



Reed Vibration

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SVFIG

December 21, 2019



Oboe, My Favorite

- **Bach's most favorite instrument was oboe, next to organ, I think.**
- **Most often he used oboe to accompany his cantata aria.**
- **Oboe's color matches best with human voices.**



Oboe Reeds



- **Oboe is a double reed woodwind instrument.**
- **Reeds are shaped from *Arundo donax* cane**



Amazon Oboe Reeds



Plastic Straw Reeds



Plastic Sheet Reeds





Record.py

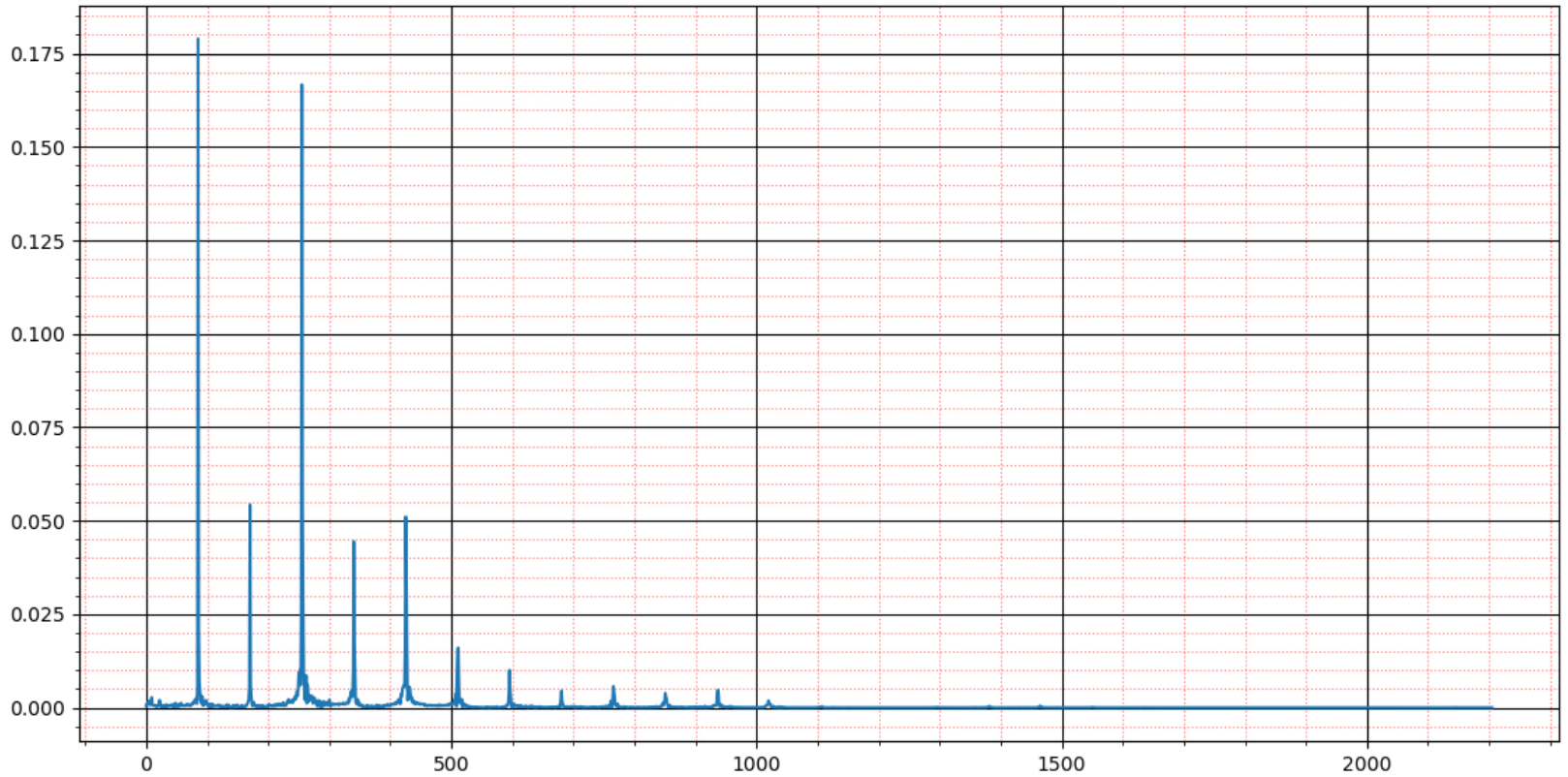
```
import sounddevice as sd  
from scipy.io.wavfile import write  
fs = 44100 # Sample rate  
seconds = 3 # Duration of recording  
print('Start recording')  
myrecording = sd.rec(int(seconds * fs),  
    samplerate=fs, channels=1)  
sd.wait() # Wait until recording is finished  
write('reed_4.wav', fs, myrecording)  
Print('Stop recording')
```



