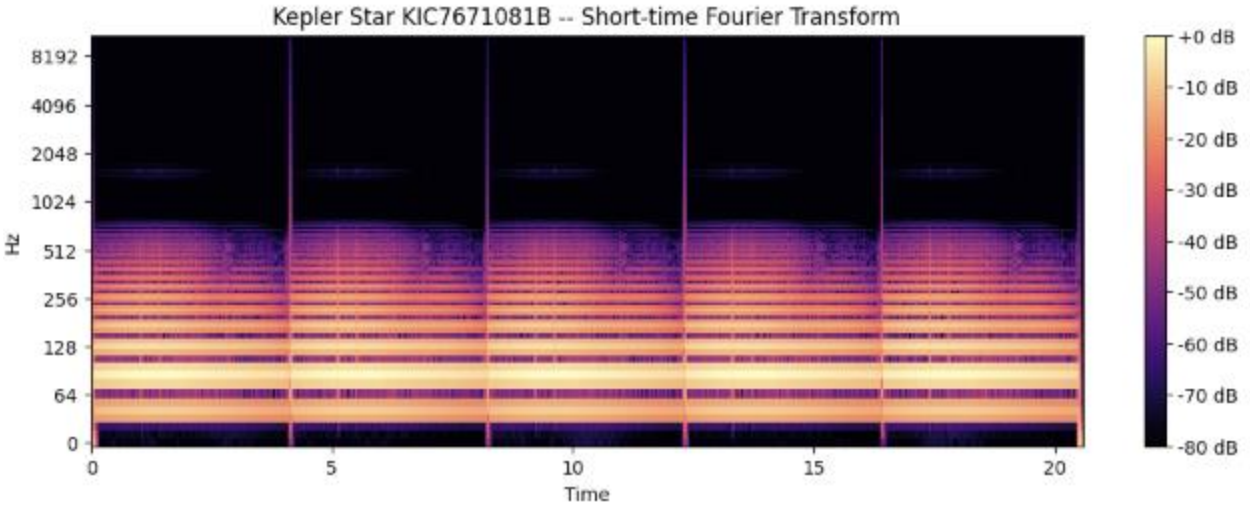

Kepler Star KIC12268220C -- Short-time Fourier Transform
8192
4096
2048
1024
512
256
128
64
0
Hz
0
1
2
3
4
5
6
7
Time
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
-60 dB
-70 dB
-80 dB

