Waifu Generator

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1 Goal of the proposed project

Our goal is generating new anime characters based on drafts drawn by users. For example, users draw a brown hair and blue eyes draft, then our project will generate a new anime character based on users sketch.

2 Motivation

To the best of our knowledge, although there are several existing projects working with generating anime characters using GAN, the outputs from those work are not fully personalized. Indeed, some of the models could incorporate users preferences by asking them to specify certain features at the beginning, but the outline of the characters are more or less fixed and only minor personalized items could be played with, such as color of eyes and color of hair. We see a potential of increasing user participation by even more. Our proposed model allows users to transform their sketch work along with specified features to complete anime characters. This will be an exciting tool for people like us who are not specialized folks in this area but would like to have their own anime characters. Therefore, we are really impassioned about this project.

3 Problem formulation (eg. Input/Output)

Our project idea comes from a Github project called MakeGirlsMoe https://github.com/makegirlsmoe/makegirlsmoe.github.io. In this project, they create a web page https://make.girls.moe/#/ and provide some options to users, then users can create an anime girl by those options. We will use the same dataset called Danbooru https://www.gwern.net/Danbooru2019#, this dataset provides a lot of a large-scale anime image database, its enough for us to train a stable GAN model. In our mind, the biggest problem of MakeGirlsMoe is not flexible enough. It only can generate anime characters based on limited options. So, we want to change the approach users provide character features. We will provide users with a white panel, they can draw any character. Then, we will use a model to extract features and generate a new character. The

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biggest improvement in our projects is more flexible. Users will not be limited by options, they can provide any idea they have.

4 High-level steps to approach the problem

- First of all will need to find a suitable method to process the dataset. Converting images to data that we can use to train a GAN model.
- Using the data we got in step one to train a GAN model
- Build a web page that provides a white panel to users and shows the anime character created.
- Extracting the features provided by users pictures.
- Using the GAN model to generate a new character based on users picture.

5 Evaluation and Experiments: Quantitative/qualitative measures to

Because we get an image from users and generate a picture using the GAN model. We can directly compare two pictures to measure our model. Besides, we also can support users to upload a picture, in this way, and build a validation dataset to measure the GAN model.

6 Expected Results

Users can draw anime characters using the white panel. Then our model will generate a complete view of the desired character.

7 Milestones

- 9/15 - 9/30: Discuss potential project
- 10/1 - 10/6: Write project proposal, find suitable datasets
- 10/7 - 11/7: Model building, model training, model testing
- 11/7 - 11/24: Visualization
- 11/25 - 12/1: Write final report