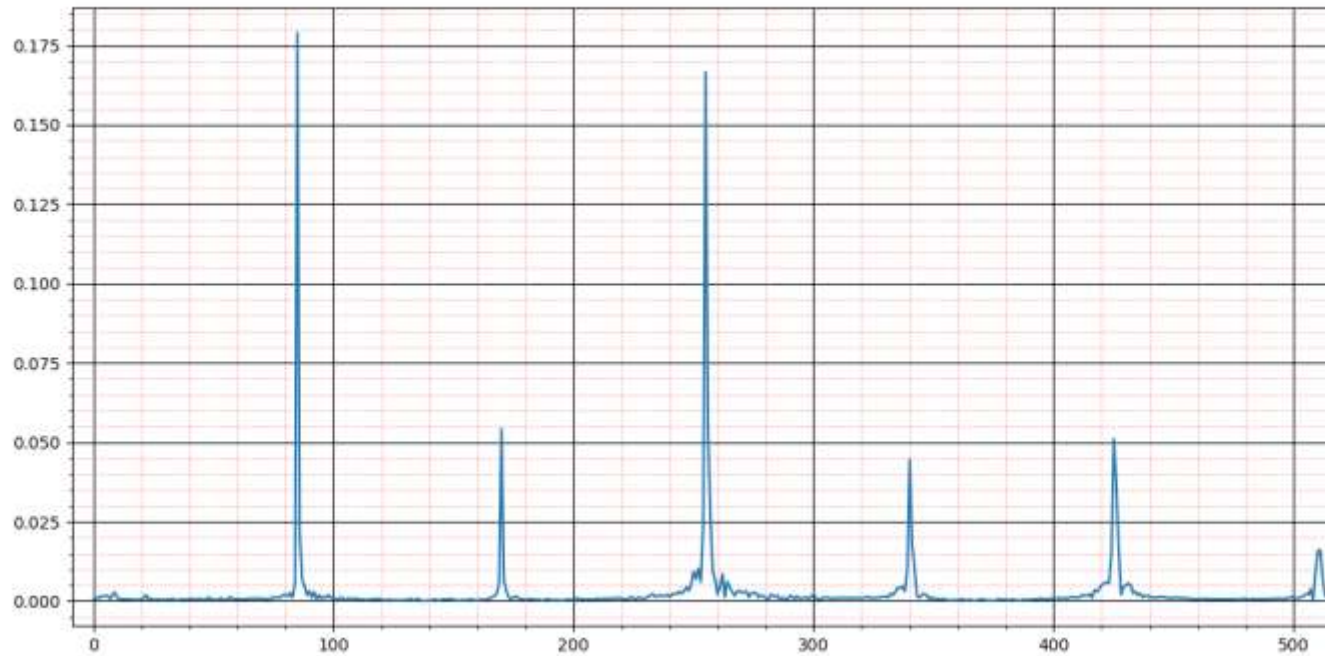
Fft2_plot.py

```
from scipy import signal
import numpy as np
from scipy.fftpack import fft
from scipy.io import wavfile
samplingFrequency, signalData = wavfile.read('reed_4.wav')
N = 4410
T = 1.0 / N
x = np.linspace(0.0, N*T, N)
y = signalData[50000:50000+N]
yf = fft(y)
xf = np.linspace(0.0, 1.0/(2.0*T), N//2)
import matplotlib.pyplot as plt
plt.plot(xf, 2.0/N * np.abs(yf[0:N//2]))
plt.minorticks_on()
plt.grid(b=True, which='major', color='k', linestyle='-')
plt.grid(which='minor', color='r', linestyle=':', alpha=0.5)
```

