Electronic Media I
Assignment 8
Written progress reports due on Oct. 13 & Oct. 18
Seminar Presentation of sounds on Oct. 19
Final report and sound files due on Oct. 23 (Composition 1 is cancelled)

Personal Materials: 2-4 DAT tapes: 1) Two blank 30-45' (optional), 2) "Billy.Objects.1", 3) "Jones Whatever Samples".

Studio Materials: Panasonic SV-3700 DAT recorder, Panasonic SV-255 portable DAT recorder, connecting cables.

Description: The purpose of this assignment is to enable you to transform your DAT sounds (objects and instrument samples) into source sound files for your final composition project. Before you do this, you should be aware that you may do any or all of the following with any given DAT sound:

1) Download it to the Mac and store it as a single digitally-unprocessed sound file.
2) Download it to the Mac, process it with Sound Designer and/or Sound Hack, and store it as a single digitally-processed sound file.
3) Prepare either 1 or 2 above for analog processing by making a long soundfile containing multiple repetitions of the sound.
4) Transfer 3 above to DAT, play the DAT through Studio Two analog processors, record the result onto a second DAT.
5) Download 4 above to the Mac and store it as a single analog-processed/digitally-unprocessed sound file.
6) Download 4 above to the Mac, process it with Sound Designer and/or Sound Hack, and store it as a single analog-processed/digitally-processed sound file.
7) If you wish, you may paste any combination of sounds derived from 1, 2, 5, 6 above into one large sound file. While this would allow you to store a number of sounds in one file, it may make it more difficult to process single sounds in Sound Hack. You would probably want to use a combination of single sounds and multiple sounds as sound files.

Part One: Download DATs to Mac

1) In Studio Two, set up the equipment as follows:
    a) Do not turn the Macintosh on
    b) With an RCA-to-RCA cable, connect the SV-3700 IEC Type 2 RCA digital out to the Macintosh digital input (the RCA jack farthest to the right, as you look at it from the back).
    c) Turn on the SV-3700 and insert either "Billy.Objects.1" or "Jones Whatever Samples".
    d) Turn on the Macintosh External Hard Drive.
    e) Turn on the Macintosh.
    f) Turn on the power amp and set the mixer for Macintosh playback.

2) Launch Sound Designer II and set it up for recording as follows:
    a) From the **File** menu, select **New.**
    b) From the **File** menu, select **Save as ...**
    c) When prompted:
        1) type the filename "BJ.Sound 1"
        2) select the disk **Hard Drive** as the location to which you will save the file
        3) select file format as **mono**.
    d) From the **Set Up** Menu, select **Hardware Setup.**
    e) Set **Ch 1,2 input** to **digital**.
    f) Click on the main window to activate it and double-click on the tape recorder icon.
    g) The **record window** should appear. Confirm that:
        1) Sample rate is 44.1 kHz
        2) Input is digital

   3) Monitor box is checked
  h) Play the DAT tape and confirm that:
   1) the VU meters show signal input
   2) the sound can be heard

3) Select any sound from either "Billy.Objects.1" or "Jones Whatever Samples". Record this sound as follows:

  a) In the **record window**, click once on the **rec** button.
  b) Start the DAT.
  c) Confirm that the signal is being received by the Mac.
  d) After the sound on the DAT ends, in the **record window** press **done.**
  e) Close the **record window**.
  f) From the **Set Up** Menu, select **Hardware Setup.**
  g) Set **Ch 1, 2 input** to **analog**.
  h) Click on the main window to activate it.
  i) Play the sound and confirm that it is properly recorded (it should sound exactly the same as when you monitored it).

