

Intro to Computer Music MUA 2105

Tuesday 2:00 p.m. – 3:50 p.m.

Thursday 2:00 p.m. – 2:50 p.m.

4 MC

Location: YSTCM Computer Music Studio

Instructor: Assoc. Prof. Steven M. Miller

Office: YSTCM Sound Design (2nd floor practice room wing)

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www: <http://pubweb.csf.edu/~smill>

Topic Outline:

Csound

Overview

Online Manual

<http://www.csounds.com/manual/html/index.html>

Tutorials

Csound Ch. 1 – Introduction to Sound Design in Csound

Csound CDROM – The Original Csound Toots

Csound Ch. 2 – Understanding and Using Csound's GEN Routines

Csound Ch. 3 – What Happens When You Run Csound

Csound Ch. 11 – A Survey of Classic Synthesis Techniques in Csound

Computer Music Fundamentals

Acoustics and psychoacoustics

Fundamentals of aural perception

Air pressure variations – waves

Amplitude

Pitch

Temporal aspects

Timbre

Read: Computer Music, Ch. 2

Digital audio

Sampling theory – sampling & quantization

Read: Computer Music, Chs. 1 & 3

Sampled sounds

Importing to the computer system

Simple playback

Read: Computer Music Ch. 10, Csound Ch. 2

Oscillators

Wavetable look-up

Interpolating/non-interpolating

Wavetable size vs. fidelity

Read: Computer Music, Ch. 4

Functions of time

Envelopes

Read: Computer Music, Ch. 4, Csound Ch. 2

Modulation

Read: Computer Music, Ch. 4

Noise generators

Read: Computer Music, Ch. 4, Csound Ch. 16 & 17

Filters

Types

Low-pass, hi-pass, band-pass, band-reject/notch

Characteristics

Slope, cutoff/center frequency, resonance

Read: Computer Music, Ch. 6

Synthesis Techniques

Additive synthesis

Read: Computer Music Ch. 4,

Subtractive synthesis

Read: Computer Music Ch. 6, Csound Ch. 11 & 10, Csound CDROM Ch.
19

Frequency modulation synthesis

Read: Computer Music, Ch. 5, Csound Chs. 12 & 9

Non-linear waveshaping synthesis

Read: Computer Music, Ch. 5

Granular synthesis

Read: Computer Music Ch. 8, Csound Chs. 13, 14 & 15

Signal Processing Techniques

Delay, chorus, etc.

Read: Csound Ch. 22

Reverberation

Read: Computer Music Ch. 10, Csound Chs. 23 & 24

Localization/Spatialization

Read: Computer Music Ch. 10, Csound Ch. 25, Csound CDROM Ch. 23

General Topics

Mixing

Cubase for multitrack audio

Editing/Mastering

Peak Pro