

SIT 789

Task 7.1: Introduction to Speech Processing

Task 1:

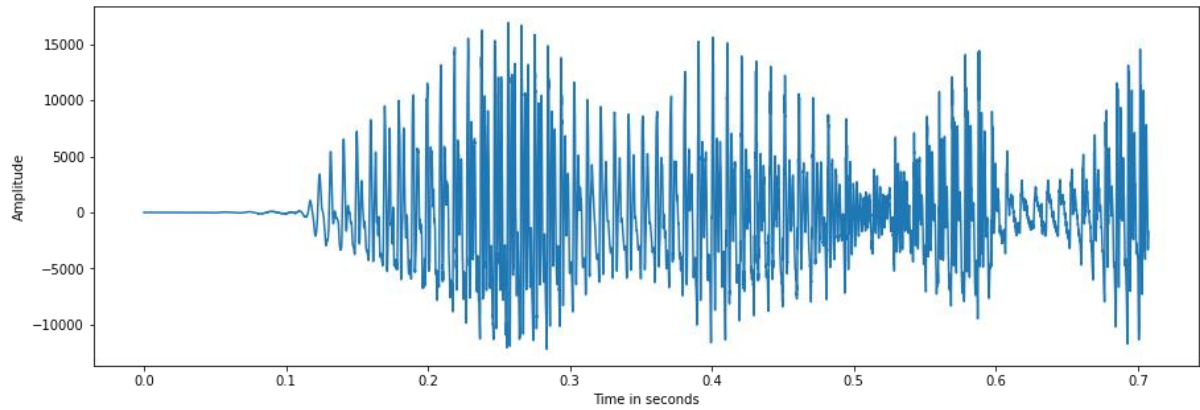


Fig 1.1: Signal x1 in time domain

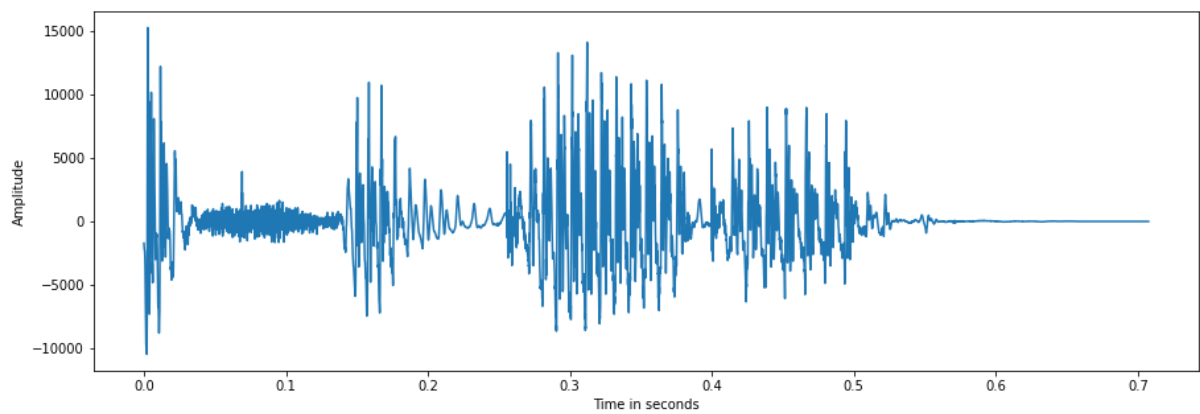


Fig 1.2: Signal x2 in time domain

Task 2:

