UNIVERSIDAD DE CHILE

Inteligencia Artificial Generativa

Let's talk about hype stuff

Valentin Barriere // Clemente Henriquez

Universidad de Chile – DCC

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Laboratorio 1: Toonification

StyleGAN Network Blending

With a technique called **layer swapping**, it is possible to adapt a StyleGAN network to another domain.

Collect data from the domain

First, you need to collect a specific dataset of faces. This was scrapped on the web.

Train the model

- A StyleGAN model is then fine-tuned on the dataset.
- The more the model is fine-tuned, the more the faces looks like ukiyoe drawings.
- It needs to be stopped when it is between the domain.
- The 2nd image looks the best

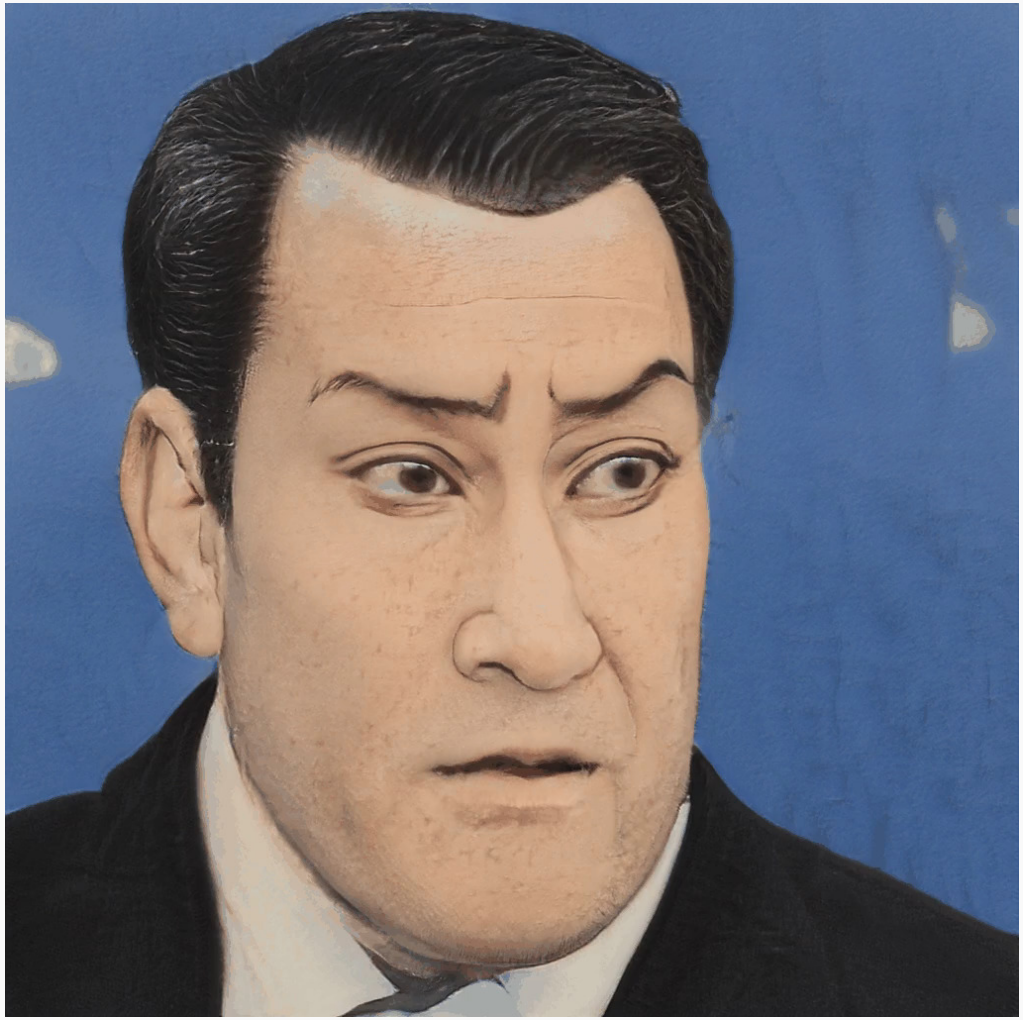
Latent Space

Let's look at the images generated when moving the latent vector:

The model basically learns not to have frontal faces.

Model interpolation: averaging

You can just average the weights of the model, but it does not work very well:



