

By Semina Anastasiia

NymphLens

PROMPT ENGINEERING
FOR STABLE DIFFUSION

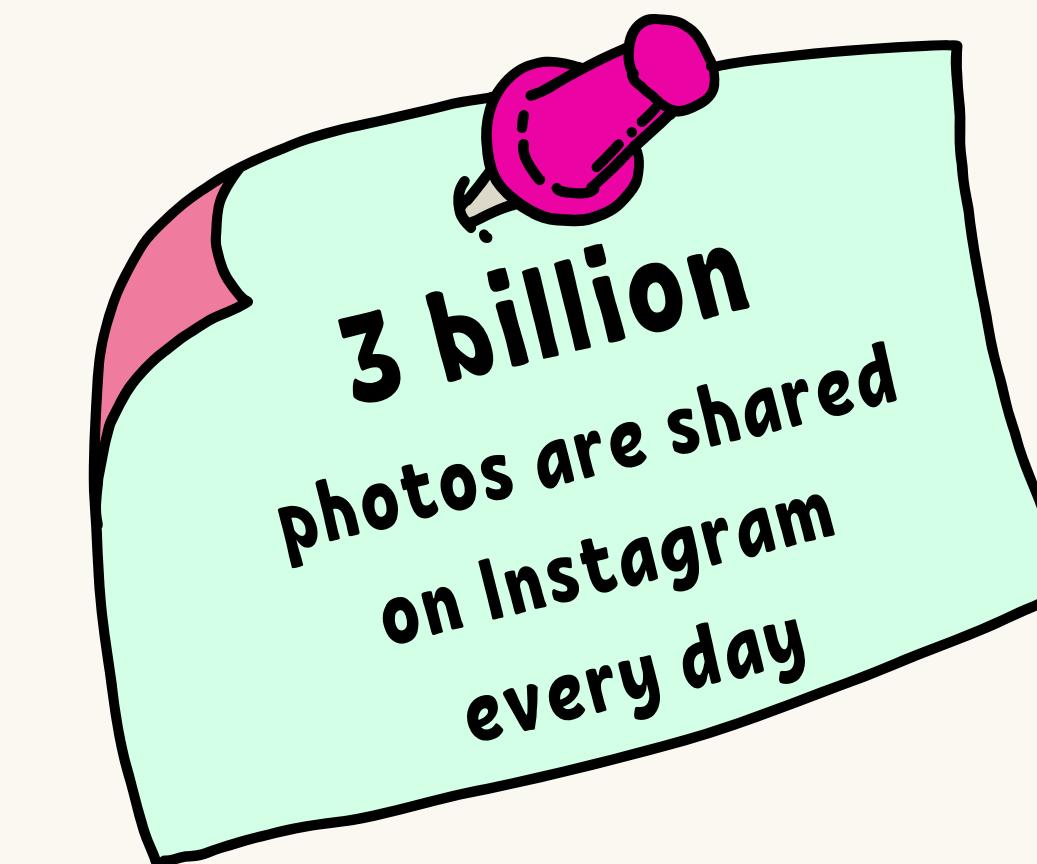


Photoshoot...
Again...



