Assignment 2
EECS 4462 3.0 Digital Audio, Fall 2020, Section A

Due: Friday, October 23, 2020, 11:59pm.
Format: Individual.

Creating a digital delay

The purpose of this assignment is to give you experience creating audio plugins with JUCE. This will help you better understand how digital audio works as well.

To get started

This assignment does not require any further software to be installed. Your setup from Assignment 1 should be sufficient. Starter code and some API links are posted under the Assignment 2 section on the course webpage.

Run the Projucer, create, and build an empty project (deselect all the MIDI options). Replace the default code with the starter code.

What to do

For this assignment, you have to implement a simple digital delay. A delay repeats all incoming audio after a user-specified time interval. Your plugin must allow the user to set the following parameters:

1. Time interval: The amount of time between an incoming sound and its first repetition. If there are further repetitions (see the Feedback parameter), they are also spaced apart by the same time interval. Must be expressed in seconds. You can assume that the maximum time interval users will requires is 3 seconds.

2. Dry: The loudness of the incoming signal expressed as a percentage. Normally set at 100%, so the incoming sound can be heard at full volume, but the user should be able to change that as they see fit.

3. Wet: The loudness of the repeated sounds expressed as a percentage. At 0%, there are no repetitions. At 100%, the first repetition is as loud as the incoming sound. The loudness of further repetitions are controlled by the Feedback parameter.

4. Feedback: The amount that each repetition gets fed back into the delay. Expressed as a percentage.

   When set to 0%, there is no feedback. As a result, there is exactly one repetition of the incoming sound whose loudness is set by the Wet parameter.

   When set to 100%, every repetition is fully fed back to the delay. This means that sounds keep repeating indefinitely (can become quite messy if there is a lot of incoming sound).

   When set to a value between 0% and 100%, the loudness of each repetition is multiplied by that value. For example, if set at 50%, the first repetition will be at 100% loudness (how loud that is depends on the value of the Wet parameter), the second repetition at 50% loudness, the third at 25% etc.

5. Ping pong: This is a binary setting that is initially deselected. If selected, then the feedback repetitions alternate between the left and the right channel (which channel has the first repetition is up to you).

How to Submit

Click on Assignment 2 Submission in the course eClass page, and follow the instructions. The link will be available one week before the deadline.