

025:251 COMPOSITION: ELECTRONIC MEDIA II

Assignment 4

Due Mon. April 5

Purpose: To synthesize and sequence FM timbres. Steps 1-3 may be done in groups. Steps 4-8 should be done individually.

1) In **Kyma**, create a simple FM module that contains the following Sounds:

- a) **Record**
- b) **MIDIMapper**
- c) **Carrier** (renamed from Oscillator)
- d) **ADSR** envelope for Carrier
- e) **Modulator**
- f) **ADSR** envelope for Modulator

Remember that the Duration parameter for each Sound should be short enough so that the soundfile can be recorded onto the disk of your choice. I recommend using "20 m" for durations.

2) Use instructions from last semester's handouts and class presentations to do the following:

- a) Set the **Record** Sound to record a mono SDII file to disk when activated by a checkbox.
- b) Set the Scale parameters of the **MIDIMapper** to "!volume".
- c) If you wish, create new names for your hot parameters in **MIDIMapper**.
- d) Set the Polyphony in **MIDIMapper** to 1 or more (too much polyphony will result in poor playback due to processor limitations).
- d) Set the Frequency parameter of the **Carrier** to "!pitch".
- e) Set the Frequency parameter of the **Modulator** to "!pitch * !a01" (use the hot parameter of your choice) or a variant such as "!pitch + (!a01 * 48nn)".
- f) For both **ADSRs**, set the Attack, Decay, Sustain, Release parameters to any values or hot parameters you wish. For timbrally-varied results, **Modulator ADSR** envelope should "fit inside" envelope of the **Carrier ADSR**, as discussed in class.
- g) For both **ADSRs**, set the Gate to "!keydown".
- h) Set the Scale parameter of the **Carrier's ADSR** to "!keyvelocity".
- i) Set the Scale parameter of the **Modulator's ADSR** to "!a01" or any other hot parameter. If the **Modulator** produces too much distortion, set this parameter to "!a01 * 0.75" or a smaller value.

3) Optional: Create a more nuanced and complex FM model by incorporating any of the other modules discussed in class, such as:

- a) **2FormatElement** filter
- b) **Resonator**
- c) **Mixers** (which allow multiple carriers and modulators).

4) Use **Vision** to play **Kyma** as follows:

- a) In **Kyma**, compile the sound, then click on the recording checkbox. A soundfile is now being written.
- b) In **Vision**, create a Track using "Kyma-1" as its instrument.
- c) Using a **Notation** or **Graphic** window, enter note, velocity, volume, and other control data. Make

sure that you understand how MIDI control numbers 0-127 control the hot parameters defined in the **EMS Global Map** or your customized hot parameters in the **MIDIMapper**. You may want to control some parameters from the Peavey and other parameters from **Vision**.

- d) Remember that MIDI polyphony is determined by the **MIDIMapper**. If distortion or anomalies occur, reduce the amount of polyphony so that the **Kyma** processor is not overtaxed.

5) After recording your sequence, do the following:

- a) find the soundfile named "hi" in the Kyma>Program folder
- b) copy this file to any location on the Users or Scratch disk and rename it as "YI.FM.1"
- c) note that any new recording will erase "hi"
- d) Open "YI.FM.1" and edit it in Sound Designer (normalize, remove silence, etc.).

6) Repeat Steps 4-5 to create "YI.FM.2", etc.

7) Create a variety of sound files that are related to your work in progress (especially in the area of rhythm). Try to create variety in terms of pitch vs. non-pitched sounds and short vs. long durations.

8) Bring @30" worth of SDII mono files to class on Monday, April 5. I prefer that you place these on the Scratch Disk before class.