Pain point

People always need photos
for their social networks

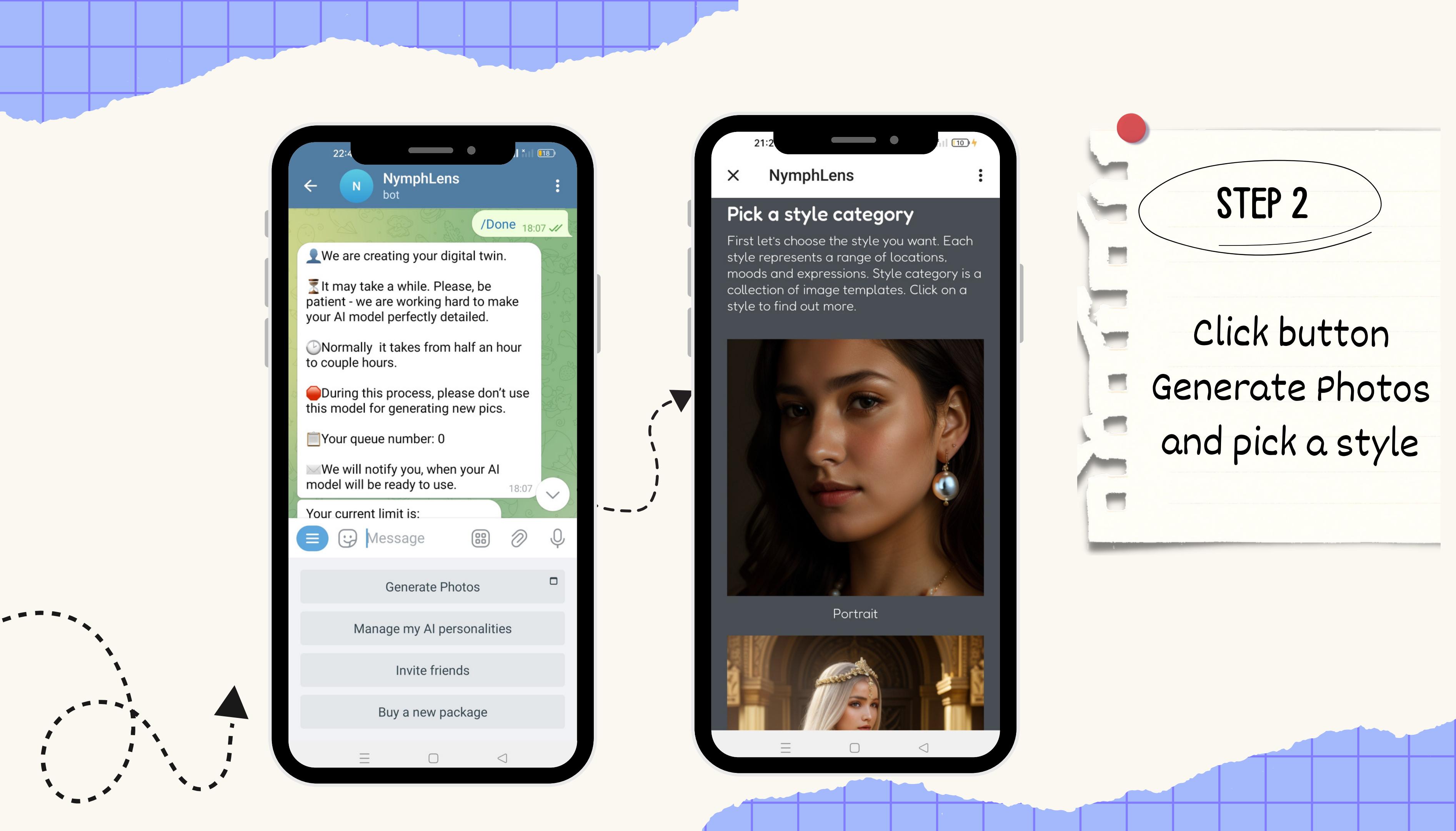


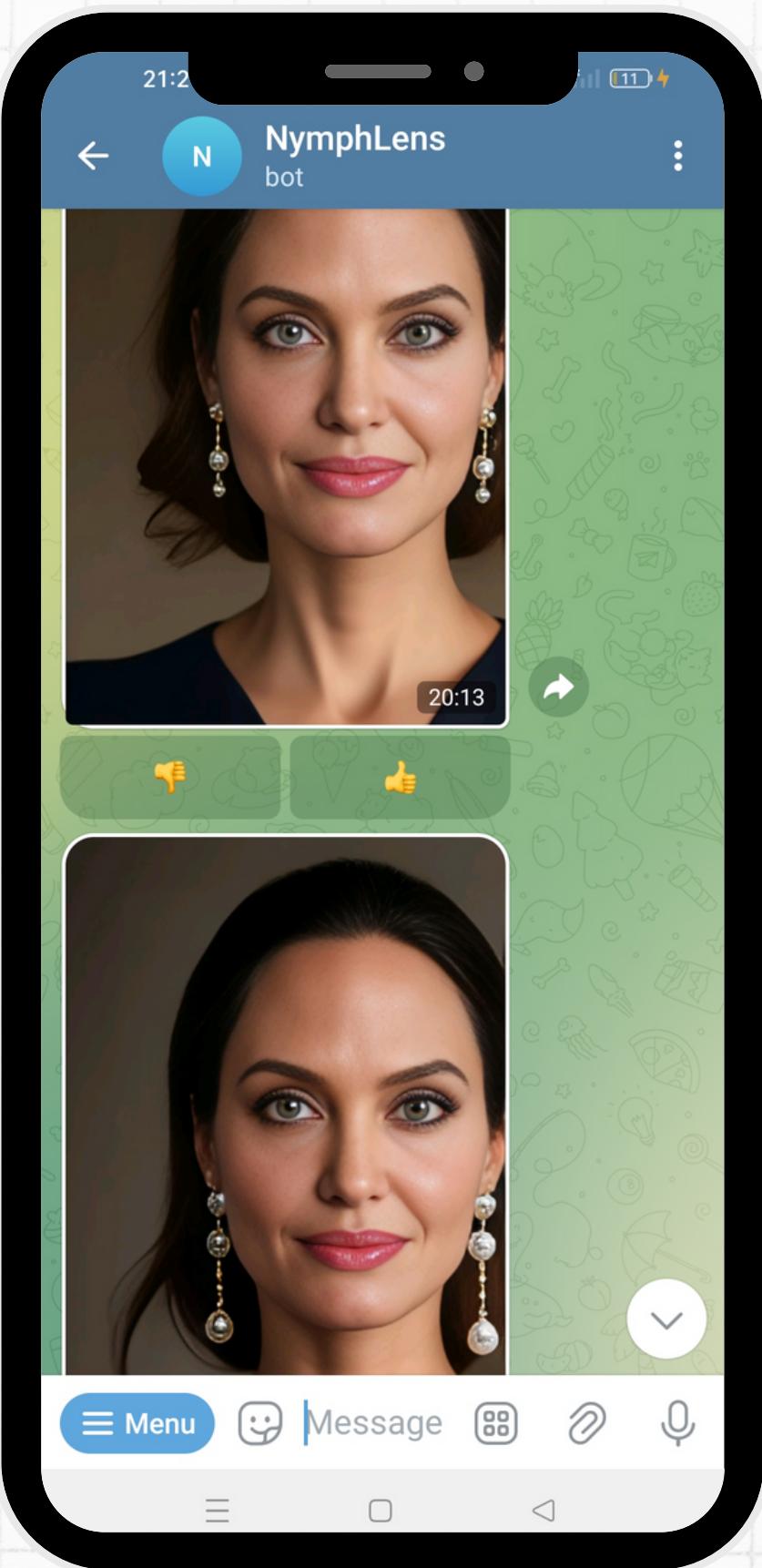
Solution



Personal photo creator -
telegram bot NymphLens

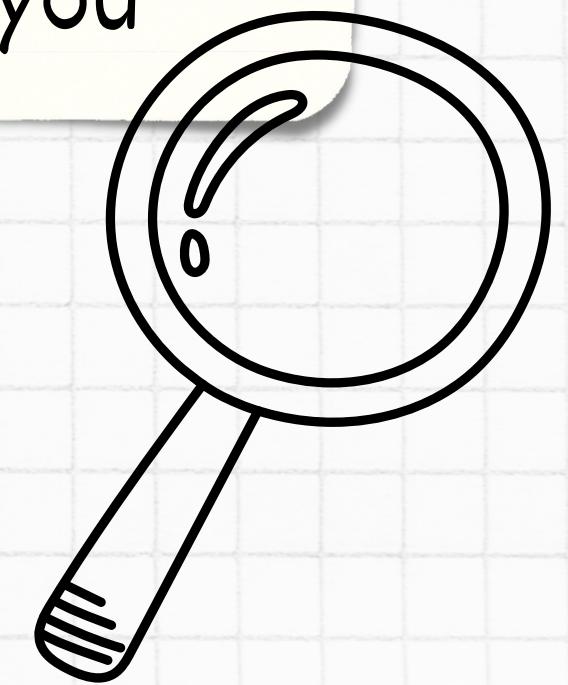






STEP 3

Choose the best
photo of you

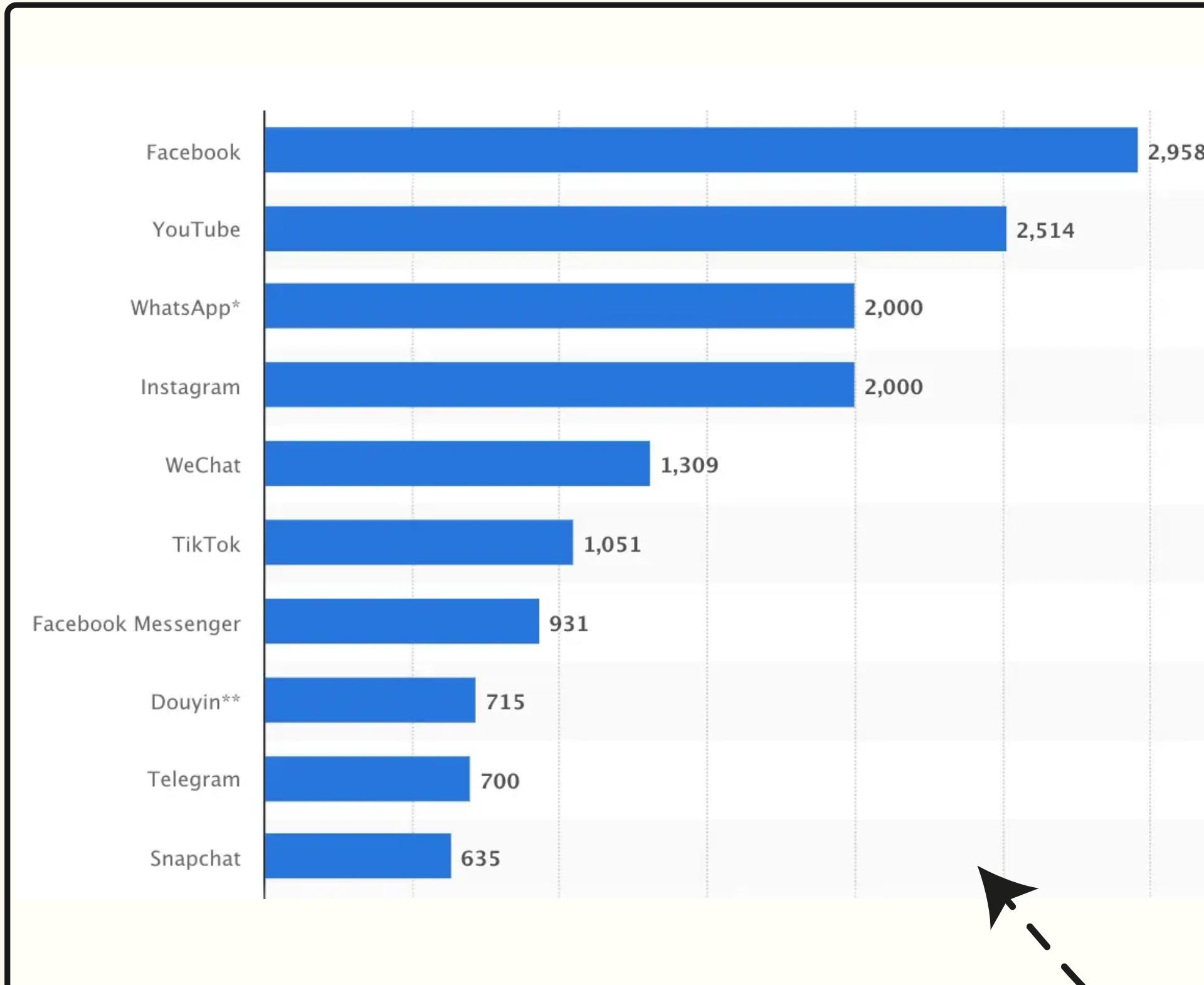


Most popular social networks worldwide as of January 2023,
ranked by the number of active users in millions



Target audience
