

025:250 COMPOSITION: ELECTRONIC MEDIA I

Summer 2013

Pitch n Time Handout and Demo

1. I'd like to create a demo and handout based on the Pitch n Time plug-in in Pro Tools.
2. Assume that the student already knows how to use this plug-in, so don't define or explain the function and options of anything if you don't have to.
3. Create 4 soundfiles:
 - a. An anechoic note C4 or higher, with a duration of 1-3"
 - b. A short, percussive sound from the studio recordings we just made. A rubber band, a hit on cardboard or wood, but no metal. It should be a single-event sound. Use the natural duration of the sound.
 - c. A complex sound-mass from the studio recordings. The pencils piling into a box, grains poured into a box, etc.
 - d. One of the fabric single-events. A towel that is waved once and snapped would be perfect. Try to get as good a signal to noise ratio as possible.
4. The soundfiles will have the following characteristics:
 - a. Normalized
 - b. Make sure that the sound does not appear to jump in and cut off.
 - c. Choose sounds that have little noise. You can use iZotope if you want.
 - d. Do a high-pass at a cutoff frequency just below the fundamental of the sound, if possible.
 - e. If you like, you can use several more sounds, and we can pick and choose later.
 - f. When we apply pitch n time, you can do it to a group of regions, so having more than 4 sounds would not even be noticed, in terms of processing time.
5. Organize the regions in the window so that they follow my guidelines for screen shots. Will has learned exactly how to do this, so if Dan is involved in this, Will can show him what to do.
6. In Pitch n Time, do the following for any one sound:
 - a. Transposition up in minor thirds until the sound gets very bad. Once you comfortably are at that level, there is no reason to keep going.
 - b. Do the same, but down in minor thirds.
 - c. There might be some sounds that can be explored with extreme registers. If so, don't bother with minor thirds, just go for the interesting stuff.
7. This is very important: when transposing, do it two ways:
 - a. The first method is to always transform the original, first by a minor third, then tri-tone, then major sixth, etc.
 - b. The second method is to leave the plug-in set to +/- 3. First, do this to the original, Then do it to the first transposition. Then by the second transformation, then the third one, etc. We will want to compare the two methods.
8. When writing this up, describe in the most objective way as possible, the problems that occur. Some of the most common problems are:
 - a. Smearing of the attack.
 - b. A metallic sound becoming present.
 - c. Warbling.
 - d. Sense of the sound sitting in a metal room or tin can.
 - e. Loss of frequency definition in the harmonics, that is, the sound gets muddier.
9. Now, do Items 6-8 with time. Leave the transposition at 0. Do the following for any one sound:
 - a. Speed up the sound by increments of your choice. 10% increments will produce a very gradual breakdown, generally. If a particular sound holds its character fairly well, then chose a larger increment, say, between 15% and 25% percent.
 - b. Do the same thing, but now slowing down the sound.
 - c. As in Item 7, above, do the time processing in two ways. First, by doing it to the original by 15%, then 30%, then

45%, etc. Second, do it to the original, then to the first processed file, then to the second processed file, etc. This would mean always leaving the original time change value in place.

10. Write up the results, as you did with pitch transposition. However, while pitch transposition is generally used in a purely functional way, as in composing for instruments, the time processing transformations bring in some really interesting effects, particularly in tightening up an attack. Slower transformations can also produce some interesting and expressive results at the beginning of a sound, not just the attack, but all the way through the period of instability that most sounds exhibit between the attack and the moment when the pitch stabilizes. One important consideration is when a novice first encounters that lovely, floating sound when a short note becomes 20-30" long. If the sonic breakdown is very noticeable, then we don't want students using it, generally speaking. But even when a dramatic breakdown does not occur, what we have is one of the most enduring cliches of student-made electronic music. It is OK, but not required, depending on the sound, if you want to chide the reader or alert them to the problem of cliches, as well as the compositional problem of having 30 second sounds in a work.
11. It will be easiest to read and comprehend if you take a screenshot of the plug-in any time the value changes. If this were an academic paper, you would want to make a table of values. However, it would be much easier to read and follow if the student saw the plug-in in a screenshot. This is another example of my teaching method that seems to convey a large and repetitive amount of information, but in really, can be taken in by the reader much faster than when trying to understand a table. You do have my permission to make the screenshot as small as you want, as long as it is legible. My instinct is to use screenshots of the full plug-in window. If this winds up not looking right to you, then you can use snapshots of the pitch part of the window and the time part of the window. Make sure that the very first screenshot of the plug-in is of the full window.
12. You will have to decide when to take screenshots of the edit window. When using transposition, the waveform does not change very much. But when using time processing, the regions change a lot. When you identify a region in the text, do so by indicating the track number and the time. This means the any edit window screenshot will have to include minutes:seconds in the ruler. Normally, I like to have an empty track above and below the one with the region in it, but here, it makes sense for the topmost region to be in track 1, just beneath the time ruler.
13. Now, the audio portion of the demo. This is actually pretty easy. Whenever you refer to a specific process on a region, simply identify it as track n at 00:00, or whatever. When doing this project, keep everything organized in the edit window, so that it is easy to demonstrate in class.
14. For now, let's leave the Pro Tools session in a pristine working state, so that it is as unambiguous as possible for a student to follow. This would apply to students that we don't know, someone that might download the session, files, and handout from our website. We won't do anything with that for now.
15. Another way of presenting the audio examples would be to bounce everything to an aiff file. We would want to keep the timings the same. It is not necessary, however, to have the aiff file correspond with the session, if you decide to present things in more than one track. If you do it that way, the aiff file would now be interpreted this way: "Track 3 at 02:33-35 show the result of the screenshot above (in the text). This can be heard in the audio demo at 14:37-41." NOTE: We will not use a single audio file with all the examples on it right now. I just wanted to show you what our next step might be.
16. The setup for this project and becoming familiar with screenshots and audio regions is the most difficult part. Once you have that figured out, then it becomes a very repetitive process. But, at the same time, it becomes much more interesting, as you systematically discover what the effects of pitch n time are on different kinds of sounds. There is a lot that I have left unsaid. For example, what happens if a sound source is very high or low? What about polyphonic or chordal pitch material?
17. Oops. What about varispeed? The answer, nothing about varispeed. That is a topic that deserves its own handout.
18. What about pitch n time? You will wind up having to multiply the ranges by 4 and 8, but don't make a big deal out of explaining how to do that, as that will have been covered before. What about the graph function? We won't even mention it. What about combining pitch and time? Personally, I probably wouldn't get into it. But, since you will be processing very systematically, maybe the stage would be set for some brief examples of that. Your call.