



Photo to Avatar

Build your profile image.

BY: TONG ZHOU



Today's Agenda

- 01** Background
- 02** Model
- 03** Demo
- 04** Novelty & Discussion



Problem

Difficult to find a profile picture that is:

- Unique
- Personalized
- Avoid Personal Information Exposure

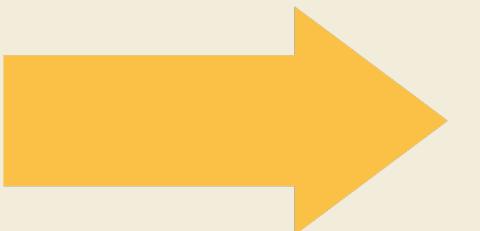


Solution

An application that can transform a real photo into a cartoon avatar with portrait's features and identification information.



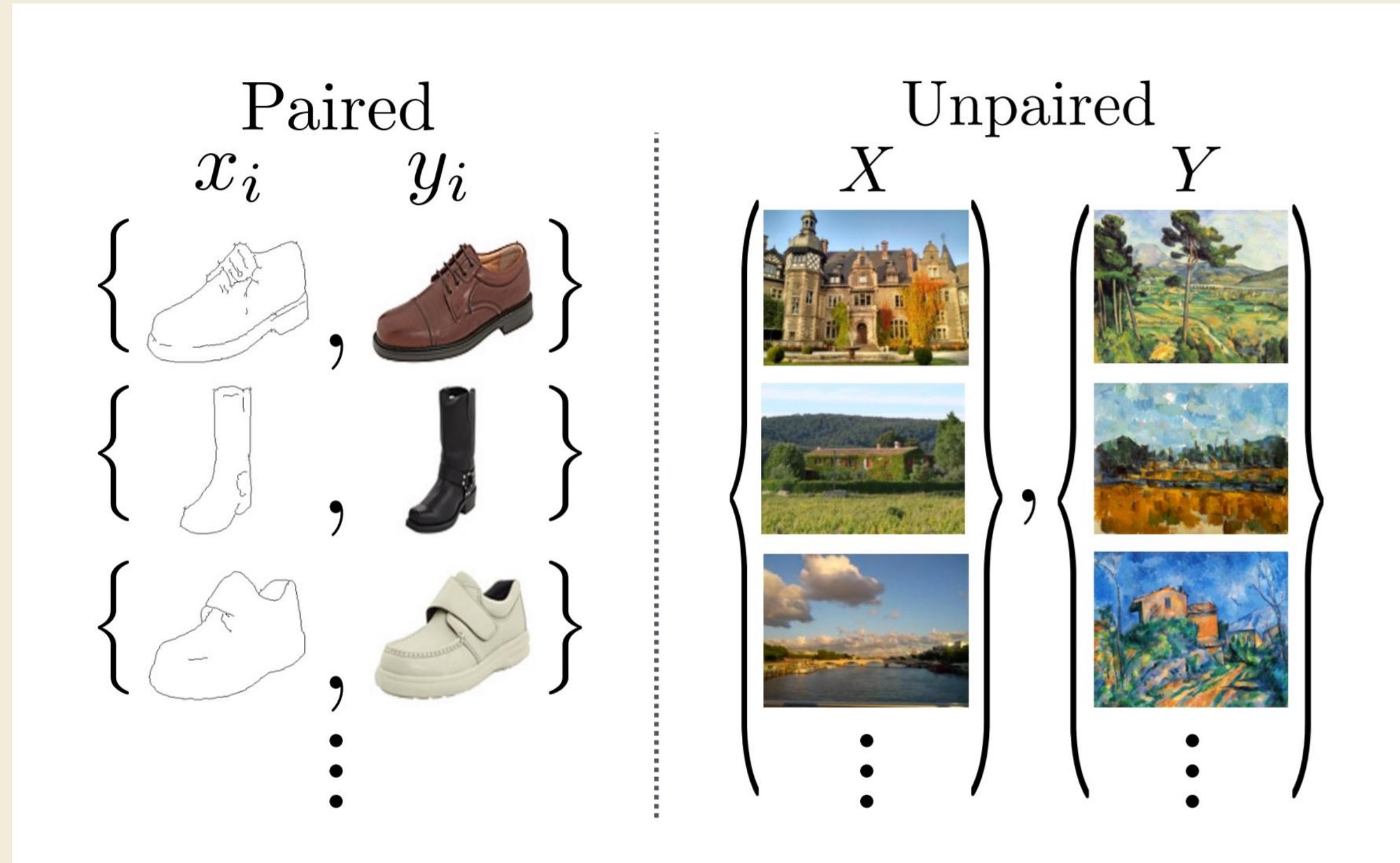
Original



Output



