

EE 341: Linear Systems Analysis

Assignment 5B: Music Synthesis

Due Date: Wednesday, 7 March 2001

In this assignment, you will compose a short piece of music. You can use any of the sound files made available on the class web page or search the web for sound files or generate data by digitizing sounds on a PC. You can also synthesize sounds using sinusoids (as in lab 1), square waves, white noise (using `rand` or `randn` in Matlab), etc.

You must meet the following constraints:

- The signal should be 10-20 seconds in length.
- You must utilize at least 3 of the the following EE341 concepts:
 - time scaling
 - LTI system filtering (you may want to read Lab5A)
 - convolution (e.g. for echo)
 - frequency shifting or other types of modulation
 - frequency-domain operations on the result of the FFT (which are then translated back to the time domain using the inverse FFT)

These (and other clever ideas you might think up) should be explained in a separate write-up.

- No profanity.

Make sure you pay attention to any differences between sampling rate of the sound files you use or generate, since the final output will be based on only a single sampling rate.

When you are satisfied with you composition, write it out to a `.wav` file using the `wavwrite` command. It would be wise to check that there were no write problems by listening to that file.

Submit the waveform, up to 3 MATLAB scripts used to generate it, and a file (text, ps or pdf format only) describing the composition via EPost.