Sample MATLAB commands for speech processing / analysis

CEN 352, Digital Signal Processing

King Saud University, Riyadh, Saudi Arabia

To record your voice or speech:

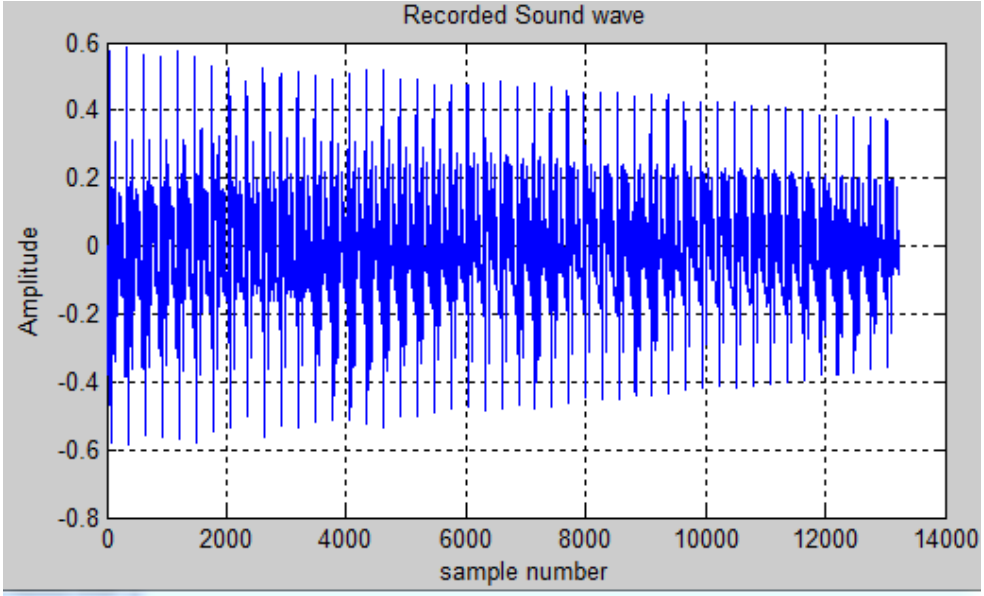
```
>> clean = audiorecorder(44100, 16, 1);
% Sampling frequency = 44100 Hz, bit rate = 16, mono recording (for stereo recording use 2)
>> record (clean, 3);
% record for 3 seconds
>> stop (clean);
% stop the recording
>> play (clean);
% play the recording
```

To save your recorded voice or speech in a wave file

```
>> mySpeech = getaudiodata (clean);
>> wavwrite (mySpeech, 'Abdul');
>> sound (mySpeech,44100); % play again the retrieved voice or speech
```

To plot the recorded sound wave

```
>> figure;
>> plot (mySpeech); title ('Recorded Sound wave');
>> xlabel ('sample number');
>> ylabel ('Amplitude');
>> grid on;
```

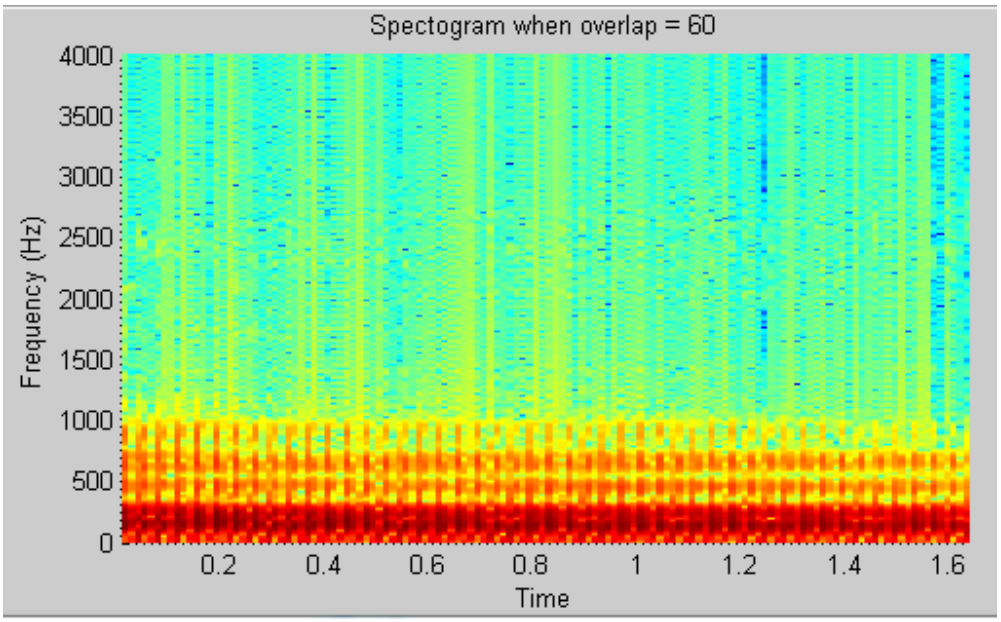


To read a sound wave

```
>> [y, fs, bits] = wavread ('Abdul.wav');
% y is the array that contains the samples, fs is the sampling frequency, bits is the number of bits per
% sample
```

We want to draw the spectrogram

```
>> M = round (0.02*fs); % 20 ms window
>> N = 2^nextpow2 (4*M); % zero padding for interpolation
>> w = hamming (M); % hamming command
>> figure;
>> spectrogram (y, w, 60, N, fs, 'yaxis'); % draw the spectrogram using 60% overlapping of the windows
>> title ('Spectogram when overlap = 60');
```


Spectogram when overlap = 60
Frequency (Hz)
4000
3500
3000
2500
2000
1500
1000
500
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
Time