

Algorithms for Computer Music

Topic assignment - 17/10/2018

Planning

- Choose a topic (w+0: 17/10/2018)
- Plan of action (w+3: 07/11/2018)
 - Email or meeting
 - References, what and how
 - Dropout time limit
- Checkpoint (w+12: 09/01/2019)
 - Email or meeting
 - Slides skeleton
 - Code status (done, remaining, dropped)
- Presentation + slides (w+16: 06/02/2019 & w+17)
 - 25" + 5"
 - Must include a demo with music
- Report + code (w+16: 06/02/2019)
 - Follow the template
 - Maximum of 5 pages (not counting appendices or code documentation)
 - Must include a "state of the art" section
 - Comment your code
 - Documentation can be in comments

Criteria:

- 40% code / analysis / interpretation
- 40% presentation
- 20% report

Don't wait a deadline to say that you are lost!

Topics

- **DJ mix monitoring**
 - Input: DJ mix + tracklist (www.1001tracklists.com/ / www.mixotic.net)
 - Align the tracks to the mix (exact location, playback rate)
 - Estimate the boundaries of each track
 - Secondary task: estimate the effects applied to the tracks (volume, EQ)
- **DJ mix assessment**
 - Input: 2 tracks with starting point + playback rate
 - Create examples (beat aligned)
 - Compute a metric(s) assessing the mix
 - Secondary task: take into account effects (volume, EQ)
- **Recommender system (content-based)**
 - Input: a dataset of tracks
 - Compute a similarity score(s) between each pair of tracks
 - Secondary task: cluster & visualize tracks
- **Music generation**
 - Input: key + time signature + ?
 - Generate a melody or a drum beat
 - Secondary task: export a MIDI file

Do not reinvent the wheel

- Useful links:
 - <https://www.ismir.net>
 - <https://scholar.google.de>
- Useful softwares / libraries
 - <https://www.reaper.fm>: DAW
 - <https://github.com/librosa/librosa>: MIR
 - <https://github.com/CPJKU/madmom>: MIR
 - <https://github.com/MTG/essentia>: MIR
 - <https://github.com/urinieto/msaf>: MIR
 - <http://sox.sourceforge.net>: sound processing
 - <http://jupyter.org>: notebook