



SD Settings & Promp Engineering

Prompt engineering refers to the process of designing and creating effective prompts to support AI Modelling. An effective prompt is a clear and concise instruction that helps a model understand what you are looking for.

In this document i will detail some of the setting and prompt combinations that can help us guide the model.

Image Size

Stable diffusion was trained on images of size 512x512 pixels. So giving this size will give more consistent images. If you are trying to create portraits then a width of 512 and a height of 768 will work well.

Other than these any other sizes you give will have to be divisible by 8. This is because stable diffusion tries to produce 8x8 pieces of the art at every step.

Try not to give extremely differences between the height and width as it can result in repetition of the concepts in the image.



An Image Size of 512x1200

Also keep in mind giving high numbers might be too much for the google colab and can cause errors. If this happens, simply reduce the size and run the whole notebook again.

Guidance Scale

This is a key concept in stable diffusion. It is used to decide the level of creative freedom we are willing to give the model vs the description that we might have given. A low value will mean that the model will be less likely to follow your description and the image will turn out more abstract. And a very high value could also work against our favour as it does not build images that are more organic.

The value can be between 1 and 20.

A guidance scale of 7.5 is recommended in general.

If the prompt is very descriptive and very particular you can move upto 13 for the right balance.

Of course you can play around with this balance to create more distinct images.



Guidance Scale Of 1



Guidance Scale Of 7.5



Guidance Scale of 12



Guidance Scale of 20

Inference Steps

The training phase of the AI model consists of it continuously fine tuning itself on the sample images that we give it. The more iterations it has to train, the better the model.

Similarly when generating images we can tell the model how many times it has to fine tune the generated image so that we can get more intricacies and more quality images. High iteration steps means better quality images. Now when I say quality, I do not only mean in terms of the picture clarity but also the aesthetic of the picture itself.

This number can be between 30 to 100 for good results.

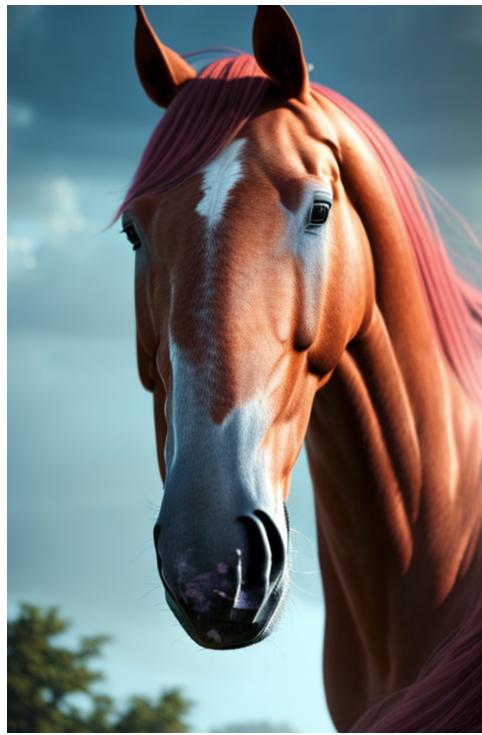
A higher number also means longer times to generate the image. So keep the number low while deciding your prompt. Then ramp it up for your final results.



Inference Steps Of 10



Inference Steps Of 30



Inference Steps Of 100

Detailed descriptions

Descriptions help the model to fill up the picture with things we describe rather than what it wants to.

With every prompt you can include details like:

- What the primary object is in detail
- What it is doing
- Where it is
- What the style of the art is
- What level of clarity is needed
- What is the camera and lighting like

With pictures of people always include prompts that describe the accuracy of the face and limbs as these tend to be the places that the model suffers from ambiguity. Add prompts like “perfectly symmetrical face, symmetrical eyes, beautiful” etc.

With pictures of places include prompts and describe what level of lighting and composition you would need. Describing the weather will also help. Add prompts like “photorealistic, cinematic lighting” etc.

