

Experiential DSP 01 Solutions

Part A: Basic visualization of the provided audio file.

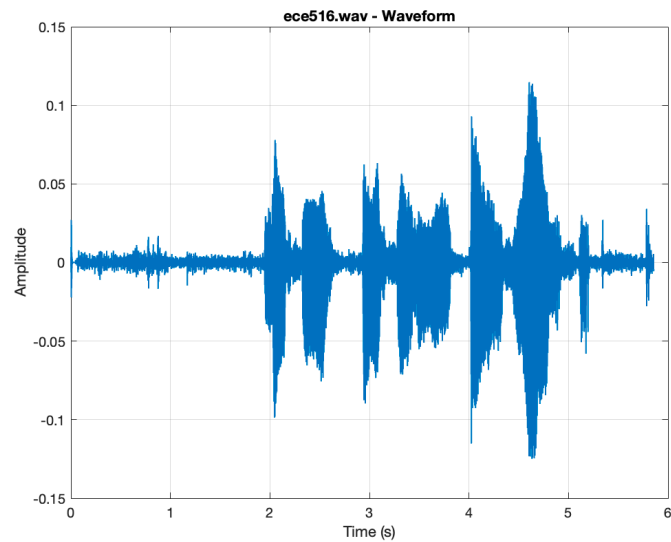


Figure 1: Waveform plot of `ece516.wav` signal

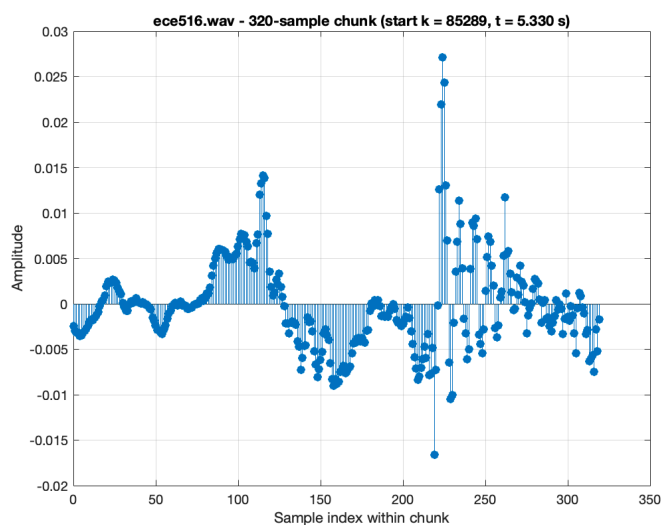


Figure 2: Stem plot of an arbitrary speech section

Part B: Now you record!