Bloggers whose earnings
directly depend on
content and views.

There are
approximately 64
million Instagram
influencer accounts
across the globe
(TrendHero, 2023).



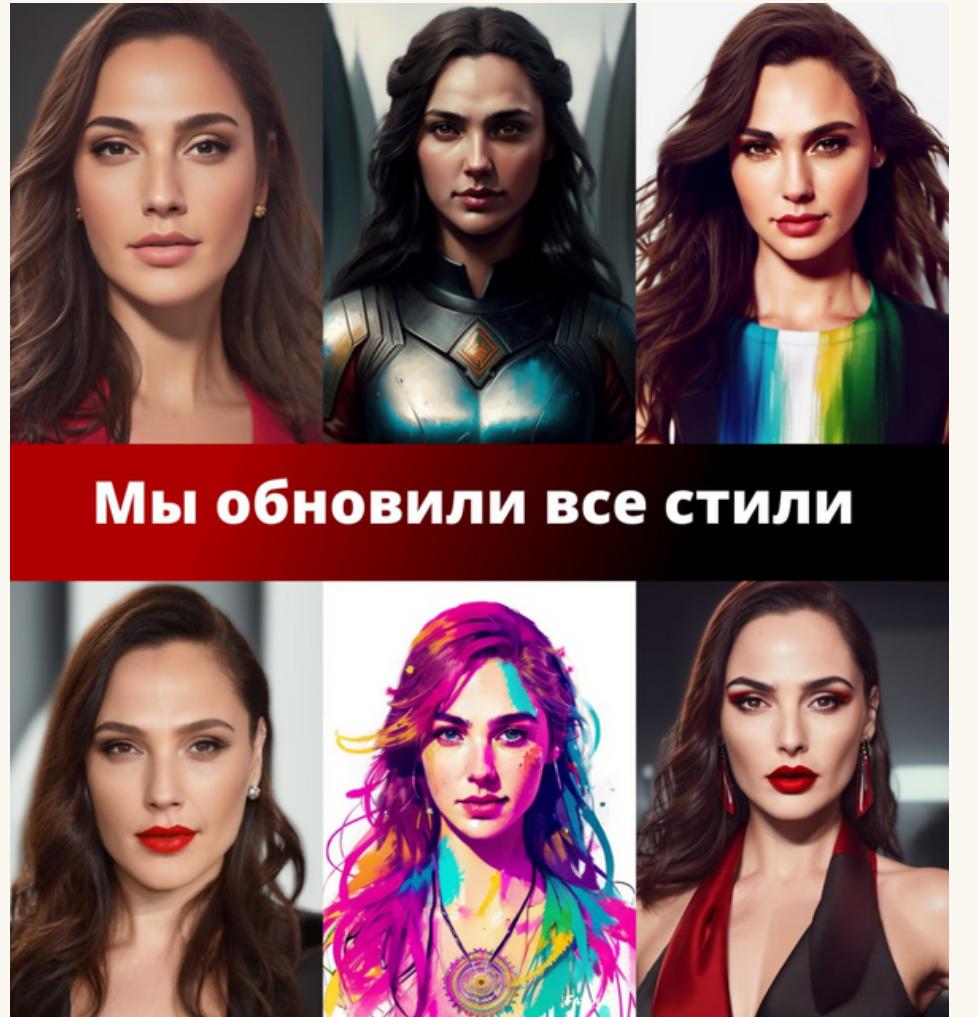
NYMPHLENS: UNIQUE SELLING POINT

- + many realistic styles
- + the generated photo is quite similar to person
- + full-body photos

Stable Diffusion WebUI

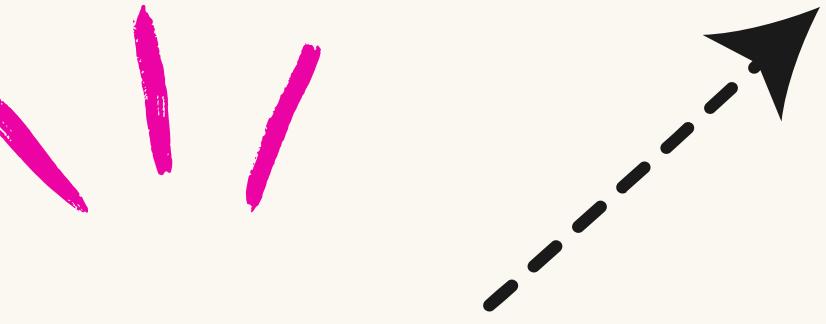
- + free
- it takes time to figure it out, download add-ons, select styles

