

Assignment #5 Synthesis

Due: Friday, April 18

Be prepared to demonstrate your work in class.

Written component: Typed, double-spaced description of what you have created for each exercise.

1. Additive Synthesis with SC3

Read Cottle, Ch. 14. Using Ex. 14.7 (or other chapter ex.) as a model, create a function that generates a interesting tone using additive synthesis. Your tone must have a harmonic spectrum and contain at least 16 sinusoidal partials with individual amplitude envelope trajectories.

2. FM Synthesis with MSP

Read MSP Tutorials 11, 18 & 19. Using the tutorial patches as models, create an interesting FM instrument that responds to real-time interactive MIDI control.

4. Subtractive Synthesis with SC3

Read Cottle, Ch. 15. Using the chapter examples as models, create an interesting SC3 function that filters the spectral content of a noise source (e.g., white, pink, brown, or gray noise) under real-time MouseX.kr and MouseY.kr control.

5. Subtractive Synthesis with MSP

Using the MSP help file for one of the objects below as a model, create an interesting and dynamic filter application:q

allpass~	All pass filter
biquad~	Two-pole, two-zero filter specified by coefficients
buffir~	Buffer-based FIR convolution filter
cascade~	A set of cascaded biquad filters
comb~	Comb filter, a slightly delayed version of a signal is added to itself
cross~	A pair of symmetrical low and high pass 3rd order filters
fffb~	Implements a bank of bandpass filter objects,
filtercoeff~	Signal-rate filter coefficient generator for biquad object
filtergraph~	Filter graph for displaying filter response and generating biquad coefficients
lores~	Lowpass filter with resonance
onepole~	Single-pole lowpass filter
reson~	Bandpass filter controllable by center frequency and Q
svf~	State-variable filter, implements Chamberlin's state-variable filter algorithm
teeth~	Comb filter with feedforward and feedback delay control
zplane~	Z-plane display/interface for filter design

Code Submission

Store all of your work in a sub-folder called **SYNTHESIS** in your private folder. Carefully select appropriate names for your files. Print the written component and give it to your instructor.

Grading

Followed instructions and ready to present work in class - 30%; Written component - 30%; Code is commented and well organized- 20%, Creativity - 20%. Print the written