

q4

January 20, 2018

1 Audio Convolution

```
In [10]: audio_file = audiorecorder(44100,24,1,1)
```

```
audio_file =
```

```
audiorecorder with properties:
```

```
    SampleRate: 44100
    BitsPerSample: 24
    NumberOfChannels: 1
    DeviceID: 1
    CurrentSample: 1
    TotalSamples: 0
    Running: 'off'
    StartFcn: []
    StopFcn: []
    TimerFcn: []
    TimerPeriod: 0.0500
    Tag: ''
    UserData: []
    Type: 'audiorecorder'
```

```
In [11]: disp('Start speaking.')
         recordblocking(audio_file, 5);
         disp('End of Recording.');
```

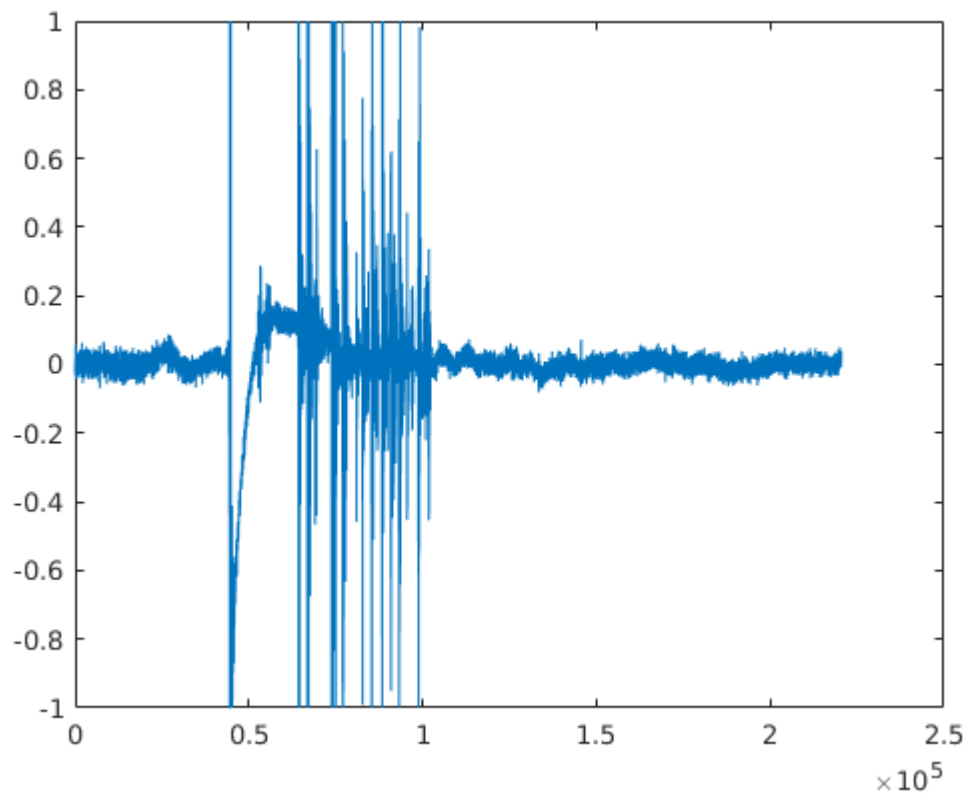
```
Start speaking.
End of Recording.
```

```
In [40]: play(audio_file);
```

