[normalData,normalSampleRate] = audioread("pat\_42\_3.wav");

normalVoice = timetable(normalData, 'SampleRate', normalSampleRate, 'VariableNames', "Data")

normalSampleRate

%Uncomment and execute section to play the voice track

sound(normalVoice.Data, normalSampleRate)

%Plotting the waveform

plot(normalVoice.Time, normalVoice.Data)

xlabel("Time")

ylabel("Data")

%Cutting of initial silent part of the signal

normalVoice2= normalVoice(normalVoice.Time > seconds(0.51), :)

%Plotting the waveform

plot(normalVoice2.Time, normalVoice2.Data)

xlabel("Time")

ylabel("Data2")

normalVoice2.Time= normalVoice2.Time - normalVoice2.Time(1)

[normalSpectrum, normalFrequencies] = periodogram(normalVoice2.Data, [], [], normalSampleRate);

periodogram(normalVoice2.Data, [], [], normalSampleRate);

% Find local maxima

normalPrimaryPeaks = islocalmax(normalSpectrum,'MinProminence',5e-07,...

'MinSeparation',1000);

% Display results

clf

plot(normalSpectrum,'Color',[109 185 226]/255,'DisplayName','Input data')

hold on

% Plot local maxima

plot(find(normalPrimaryPeaks),normalSpectrum(normalPrimaryPeaks),'^','Color',[217 83 25]/255,...

'MarkerFaceColor',[217 83 25]/255,'DisplayName','Local maxima')

title(['Number of extrema: ' num2str(nnz(normalPrimaryPeaks))])

hold off

legend

% Smooth input data

smoothedData = smoothdata(normalSpectrum,'movmedian',10);

% Display results

clf

plot(normalSpectrum,'Color',[109 185 226]/255,'DisplayName','Input data')

hold on

plot(smoothedData,'Color',[0 114 189]/255,'LineWidth',1.5,...

'DisplayName','Smoothed data')

hold off

legend