

ESE2014: Audio trimming and reversing

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1) can you design a new filter that better isolates the person saying "that's nice"?

Ans: Yes

SCRIPT

```
% sound file read/edit in Matlab
%
% Author: Shreya
%
%
clear;
close all;
clc;
Fs_filter = 200000; % system sampling parameters

% acquire raw stereo data, data will be normalized from -1.0 to 1.0
[Y, FS] = audioread('69869__lg__thats-nice.wav', 'double');
sound(Y,FS); %original audio

%Time-domain spectrums before and after isolating that's nice
Y = Y(:,1);
N1= length(Y);
t= (0:N1-1)/FS;
grid on
plot(t,Y); title('Time domain'); xlabel('Time in sec');
ylabel('Amplitude');
hold on;

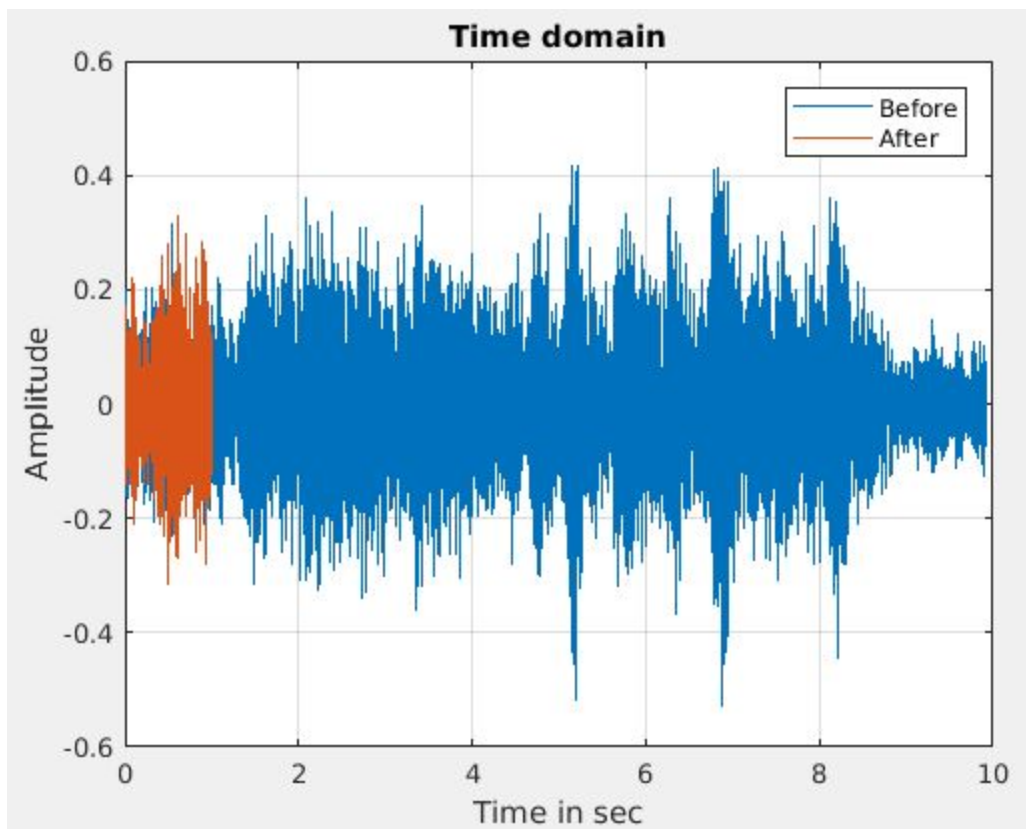
%to isolate "that's nice"
samples = [FS, 2*FS]; %taking samples where-in "that's nice" is heard
[Y2, Fs] = audioread('69869__lg__thats-nice.wav', samples);
sound(Y2,Fs);
Y2 = Y2(:,1);
N2= length(Y2);
t= (0:N2-1)/FS;
```