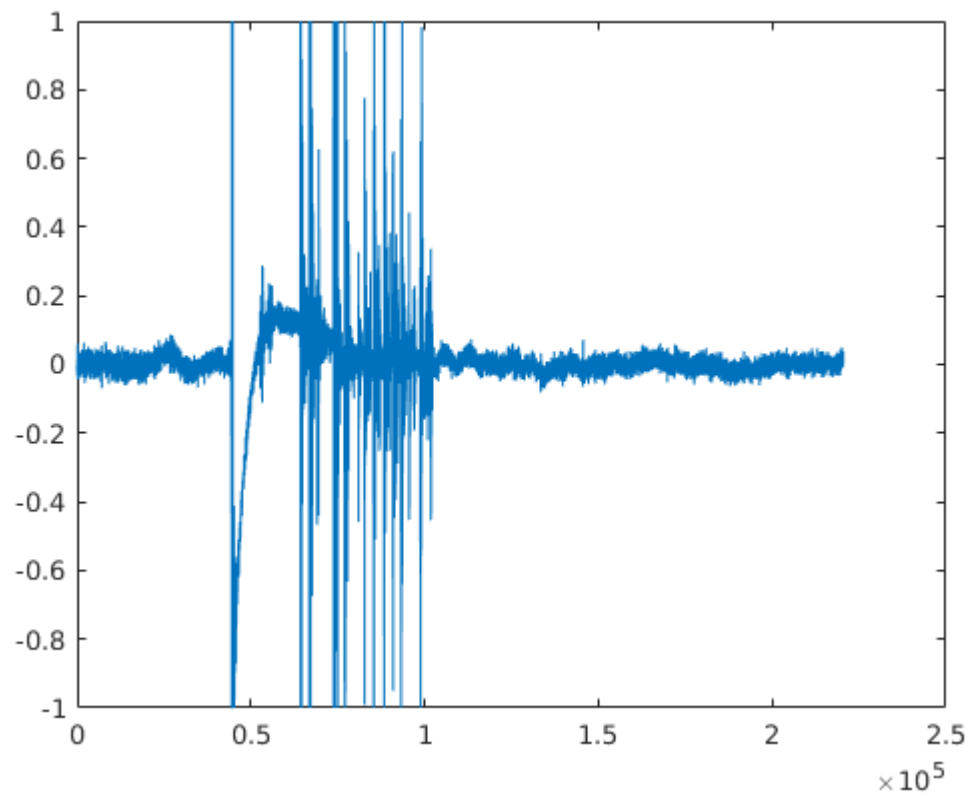
```
In [26]: y = getaudiodata(audio_file);
         size_y = size(y,1)
         plot(y);
```

```
size_y =
```

