

Reflection on Music Curation Process

Digitisation and curation of music files has come with a few challenges that have to do with processing the file formats associated with sound. In this case I only worked with .mp3 files however getting from a file that you could listen to to visual representations and metadata was challenging and involved many steps and software solutions. The process of manually digitising and curating music does not function well for large data samples due to the extended time it takes to process each file and the complexity of the procedure.

Notated data is the most fundamental and relevant to the music than any other data type. Although acoustic data represents the music as much as notated data does, notated data is more useful when digitised and can be interpreted in a variety of ways from a data standpoint. Notated data includes easily identifiable information such as pitch, rhythm, time and can also include lyrics, volume, instrument or voice, instructions on the performance method which tells a knowledgeable user a lot about the composition without even listening to it. This data becomes immensely useful when available in a notation software readable file such as .musicxml or .mei as it can be very easily and quickly converted into other data formats that are machine readable. I have found inputting notes into notation software such as MuseScore to reproduce the piece digitally to be extremely tedious however someone with musical training may be more comfortable with the process and may even be able to do it accurately by ear.

I used Verovio to convert the .musicxml file to .mei which allowed for greater flexibility in modifying the file as I could now easily edit this file in a word processor but more importantly I was able to use the .mei file to generate the piano roll and the music21 Graph showing the histogram. I used Jupyter Notebook for this which was easy to use and quite intuitive. Because of this I have found notated data to be the most useful from an analysis standpoint and the most versatile data source.

Acoustic data is the recorded music and represents the audible representation of the music. Used ways of visualising music from the file were generating a Chromogram, Mel Frequency Cepstral Coefficients, Spectrogram and Waveform. The program used to generate these data visualisations was Sonic Visualiser. I also used Sonic Visualiser to get more metadata on the piece.

Descriptive data was taken from the source of the file which was the Free Music Archive and contained, the artist's name, the name of the track, the album and also specified the genre which the music is part of. Additionally, there is also the option of listening to the track without downloading the file. Downloading the file is presented as an option too.

Any of the curation techniques used on the data set at a fundamental level represent ways of processing music as data so that both humans and machines can perform advanced searches based on very specific features of the sound or to classify music in ways which can encompass large amounts of data without the need to review each individual element or individual in the data set.

The histogram generated from Music21 was useful for getting an idea of the pitch in the piece and how this differentiates from histograms from other genres. I am personally not musically literate however I understand that pitch representations in histograms largely and accurately can be used to determine the genre of the music represented in the histogram. It is likely that the tracks available on the Free Music Archive were analysed and characterised in the same way rather than each track being reviewed and assessed individually.¹

There is definitely potential for improvement, not only in the process of digitisation and curation but also in displaying information on the music files. I found music curation to be a fractured field in the domain of curation as I ended up using 4 or more pieces of software and other online services in order to process a single track. This points towards the difficulty that would arise from generating comprehensive data collection on individual tracks where a large data set is in need of processing. Since generating the visual representations of the musical pieces was mostly manual processing a large database of music would consume considerable amounts of time. Generating the piano roll and the histogram could be automated for large data sets due to the use of Python however the rest of the analyses involved manual processing between software and online services so more development here could be useful in processing the large amounts of data on sites like the Free Music Archive. This information could potentially help with studies related to sound and music and help data scientists draw conclusions. Additionally, having access to large scale, machine readable data sets could also help with development of software that automatically transcribes music into notated sheet music.

Bibliography

1. Tzanetakis, George, Andrey Ermolinskyi, and Perry Cook. "Pitch Histograms in Audio and Symbolic Music Information Retrieval." *Journal of New Music Research* 32, no. 2 (2003): 143-52. doi:10.1076/jnmr.32.2.143.16743.