21M.380 MUSIC AND TECHNOLOGY
SOUND DESIGN

FINAL PROJECT, PART 1 (FP1)
REQUIREMENTS SPECIFICATION DOCUMENT

DUE: WEDNESDAY, APRIL 6, 2016, 9:30AM
SUBMIT TO: MIT LEARNING MODULES ▸ ASSIGNMENTS
5% OF TOTAL GRADE

1   Instructions

Identify a suitable target sound(scape) for your final project, create
a representative recording of it, and write a Requirements Specifi-
cation Document to guide your design for the rest of the semester.
You will present the results in class on the due date.

2   Final project context

Your final project will be an original sound design of your own
specification, which will involve the analysis, modeling, and resyn-
thesis of an everyday sound or acoustic scene of your choice in
Pd.

2.1   Restrictions

- Choose a relatively simple sound or scene from your everyday
  life that you can relate to on a personal level and which you
  would like to recreate from scratch. Do *not* attempt to synthesize
  a musical instrument.

- Your final project should be implemented in Pd vanilla. Con-
  sult the instructor if you have a strong argument for using Pd
  extended.

- The usage of other tools, such as audio editors, DAWs, audio
  plugins, etc., should be restricted to analytic and supporting
  purposes.

- The project should primarily use synthesized rather than recorded
  sounds. The latter should appear in the final project only if they
  are impractical to synthesize from scratch (e.g., background mur-
  mur in a café scene).
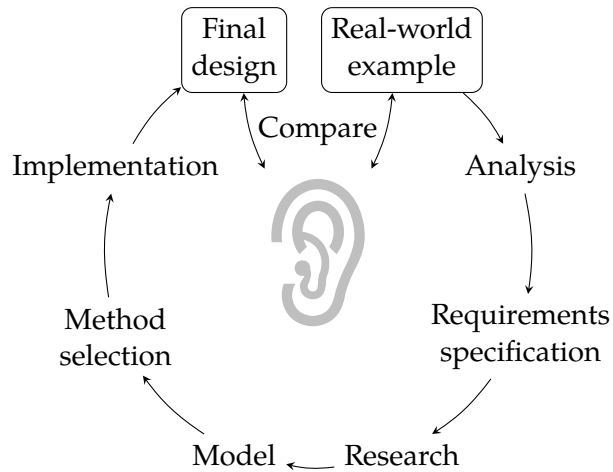
2.2 Methodology

FIGURE 1. Stages of the sound design process (after Farnell 2010, figs. 16.7, 16.1)

We will follow Andy Farnell's methodology for a systematic approach to the project's design (cf., figure 1). For the present assignment, the goal is to complete the first few stages (identification of a real-world sound, analysis, and requirements specification) of that process.

3 Present assignment's objectives

1. The first objective of the present assignment is to identify a sound or acoustic scene that you would like to work on.

2. Also, you are expected to create a short but representative recording of that sound(scape). You should make this recording yourself;[1] only if there are compelling reasons why you cannot do so (like ensuring your personal safety) may you rely on pre-existing recordings.[2] This recording will help you to build a relationship to the target sound, provide material for analysis, and serve you as a reference to compare your design to as it develops. The more of the target sound's characteristics it captures, the better. The recording will also help your fellow students and instructor to better understand your intentions when you present this assignment in class.[3] The recording should not be longer than 30 seconds. If you are trying to recreate an acoustic scene that develops over longer periods of time, splice together some representative 'snapshots', with short faded breaks between the different parts.

[1] You can borrow one of the Zoom H4n recorders from the Lewis Music Library to conduct the recording.

[2] If you think this applies to you, please email the instructor for confirmation.

[3] Play the recording at the beginning of your in-class presentation

3. The assignment's main purpose is to analyze the sound or acoustic scene you would like to model and and encapsulate the results in a formal Requirements Specification Document, which will guide the rest of your design process.

4 Guidelines

- Farnell (2010, sec. 16.3) discusses the requirements analysis stage in some detail and provides practical examples for many sound design problems (ibid., chs. 23 ff.). Consult these resources for inspiration.

- Your Requirements Specification Document should begin with a rich verbal description (cf., ibid., sec. 6.7) of the sound or acoustic scene that you would like to synthesize.

- Include a list of all required sound components and describe each in as much depth as possible. Avoid generic nouns that lack descriptive power. For example, if your final project features an airplane, ask 'which airplane?'. Is it a military plane or a passenger plane? Propeller or jet? Perhaps we can even specify the exact model? At which speed(s) will it be travelling? At which altitude(s)?

- The power of procedural sound design is to create dynamic sound objects that can generate a variety of sounds from realtime parameters. It is essential that you decide early which of these parameters need to be exposed to the end user of your Pd patch for interactive control. For example, for an airplane fly-by, this could be speed, horizontal distance, total flyby duration, etc. Include a list of these parameters in your document.

- Include a detailed timeline with milestones (FP2, FP3, FP4 assignments). Set aside sufficient time for research, testing, and other stages that do not involve any Pd programming.

- If your scene includes any spoken dialog (similar to the spy scene from ibid., ch. 25), include the complete script.

- You are encouraged to add graphics and photographs ito your Requirements Specification document where they are helpful.

5 Assessment criteria

Level of detail The more detail goes into your specification now, the easier it will be to implement later.

Conciseness At the same time, it is important that your document captures your design's essential requirements without being more verbose than necessary.

6   Submission format

Submit a single .zip archive that contains no subdirectories and *only* the following two documents.

- The Requirements Specification Document as a single .pdf file (2000 words max).

- A single sound file, no longer than 30 second and in a file format of your choice, that contains the representative recording of the target sound or auditory scene that you are hoping to recreate.

References and useful resources

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.

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