Fabula AI

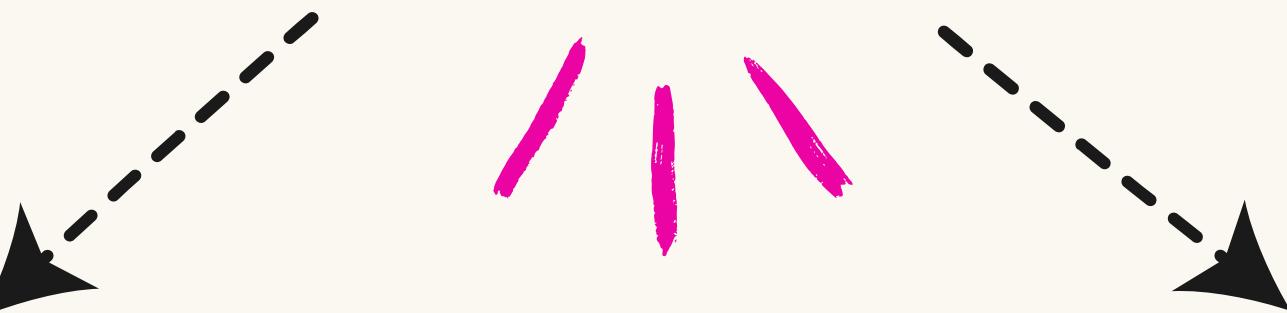
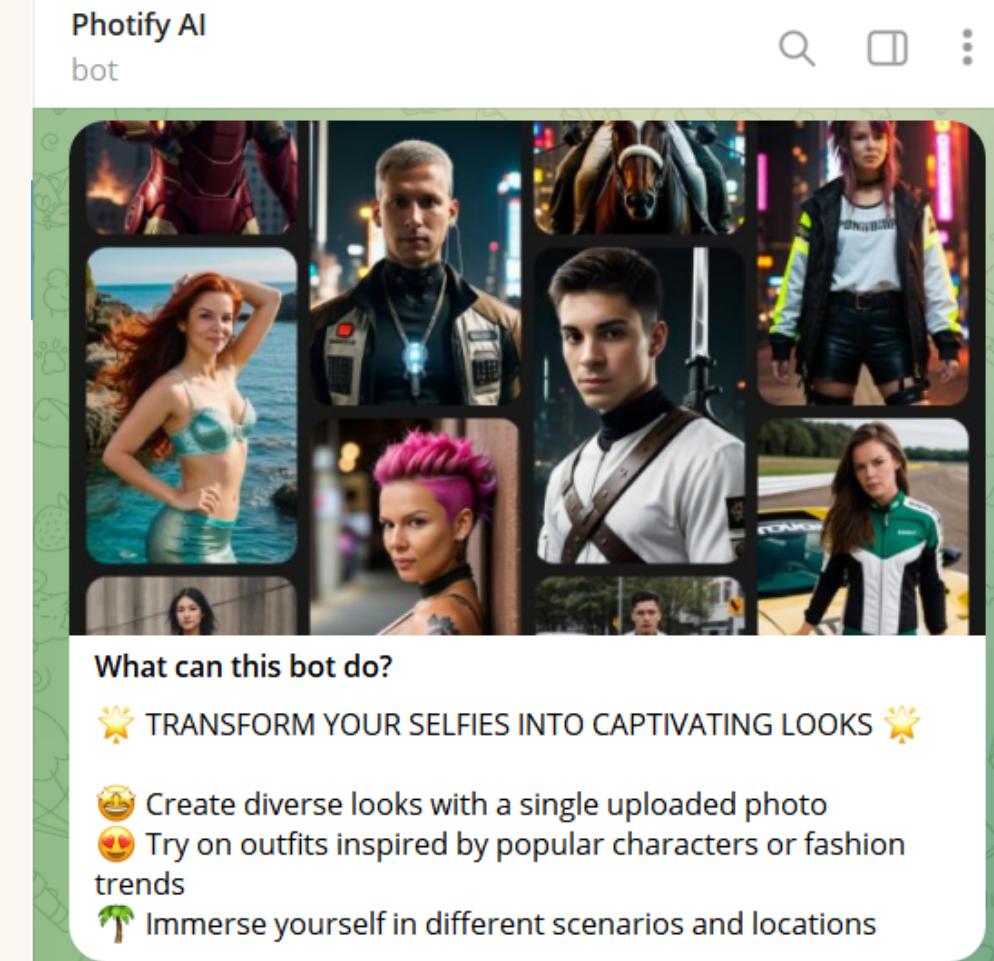


- + many styles
- + the generated photo is quite similar to person
- mostly avatars and portrait photos, no full-body photos and few realistic styles

COMPETITORS



Photify AI



- + you can set your own prompt or choose a style
- the generated photo vaguely resembles a person
- problem with fingers and hands

The team



Dmitry Shironosov
Co-founder of the
NymphLens project,
co-founder/CEO of
Everypixel Media Group,
Prompt expert



Ivan Begunov
Co-founder/CPO of the
NymphLens project,
Founder/CEO Lucky Loki



Alexander Shironosov
Head of R&D



Artem Nazarenko
Developer

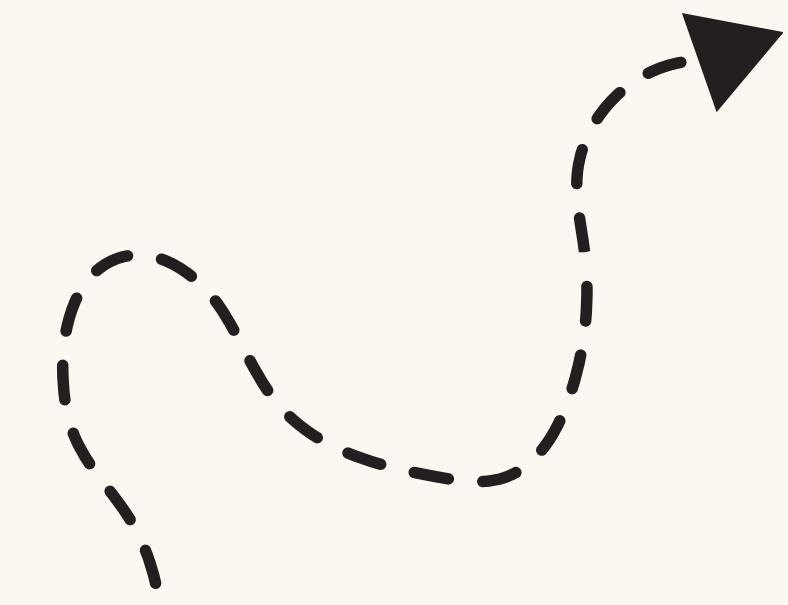
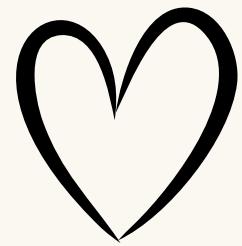


Hi! I'm Nastya!



