

CS1112 Lab Exercise 12

Download the file `PlayChimes.m` and `BigBen.wav` from the website. Read the script to make sure that you understand what it's supposed to do. Then run `PlayChimes` to separate the sound data into two parts, the chimes and the gong. Here is the code in script `PlayChimes`:

```
% PlayChimes
% Separate chimes and gong from BigBen's 1 o'clock sound file

close all
% Read in the 1 O'clock sound file...
[OneOclock,rate] = wavread('BigBen.wav');
n = length(OneOclock);

% Display the wave form and play the sound...
plot(OneOclock)
title('Listen for the two parts: chimes and gong')
sound(OneOclock,rate)
pause(n/rate)

% Get just the chimes...
title('Click at the end of the chimes.')
[m1,y] = ginput(1);
m1 = round(m1);
Chimes = OneOclock(1:m1);

% Get just the gong...
title('Click at the beginning of gong.')
[m2,y] = ginput(1);
m2 = round(m2);
Gong = OneOclock(m2+1:n);

% Play the chimes and gong played one after the other
title('Listen to the result')
sound(Chimes,rate)
sound(Gong,rate)
```

- (i) What happens if the value of `rate` is changed by a factor of 1.5 in the `sound` command?
- (ii) Modify the vector `OneOclock` so that there is no noise in between the end of the chimes and the beginning of the gong.
- (iii) Modify `PlayChimes` so that the chimes are played back in reverse.
- (iv) Modify `PlayChimes` so that the first-half of the gong is played three times.
- (v) Observe that the Chimes soundtrack is a 16-note sequence. Modify `PlayChimes` so that it assigns to `A` the wave samplings associated with notes 1-4, assigns to `B` the wave samplings associated with notes 5-8, assigns to `C` the wave samplings associated with notes 9-12, and assigns to `D` the wave samplings associated with notes 13-16. Add commands to illustrate what the chimes play at 15 minutes past the hour, 30 minutes past the hour, and 45 minutes past the hour. (Use `ginput` to segment the wave form.) Insert appropriate pauses.
- (vi) Set up a vector `TwoMinuteGong` such that `sound(TwoMinuteGong,rate)` plays gong after gong after gong for exactly two minutes.