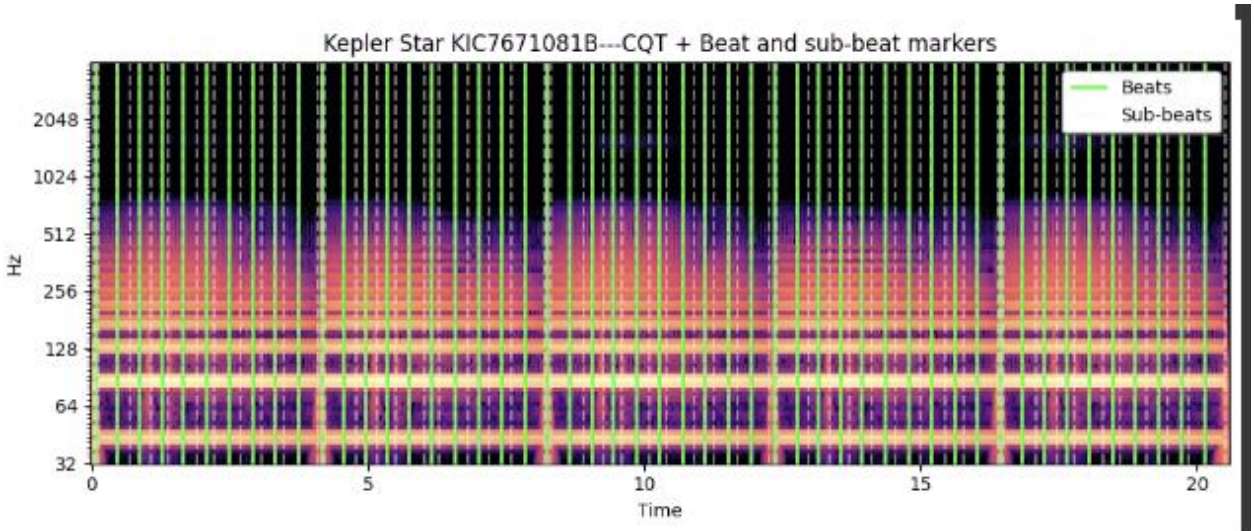

Kepler Star KIC12268220C---CQT + Beat and sub-beat markers
Beats
Sub-beats
Hz
2048
1024
512
256
128
64
32
0
1
2
3
4
5
6
7
Time

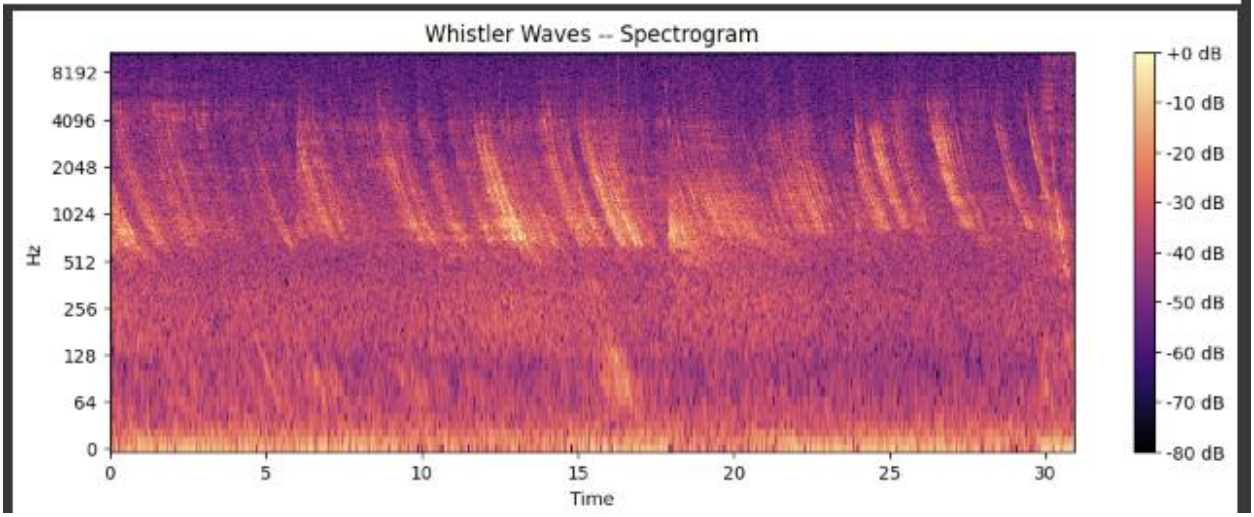

Kepler Star KIC7671081B -- Spectrogram
Hz
8192
4096
2048
1024
512
256
128
64
0
0
5
10
15
20
Time
+0 dB
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
-60 dB
-70 dB
-80 dB