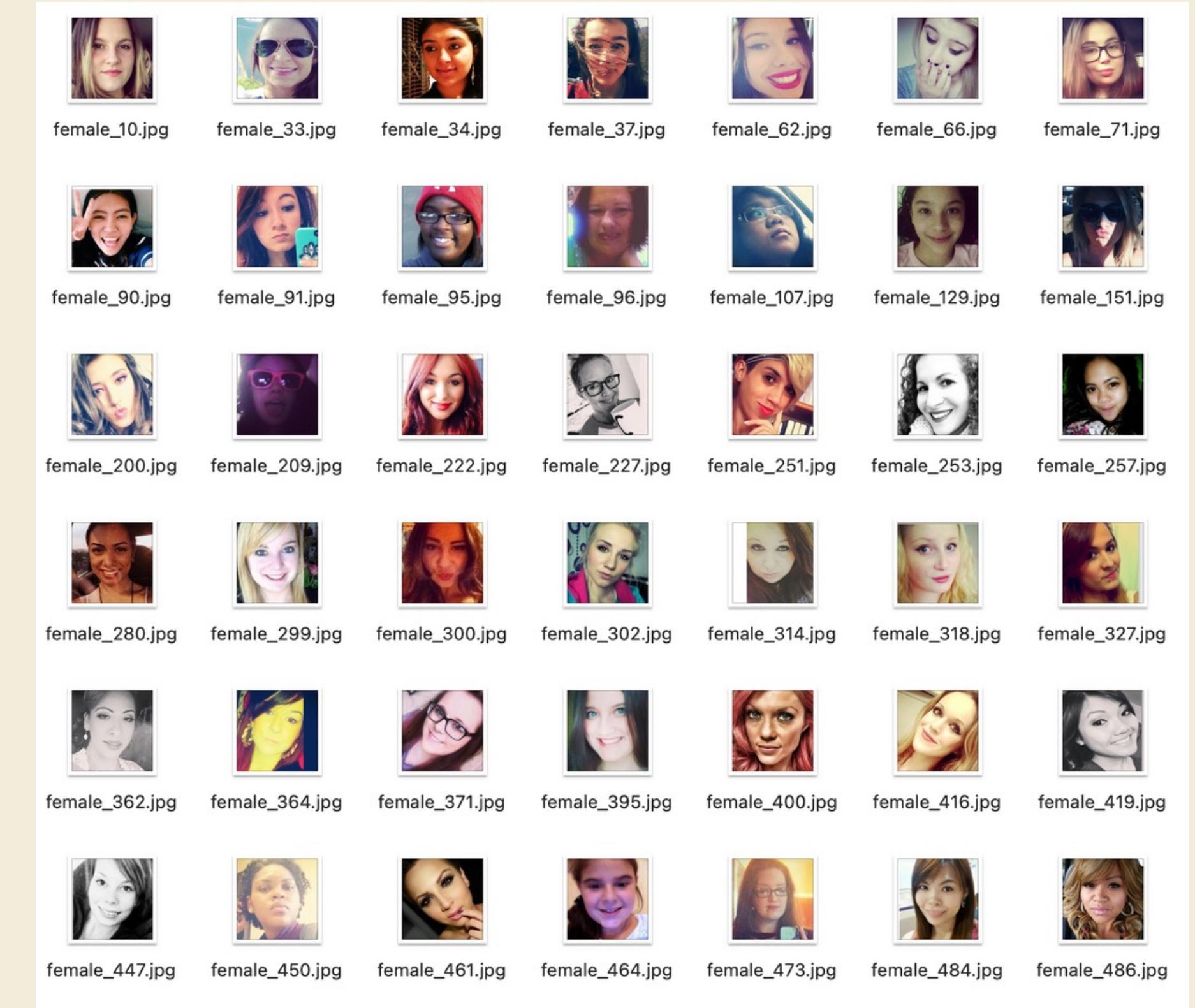
Modeling - unpaired image translation



Dataset



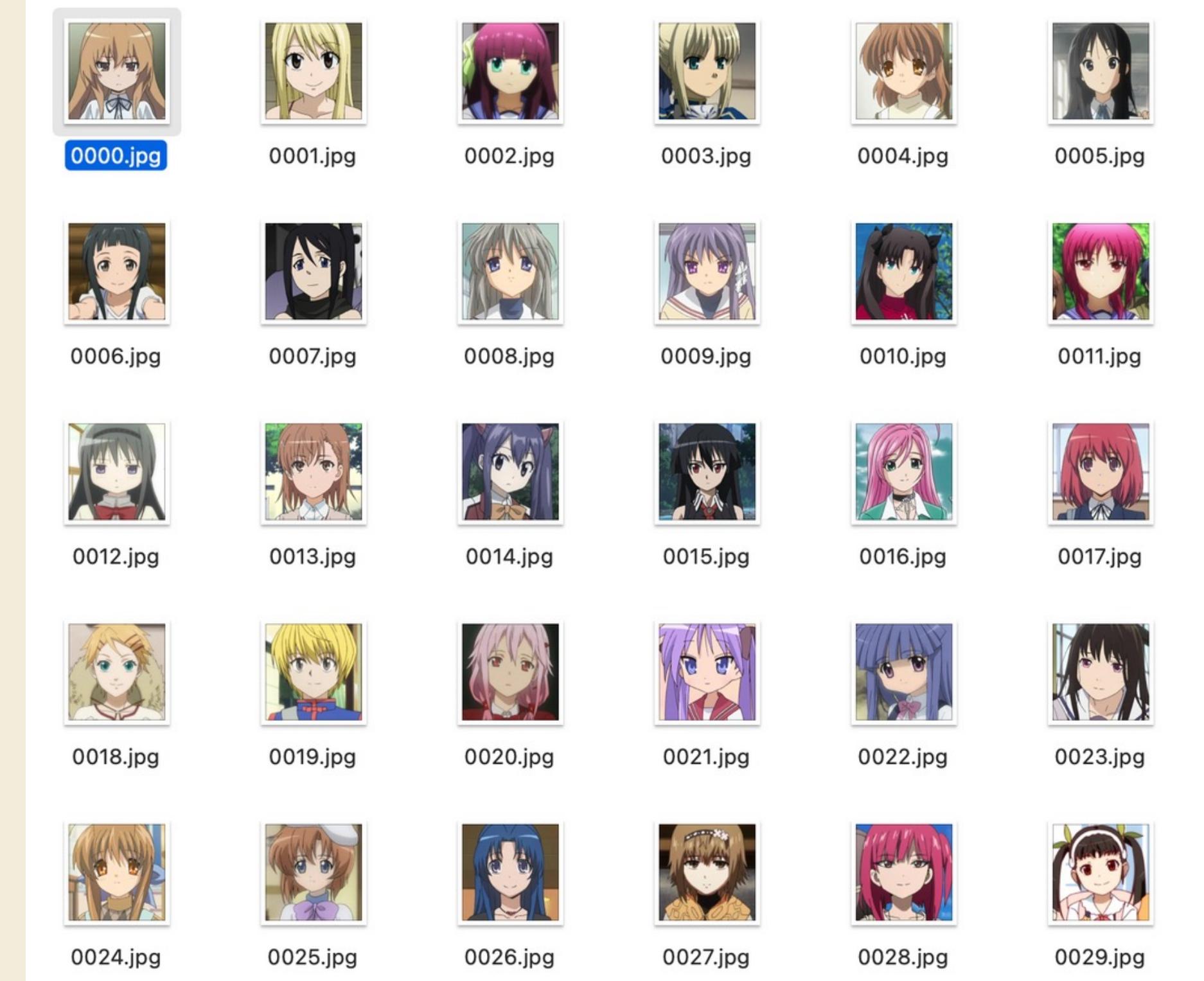
- Photo dataset contains 3400 female photo images with diversified age, race, face shape, gestures, hair color, hair shape, and accessories.