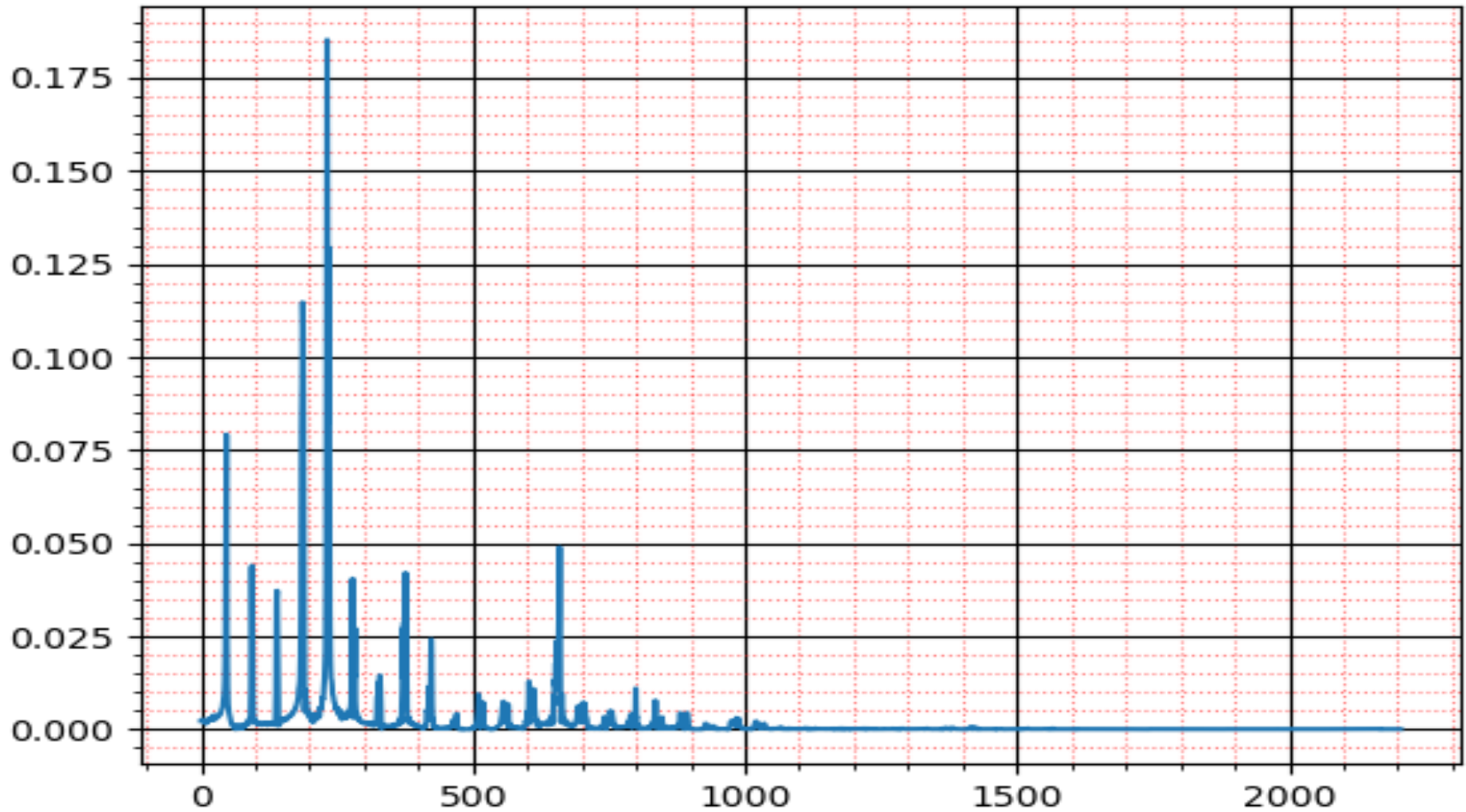

Straw 2



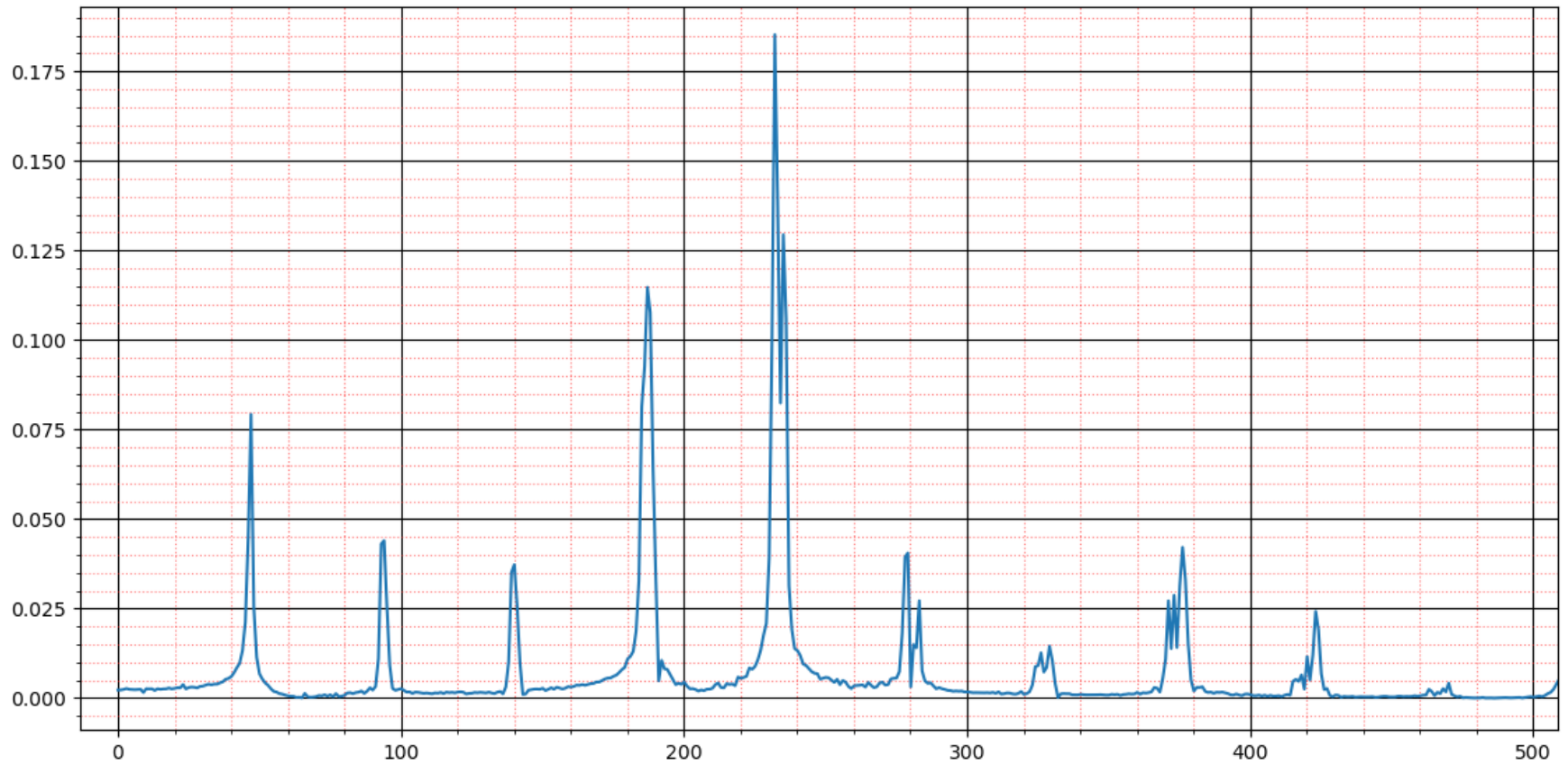
Straw 2, Expanded



