HECTORS FAVORITES FROM ALL THE FOLLOWING LIST

1. **Make a caricature of the audio. BUT user allowed to scroll through caricature and the audio is synced to the caricature** (can be played from selected location in caricature).It takes you to the correct spot.
2. **Applying features of one audio file to another one** (tempo/rhythm) : Like take song 1 and analyze - extract features. And apply to other songs passed in afterwards. Like the tempo or key or transients. So it'll sound weird but cool. Maybe useful for mashups.
3. **Voice detection AND Extend it by Karaoke**. : Singing voice detection. But - remove it! By phase reversal at correct frequencies at correct times and adding the reversed signal to the original signal. (CANCELLATION due to 180 degree phase) Would have to look into the spectrum to see how to determine which frequencies is the vocals at a given time. Need to explore what is the best way to cancel it out.
4. **Ear training helper.** Another idea - for education - sweep through person's library and collect examples of intervals for ear training - like P5 and stuff.
5. **Accompanier ?** - detects rhythm/tempo (beats) and tries to play with you. Drums or chords or something. Need beat + key detection.
6. **Auto - Creation of mashup**
7. **Chipifier** - > Convert music into chiptune.
8. **Hyperbolic trees for music collection visualization.** Cluster through Similarity measure

-------------------------------------------------ALL THE LIST IS BELOW ---------------------------------------

Ideas Mentioned in Class and Opinions

1.Similarity Retrieval - Recommendations.

We can do this, but change what would get a song to be recommended.

2. Classification/ Clustering.

The input are many things and output are the things labeled/classified.

3.Tag/annotation - produce tags from music

4. Rhythm/ Melody /Chords- Identify and return. The result. .(Key song is in? - sounds tough.) (Metric sounds hard too.) (Chords are more possible since you just have to find which one each is).

Idea: maybe just extract the melody ?

5. Transcription. - Have music end up with score. Kyle (my friend who is in the class, did this already for a directed study).

6. Separating sources. - Record the melody for different instruments for example. (Break a jazz piece into piano, sax and flute parts for example)

7. Query by humming. Ideas: Song Humming Recognition and Returns which songs it was and what artists sing it. (All that do) (He said this : Query by humming.)

8.Symbolic MIR - NO IDEA

9. Segmentation/ Structure = DETERMINE PARTS OF A PIECE OF MUSIC

Maybe we can specialize it to classical music or smth.

Idea George said: Auto - apply different effects to different sections of audio depending on the structure -E.G. all choruses will have REVERB applied or smth.

Input would be track and output could be track with effects applied?

10. A score that is created but knows how it connects to the audio (click a part of the score and it takes you to correct spot in audio)

OR the reverse - scroll through the music and AUTO shifts to correct spot in SCORE (maybe score is had at the beginning as well).

11 Fingerprinting. OR Cover Detect.

HECTOR’S IDEAS on FACEBOOK:

APPLYING FEATURES OF ONE SONG TO ANOTHER ONE (tempo/rhythm) : Like take song 1 and analyze - extract features. And apply to other songs passed in afterwards. Like the tempo or key or transients. So it'll sound weird but cool. Maybe useful for mashups.

Adapt audio to events on a movie:

(Since someone else did games). Or adapt audio to the speed of your walking. (Use some sort of ratio).

Hector Idea: Create a picture around person (360 or 2d) from that music which is being played - Like that old Itunes visualizer, BUT better - e.g. can evolve, morph depending on music tempo , key etcetera.

CREATE Time frequency representation like a spectrogram ( Just make it whacky and colorful and more expressive) Say like ‘Wow there is a peak at 300 HZ bro! ‘

Karaoke. : Extract the spectrum and process by inverting the phase of the mid frequencies and summing it to the original signal -> get rid of the vocals for the most part (if they are mid-rangey).

Or maybe it could be determined which frequencies the voice is at and do the phase shifting for all of those to more accurately delete the vocals.

Another idea - for education - sweep through person's library and collect examples of intervals for ear training - HAHAHA like P5 and stuff.

Accompanier ? - detects rhythm/tempo (beats) and tries to play with you. Drums or chords or something.

(SOME) Ideas from the Textbook appendix B:

Query with MIDI information from a sensor.

Create a caricature from audio file (pseudo transcription)

Playlist generators. (LOCATION/TIME BASED)

Classify instruments in polyphonic sound

Extract themes from MIDI.

Detect gender of singer (MALE or FEMALe)

Auto - Creation of mashup [][[][][

Auto E.Q after music is classified.

Guitar helper -> accompany w beats and or chords. Need beat + key detection.

Instrument Mimicking (create a synthesized sound from input recording instrument)

Chipifier - > Convert music into chiptune. [][[][][

Pitch detection for guitar in real time.

---------------------------------george’s suggestion in book-----------------------------------------

MULTI CORE

Genre classification on MIDI

Similarity retrieval : Using different methods, and letting the user give feedback on which worked better.

Key finding in polyphonic audio.

Structural analysis.

Drum pattern similarity retreival

Drum detection in polyphonic audio

Chord detection

Auto Align audio with MIDI

Audio segmentation

Implement MPEG 7 ideas.

Classification based on instruments in audio.

Singing voice detection -> EXTENSION (HECTOR) : remove it! By phase reversal at those frequencies and adding to the original signal. (CANCELLATION due to 180 degree phase)

Hyperbolic trees for music collection visualization. Cluster through Similarity measure.