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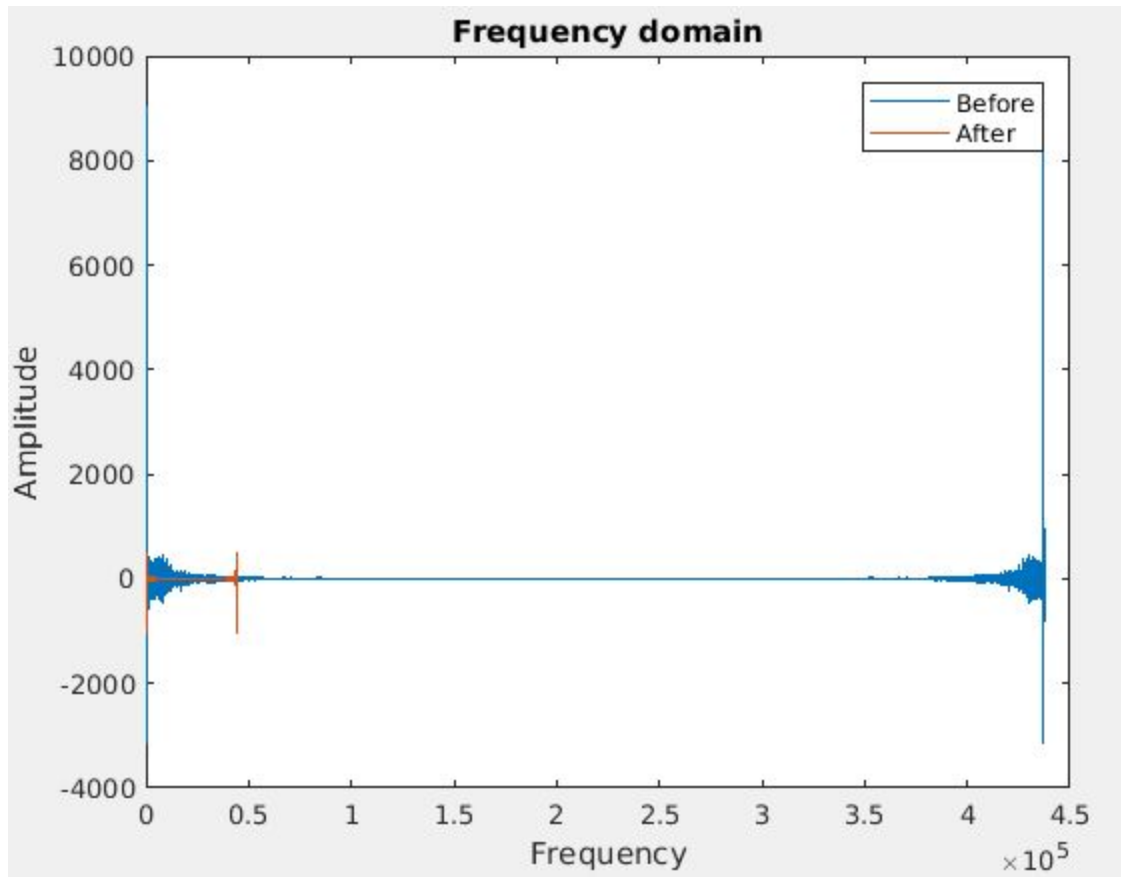
```
grid on
plot(t,Y2);
legend('Before','After');
%Frequency-domain spectrums before and after isolating "that's nice"
freq1=fft(Y);
freq2=fft(Y2);
figure;
grid on
plot(real(freq1));
hold on;
plot(real(freq2)); title('Frequency domain');xlabel('Frequency');
ylabel('Amplitude');
legend('Before','After');
```

RESULT

Please run the script to listen to the result :)



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2) can you make the person speak in reverse?

Ans: Yes

SCRIPT

```
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%
%
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close all;
clc;
```

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```
% system sampling parameters
Fs_filter = 200000;