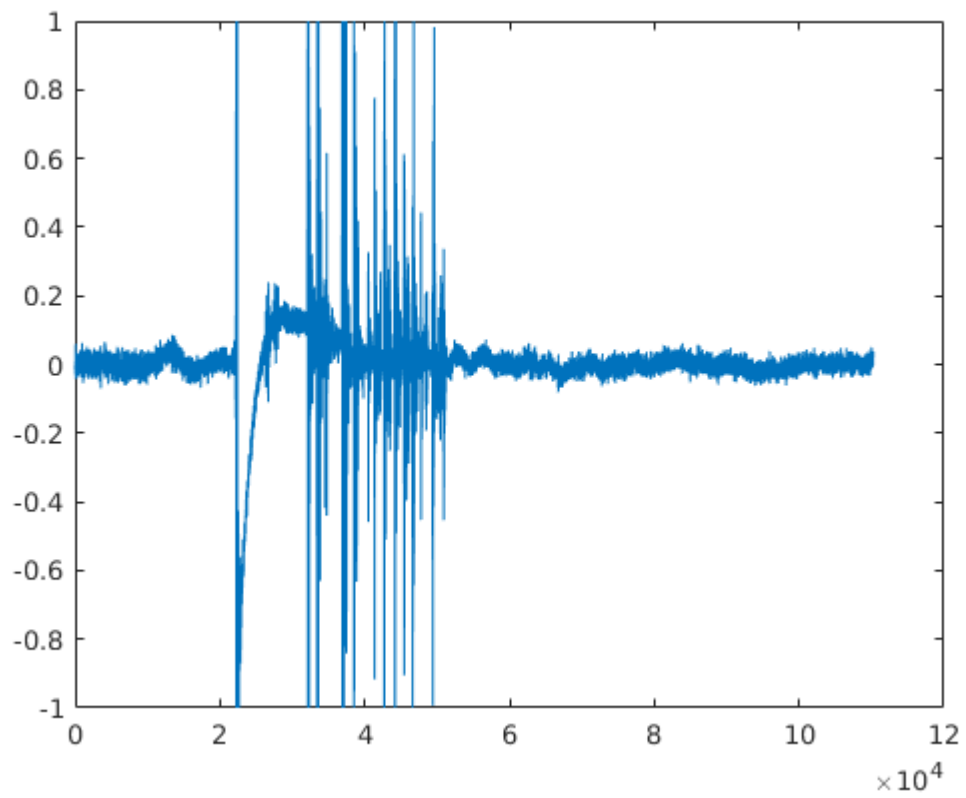
```
220500
```



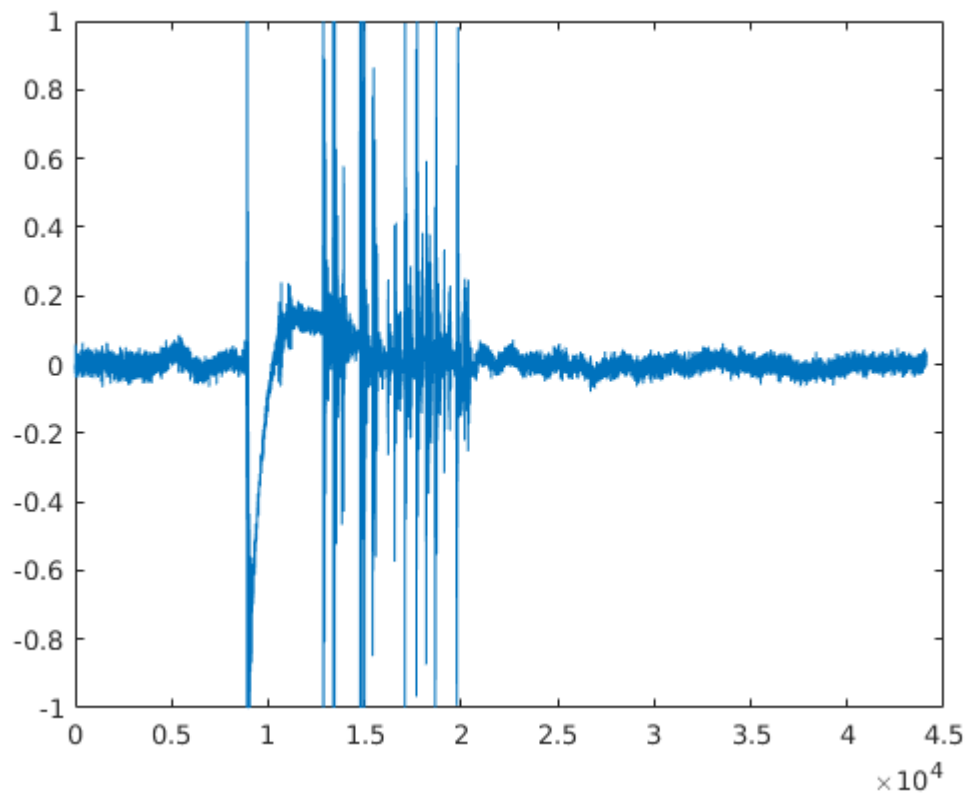
```
In [30]: y24 = y((1:floor(44.1/24):size_y)');  
         P24 = audioplayer(y24,24000);  
         plot(y24)  
         play(P24)
```



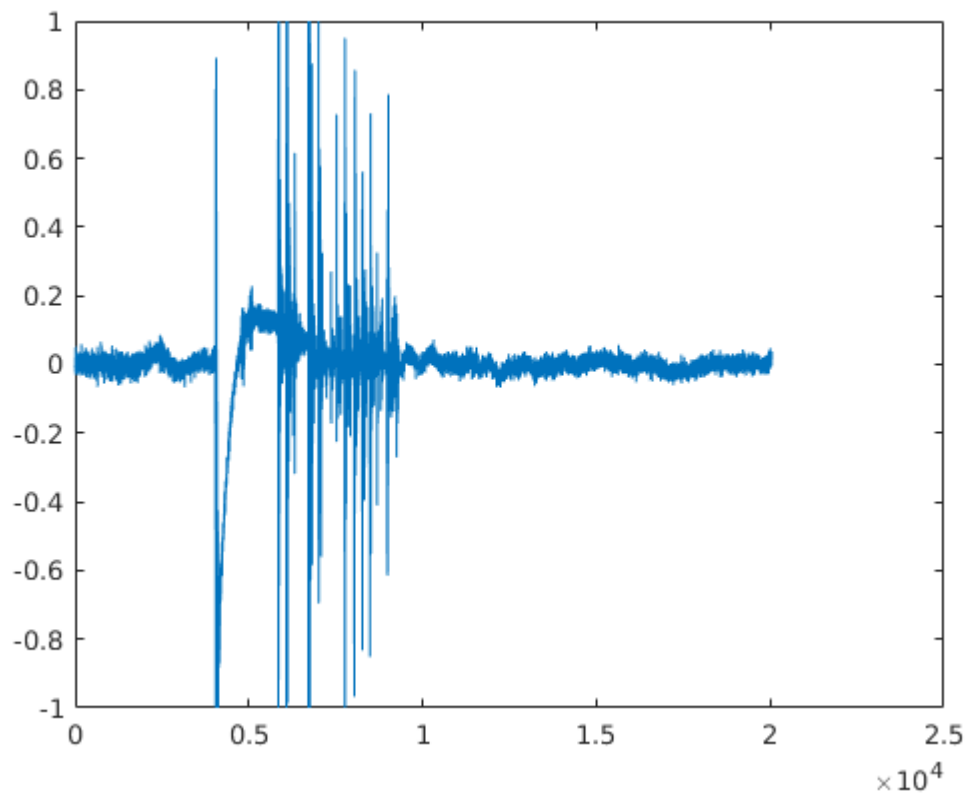
```
In [31]: y16 = y((1:floor(44.1/16):size_y)');  
         P16 = audioplayer(y24,16000);  
         plot(y16)  
         play(P16)
```



