21M.380 Music and Technology
Sound Design

Lecture №2
The sound design process

Monday, February 8, 2016

1   Introduction

Please introduce yourself:

- Name by which you prefer to be called

- Interests and expectations for class

2   Group discussion: Why sound design?

Groups of 4 discuss and present results:

- Which sounds are being designed in our contemporary environment?

- For which purposes?

- Which tools made this possible in the first place? Think historically!

3   Review RD1 assignment

3.1   *Film Sound Cliches* (2015)

- Favorite film sound cliche?

3.2   Crawford (1997)

- "Store less and process more"

- How is this applicable to procedural audio?

4   Review
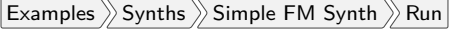
- Sample-based sound design vs. procedural audio

5   Computer music

- Computer is major tool for sound design today

- History (CSIRAC, Max Mathews, Bell Labs)

- Concept of *unit generators* (Music III)

5.1 CSound demo

With external USB MIDI keyboard:

```
csoundqt &
```

- Edit ⟩ Configuration ⟩ Use CSound MIDI modules (unstable)

- Select MIDI input device there

- Examples ⟩ Synths ⟩ Simple FM Synth ⟩ Run

- Play with parameters (e.g., f_C) to adjust harmonicity

5.2 ChucK demo

- Same synthesis algorithm can yield radically different results:

  ```
  chuck.alsa /usr/share/doc/chuck/examples/stk/moog2.ck
  ```

  Source: http://chuck.stanford.edu/doc/examples/stk/moog2.ck

- Everyday sound example:

  ```
  chuck.alsa /usr/share/doc/chuck/examples/stk/blowbotl2.ck
  ```

  Source: http://chuck.stanford.edu/doc/examples/stk/blowbotl2.ck

- Border between musical instrument and everyday sound blurs:

  ```
  chuck.alsa /usr/share/doc/chuck/examples/stk/modalbar2.ck
  ```

  Source: http://chuck.stanford.edu/doc/examples/stk/modalbar2.ck

5.3 SuperCollider demo (sc140 project)

- Album: http://www.archive.org/download/sc140/sc140_vbr_mp3.zip

- Code: http://www.archive.org/download/sc140/sc140_sourcecode.txt

- Let's listen to Jose Padovani's piece (track №12)

6 Sound design process

- Three pillars

- Top-down design vs. bottom-up implementation

- Iterative design process

- Stages in the process of developing a sound object

6.1 Example

- Analyzing speech in Baudline (http://www.baudline.com/)

- What's needed to re-create this in Pd?

- Difference between vowels and consonants?

7 EX1 assignment

References and further reading

Crawford, Chris (1997). "The computer as a game technology." In: *The Art of Computer Game Design*. Electronic edition of a text originally published in 1982. Chap. 4, pp. 35–44. URL: http://www-rohan.sdsu.edu/~stewart/cs583/ACGD_ArtComputerGameDesign_ChrisCrawford_1982.pdf (visited on 01/19/2015).

Film Sound Cliches (2015). *Film Sound Stereotypes and Common Logic Flaws*. URL: http://www.filmsound.org/cliche/ (visited on 01/14/2015).

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