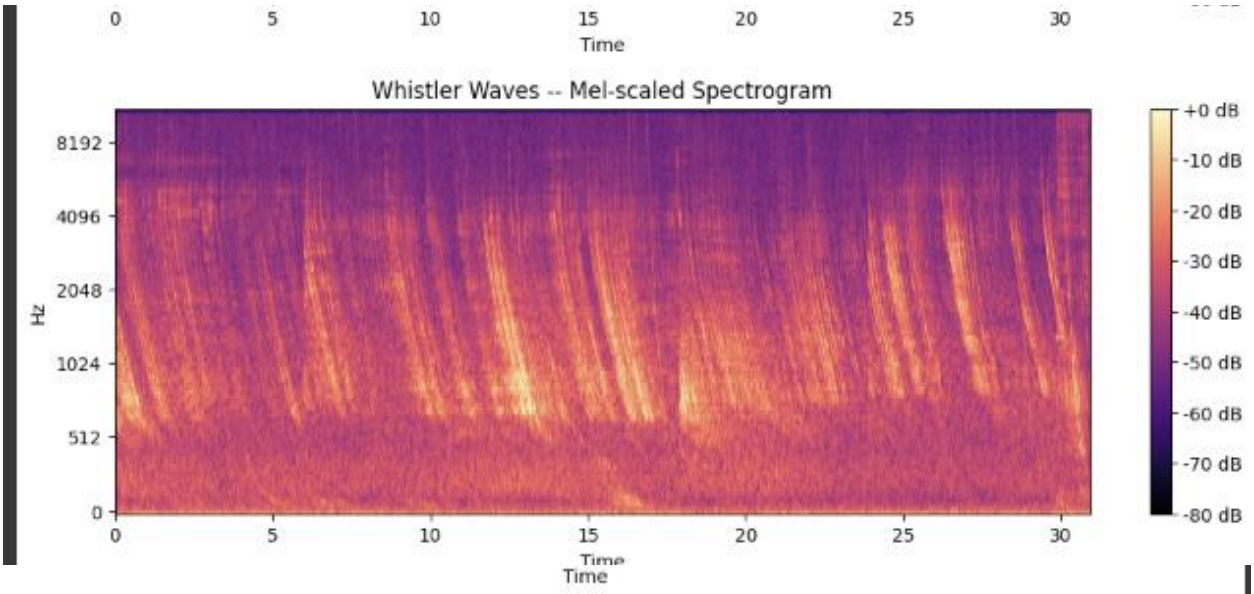

Kepler Star KIC7671081B -- Mel-scaled Spectrogram
Hz
8192
4096
2048
1024
512
0
0
5
10
15
20
Time
+0 dB
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
-60 dB
-70 dB
-80 dB

