

## Summary

The goal for this lab is to start you off with a basic time domain convolution algorithm.

**Contents:** The plugin that came with this lab is a modified version of the ITD plugin we created last lab. This plugin now has two new methods, `GenerateWindow` and `Convolve_Naive`. `Convolve_Naive` Is a time-domain based convolution function that also mixes in the tail of the previous Convolution operation. Also added to this plugin are `chuck_fft.h` and `chuck_fft.c`, which contain an implementation of the FFT used in CMusic as well as the audio processing language Chuck.

**Exercise i.** In `GenerateWindow`, generate a window that will preserve the signal when convolved with it.

**Exercise ii.** In `GenerateWindow`, generate a window that will preserve the signal, but delay it by 4 samples.

**Excercise iii.** `Convolve_FFT` is currently stubbed out. Recall that *cyclic* convolution in the time domain is equivalent to multiplication in the frequency domain. Armed with the knowledge, see if you can implement an FFT convolution.

**Exercise iv.** See if you can populate `LeftWindow` and `RightWindow` with an impulse response of your choice.