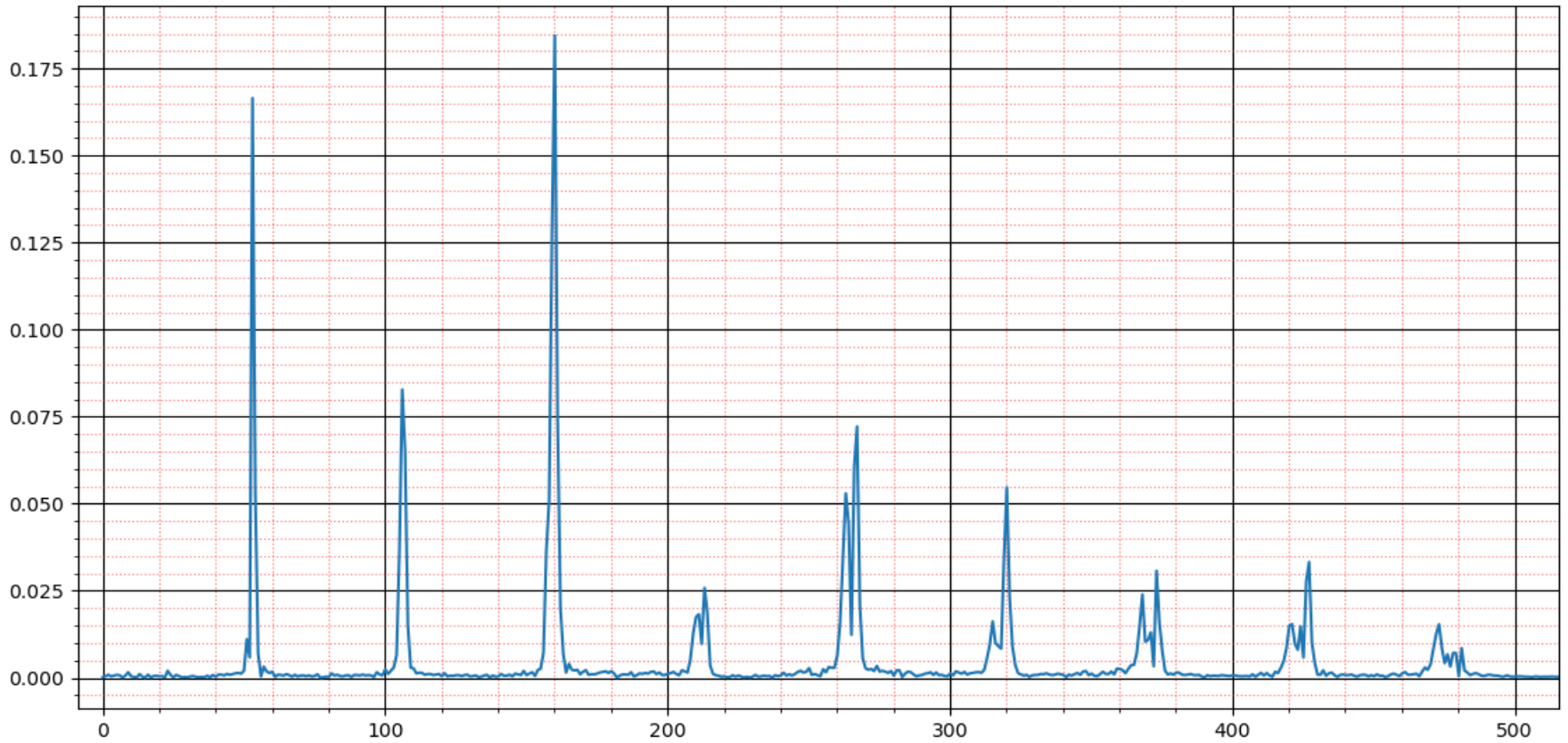
Reed 7



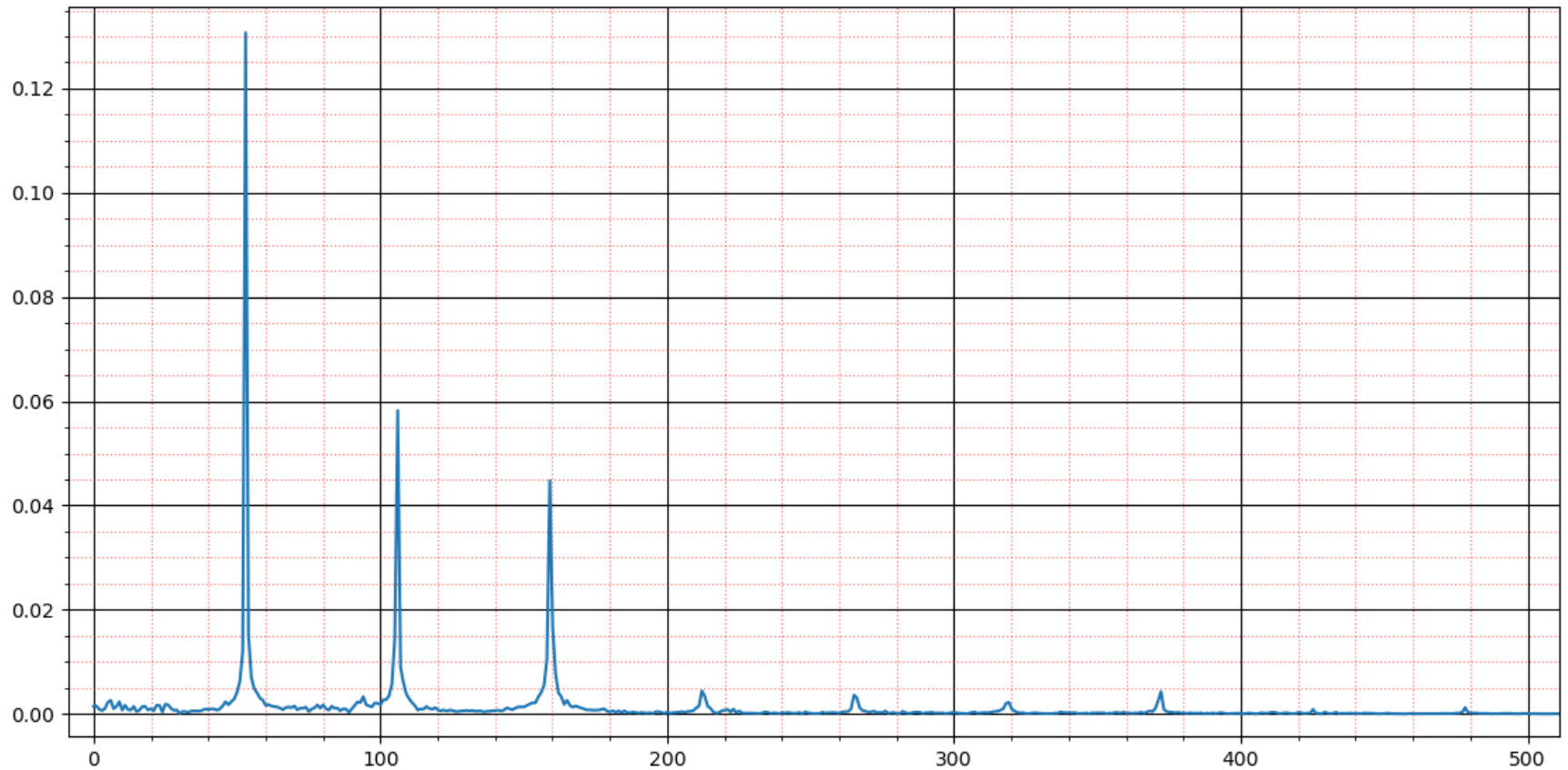
Reed 7