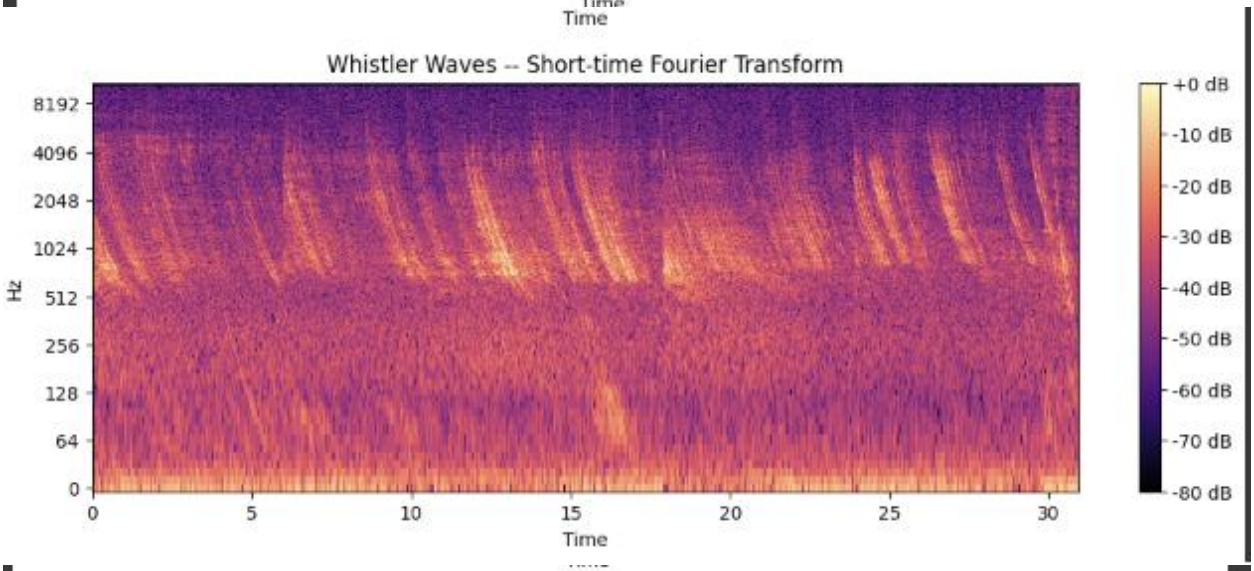

0
5
10
15
20
Time

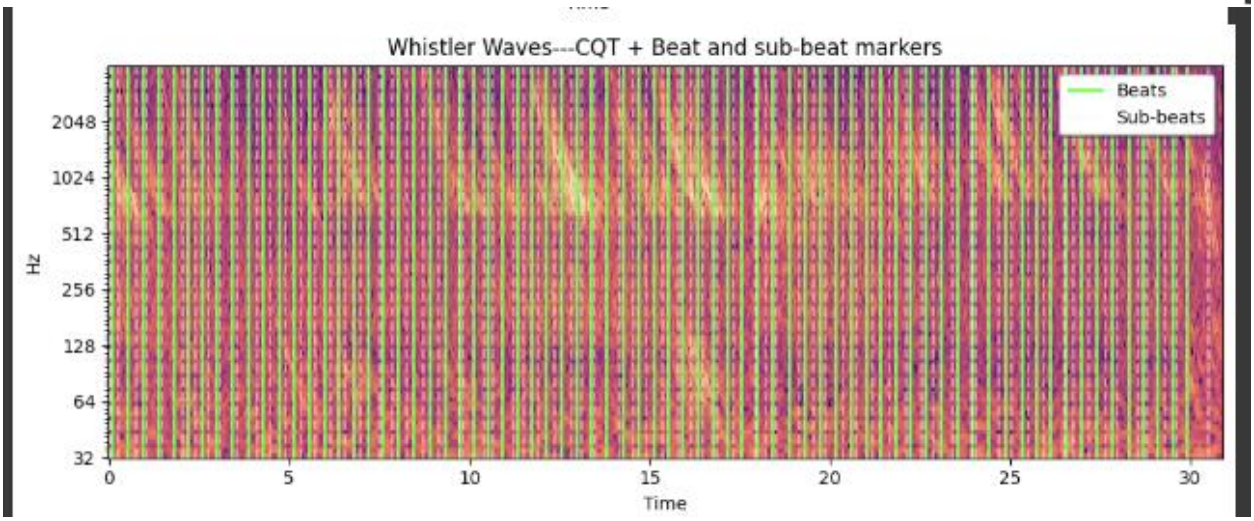

Kepler Star KIC7671081B -- Short-time Fourier Transform
8192
4096
2048
1024
512
256
128
64
0
Hz
0
5
10
15
20
Time
+0 dB
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
-60 dB
-70 dB
-80 dB