4) Clean up the sound file "BJ.Sound 1" as follows:

  a) Use the **cut** command to remove unwanted audio from the beginning and end of the sound.
  b) Use **fade in/out** to remove sharp edges and pops from the attack and end of the sound.
  c) Use the **normalize** command to set gain to optimum level for analog processing.
  d) Optional. You may wish to digitally process your sound at this time by using any of the Sound Designer or Sound Hack commands below:
   1) Expand the duration of very short sounds in Sound Designer with **Time Comp/Expand**, or in Sound Hack with either **Phase Vocoder Time Scale** or **Varispeed** (which will also alter pitch)
   2) Lower the pitch of very high sounds in Sound Designer with **Pitch Shift** (which will also alter time), or in Sound Hack with either **Phase Vocoder Pitch Scale** or **Varispeed**
   3) Filter the sound in Sound Designer with either **Graphic EQ** or **Parametric EQ**
   4) Reverse the sound in Sound Designer
   5) Ring modulate the sound in Sound Hack with **Convolution: Ring Modulate**
   6) Mutate the sound in Sound Hack with **Mutation**
   7) Any combination of the above
   8) If you wish to save a copy of this sound without running it through the analog processors, just name it "BJ.Anything" and store it in a safe folder
   9) If you wish to run this sound through the analog processors, then open it in Sound Designer and go to Step 5 below.

5) Open "BJ.Sound 1" in Sound Designer and prepare it for analog processing as follows:

  a) Add 5" of silence to the end of the sound as follows:
   1) If your sound is more than 5" long, **copy** any 5" portion of it (it won't matter which)
   2) Paste it to the end of the original sound
   3) Use the **silence** command to convert this sound to 5" of silence
   4) If your sound is less than 5" long, then **copy** the entire sound and paste it repeatedly to the end of the original sound. When you have added a total of 5" (you may have to **cut** some of this to make it fit), then use the **silence** command to convert this to silence.
  b **Copy** from the beginning of the sound to the end of the silence.
  c) **Paste** this material repeatedly until your file is between 45 and 60 seconds long. It should consist of sound, silence, sound, silence, etc.

6) Repeat steps 2-5 for "BJ.Sound 2", "BJ.Sound 3", etc. The sources for these sounds may be freely

chosen from the two DATs "Billy.Objects.1" and "Jones Whatever Samples." Bear in mind that very short sounds may not reveal themselves in particularly interesting ways when processed by Studio Two analog equipment. Therefore you should either try to use longer, more inherently complex and interesting sounds or do some time-expanding on short sounds so that you'll have more sound to process.

7) Due to disk space limitations, you should not leave these files on the Hard Drive. At the end of every session, you should do the following: <u>download</u> these files to DAT (as described below in Part Two) then <u>delete</u> these files from the Hard Drive. I will be monitoring the files in the Hard Drive very closely. If we become crunched for disk space, I will delete any files that have multiple repetitions.

Part Two: Download Mac files to DAT

1) Designate either a blank DAT or some unused portion of another DAT as "BJ. Pre-process sounds".

2) Set up the equipment as follows:
- a) Turn the Macintosh off (you may leave the Hard Drive and other equipment on).
- b) With an RCA-to-RCA cable, connect the SV-3700 IEC Type 2 RCA digital in to the Macintosh digital output (the RCA jack second to the right, as you look at it from the back).
- c) On the SV-3700, set the **input** button on the front to **digital**. The small red light above the button should now be on).
- d) Prepare to monitor the SV-3700 by either
    - 1) patching the left analog output into the Quantum mixer-Crest Amp, as described in Assignment 7, or
    - 2) using headphones.
- e) Insert "BJ. Pre-process sounds" and press **rec**.
- f) Turn the Macintosh on.

3) Launch Sound Designer II and open "BJ.Sound 1". When you play the sound file, the meters of the SV-3700 should show normalized levels and you should hear the sound through the Quantum mixer-Crest amp or through the headphones. After confirming that the Mac signal is being sent to the SV-3700, you may record "BJ.Sound 1" onto the DAT. In order to save yourself time later on, you might wish to record "BJ.Sound 1" again. Repeat all of the above for "BJ.Sound 2", "BJ.Sound 3", etc.

Part Three: Analog processing of "BJ. Pre-process sounds".

1) Set up Studio Two as follows:
- a) use an RCA-to-RCA/1/4" to patch the SV-255 left channel output to the B&K EQ input in the Studio Two patch bay.
- b) patch the B & K output to any combination of the following processors:
    - 1) 20/20
    - 2) Yamaha Rev-7
    - 3) Lexicon
    - 4) Moog trunks to filters (these can be noisy, so don't use them all of the time)
- c) patch the output of the final processor in the chain (probably a Moog filter) to the left channel analog input of the SV-3700 with a 1/4"-to-1/4"/XLR cable
- d) plug the XLR-to-XLR/1/4" cable into the SV-3700 analog output jack (XLR) and the Quantum mixer's Input 1 in the Studio Two patch bay.
- e) patch the Quantum mixer output 1 into the Crest 1B input of the patch bay
- f) turn on the Quantum channel 1 input so that the red light above the fader is on;
  bring up the fader to channel 1;
  bring up the fader to output 1 (the leftmost of the four red faders on the right side of the mixer)
  turn on the Crest 1 power amp;

turn the volume of the Crest amp channel B to "6".

2) Set up the Panasonic SV-3700 for recording as follows:
    a) insert a blank DAT (or find an unused portion of another DAT) into the machine. We will call this tape "BJ.Processed sounds".
    b) set the **INPUT** switch to **DIGITAL** (the button should be in and the light on)
    c) preset the record level of the left channel to any desired level
    d) press **RECORD**

3) Set up the Panasonic SV-255 for playback as follows:
    a) insert "BJ. Pre-process sounds" into the machine
    b) press **PLAY**

4) The signal of the SV-255 "BJ. Pre-process sounds" should be routed through any chain of processors you wish, recorded onto the SV-3700 "BJ.Processed sounds", and monitored via the Quantum mixer and Crest amp. Since the source sound, "BJ.Sound 1", is repeated for 45-60", you should have time to experiment with different settings before having to rewind the tape. When you finally have processor settings that you like, record the output onto the SV-3700 "BJ.Processed sounds". You may then either experiment with new processor settings or patch configurations with "BJ.Sound 1" or move onto "BJ.Sound 2". Leave at least 5" of silence between each take (since you will not turn this DAT in, you may vary the amount of silence).

Part Four: Download "BJ.Processed sounds" to Mac

1) In Studio Two, set up the equipment as follows:
    a) Do not turn the Macintosh on
    b) With an RCA-to-RCA cable, connect the SV-3700 IEC Type 2 RCA digital out to the Macintosh digital input (the RCA jack farthest to the right, as you look at it from the back).
    c) Turn on the SV-3700 and insert "BJ.Processed sounds".
    d) Turn on the Macintosh External Hard Drive.
    e) Turn on the Macintosh.
    f) Turn on the power amp and set the mixer for Macintosh playback.

2) Launch Sound Designer II and set it up for recording as follows:
    a) From the **File** menu, select **New.**
    b) From the **File** menu, select **Save as ...**
    c) When prompted:
        1) type the filename "BJ.What.Proc.1" where 'what' is any descriptive title you wish
        2) select the disk **Hard Drive** as the location to which you will save the file
        3) select file format as **mono**.
    d) From the **Set Up** Menu, select **Hardware Setup.**
    e) Set **Ch 1,2 input** to **digital**.
    f) Click on the main window to activate it and double-click on the tape recorder icon.
    g) The **record window** should appear. Confirm that:
        1) Sample rate is 44.1 kHz
        2) Input is digital
        3) Monitor box is checked
    h) Play the DAT tape and confirm that:
        1) the VU meters show signal input
        2) the sound can be heard

3) Select any sound from "BJ.Processed sounds". Record this sound as follows:
    a) In the **record window**, click once on the **rec** button.
    b) Start the DAT.
    c) Confirm that the signal is being received by the Mac.
    d) After the sound on the DAT ends, in the **record window** press **done.**

e) Close the **record window**.
f) From the **Set Up** Menu, select **Hardware Setup.**
g) Set **Ch 1, 2 input** to **analog**.
h) Click on the main window to activate it.
i) Play the sound and confirm that it is properly recorded (it should sound exactly the same as when you monitored it).

4) Repeat steps 2-3 for other sounds from "BJ.Processed sounds" that you wish to download to the Mac. Use the filenaming convention, "BJ.What.Proc.1", "BJ.What.Proc.2", etc. for all new files.

5) When you are finished downloading sounds, alter the sound files as follows:
   a) use **cut, silence, trim, fade in/out, normalize** in any combination to isolate interesting parts of any sound and to remove any unwanted parts
   b) use either **Graphic EQ** or **Parametric EQ** to remove hiss, boost the bass, or de-emphasize mids
   c) Optional. You may wish to digitally process your sound at this time by using any of the Sound Designer or Sound Hack commands below:
      1) Expand the duration of very short sounds in Sound Designer with **Time Comp/Expand**, or in Sound Hack with either **Phase Vocoder Time Scale** or **Varispeed** (which will also alter pitch)
      2) Lower the pitch of very high sounds in Sound Designer with **Pitch Shift** (which will also alter time), or in Sound Hack with either **Phase Vocoder Pitch Scale** or **Varispeed**
      3) Filter the sound in Sound Designer with either **Graphic EQ** or **Parametric EQ**
      4) Reverse the sound in Sound Designer
      5) Ring modulate the sound in Sound Hack with **Convolution: Ring Modulate**
      6) Mutate the sound in Sound Hack with **Mutation**
      7) Any combination of the above

Part Five: Organizing soundfiles on the Mac

1) At this point, all of the DAT sounds that you elect to use in your composition should be on the Mac in one or more of the following forms:

   a) Completely unprocessed sounds from "Billy.Objects.1" or "Jones Whatever Samples".
   b) Digitally-processed/analog-unprocessed from "Billy.Objects.1" or "Jones Whatever Samples".
   c) Analog-processed/digitally-unprocessed from "BJ.Processed sounds".
   d) Digitally-processed/analog-processed from "BJ.Processed sounds".

2) Collect all of these sounds into a single folder named "BJ.DAT Sounds" and place this folder into your personal folder residing on the Hard Drive.

3) If you wish, you might merge, say, 5 to 20 sounds into a single mono (NOT stereo) sound file, with each sound separated by 1-2 seconds of silence. Use the filenmaing convention "BJ.M.Anything.1", "BJ.M.Anything.2", etc. where "M" refers to "multiple" sounds and "Anything" is any descriptive title you like.

4) You might also find it useful to create a multiple sound file consisting of a scale formed by pitch shifting a single sound.

5) You could combine soundfiles using cut, copy, paste, and mix commands to create more complex sounds. Since the points at which sounds merge often have very rich timbre envelopes, you might copy just these parts and paste them into new sound files where you can perform other transformations on them.

6) If you have a very distinctive sound that you might use in your composition, make a dozen variations of it (changing pitch, timbre, envelope separately and in combination, using changes which range from subtle to dramatic.

7) Make sure that your collection of sounds represents the widest possible ranges of:

    a) pitch register
    b) pitch envelopes (flat, gliss up, gliss down, fast, slow, shallow, deep, etc.)
    c) timbral content (representing the entire noise-inharmonic-harmonic continuum)
    d) timbral envelopes (few to many timbral changes, slow, fast, subtle, dramatic, etc.)

8) Make sure that all of your files are 44.1 kHz and in Sound Designer format in **MONO.**

9) Organize your sounds into subfolders based on sound types.

10) Schedule of events:

Friday Oct. 13	Turn in a one-page typed description of the current status of this assignment (leave it in your Assignments drawer). Tell me how many sounds you downloaded to the Mac, how many you prepared for analog processing and downloaded to DAT, and how many sounds you processed with the analog equipment. Describe the different analog effects you used and any problems you experienced or unexpectedly good results you achieved. Also tell me how many hours you spent in the studio. 4 hours minimum is expected.
Wednesday Oct. 18	Turn in another written progress report. Tell me how far you have gotten in this assignment and indicate how many analog-processed sounds you have downloaded to the Mac. If you have digitally processed these, let me know. Tell me how many hours you spent in the studio since your last report. 5 hours minimum is expected.
Thursday Oct. 19	Be prepared to play some of your sounds that you have downloaded to the Mac in seminar. Be able to explain how you created them.
Monday Oct. 23	Turn in a one page summary of your assignment. Describe the types and variety of sound files that you have created and what you have learned along the way. Tell me the total time (5 minutes minimum is expected) of your sound files, their total amount of disk space (25 meg minimum in mono), and their location on the Hard Drive so that I can listen to them. Finally, tell me how much total time you spent on the assignment.