**Composition: Electronic Media II**
February 25, 2008
Introduction to Kyma and Spectral Analysis

1. History
   a. University of Illinois Cerl Sound Group
   b. Carla Scaletti and Kurt Hebel, Symbolic Sound
   c. Kyma is the software
   d. Capybara is the hardware
   e. Similarity to Max/MSP, Pure Data, Super Collider

2. Uses
   a. Academic studios
   b. Live performance (John Paul Jones of Led Zeppelin,
   c. Film scoring
   d. University of Iowa: spectral processing

3. Launching Kyma
   a. Kyma faders on mixing board
   b. Kyma icon in dock to launch:

   c. A licensing window will appear. Click "Accept".
   d. Close all windows except **Prototypes** shown below:
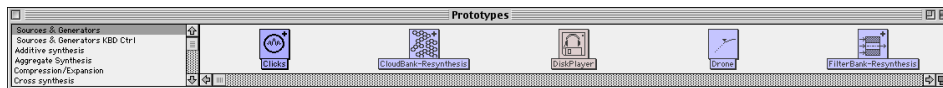
   e. Notice that the **Prototypes** window is organized into **Categories** on the left and **Prototypes** on the right. These have scroll bars.

4. Concept of Sound, Sound File, and Prototypes:
   a. Sound is an object or set of objects, similar to Max/MSP
   b. Sound File behaves much like a folder
   c. Prototype is much like an object in Max/MSP

5. Overview of a Oscillator Prototype:
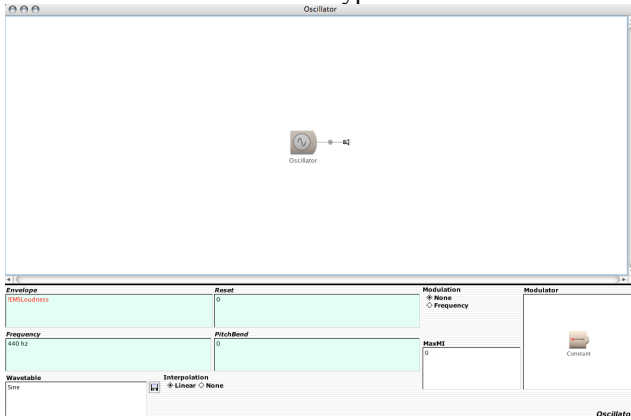
   a. Flowchart in white space directed toward output, represented by speaker
   b. White space, objects, patching are similar to Max
   c. Edit window of Oscillator object shown beneath white space.
      i. Parameter fields are windows in cyan and white
         aa. Cyan can use hot parameters, cold parameters, and math
         bb. White uses only a single number or set of objects (not important now)
      ii. Disk icon
      iii. Check boxes for specific options

6. Hot parameter
   a. !Red
   b. Shows up as fader, box, or button in Virtual Control Surface, as shown below:
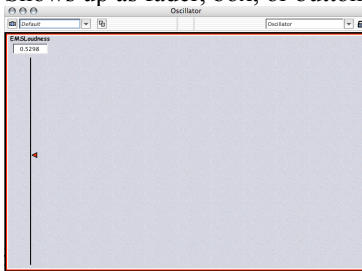
   Note: Virtual Control Surface can be resized, turned off, positioned on another screen, and activated from the File menu.
   c. Realtime control from Virtual Control Surface, MIDI connection, MIDI file, another object, live microphone.

7. Cold parameter
   a. Black text
   b. Mathematical expressions that may contain hot parameters as variables

8. Compile and uncompile:
   a. Cmd P for compile
   b. Cmd K for uncompile (or kill)

9. Record output to soundfile to be discussed.

3. Create a **Sound File** as follows:
   a) Select **New>Sound File>New**
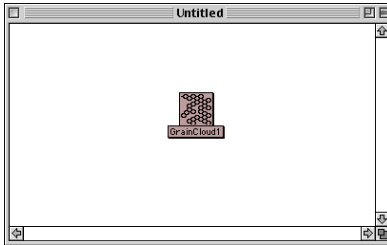   b) **An untitled window like the one below appears**

