Title of Your Project

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Abstract

Use machine learning to recognize anime characters' faces in illustrations.

1 Introduction

As the fandom community grows, a large number of fan-arts made by non-official illustrators began to show up and gradually became an significant part of the community. Fan-arts spread on the internet are often not labeled or are hard for people to recognize the character it is illustrating, since many anime characters shares similar characteristics and different illustrators may have their own taste. Untagged illustrations would make some trouble if anyone is trying to make a illustration suggestion system based on the features or characteristics of anime characters, or trying to use GAN (Generative Adversarial Network) to generate fake anime illustrations. Automatic character recognizing would then make some differences when one is facing a large set of untagged illustrations or would like to add/optimize tags based on character, for example, a character may be bounded to specific tags, like blond, green-eye, sword, armored, etc.

This project is aiming to use machine learning to automatically recognize characters in illustrations, based specifically on their faces.

2 Proposed Project

We would like to use a subset of Nagadomi's anime face character dataset that was uploaded by Myles O'Neill to kaggle 2 years ago (https://www.kaggle.com/mylesoneill/tagged-anime-illustrations). It contains pictures of faces of 173 different anime characters, around 50–150 pictures each. We are also planning to manually collect and tag some data for some those characters that do not have over 100 pictures. The data is not split into training and validation set, so we will be manually splitting them by random.

The features is not extracted since the data is stored as .png files. We are planning to use `torchvision` or `scikit-image` to load and transform data and extract features from it. Each pixel of after resizing will represent a single feature, and we are looking to resize pictures into 128×128 pixels. This transform in size may be changed in the future as the project goes.