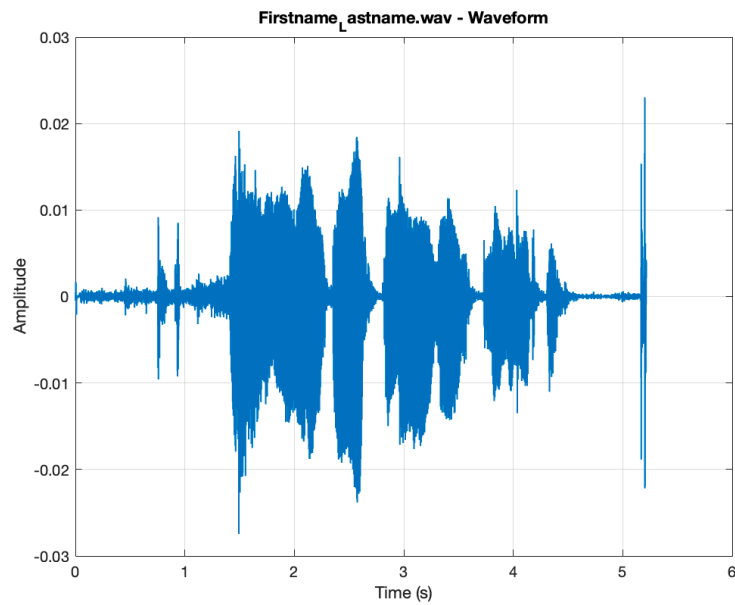


Figure 3: Waveform plot of my recorded signal

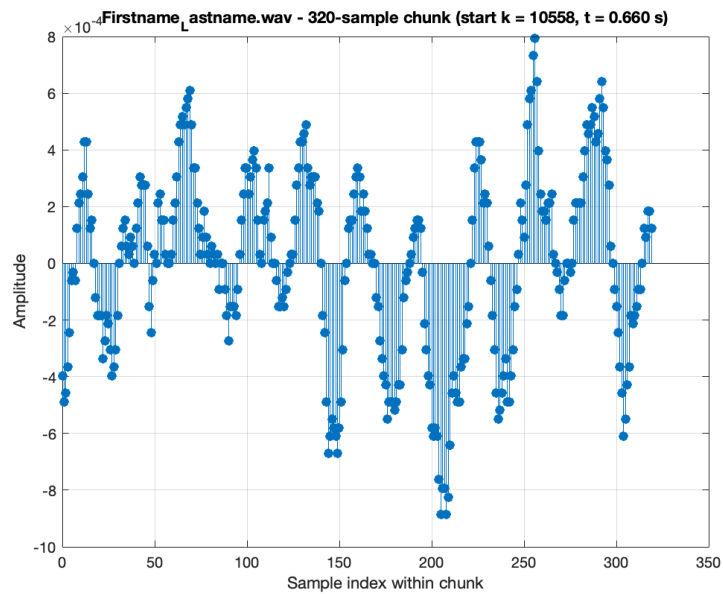


Figure 4: Stem plot of an arbitrary section

Part C: Spectrograms

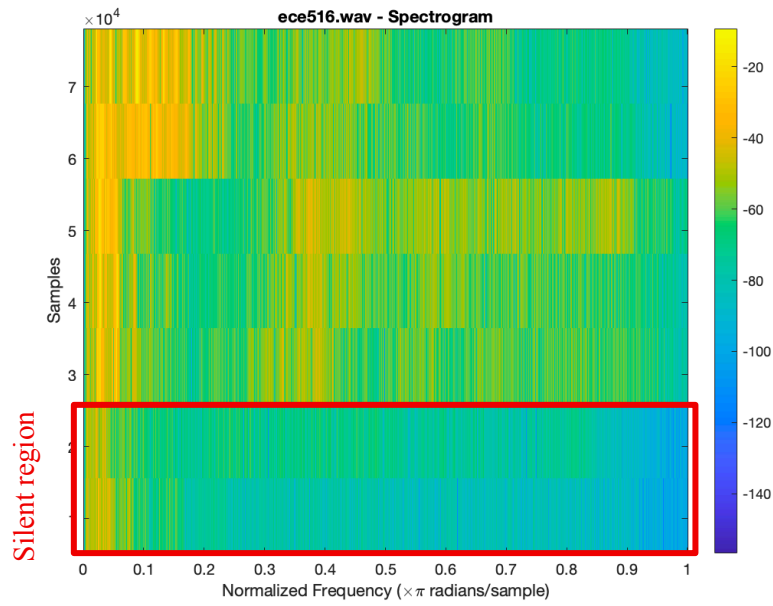


Figure 5: Spectrogram plot of `ece516.wav`

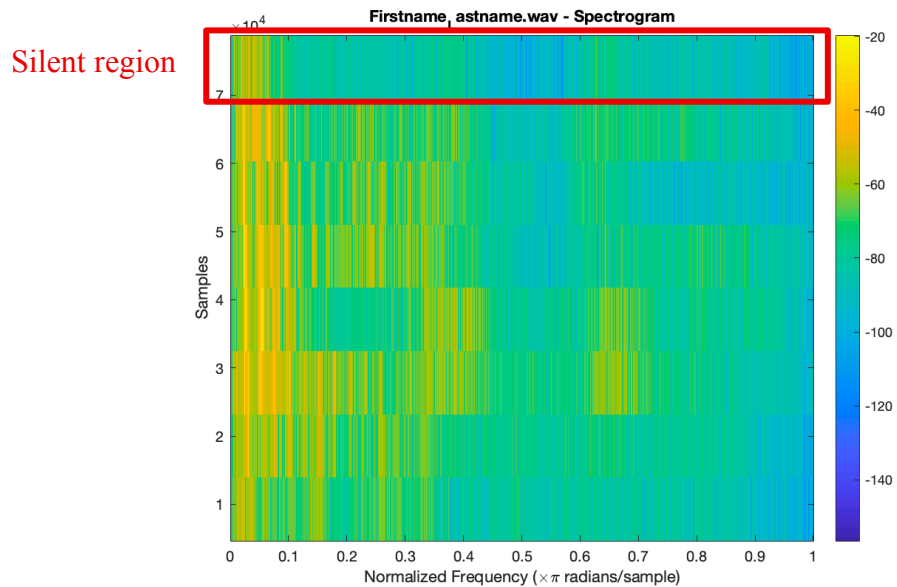


Figure 6: Spectrogram plot of recorded signal

In this spectrogram, silence appears as horizontal regions with cooler colors (blue/green, around -100 to -120 dB) across all frequencies, indicating very low signal energy, unlike speech regions that show warmer colors (yellow/orange, -20 to -40 dB) with visible vertical patterns of energy concentration. These silent bands differ from speech because they lack the textured variations across frequency and are more uniform.