My task

Find such prompts for styles so that photos are generated most similar to a person



Pipeline

2

Do img2img inference using a person checkpoint, a style reference picture, positive and negative prompts, and other parameters.

CFG scale (classifier-free guidance scale) or guidance scale is a parameter that controls how much the image generation process follows the text prompt. The higher the value, the more the image sticks to a given text input

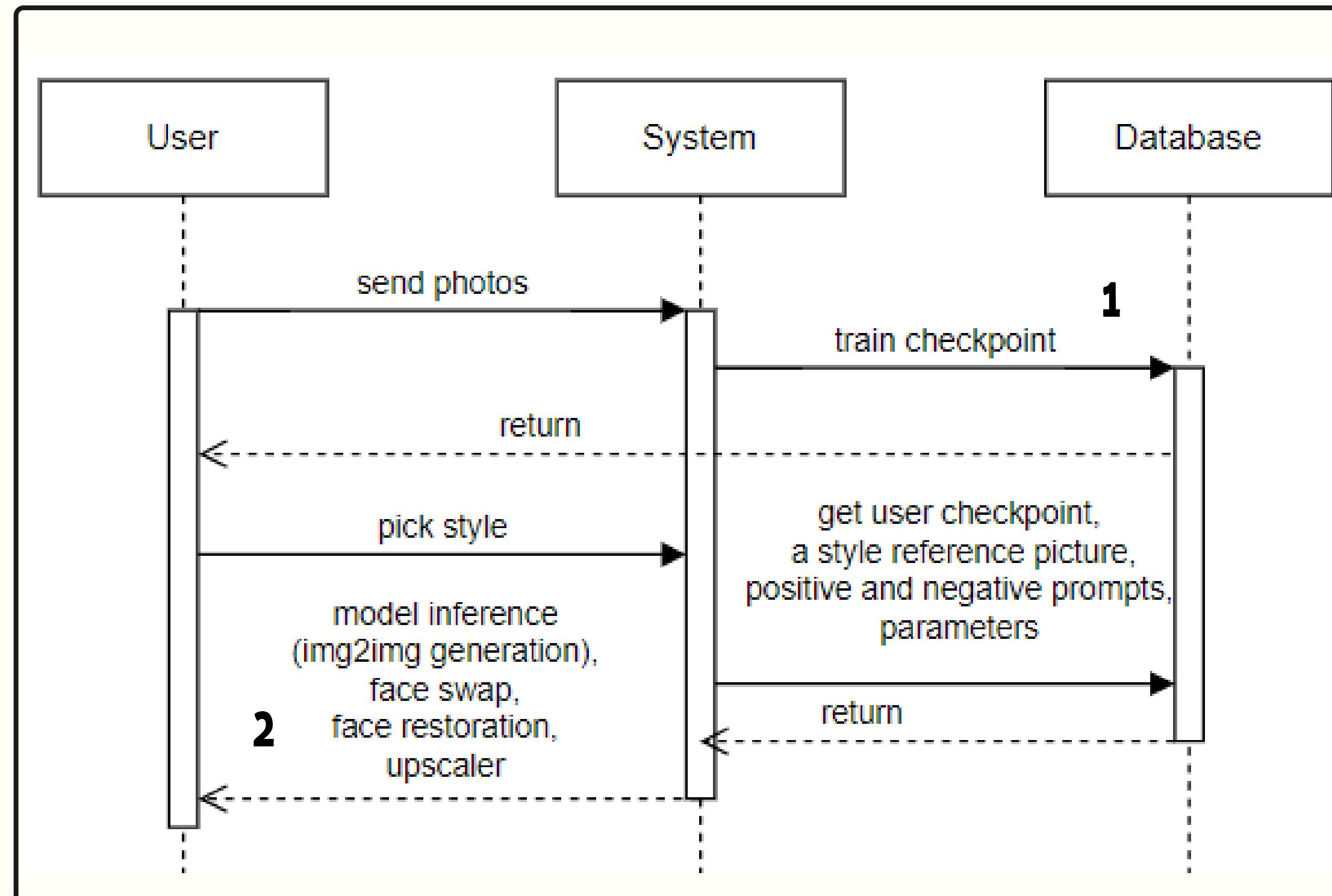
Denoising strength is a parameter that dictates the amount of noise added to the original image during the generative process.

This parameter acts as a lever, allowing creators to fine-tune the balance between retaining the essence of the original image and introducing controlled perturbations.

1

Train Stable Diffusion checkpoint on the person's photos

DreamBooth is a training technique that updates the entire diffusion model by training on just a few images of a subject or style. It works by associating a special word in the prompt with the example images.



Using Face Swap, we make a person's face more accurate



Improve picture by face restoration (GFGAN) and upscaler
GFGAN aims at developing a Practical Algorithm for Real-world Face Restoration. It leverages rich and diverse priors encapsulated in a pretrained face GAN (e.g., StyleGAN2) for blind face restoration.

Problem!

Bad images on which the model was trained. If there were any attributes, for example, glasses or a cap, then they will often be in the generated photos