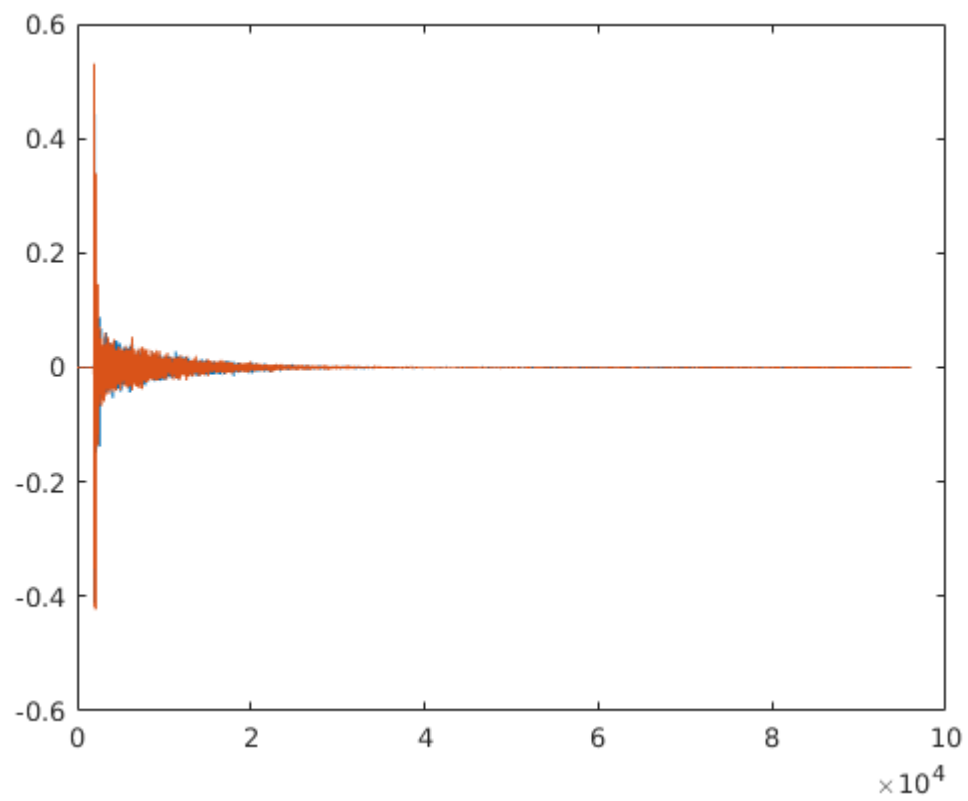
```
In [32]: y8 = y((1:floor(44.1/8):size_y)');  
         P8 = audioplayer(y24,8000);  
         plot(y8)  
         play(P8)
```



