21M.380 Music and Technology Sound Design

Lecture №11 Sound recording and editing techniques

WEDNESDAY, MARCH 9, 2016

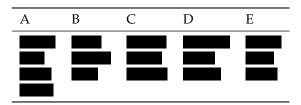


TABLE 1. Groups

1 Group work: Script for an imaginary radio play scene

- As a group, write a short dialog (30 seconds max) with 2 or 3 sound effects for an imaginary radio play.
- Your assignment until next week will be to implement this scene by means of recording and editing (without Pd).
- You can use the following dialog as a model, but it doesn't have to be a phone conversation or a spy movie scene.
 - spy 1: Picks up telephone (*sfx: Dialing tone from handset*)
 - spy 1: Dials number (*sfx: Ringing tone from handset*)
 - spy 2: "Hello, this is the Badger."
 - spy 1: "This is Fox. The dog has the bone, the seagull flies tonight."
 - spy 2: "Good, Fox. Now the Americans will pay for their deception... hold on..." (*sfx: click—telephone line goes dead*)

(Farnell 2010, ch. 25)

2 Audio file formats

• Uncompressed

```
– .wav
```

```
- .aif(f)
```

- Lossless compression (reversible)
 - .flac
 - .alac
- Lossy compression (non-reversible)

- .mp3
- .ogg
- **-** .m4a
- Rules of 🌢
 - Avoid re-encoding in lossy compressed formats
 - Use uncompressed formats during production whereever possible
 - Use lossy compression only for end user formats
 - Use .flac for archiving

3 Group work: Zoom H4n operation

```
1. Select FOLDER
```

- Use wheel on right to navigate, click wheel to enter
- 10 folders available, choose an empty folder
- 2. Change recording mode: MENU MODE
 - Recommended: STEREO
- 3. Set sample rate, bit depth, file format: WAV/MP3
 - Recommended: .wav, 44.1 kHz, 16 or 24 bit
- 4. Set levels and record.
 - (a) REC
 - (b) Select INPUT (internal MIC)
 - (c) REC LEVEL
 - (d) ►
 - (e) Record
 - (f) Stop
- 5. Play recording
- 6. File transfer to computer: MENU USB Storage

4 Group work: Recording some example sounds

- Go out to record one characteristic sound (10 seconds max.) for later editing
- Should not be too quiet, ideally close-up recording without much background noise
- Could be one of the sounds you'll need for implementing the script from before
- Speech always works

5 Basic microphone and recording techniques

- Basic recording techniques
- Transducer type (dynamic vs. condenser vs. piezo)
- Polar pattern (omni, cardioid, fig-8)
- Basic stereo recording (XY, AB, ORTF)

6 Sound editing with Audacity

- Importing sound files: File Import Audio...
- Playback
 - Play/pause: Hit Play/Stop buttons or toggle with Space key
 - Loop selection: 1 + Space
 - Playback speed: Separate play button and slider for speed
- Navigate
 - Use navigate tool (hand) on top
 - Drag mouse in small waveform at bottom
- Zoom
 - ctrl + mouse wheel
 - Zoom tool, left-click to zoom in, right click to zoom out
- Spectrogram: Pull-down menu on track, Spectrogram
- Moving audio on timeline: with Time Shift Tool
- Copy, cut, paste: with Selection Tool and ctrl + c, ctrl + x, ctrl + v
- Splicing/cutting a clip: Edit Clip Boundaries Split or ctrl + i
- Joining two clips: Place cursor between clips and Edit Clip Boundaries
- Fade in, fade out
 - Envelope tool
 - Or select region and Effect Fade In|Out (clumsy)
- Crossfades
 - Are way more complicated then they should be
 - http://manual.audacityteam.org/o/man/creating_a_crossfade.html
- Effects

- EQing: Effect Equalization
- Stretching sounds at very long factors: Effect Paulstretch
- Reverb: Effect Reverb
- Adding more tracks
 - Tracks Add New Audio Stereo Track
 - Mono = 1 channel; Stereo = 2 channels
- Mixing
 - Audacity mixes every input track onto the same stereo output bus
 - Stereo tracks go
 - Panning and balance (and difference between the two)
- Normalization and DC offset removal
 - DC offset removal is crude (not a filter)
- Exporting sound files
 - All tracks mixed together: File Export Audio...
 - Each track to individual file: File Export Multiple...
 - Selection (possibly cross-track): File Export Selected Audio...

7 ED assignment

References and further reading

Farnell, Andy (2010). *Designing Sound*. Cambridge, MA and London: MIT Press. 688 pp. ISBN: 978-0-262-01441-0. MIT LIBRARY: 001782567. Hardcopy and electronic resource. 21M.380 Music and Technology: Sound Design Spring 2016

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