

Cultural Remix

Song transformation based on percussive segmentation

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EECS 352

Introduction

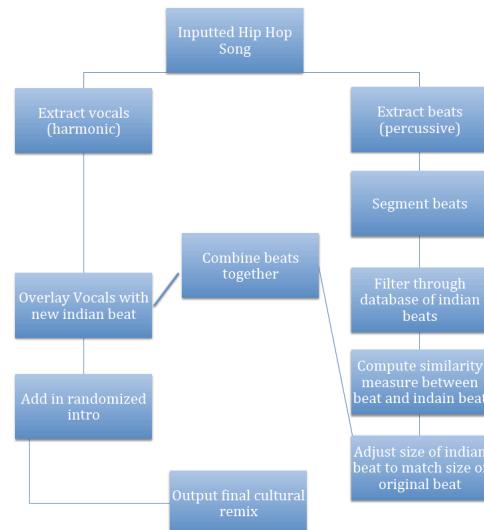
Our project focuses on transforming hip-hop songs into Indian remixes by incorporating prominent elements of South Asian music. The program analyzes a given hip-hop song's percussive composition, and then generates a compatible South Asian background to overlay the original harmonics. The goal of Cultural Remix is to create a desirable remix by meshing the art of two cultures.

Motivation

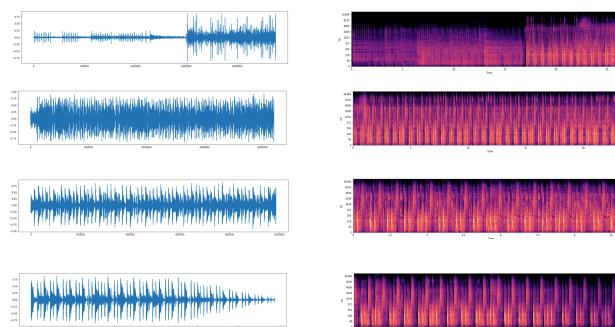
Within the last two decades, South Asian music has greatly influenced leading artists in the American hip-hop genre. Rappers such as Jay-Z and Missy Elliot have notably utilized Hindi film music and Punjabi bhangra to enhance their art, and create transnational pieces. As such, we thought it would be interesting to explore the intricacies of creating a cultural mashup and contribute to this niche genre.

Data Set

We use **24 songs** that produce **104 beat segments**, ranging from traditional Hindi film music to upbeat, modern bhangra. We pulled instrumentals from popular Indian songs and separated down their beats



We will exemplify our segmentation with Eminem's '*Till I Collapse*'. 8 segments (2nd and 3rd repeat): beat trackers and spectrograms below.



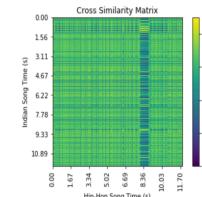
Acknowledgments

We would like to thank Vissagan Gopalakrishnan (VGo) for contributing several instrumentals to our data set. We would also like to thank Prem for guiding us in our methodology.

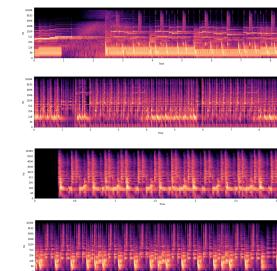
Methodology

Similarity Measures:

We tried **CSM** and then **Fast DTW**. Using the CSM trace was not accurate because the segments had different tempos (see example matrix below).



Results



Here are the 4 distinct Indian segments for '*Till I Collapse*'. These were matched using FastDTW.

Check out our remixes at: <https://sonianigam.github.io/culturalRemix/>

Improvements

1. Improve vocal extraction: using harmonic separation produced superior results to repeat, but we still experience a drop in vocal quality.
2. Develop an intuitive interface: expand our Jupyter notebook to have a user-facing front end
3. Enable customization: allow users to substitute certain beats for the next most similar beat if they aren't happy with the initial remix

Conclusion

Based on a random survey, **80%** of users said our results are comparable to current DJs' mixes, aside from the vocal quality. Moreover, sampled NU dance team captains **unanimously** agreed that they could use this tool for their soundtracks.