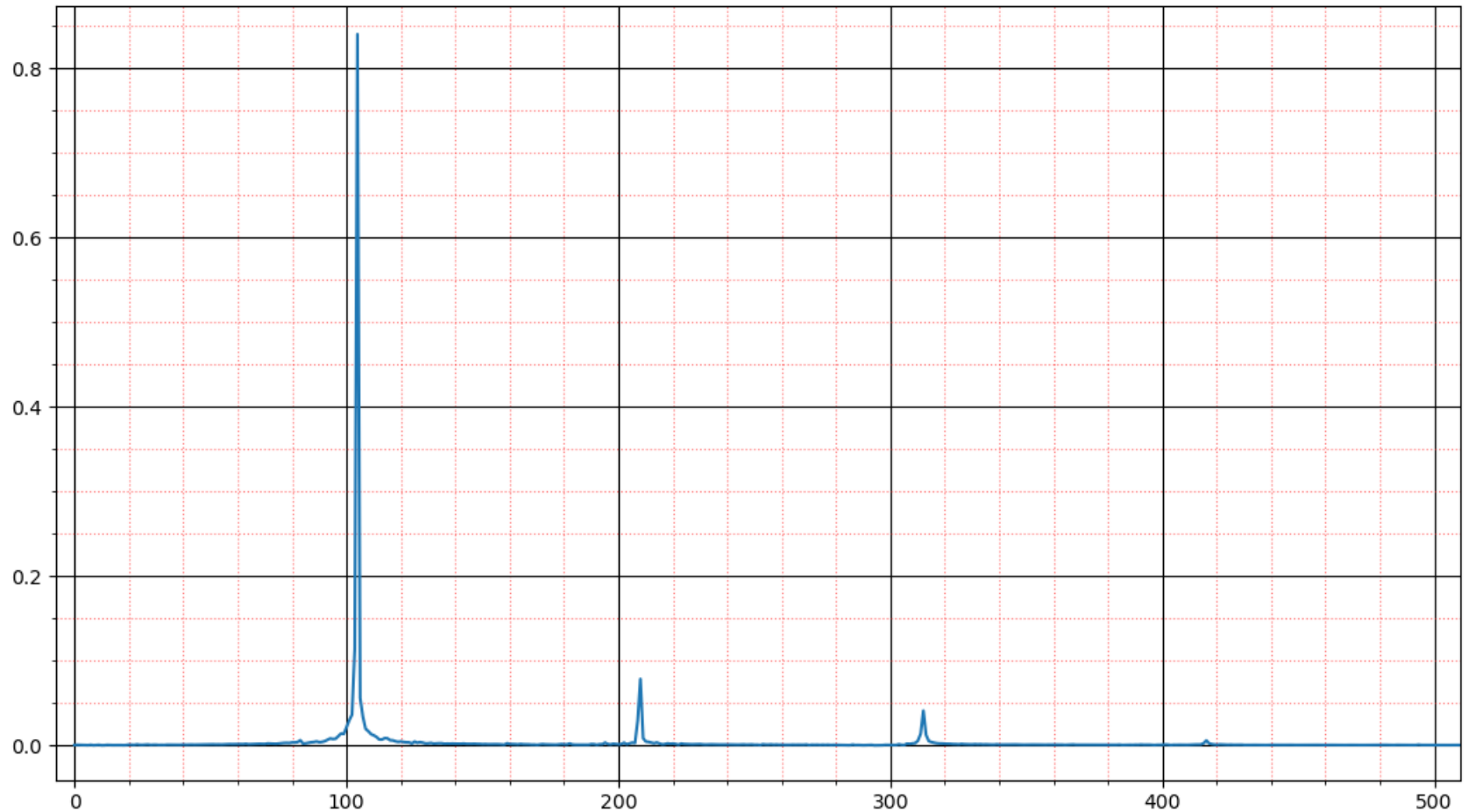
Reed 4



Middle C, 523.25 Hz



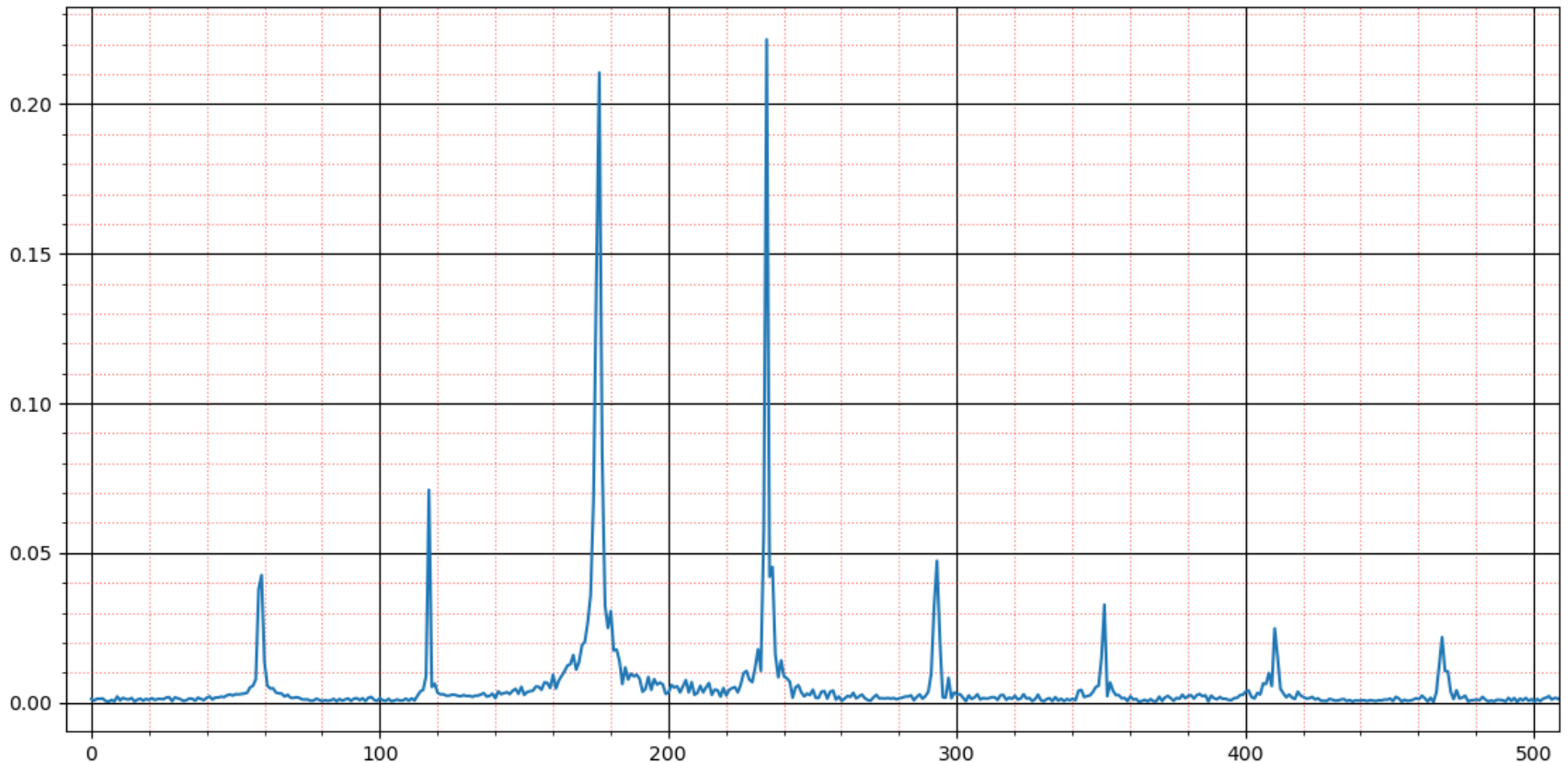