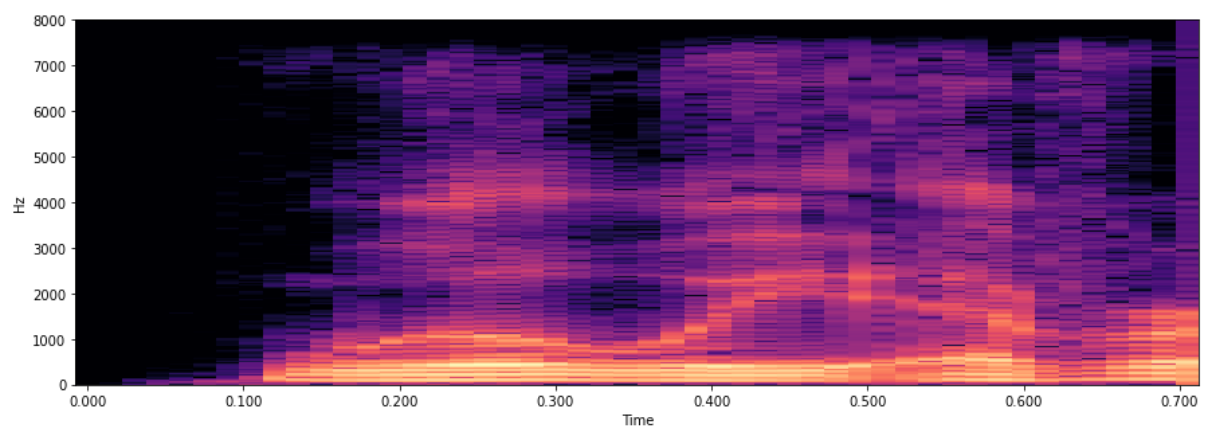


Fig 2.1: Spectrogram for x1

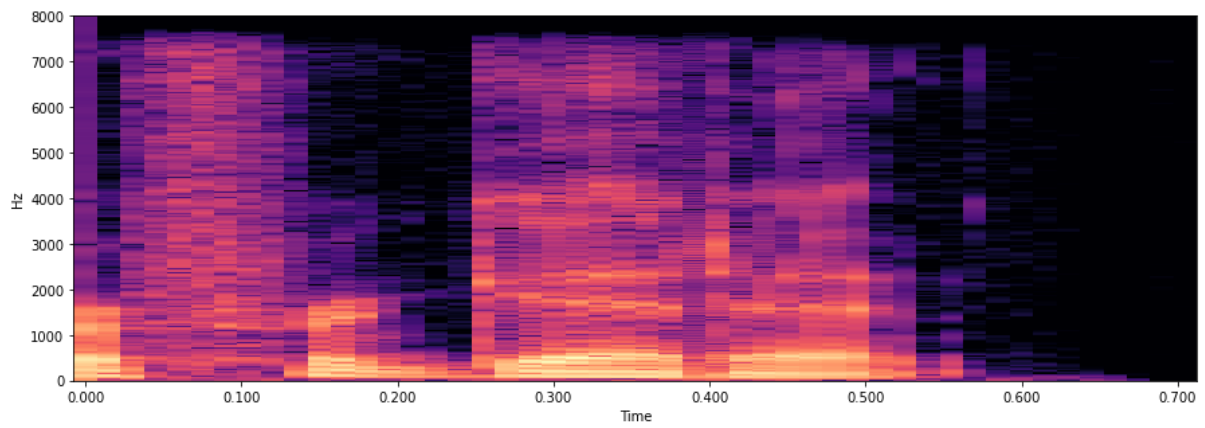


Fig 2.2: Spectrogram for x2

Task 3:

