# StarGAN v2 on hair recolor

YSDA, Generative models
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# Description

**Idea:** take StarGAN v2 and apply it on K-Hairstyle dataset (solving style transfer problem)

**About dataset:** 500k images (512x512 available only), 9 color domains: yellowish brown, natural brown, black, reddish brown, others, two-tone, ash brown, Ombre, pink-brown

Fig 1. Examples of samples from dataset

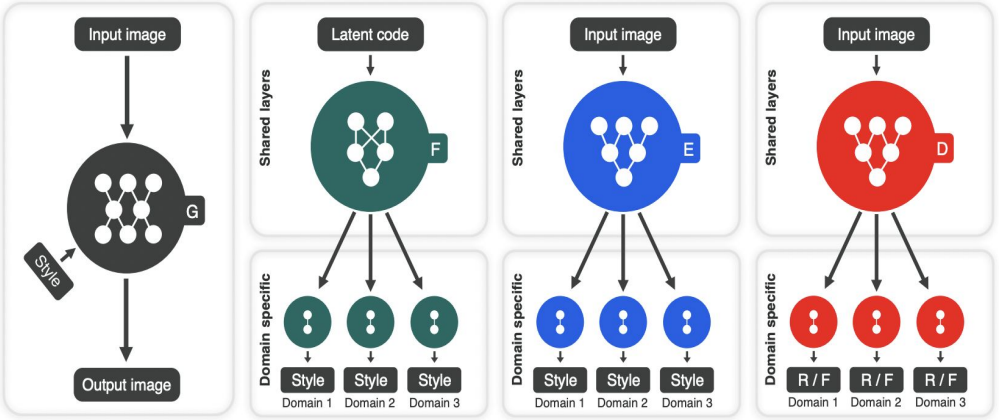


Fig 2. Overview of StarGAN v2

https://arxiv.org/abs/1912.01865 - StarGAN v2
https://arxiv.org/abs/2102.06288 - K-Hairstyle dataset

# Progress and results

- Last training haven’t led to success: in latent space model overfitted, in reference mode it still has artifacts. Probably this is due to noisy dataset: one domain has different colors and hair styles
- Decided to simplify the task. I chose 3 colors: blond, black and brown and find 5k nearest examples for each according to rgb values. This makes dataset much more representative and clear
- Training has become more stable. However model didn’t converge due to technical and time restrictions.

**Final LPIPS = 0.371 which is comparable with original article**

**(calculated on reconstruction task using torchmetrics library)**

# Appendix orig to ref

# Appendix cycle consistancy

# Appendix applying on my own photo

I consider my label to be “brown”

Orig

Ref

Trans-ferred

Recon-struction