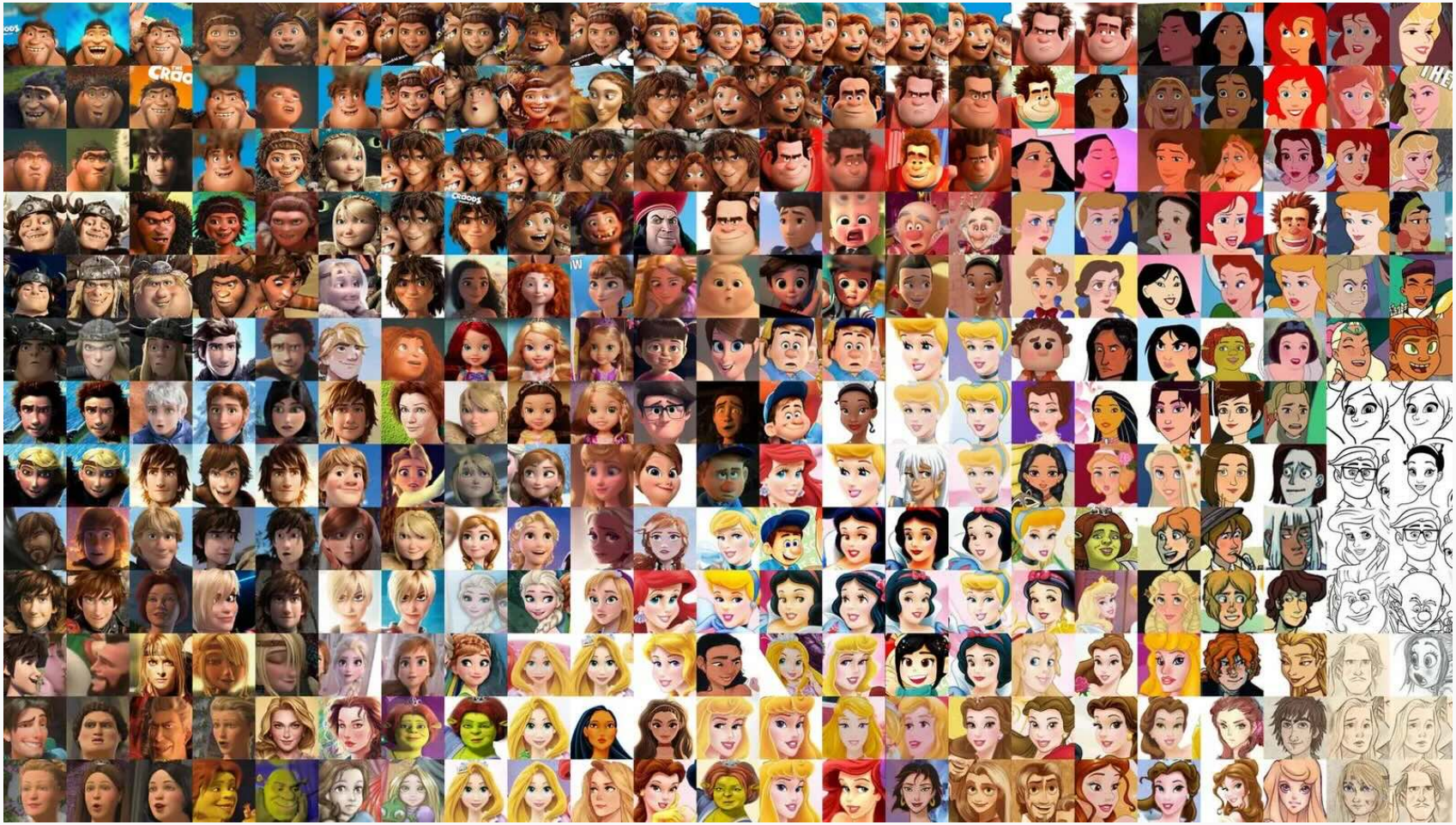
Layer swapping

Model merging

Taking different resolution layers from the different models and combining them Helps to avoid changing the pose (which is controlled by early, low resolution layers)

Swapping in only the lower resolution layers from FFHQ into Ukiyo-e serves to preserve the pose of the generated face, but still transfer the features and style of a typical ukiyo-e portrait. Here's a detail of the point at which I think it looks best.

Toonify yourself!



Toonify yourself!