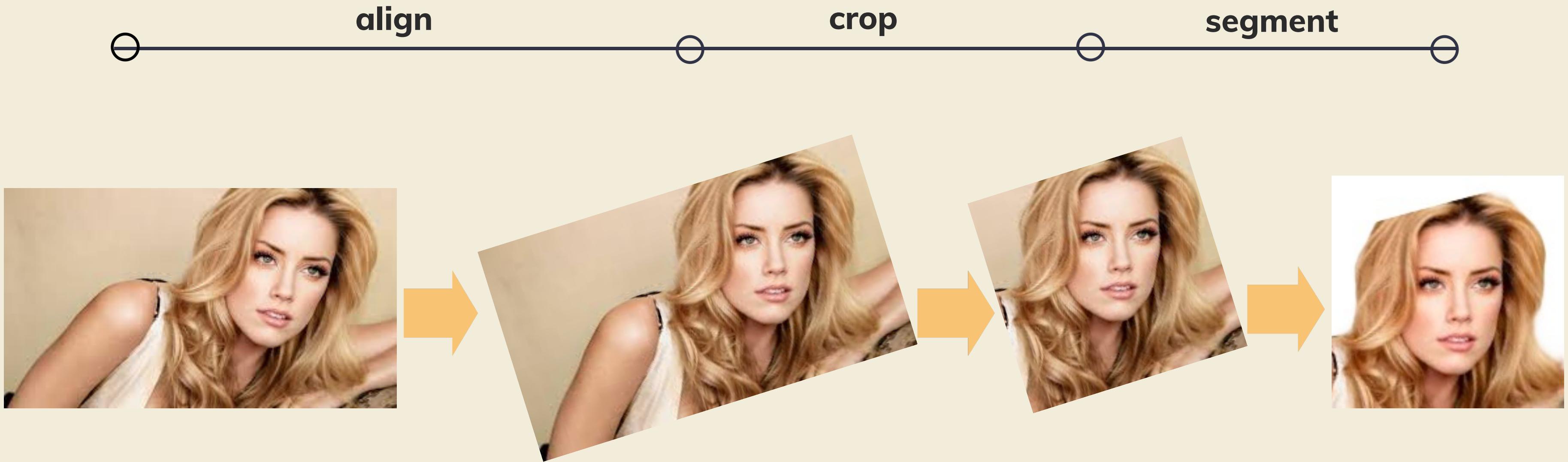
Dataset

- Avatar dataset contains 3400 anime images collected from Danbooru dataset.