Solution

Detailed instructions for choosing a photo for training

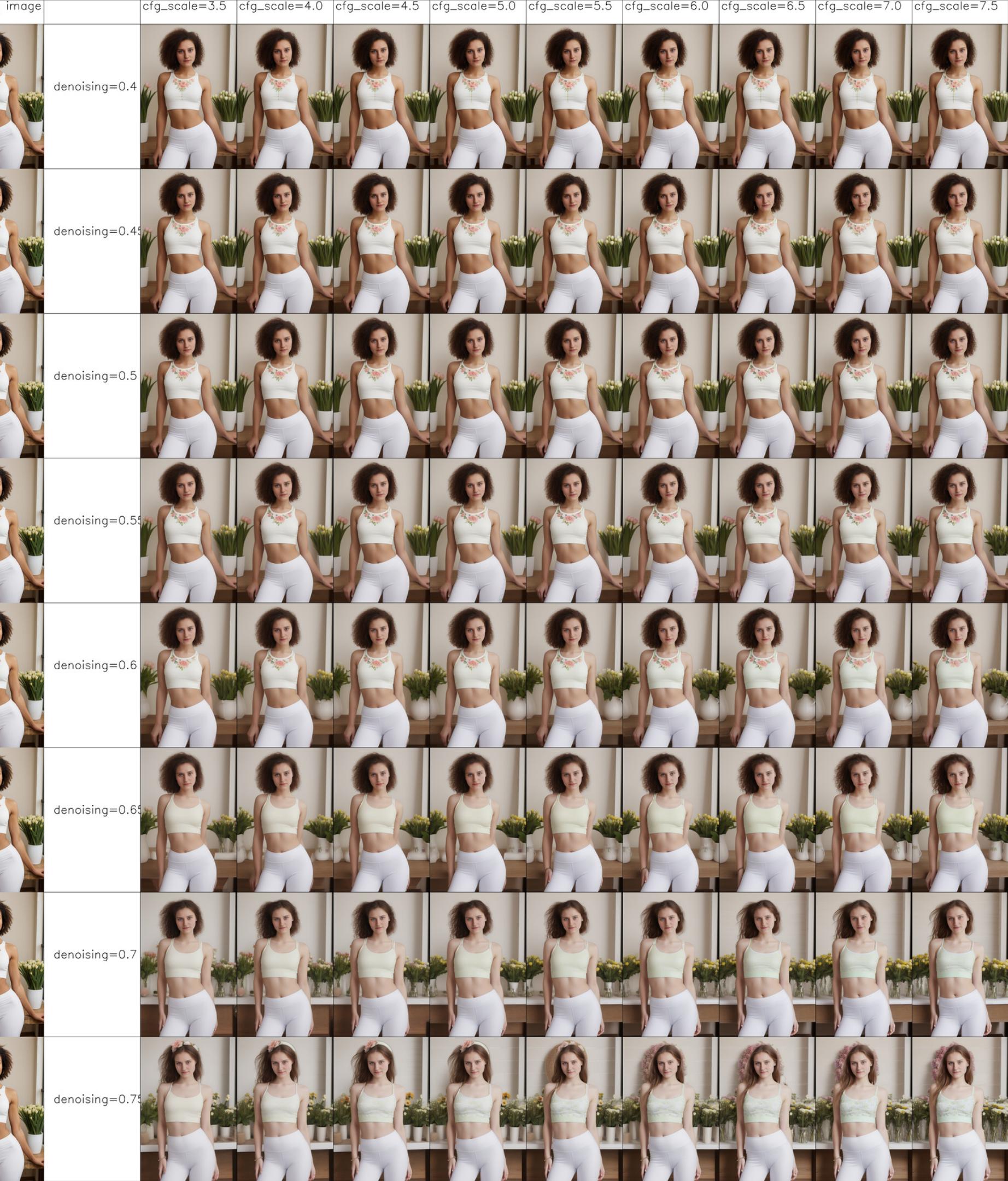


Problem!

The reference picture
greatly influences the
quality of the result.
Nationality, eye and hair
color are taken from the
reference

Solution

Selecting the right
parameters for each style



Problem!

The reference picture greatly influences the quality of the result. Nationality, eye and hair color are taken from the reference.

Bald people get hair!

Solution

Selecting the right parameters for each style

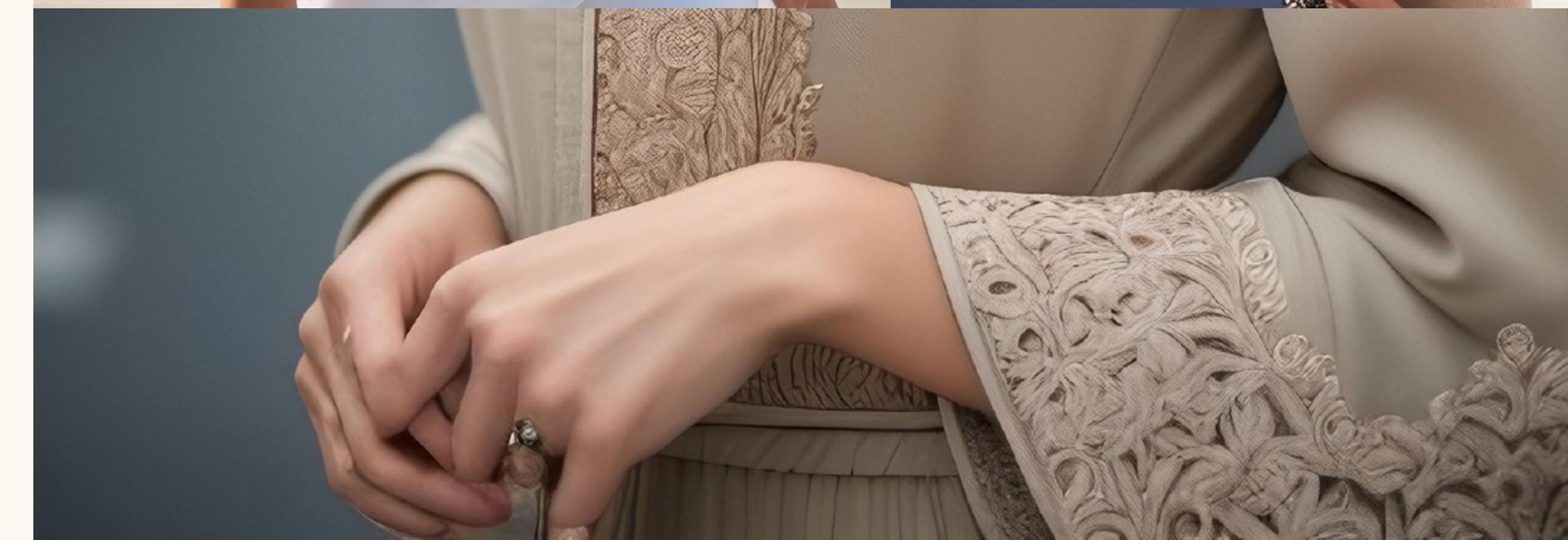
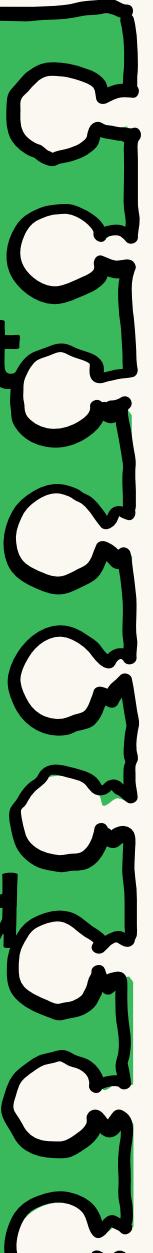
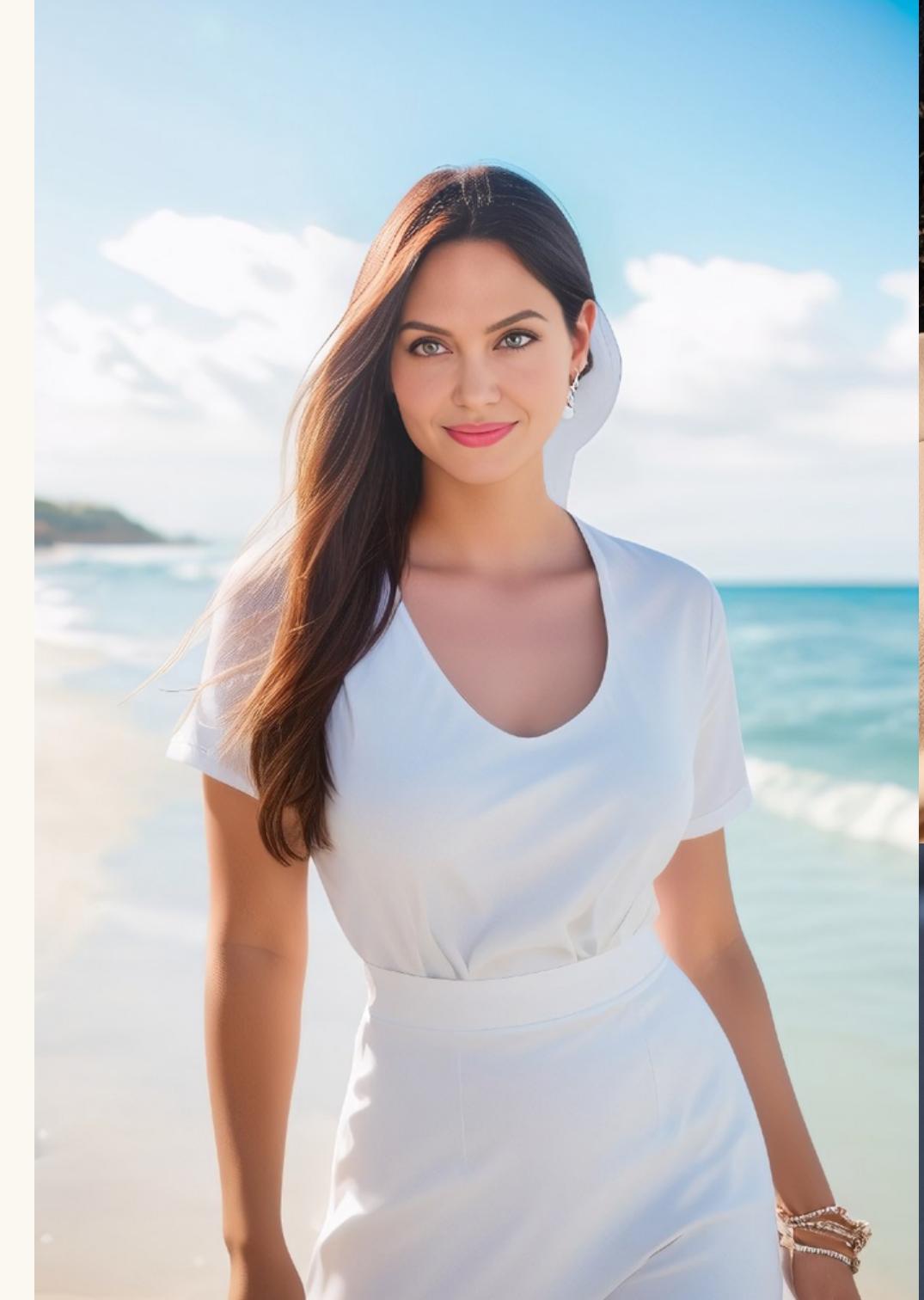