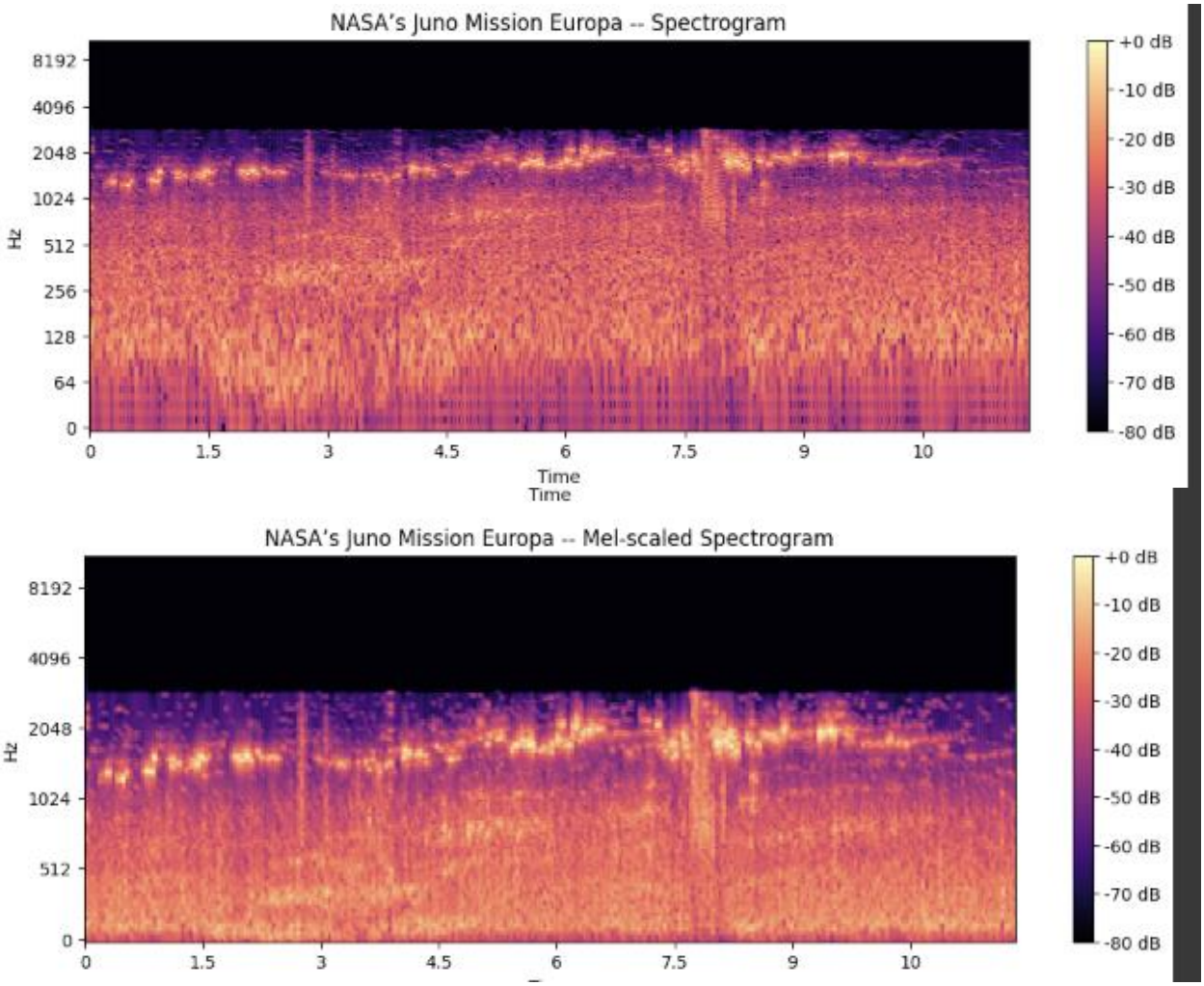

Kepler Star KIC7671081B---CQT + Beat and sub-beat markers
Beats
Sub-beats
2048
1024
512
256
128
64
32
Hz
0
5
10
15
20
Time


Whistler Waves -- Spectrogram
8192
4096
2048
1024
512
256
128
64
0
Hz
0
5
10
15
20
25
30
Time
+0 dB
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
-60 dB
-70 dB
-80 dB