Danbooru2021: A Large-Scale Crowdsourced and Tagged Anime Illustration Dataset



Preprocessing



Preprocessing

align

crop

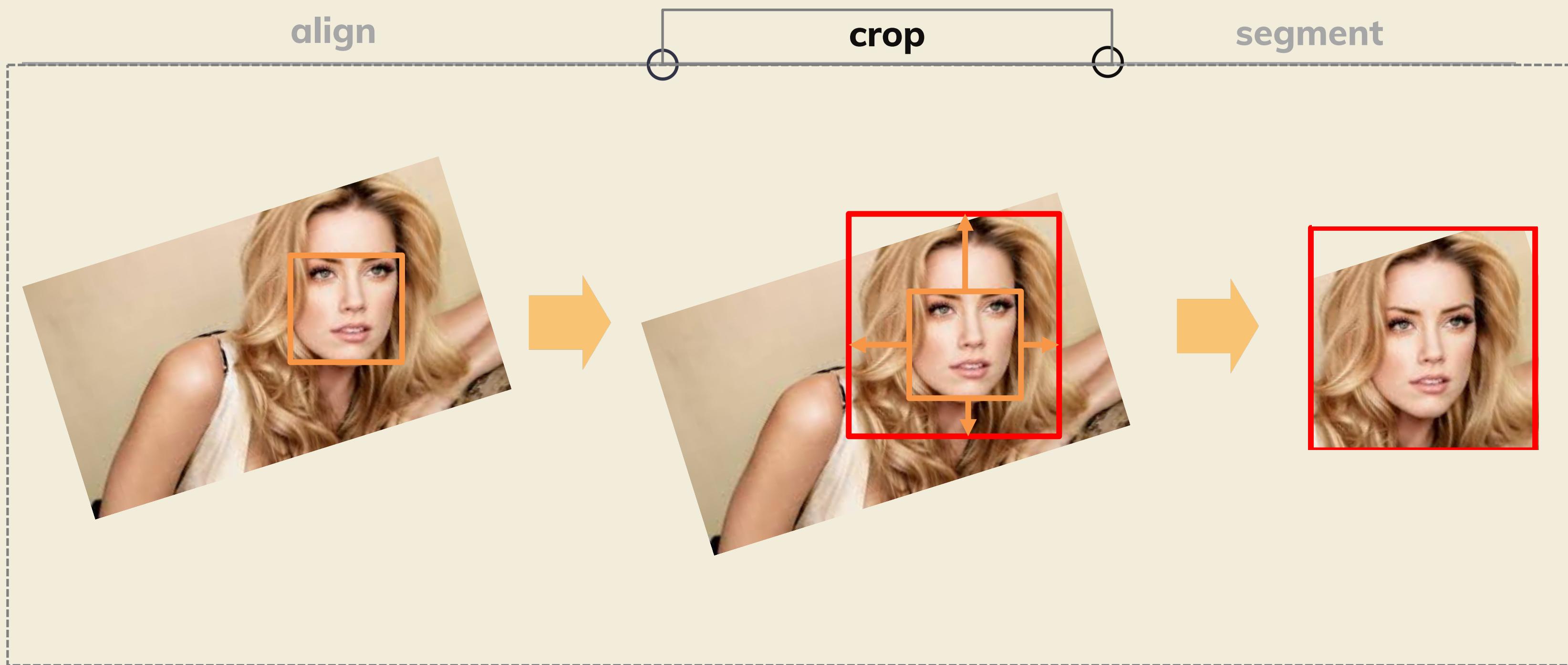
segment

1adrianb / face-alignment Public

Detect 2D facial landmarks in pictures



Preprocessing



Preprocessing

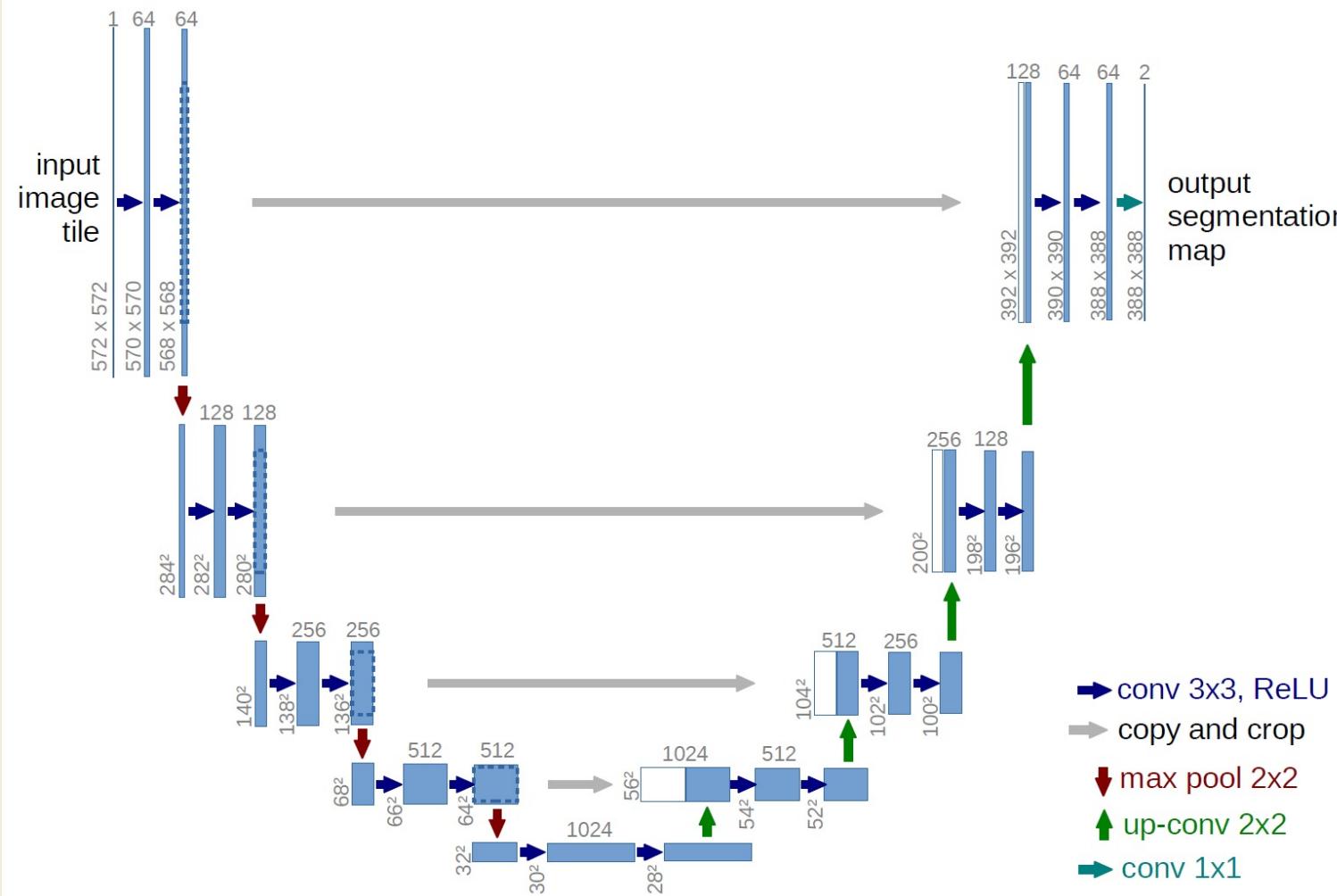
align

crop

segment

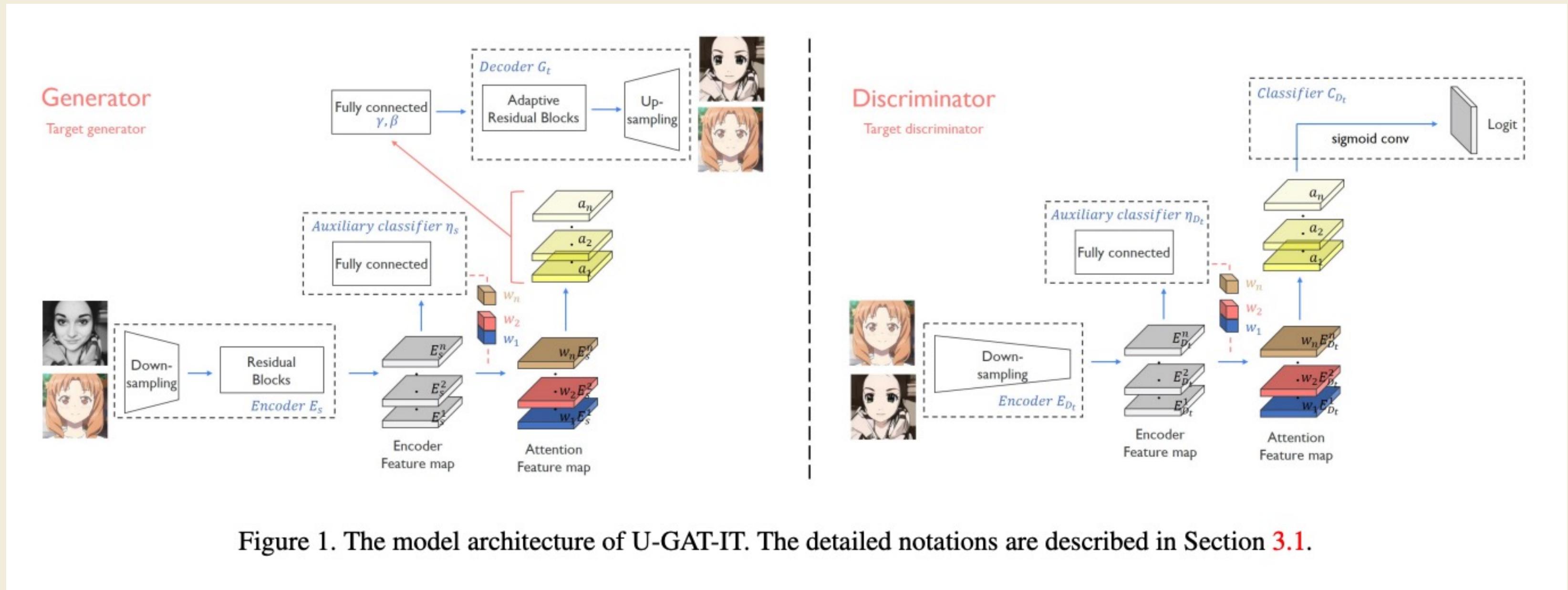
U-Net: Convolutional Networks for Biomedical Image Segmentation

Olaf Ronneberger, Philipp Fischer, Thomas Brox



Modeling

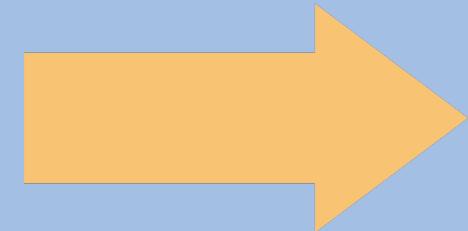
UGATIT: Unsupervised Generative Attentional Networks with Adaptive Layer-Instance Normalization for Image-to-Image Translation (204 epochs)



Demo



Original



Output



checking arguments

Photo to Avatar



Choose any image and get corresponding avatar:

Choose an image...



Drag and drop file here

Limit 200MB per file

Browse files

Novelty

- UGATIT: a novel method for unsupervised image-to-image translation with a new attention module and a new normalization function (AdaLIN)
- Pre-processed the data to a fixed pattern to help reduce the difficulty of optimization

Limit & Further Work

- The model doesn't perform well on Asian female photos and not stable -> enlarge and diversify the training dataset
- Compare different models to evaluate the performance of model -> conduct user study



Thank you!