% acquire raw stereo data, data will be normalized from -1.0 to 1.0
[Y, FS] = audioread('69869__lg__thats-nice.wav', 'double');
figure; plot(Y)
title('Original audio signal'); xlabel('Time'); ylabel('Amplitude');
%sound(Y,FS)
YRev = Y(end:-1:1);
figure; plot(YRev)
title('Reversed audio signal'); xlabel('Time'); ylabel('Amplitude');
sound(YRev,FS)
```

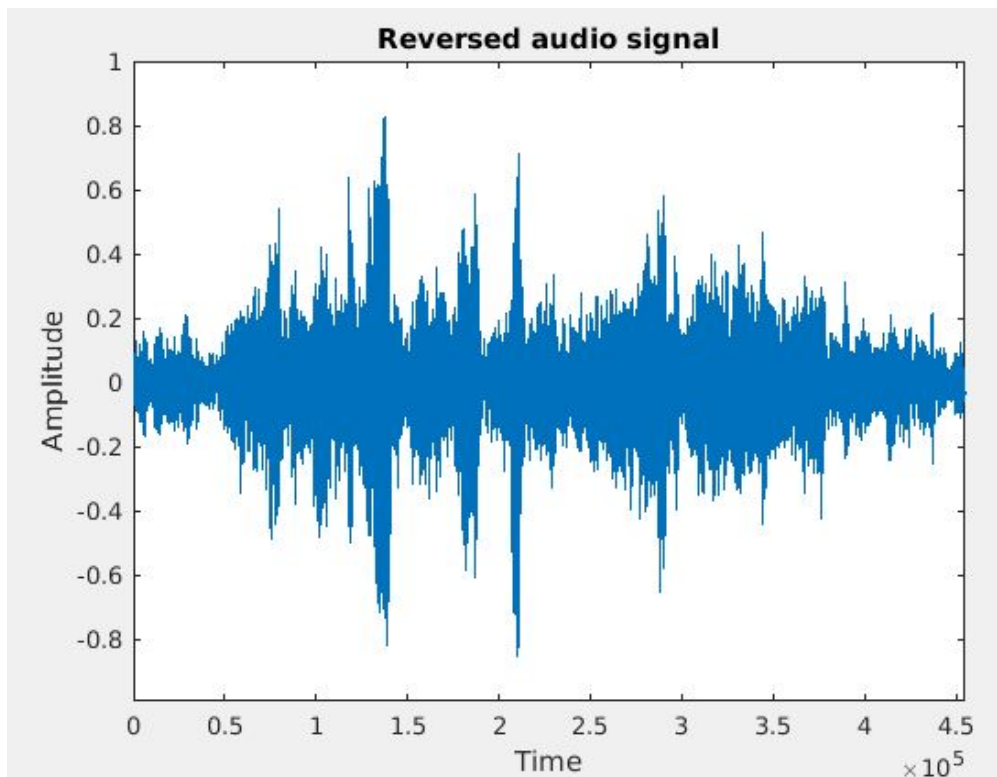
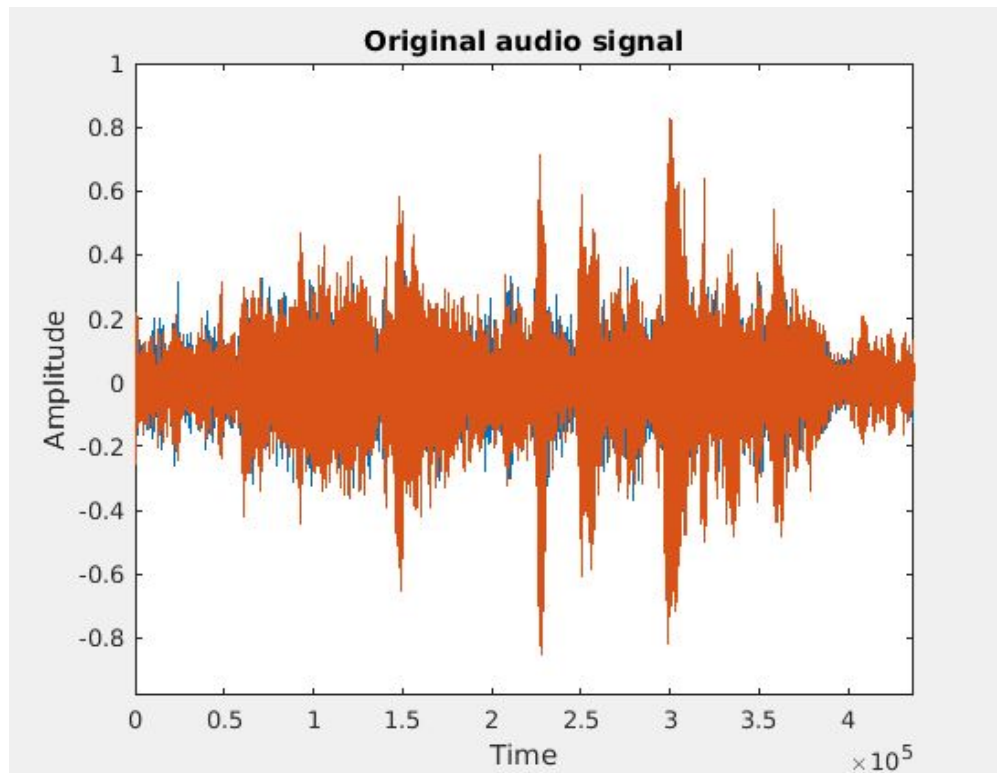
If you run the script, you can hear the lady and crowds sound in reverse.

A comparison between the original signal and the reversed signal can be made to confirm that the audio-signal is reversed.

[Result in the next page]

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RESULT



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