Demo 20 Exercises: Guitar (Karplus-Strong)

DSP Lab (ECE 4163 / ECE 6183)

2019

Exercises

1. Implement the Karplus-Strong algorithm in real-time using Python and PyAudio. The output signal should be played to the speaker/headphone as it is computed. You should use a circular buffer in the implementation. Do not use the 'lfilter' function as in Matlab. Submit Python code that produces the output sound. SUBMIT

2. Incorporate your real-time implementation of the Karplus-Strong (KS) algorithm into a program for real-time keyboard board control (using Tkinter). Instead of generating notes using a second order difference equation (which has no harmonics), use the Karplus-Strong algorithm. Then, the sound will be more natural. The implementation should be done using a circular buffer since the KS method involves a system of high-order.