Problem!

**Stability of generation
without extra fingers,
deformities and artifacts**

Solution

**Choosing reference photos without
hands in the frame, selecting
parameters, working with prompts
("perfect hands" and other in
positive prompt and finding a good
negative prompt)**

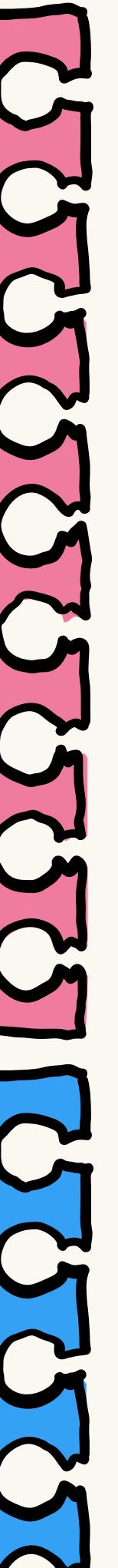


Problem!

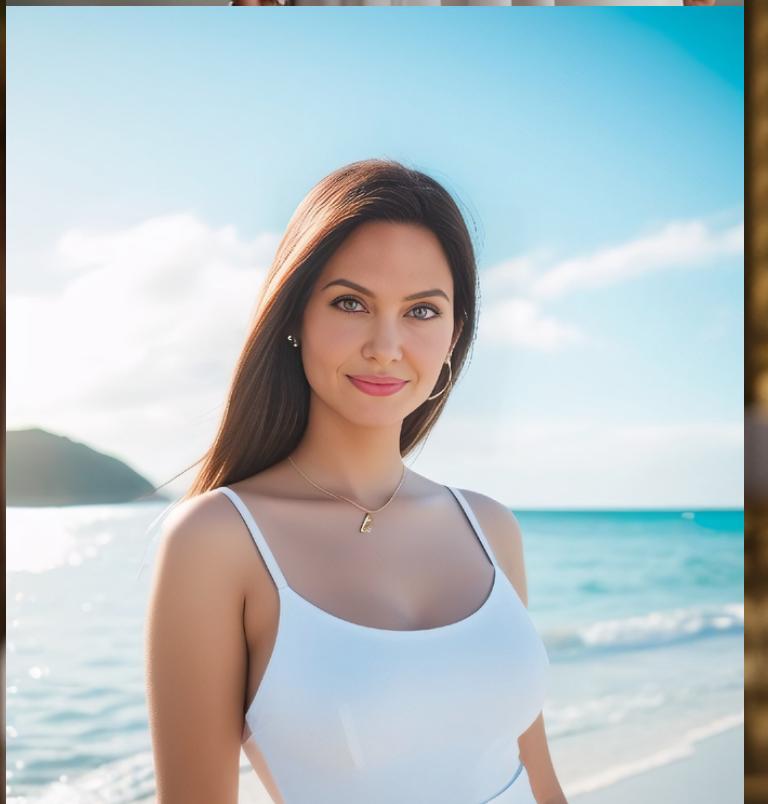
**Unnatural whites of the eyes,
body features (tattoos, skin
diseases)**

Solution

Haven't found a solution yet



Results!