Higher C, 1046.5 Hz



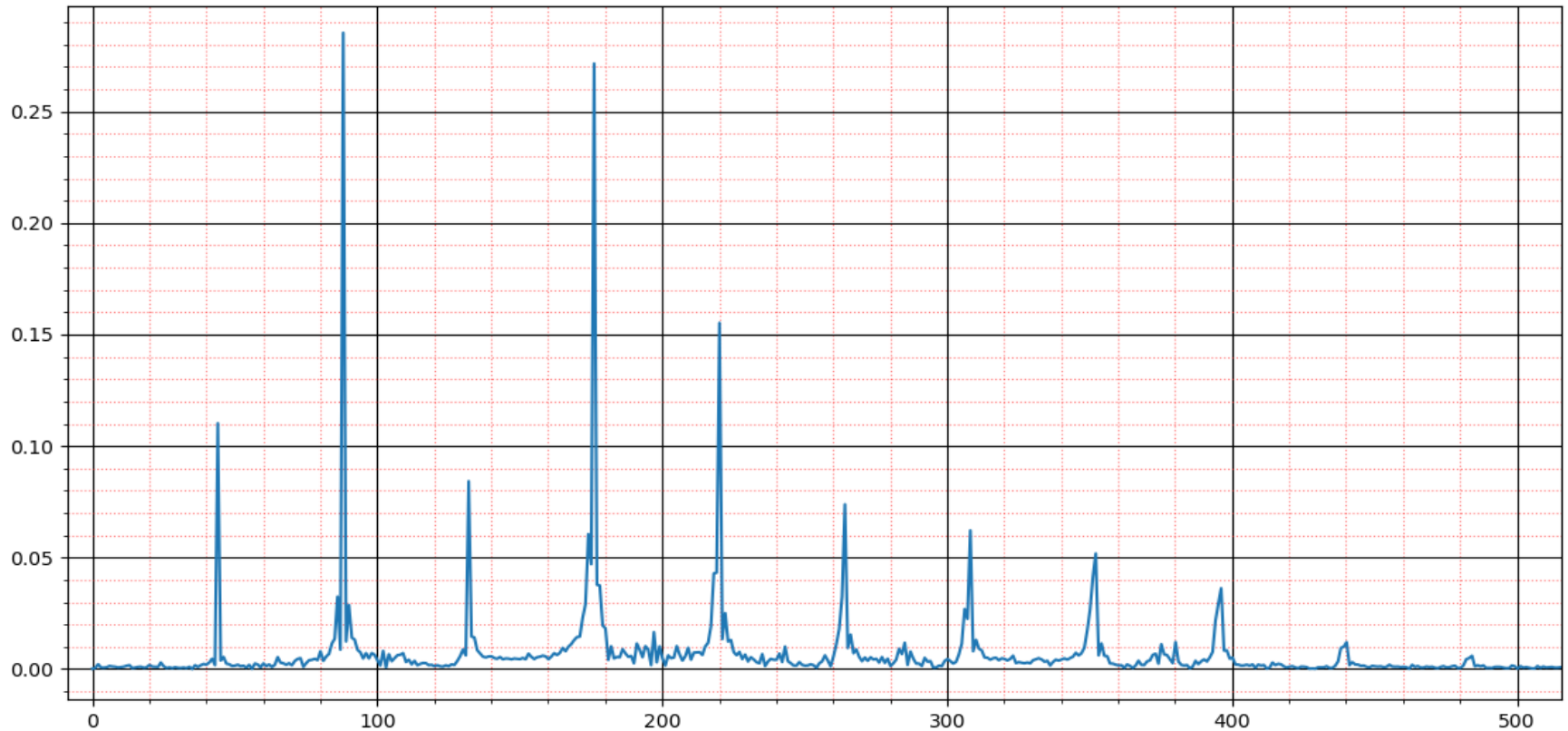
Short Stem Reed



Short Stem 70 mm Reed



Long Stem 177 mm Reed



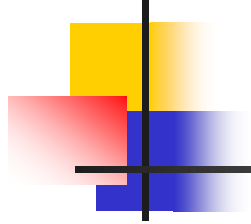


Demo

- **Plastic straw reed**
- **Plastic sheet reed**
- **Short stem 70 mm reed**
- **Long stem 177 mm reed**
- **Recording**
- **FFT**



Questions?



Thank You!