:
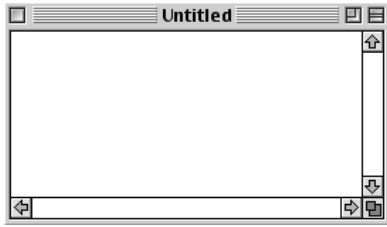
   c) This **Sound** File window behaves like a folder in **Kyma**.
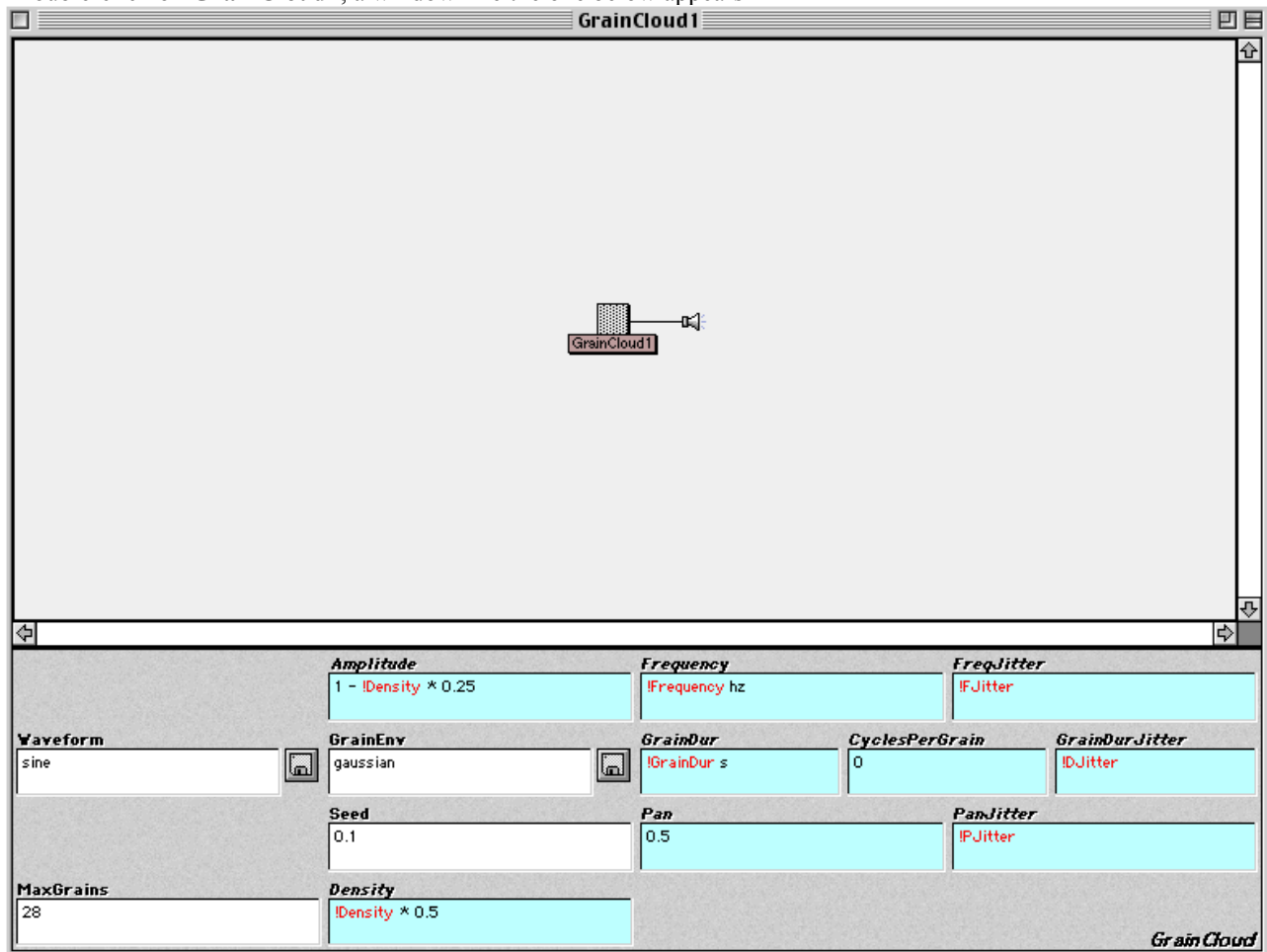
4. Create a **Sound** as follows:
    a)   Navigate through the **Prototypes** window and select **GrainCloud**.
    b)   Drag **GrainCloud** into the **Sound File** window, as shown below:

   **c)**   Notice that **GrainCloud1** is now a **Sound** in the **Sound File** window.

5. Open **GrainCloud1** as follows:
   a) Double-click on **GrainCloud1**, a window like the one below appears

   b) Notice the **Flowchart Diagram** in the white space.
   c) Notice the **Edit Window** underneath.
   d) Notice the **cold parameter fields** with a white background and black text.
   e) Notice the **hot parameter fields** with cyan background with red text and black text.
   f) Notice that **hot paraneters** in red always begin with an exclamation mark.
   g) Notice the disk icons, used to open files within the **edit window**.

