Plotting Exercises

DSP Lab (ECE 4163 / ECE 6183)

Fall 2018

Demo files

`plot_wave_file.py`
`plot_wave_file_and_play.py`
`plot_microphone_input.py`

These demos require the Python library `matplotlib`. See the tutorial at

`http://matplotlib.org/users/pyplot_tutorial.html`

Exercises

1. **Stereo.** Write a program that plots in real time the left and right channels of a stereo wave file. Use a different color for left and right channels. The two waveforms in the plot may be vertically offset from on another to improve legibility.

2. **Filter.** Use a Butterworth bandpass filter to filter a wave file. Plot the input and output signals in real time. Use a different color for input and output signals. SUBMIT

3. Repeat the previous exercise, but take the input audio from the microphone instead of a wave file.

4. **AM modulation.** Implement AM modulation to a wave file. Plot the input and output signals in real time. Use a different color for input and output signals.

5. Repeat the previous exercise, but take the input audio from the microphone instead of a wave file.