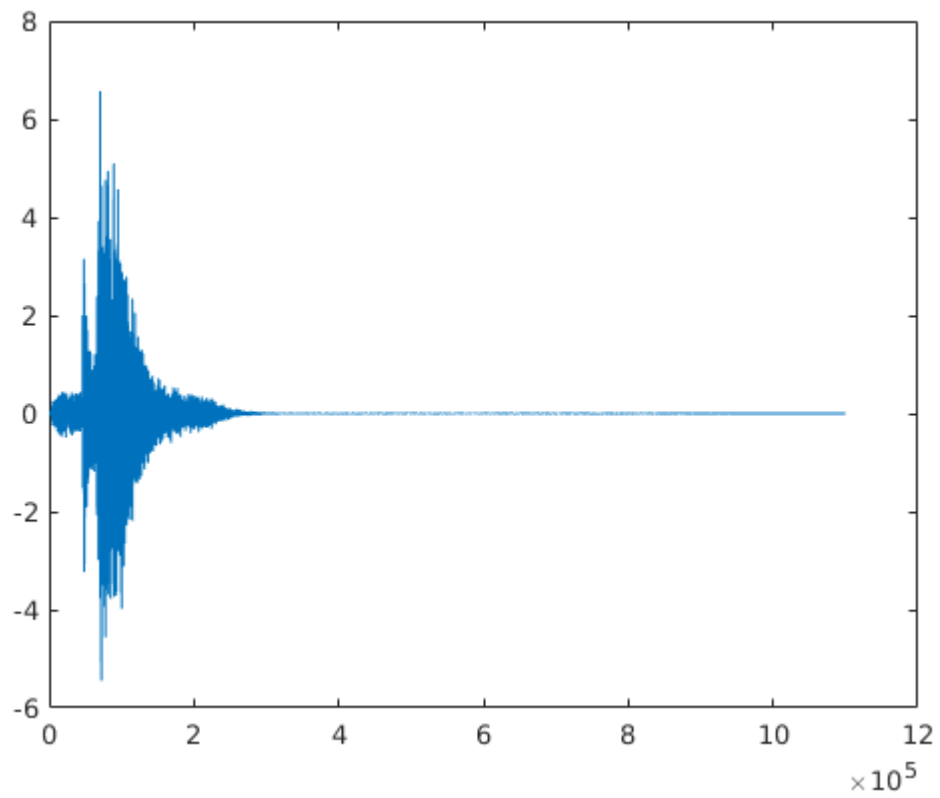
```
In [33]: y4 = y((1:floor(44.1/4):size_y)');  
         P4 = audioplayer(y24,4000);  
         plot(y4)  
         play(P4)
```



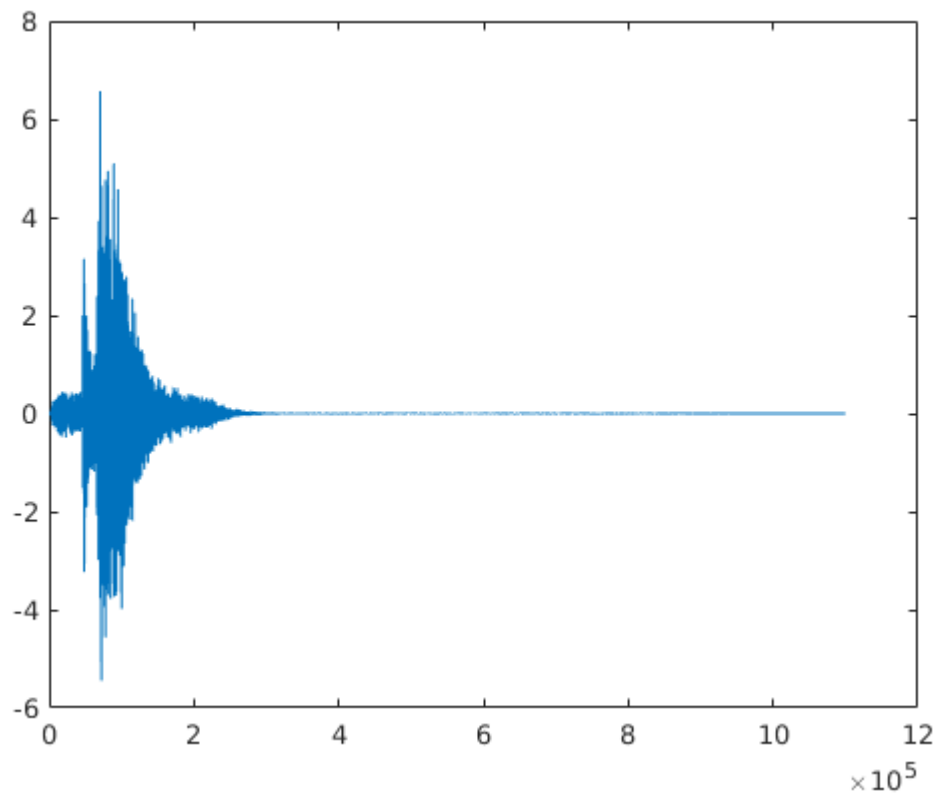
```
In [34]: church_bullet = audioread('church_bullet.wav');  
         church = audioplayer(church_bullet,44100);  
         play(church);  
         plot(church_bullet);
```



