Exercise 3 Report

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Q1: Are correct peaks selected using thres=0.7, what happens if you set thres=0.5 (0.2 pt)?

Ans: 0.7 is good because most of the peaks have been selected. If I change it to 0.5, the result is not satisfying. Some non-peaks have also been chosen.

Q2: What is the fundamental frequency based on your plot, calculate the ratios: F1/F0, F2/F0 (0.2 pt)?

Ans: F0=246.346，F1/F0=2.0，F2/F0=3.0

Q3: Is the audio recordings, oboe59, harmonic, why or why not? Answer the same question about the other recording, gtr55 (0.2 pt)?

Ans: oboe59 is harmonic because the rest of the peaks are integer times of the fundamental frequency.

But the gtr55 is not harmonic because F1/F0=8.7142, and F2/F0=20.857. They are not integer times of the fundamental frequency.

Q4: How does changing the modulation index affect the sound (0.2 pt)? Look at the spectrogram and listen, describe the sound change.

Ans: when the value of ind_mod decreases, it could be noticed that the sound seems lower and lower not as sharp as when ind_mod is set to 9.

Q5: Does the FM synthesis version sound different from the original signal (0.2 pt).List possible reasons, since both have same frequency components.

Ans: Generally, they are quite similar. However, it is slightly different especially in the start, and in the end. Compared to the original one, the synthesized one is more direct in the start and in the end as well. we cannot synthesize the sound as it originally is.