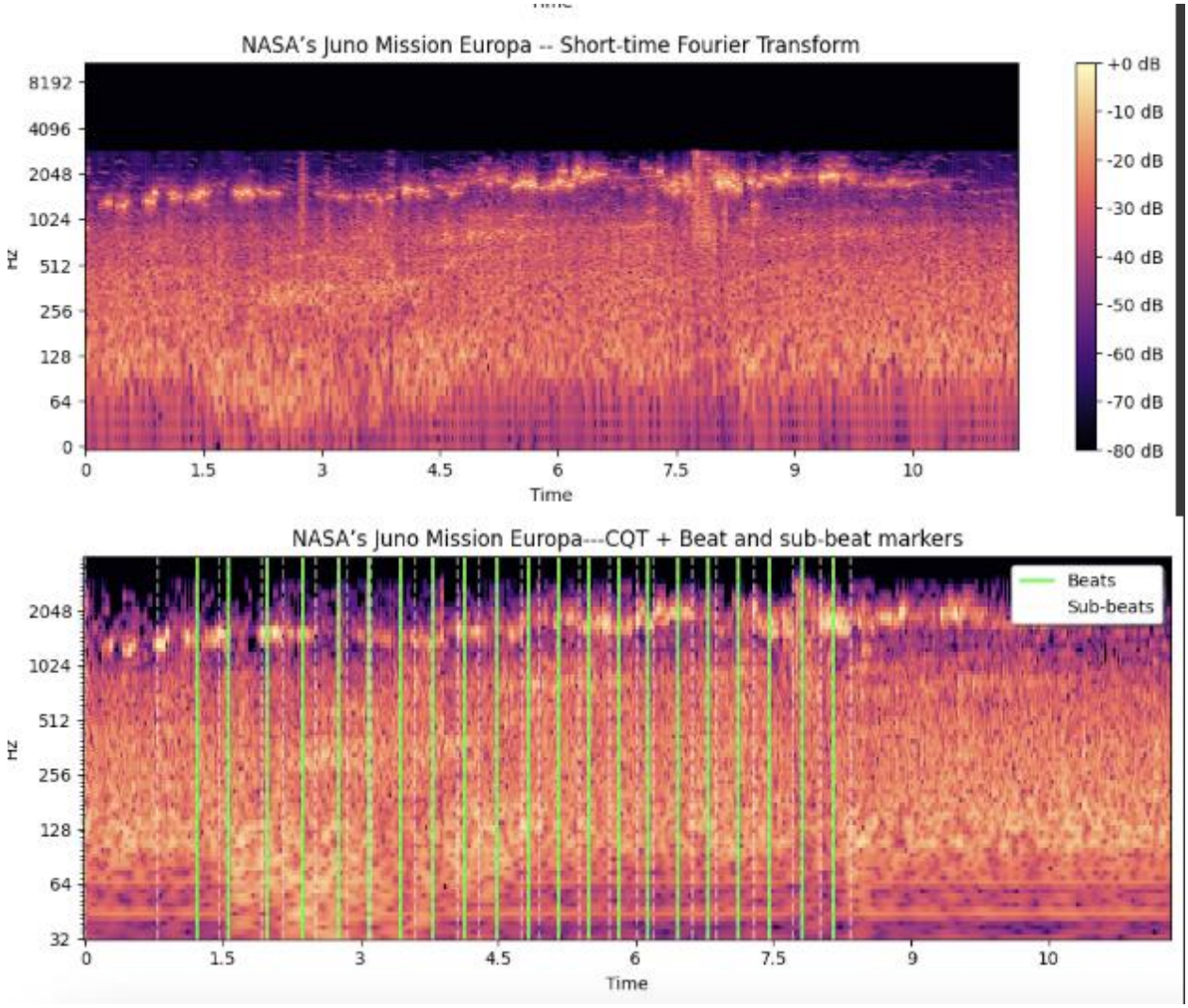

0
5
10
15
20
25
30
Time
Whistler Waves -- Mel-scaled Spectrogram
8192
4096
2048
1024
512
0
Hz
+0 dB
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
-60 dB
-70 dB
-80 dB
Time


Whistler Waves -- Short-time Fourier Transform
8192
4096
2048
1024
512
256
128
64
0
Hz
+0 dB
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
-60 dB
-70 dB
-80 dB
0
5
10
15
20
25
30
Time


Whistler Waves---CQT + Beat and sub-beat markers
Beats
Sub-beats
2048
1024
512
256
128
64
32
Hz
0
5
10
15
20
25
30
Time


NASA's Juno Mission Europa -- Spectrogram
8192
4096
2048
1024
512
256
128
64
0
Hz
0
1.5
3
4.5
6
7.5
9
10
Time
Time
+0 dB
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
-60 dB
-70 dB
-80 dB

NASA's Juno Mission Europa -- Mel-scaled Spectrogram
8192
4096
2048
1024
512
0
Hz
0
1.5
3
4.5
6
7.5
9
10
+0 dB
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
-60 dB
-70 dB
-80 dB


NASA's Juno Mission Europa -- Short-time Fourier Transform
8192
4096
2048
1024
512
256
128
64
0
Hz
0
1.5
3
4.5
6
7.5
9
10
Time
+0 dB
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
-60 dB
-70 dB
-80 dB
NASA's Juno Mission Europa---CQT + Beat and sub-beat markers
Beats
Sub-beats
2048
1024
512
256
128
64
32
Hz
0
1.5
3
4.5
6
7.5
9
10
Time