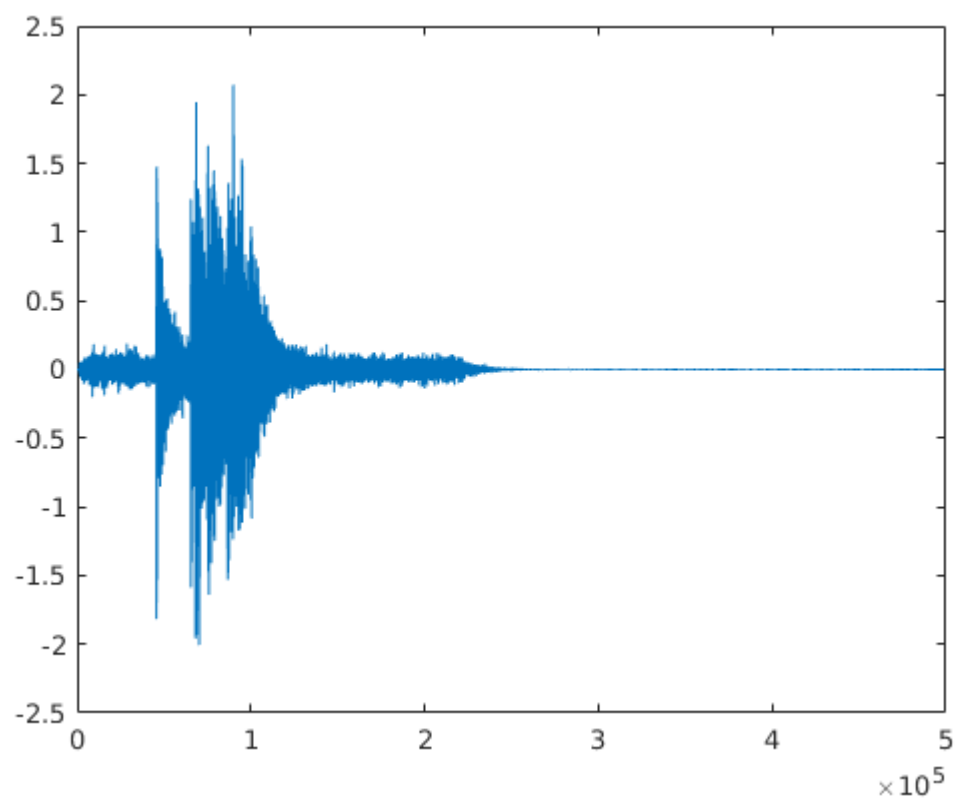
```
In [38]: church_y = conv(y,church_bullet(:,1));  
         church_conv_audio = audioplayer(church_y,44100);  
         plot(church_y)  
         play(church_conv_audio)
```



```
In [39]: r1_bullet = audioread('./r1_omni.wav');  
         r1_y = conv(y,r1_bullet(:,1));  
         r1_conv_audio = audioplayer(r1_y,44100);  
         plot(r1_y)  
         play(r1_conv_audio)
```

```
In [41]: tr_bullet = audioread('./terrrys_typing_omni.wav');  
         tr_y = conv(y,tr_bullet(:,1));  
         tr_conv_audio = audioplayer(tr_y,44100);  
         plot(tr_y)  
         play(tr_conv_audio)
```



In []: