

DESN 275 Digital Sound Week 3

Linked Reading: Noise Reduction Tools and Techniques. Also on "web resource links," watch the videos of Adobe Audition noise reduction tools. Also there are several good links to vocal or voice recording that will answer the study questions and improve your recordings.

The first three activities below can be done either with Audacity or with Adobe Audition. The Audition software is available in the lab, and for your own computer through EWU. (Enquire at the help desk)

Since there are a number of files to turn in this week, please use the following naming protocol. (example is for week 3assignment 3)
"w3a3braukmann"

Assignment 1: Fix a sound file

Remove the pops and clicks from the assigned recording. The pop/click tool sometimes also takes away good sound with the noise. If so, use the EQ to gently restore the perceived frequency bandwidth. The goal is to make it sound natural, and not obviously processed. Turn in as an MP3.

Assignment 2a and 2b: Fix a sound file

(This will be worth the most points because the track has serious problems.)
Reduce/Remove the fan noise from the waitress scene dialog track. Create two versions, one that emphasizes noise reduction (but still with *intelligible* dialog), and a second one that maximizes dialog quality while achieving noticeable noise reduction. Trim away the long pauses and directors instructions, leaving about 20 to 30 seconds with all the important dialog. Turn in as an MP3.

Assignment 3: Improve a sound file - You are given an old music file that was originally recorded on a cheap cassette recorder. Use your EQ skills to improve it so that it sounds more balanced across the frequency spectrum. But go beyond simple EQ...

Strategies for Assignment 3

1. *Since it is stereo, split the stereo into two mono tracks and edit each channel separately. Try duplicating one the channels into a third track that you can edit with EQ to bring out an almost hidden instrument. In other words, if you duplicate a track but EQ it differently, you can emphasize a different*

instrument or voice. Then you can mix the three or four tracks back to stereo with clever panning.

2. *Try using a compressor effect on a track to bring up the quieter instruments. Use a fast attack time (a very small number), and a gentle ratio of about 2:1. (This is the tool that makes commercials seem "loud.")*

Assignment 4: Remove a latch noise

Use Adobe Audition to remove the sound of the squeaky door in the background of the track. Turn it in as an MP3.

Assignment 5: Record

Get your recording system up and running on your own computer. (Please avoid the mistake of accidentally using the computer's built-in mic!) Record a 20 second interview avoiding plosive pops, clipping, or room reflections.

Questions from Linked Reading

Noise-reduction Tools and Techniques

Gates are only really effective on what kinds of noise problems?

When is the complete removal of noise counter-productive?

Masking works only when the frequency range of unwanted noise matches what?

What typical problems come up when using noise "fingerprints" or "prints" to guide digital noise reduction software?

What frequencies is AC "hum" associated with?

A narrow filter can be used to cut unwanted hum frequencies. Why is a "narrow" Q filter best?

Why is "amp buzz" not a simple EQ problem?

What are the basic pieces of advice given at the end of the article?

What does a spectral Frequency Display show?

How does Audition's Auto Heal work?

What is a noise print?

More on EQ - Equalizing Sound

What is usually better with EQ, *cutting* or *boosting*, and why?

If you were given a sound file that needed EQ help, could you sketch an EQ "curve" that would probably solve the problem?

What EQ would you use to make a sound *stand out* in a mix?

What EQ to make a sound *blend in more*?

Digital Recording Signal Flow

What are typical options for using a microphone to record on a computer?

What happens when a signal level is set too high?

How can you "see" if the level is too high?

When setting levels, what is "headroom"?

What does each of these do?

A preamp

An analog-to-Digital converter

An audio Interface

A mixer

A usb mic (microphone)

* What do you have to do to get a laptop (or desktop) computer to record with an audio interface? This is not an exact list for every situation, but all these steps are done sooner or later.)

1 Turn on the computer and audio interface

2 Open the software app

3 Check or set the session parameters, bit depth, sample rate (44.1K for most audio, and 48K for film) Does the interface support your choices?

4 Create a new track and name it.

5 Put the track into "record pause" by clicking the red button (also called "arming it").

6 Make certain the correct input is selected

7 Plug a mic into the interface and adjust the preamp gain. If it is a condenser mic, turn on phantom power after connecting the mic.

8 Make certain the level isn't set too high (clipping) or too low (noise)

9 Press the record button and record the track.

10 Unarm the track.

11 Listen to the track. If you cannot hear it, change the app or the computer preference to the correct output.

13 Adjust the monitor or output volume (usually found on the interface)

What is the difference between peak and RMS recording level meters?

How can you tell if a cable is balanced?

Why do you want to use balanced cables?

What is a boundary microphone? What are the advantages?

How do you decide how close a microphone should be to the talent?

What is a shock mount good for?

What are a couple ways to reduce plosive pops?

What does normalization mean?