With objects add prompts that describe the clarity and complexity of what you wants. For dresses give prompts like “intricate, highly detailed, complex” to generate more exorbitant patterns and styles.

With all prompts including details of clarity will always help. Examples are “ultra hd, 4k, high resolution, sharp focus, blurred background”



A girl



A portrait of a girl, symmetrical face and eyes, depth of focus, photography

PS: I have provided samples at the end of this article that you can try out to get an idea of what to use.

Negative Prompting

Negative prompting is necessary to remove unnatural objects or concepts from the artwork. There are lists of standard negative prompts that can be used with most images. You can also add concepts that you definitely don't want in your picture in the negative prompt as well.

Standard Negative Prompts That Work: black and white, two heads, far away, blurry face, wrong eyes, weird hands, extra hands, extra legs, weird eyes, disfigured face, ((cropped head)), ((out of frame)), ((long neck)), deformed, additional arms, additional legs, additional head, two heads, multiple people, group of people



No negative prompts



With negative prompts of far away, blurry face,
no hands, bad eyes,

Stylisation

Since stable diffusion is trained on different pictures from the internet, it tends to know famous references. One way to influence your work is to give names of famous styles of artwork. Well established styles like steampunk, cyberpunk, anime, vintage painting, gothic.



Anime



Painting



Game Design



Photorealistic

Famous References

You can also refer famous artists to push stable diffusion in a specific direction.



Magali Villanueva



Picasso



Da Vince



Alphonso Mucha

Example Prompts To Try

Negative Prompt: bad anatomy, extra legs, extra arms, poorly drawn face, poorly drawn hands, poorly drawn feet, fat, disfigured, out of frame, long neck, poo art, bad hands, bad art, deformed, gun, double head, flowers, asian, hyperrealistic, child

Prompt 1

The personification of the Halloween holiday in the form of a cute girl with short hair and a villain's smile, (((cute girl)))cute hats, cute cheeks, unreal engine, highly detailed, artgerm digital illustration, woo tooth, studio ghibli, deviantart, sharp focus, artstation, by Alexei Vinogradov bakery, sweets, emerald eyes

Prompt 2

Beautiful anime painting of solarpunk summer chill day, by tim okamura, victor nizovtsev, greg rutkowski, noah bradley. trending on artstation, 8k, masterpiece, graffiti

paint, fine detail, full of color, intricate detail, golden ratio

Prompt 3

store full of curious collectibles, incredible, anime, Digital 2D, animated by Kyoto Animation, Studio Ghibli, Miyazaki, AKIRA art style, beautiful, gorgeous, dramatic lighting, rule of thirds, perfect composition, trending on ArtStation, 4k

Prompt 4

full body, female paladin wearing full body (light silver armour:1. 2), By jeremy mann, by sandra chevrier, by maciej kuciara, (highest quality, Alessandro Casagrande, Greg Rutkowski, Sally Mann, concept art, 4k), (analog:1. 2), detailed face and eyes, Masterpiece, best quality, (highly detailed photo:1. 1), 8k, photorealistic

Prompt 5

a portrait of an old coal miner in 19th century, beautiful painting with highly detailed face by greg rutkowski and magali villanueve

Prompt 6

anubis, cyberpunk, beautiful painting with highly detailed face by greg rutkowski and magali villanueve

Prompt 7

portrait painting of a redhead feminine royal woman, ultra realistic, concept art, intricate details, eerie, highly detailed, photorealistic, octane render, 8 k, unreal engine. art by artgerm and greg rutkowski and alphonse mucha

Prompt 8

tarot card with intricate detailed frame around the outside, side profile of cyberpunk head with large moon in background, cyberpunk, styled in Art Nouveau, insanely detailed, embellishments , high definition, concept art, digital art, vibrant

Prompt 9

cup of hot noodles on a table, anime, Digital 2D, animated by Kyoto Animation, Studio Ghibli, Miyazaki, AKIRA art style, beautiful, gorgeous, dramatic lighting, rule of thirds, perfect composition, trending on ArtStation, 4k