MMAI 2017: Course project

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What are you going to do?

- The purpose of the course project is to implement a reverb algorithm in C/C++ language.

- The program should be able to read wav files and play them in real time with the reverberation effect applied.

- The implementation should have controls at least for: a dry-wet, early reflections, a late reverberation size, a spectral control (like damping or equalizer).

- The program should have a CLI and should be runnable at least on Linux.

- For sound file and audio I/O use using libsndfile and portaudio libraries.

How the work will be organized?

- You'll form groups 3–4 person each.

- Milestone meetings every Monday starting on Week 15. Each milestone has a minimum viable product (MVP) requirement, that you should present there. You can also discuss your problems with me during these meetings.

- You should create a GitHub repo for your project and send me the link to it. I'd expect the repo to contain building instructions and show some signs of activity (meaningful commit comments, issues, task tracking, etc.).

Milestone meetings on Mondays (1/3)

- Week 15: MVP is a project plan. You'll need to present:
  - What have you researched about reverbs yourself?
  - How are you going to implement a reverb? (interface description, base algorithm, etc.)
  - How will the group work be organized? (Tasks, responsibility, schedule, etc.)
- Week 16: MVP is a first version of the reverberator. You'll need to present:
  - A working algorithm, could be non real-time and / or non cross-platform.
  - The executable should be uploaded to GitHub's releases at least for one of three major operating systems.

Milestone meetings on Mondays (2/3)

- Week 17: MVP is a reverb with fine-tuned basic control parameters:

  - An executable should have CLI controls for the reverbs.

  - An almost final version of the DSP.

- Week 18: MVP is a real-time reverb with UI:

  - Functions: read wav-file, trigger playback with UI or a hot-key, optionally save result to a file.

- Week 19: no MVP, debugging meeting.

  - This will also be the last question and discussion session.

  - Your reverb will be submitted to the listening test.

  - You'll need to submit an online listening test form a day before the course project presentation.

Project presentation

- Week 19, Thursday.

- Try to address the rubric topics as best as possible.

- I'll be interested in the following:

    - The algorithm design. Why were different algorithm blocks used?

    - Presentation quality: structure, content, etc.

    - Team work. Who was responsible for what? The collaborative programming organization.

Grading

- Three levels: 1 cr. (pass), 3 cr. (good), 5 cr. (great).

- Will be evaluated: sound quality, code organization (code style, Coverity Scan, Travis CI), teamwork (commits, issues, tasks, etc.), app's interface, project presentation (structure, algorithm design decisions).

- An extra point for: GitHub repo organization and activity, team work, milestone meetings participation.

- Details in rubric: https://moodle.abo.fi/mod/resource/view.php?id=193692

  - If you have suggestions regarding the rubric, please raise a discussion it asap, before the project went too far.

And now some reverberator live-coding…