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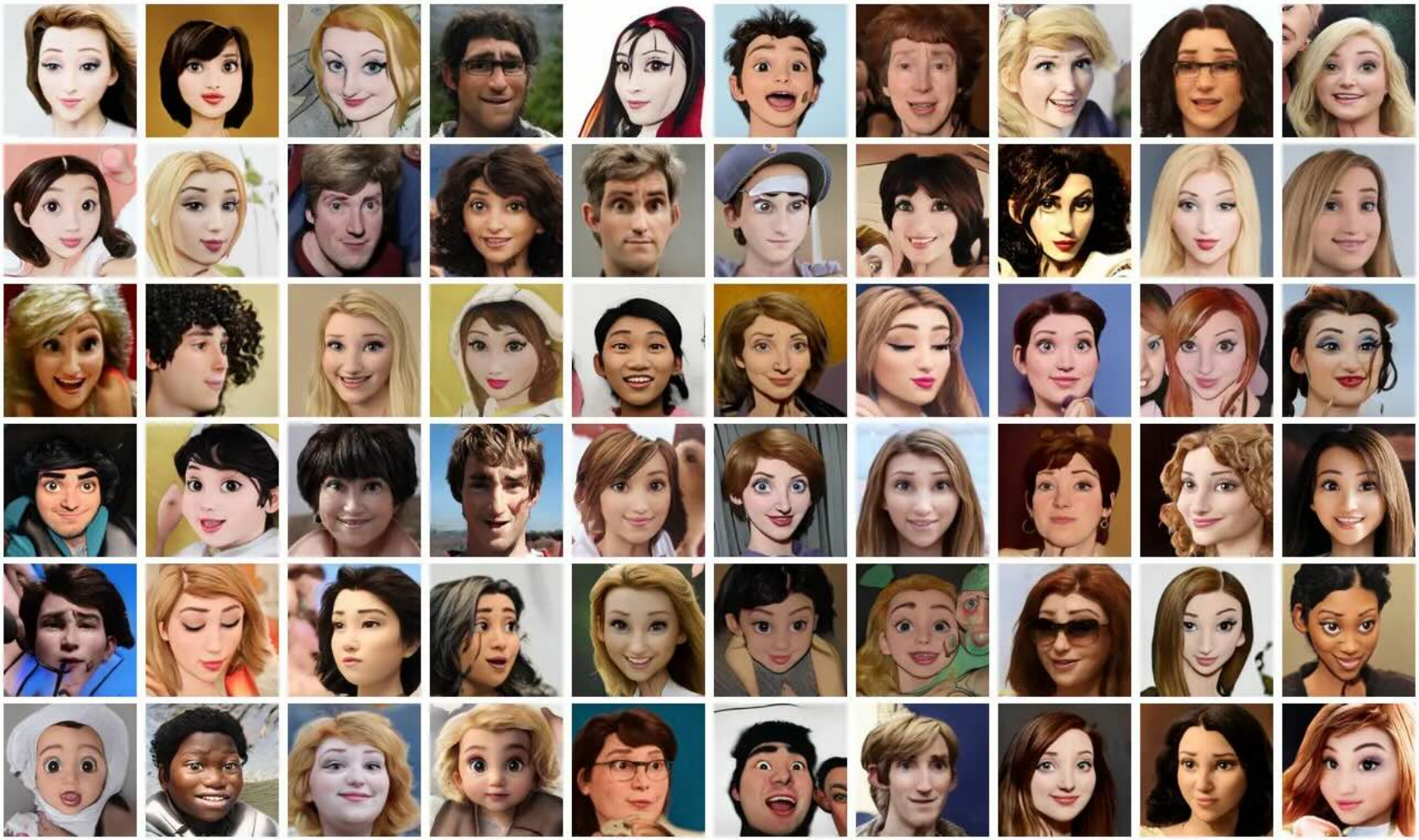
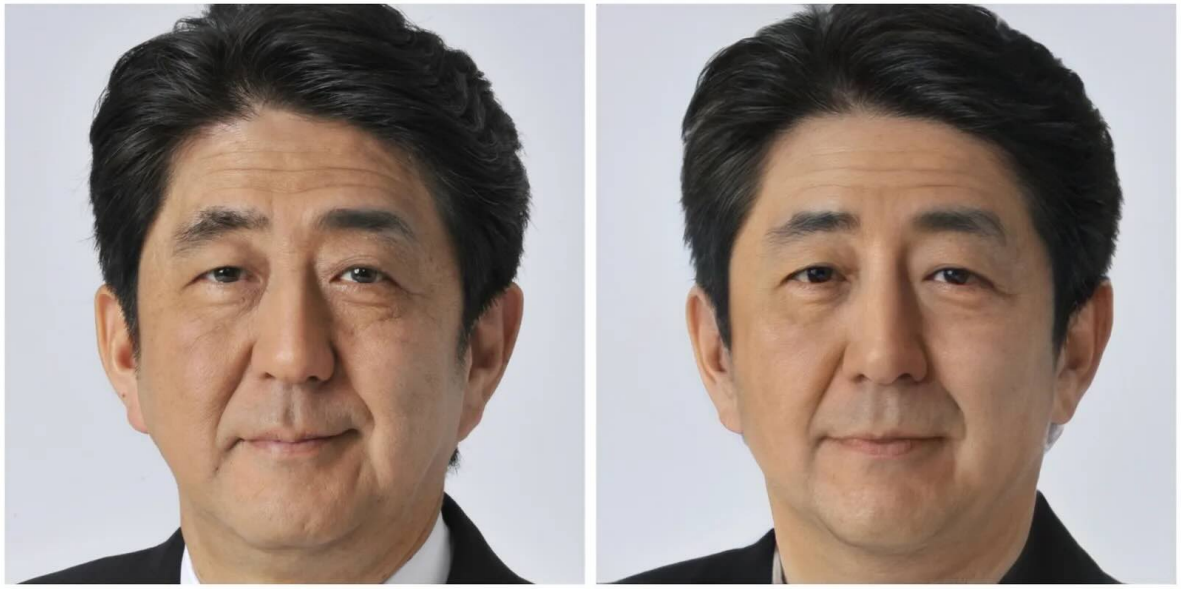


Toonify yourself! Gather data, learn new model, merge it.



Toonify yourself! Gather data, learn new model, merge it.