Tao Yao EP-491 Project

General view of the project:

To access the only Csound file I use for beat matching, pitch shifting, Cue points, switch to different tracks… Please check out Assets/Scripts/Csoundfiles/Csound\_Time\_Stretch.

The left deck of CDJ is processed with Csound and it’s available for time stretching (beat match), pitch shifting, Cue points jump to different sections of the track… The right deck is without Csound processing.

Look at the hierarchy, AS test is AudioSource for left deck and AS test R is AS for right deck.

Look at the inspector, the script Beat Match(Assets/Scripts/BeatMatch) controlling everything of my Csound file. After pressing play (the white cube at the bottom left corner of left deck), change the float Bpm Now will change the BPM of the track, Pitch Shift modify the pitch (+/- value 1 will increase/decrease a semi tone), change the Check Test String will switch between different track showing in BeatMatch.cs (with a switch function from 0 to 9), all audio file are in Assets/Audio folder, The Skip Time will renit NEW\_FILE macro in Csound and change the skip time in my GEN01.

The script controlling scratching is CDJ Control.

Problems solved:

1. Solved outputting stereo file by using 2 temposcal opcode for L/R channel.

2. Solved accessing cue points (jump to different sections of a song) by casting kcue receive from chnget to strings and compare them, if something changed it will reinitialize NEW\_FILE macro in Csound\_Time\_Stretch.csd, and cast the kcue to an i value since ftgentmp is expecting an i value.

New Problems and haven’t been solved for now:

1. If you scratching on the left deck back and forth drastically, for some reason the left channel and the right channel will starts to unsynchronized, I created a soundfile called Test.ogg in Audio folder, switch Check Test String in Beat Match.cs in AS Test. It only has kick sound both playing L/R. It becomes really obvious to show this problem. I’ll explain more detail about this problem in class, I think it’s caused by using 2 temposcal opcode for L/R channel.

2. If you change the skip time or switch to another track, it’ll renit NEW\_FILE that makes the lag super long about 1 sec, but 1 sec is too long for Cue point. But since those opcodes need an i value I have to renit.

3. I used the relative path in CsoundUnity by passing audio file names in the Assets/Audio folder through “AudioPath” channel in Csound through chnget. Check out line 47 in my Csound\_Time\_Stretch.csd, but after I build the project, no matter on windows or Mac, it won’t play the audio files. If I use the absolute path from /user/…/Assets/Audio, it works.

4. On my Mac, everytime I change something and compile my cs script will cause the Unity to crash and reboot it self.

5. I want to render the entire track to display time domain using line render, but seems the array size is limited around 16384 (check out waveform plotting object in hirerachy, it’s currently muted).