

MAIS 202

Final Project Deliverable 1

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Project: Our Project Aims to produce AI-generated Album art for pre-existing albums on Spotify or even from lyrics of a song or album that is imported by the user.

1. Choice of dataset:

To begin with, the plan is to use data sets that involve image-text pairs such as the ones listed below. To add on, we can also involve genres, moods, and tones to influence the weights of certain lyrics and produce an album art with a certain sentiment.

<https://arxiv.org/abs/1508.06576>

<https://arxiv.org/abs/2111.02114>

<https://medium.com/swlh/how-to-leverage-spotify-api-genius-lyrics-for-data-science-tasks-in-python-c36cdfb55cf3>

2. Methodology:

a. Data Preprocessing:

For the data processing, we can use the Spotify API along with the Genius Lyrics feature which allows us to extract lyrics depending on the selection. Next, we can use the filtering of keywords in the lyrics, song names, etc and the image-text pairs to help us draw the album art. For the last step we are planning to explore and research what other applications that involve AI-generated art using python are using to produce the output.

Source: <https://openai.com/blog/dall-e/>

b. Machine learning model:

For this model, we will most likely be using a GAN(Generative adversarial networks) to generate the drawings from the data sets. At this point, we are yet to learn how to use the data and the concepts of GAN to generate the output however given the existence of other similar applications we are aware of the feasibility of the project and the resources out there.

Sources:

<https://towardsdatascience.com/ganshare-creating-and-curating-art-with-ai-for-fun-and-profit-1b3b4dcd7376>

c. Evaluation Metric:

For the evaluation, we can have the user approve of the product or try to nudge the art in a certain mood or direction by adding keywords with a higher weight.

3. Application:

For the input, we can have the user search up an existing song or album on Spotify (hence using the Spotify API) or have them upload some of their own song lyrics by pasting them into a text box. Additionally, we will have other weighting parameters set by the user like the genre, mood, or tone.

As an output, the user will receive the most accurate representation in the form of an image and he can have the option to view other possibilities. Besides that, the user may also have the option to select the parameters they would like to adjust.