User Documentation

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1 Introduction

This is the User documentation to the `Pure Data` plugin of the submitted article `DAFX 18` conference paper "A VIRTUAL TUBE DELAY EFFECT". In the depository the plugin (`VIRTUAL_TUBE_DELAY EFFECT∼.pd`), the external for Mac OS X, the source `C++` file (`VIRTUAL_TUBE_DELAY∼.cpp`) and some example sound files are available.

2 The Plugin

The stereo plugin is presented as a `Pure Data` file, it works with a sample rate of 44.1 kHz and simulate the delay effect of narrow tubes. It creates two virtual tubes, one for each channel and control the length of the tube, it means the delay in microseconds desired, and their size.

2.1 Parameters

The input (mono) sound though the `VIRTUAL_TUBE_DELAY EFFECT`∼ object, it is processed according the input parameters and played in a stereo output.

The input parameters are:

- Length Tube Left/Right: set the length of the tube the sound has to travel for the left/right channel (it control the delay of the input sound in the left/right channel). It has a granularity of 1 m, it means 2.9 ms (assuming 343.8 m/s of speed sound). It is set with a maximum length of 30 m (87.2600 ms)

- Gain Left/Right: set the gain of the delayed sound in the left/right channel

- Size: change the virtual tube diameter with a granularity of 1 mm (considered equals for the both tubes). The range is 1.2 - 2.5 cm.

- Dry/Wet: set the portion of dry and wet signal desired in the output

- Add Reflection: setting to 1 this parameter give the possibility to create a reflection coming back from a "virtual open end" and add it to the output

- Distance From Open End Left/Right: set the tube length the sound have to travel to come back as reflection for the left/right channel. The total length tube and hence the distance of the open end will be the sum of "Length Tube Left/Right" and "Distance From Open End Left/Right" options. The reflection will come after travel two times this option respect the main delayed sound.

- Gain Left/Right: set the gain of the reflection sound in the left/right channel.

3 Sound Examples

In the depository some dry sound files are also available:

- Drums Loop

- Brass Ensemble Loop

- Solo Sax Loop

- Electric Guitar Loop

- Flute

- Metal Percussion

- Vocal

- SuzanneVega - Tom's Diner intro