6. To play a sound, the **Sound** must first be compiled.
   a) To compile a **sound**, press the spacebar.
   b) After a **sound** is compiled, the **Virtual Control Surface** appears, like the one below.
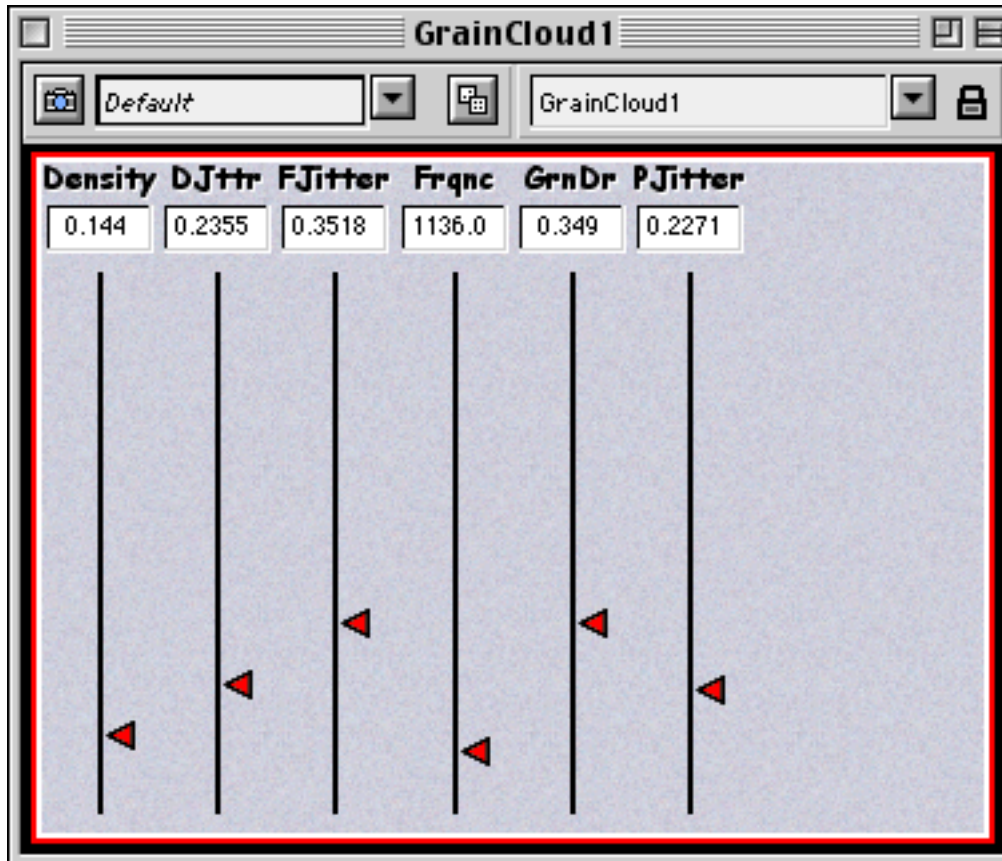
7) To change the parameters of the **sound**, move the sliders up and down.
   a) Notice that each slider has a range of 0 to 1.
   b) Notice that each slider represents a **hot parameter** in the **edit window**.
   c) Notice that the slider value mathematically interacts with the black text **cold parameters** in each **hot parameter field**.

8) In addition to moving sliders individually, sliders can also be moved all at once, as follows:
   a) The camera icon in the upper left corner of the window takes a snapshot of the fader positions. These Snapshots can be named, stored, and recalled from any folder in the computer.
   b) The dice icon will randomly assign slider values.

9) Finally, notice that:
   a) The **hot parameters** appear as sliders in alphabetical order. This can be changed later.
   b) **Hot parameters** can appear as knobs, boxes, and buttons, which will be discussed later.
   c) Some **hot parameters**, like **!pitch** have specific functions and values determined by the **global map**.
   d) Some **hot parameters**, like **!larry** can be used when functions of 0-1 are needed.

10) To quit **Kyma**, do the following:
   a) Kill or uncompile the **sound** by pressing cmd +K.
   b) Close the **Sound** by clicking in the upper left corner of the window.
   c) Select **File>Save as>Larry is my name** and save it to a desired location.
   d) Select **File>Quit**.
   e) Notice the icon below. This is your **Sound File** (remember, a folder) that contains your **Sounds**.