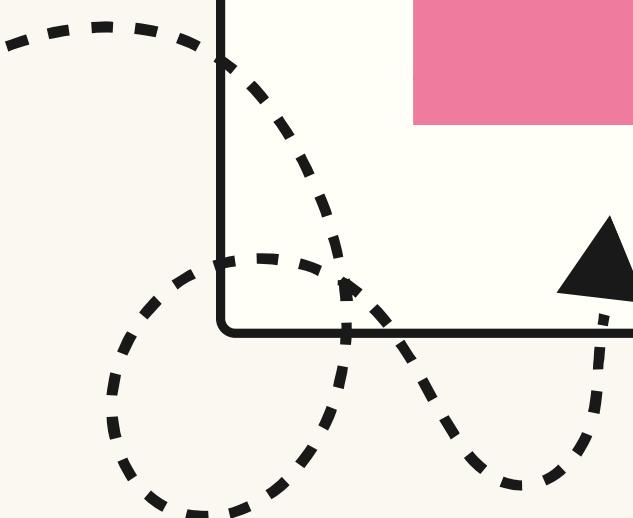


CONCLUSIONS

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A long prompt is not always good and a good one is not always long. It's convenient when you can write prompts according to a template, but short prompts often work better

••••••••••
For each specific style you need to select your own parameters and reference photo so that it works stably for any checkpoint

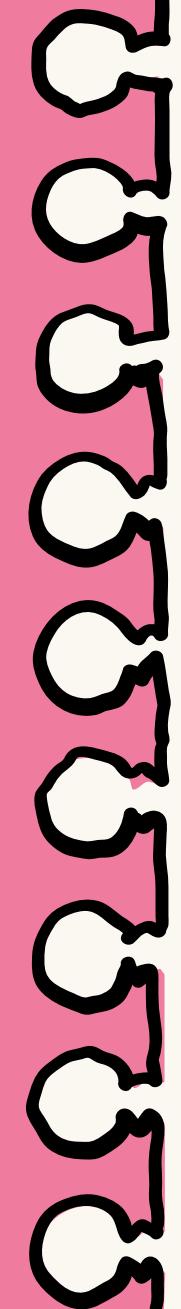
••••••••••
It's not always possible to achieve a good result with a good prompt; sometimes you need to change the model or the pipeline itself. To generate a reference it is better to choose models that generate realistic people



Next steps

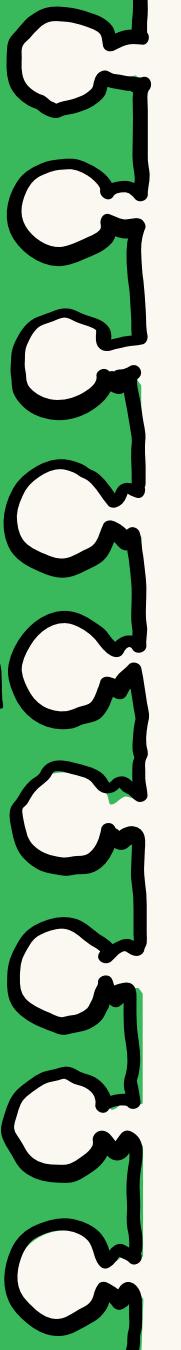
Prompts

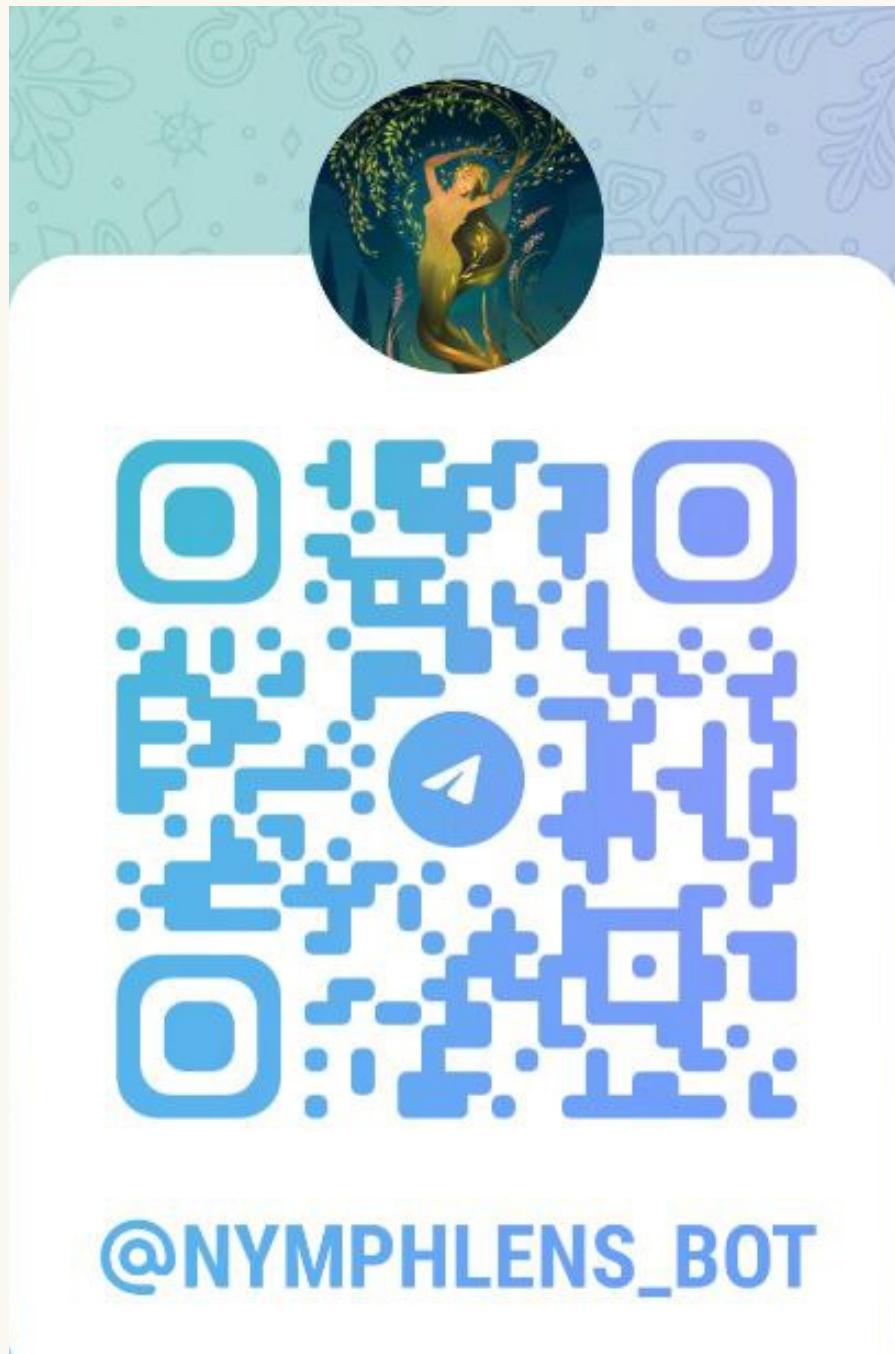
1. Finish the showcase of men's styles
2. Test styles on different people
3. Conduct research: extract prompts from the collected dataset of Instagram photos and use them as new styles



Product

1. Finish the bot: make a more intuitive and user-friendly interface
2. Choose the right prices for AI personality and photo generation and make a trial period
3. Test and collect feedback
4. Engage in marketing and promotion





THANK YOU!