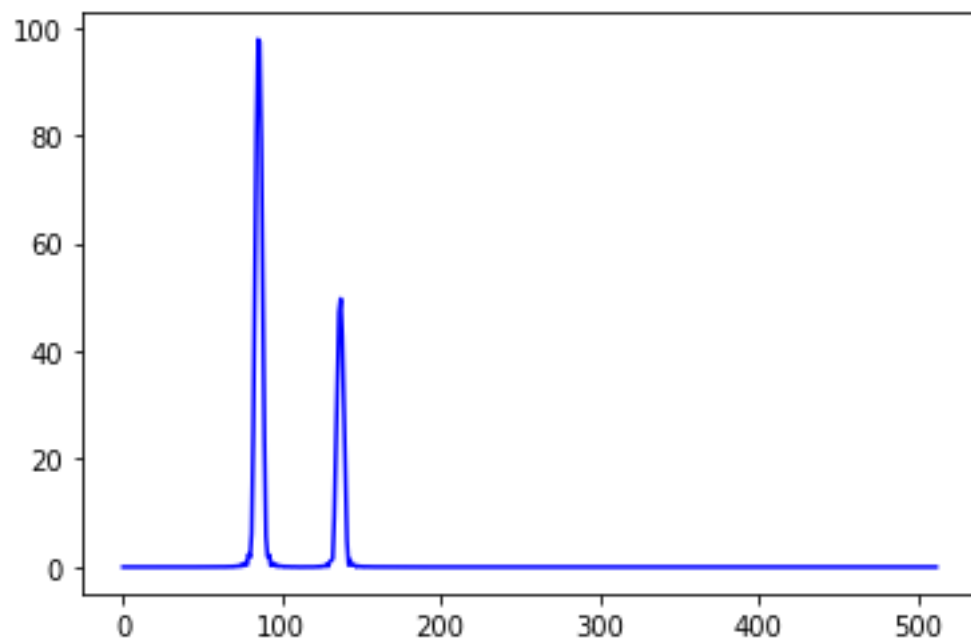


Fig 3.1: Fourier Transform using *Hann* windowing technique

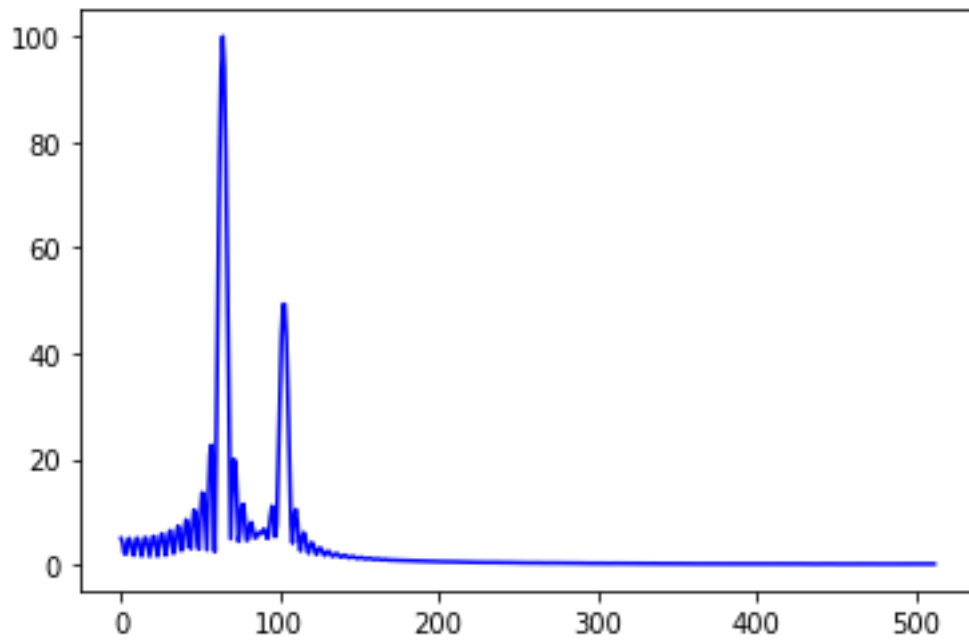


Fig 3.2: Fourier Transform using *boxcar* windowing technique

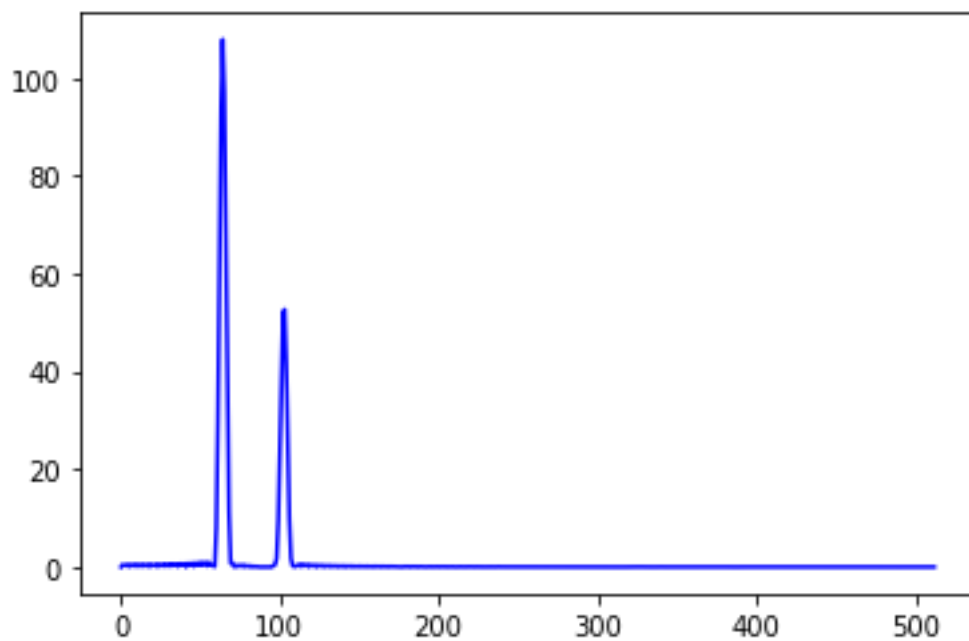


Fig 3.3: Fourier Transform using *Hamming* windowing technique

We can observe that *Hann* window and *Hamming* window are smoother as compared to *boxcar* window. We can also observe that between *Hann* and *Hamming* window *Hann* has smoother line at x-axis and *Hamming* has some spikes.

This also shows why *Hann* and *Hamming* windowing are used in real scenarios as they offer smooth blending of signals when window overlap happens.