

Information

Relevant information around generating AI images.

- [Software](#)
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Software

UI

Databases

Prompt Engineering

Introduction

Creating an image that matches a certain expectation is not as trivial as one might expect. The solution space of the AI model is insanely high. To limit this a well engineered prompt can be used to steer the AI in the right direction. This practice is called Prompt Engineering.

Prompt guides

- https://stable-diffusion-art.com/how-to-come-up-with-good-prompts-for-ai-image-generation/#Some_good_keywords_for_you
- <https://anakin.ai/blog/stable-diffusion-prompt-guide/>
- <https://cheatsheet.md/stable-diffusion/stable-diffusion-prompts-guide.en>
- <https://cheatsheet.md/stable-diffusion/stable-diffusion-webui-styles>
- <https://stable-diffusion-art.com/>
- <https://supagruen.github.io/StableDiffusion-CheatSheet/>

Resource references

- <https://civitai.com/>
- <https://www.mage.space/explore>
- <https://tensor.art/>
- <https://majinai.art/>
- <https://openmodeldb.info/>

Prompt perfecters

Using ChatGPT to optimize the prompt is efficient, because it is not always clear how the AI will respond to a certain prompt. There are templates available to help kickstart the prompt

perfecting via ChatGPT.

- <https://www.feedough.com/stable-diffusion-prompt-generator/>
- <https://huggingface.co/spaces/Gustavosta/MagicPrompt-Stable-Diffusion>
- <https://sd-prompt-generator.netlify.app/>

Prompt format

A good prompt exists of (most) of the following topics:

1. Subject(s)
2. Background
3. Medium
4. Artistic style
5. Lighting
6. Resolution

Subject(s)

- Description (What kind of subject is it?)
 - Professions, like: 'artist, magician, knight'
 - Clothes or accessories
 - Body features, like: 'brown hair, blue eyes'
- Action (what is the subject doing?)
 - Running, jumping, dancing, etc.
- Pose (Which pose should the subject have? Only relevant for creatures!)
 - Extract pose from built-in ControlNet and [OpenPose Editor](#).
- Location (Where in the picture should the subject be displayed?)
 - [Regional prompting](#) can be used to indicate a sub region in the picture.
- Orientation (From which direction should the subject be displayed?)
 - Use camera angle descriptions, like: 'low angle'
- Distance (From which distance should the subject be displayed?)
 - Use camera shot descriptions, like: 'medium shot'
 - Use length units, like: 'viewed from 100 meters'

Background

The background gives the total setting in which the picture is presented.

- Seasons (Winter, Spring, Summer, Fall)
- Nature (mountains, beach, hills, grass, desert)
- Human-made environments (hotel, restaurant, road, city)

Medium

The medium is the type of picture, like: illustration, oil painting, 3D rendering, digital art and photography.

Artistic style

The style refers to the artistic style of the image, like: impressionist, surrealist, pop art. The names of famous artists can help. Use the SDXL Styles Editor for quickly selecting a preset.

Lighting

The type of lighting is important, because it has a large impact on the emotional value of a picture, like: studio lighting, warm light, crepuscular rays, rim lighting.

Resolution

Resolution represents how sharp and detailed the image is, like: highly detailed, sharp focus, 8K, HD.

Workflow

High level workflow

1. Figure out and write down the following specifications for the digital art project:
 1. Source of inspiration (Bible, images, movies, other art, etc.)
 2. Topic
 3. Context
 4. Theme
 5. Style
 6. Composition
 7. Subjects
 8. Background
2. Create one or more (digital) sketches on how the global picture should look like.
3. Separate the individual objects in the sketch in layers (e.g. in Krita or GIMP).
4. Create a good prompt for each object (including negative prompts)
5. Work from the back to the front (so start with the background).
6. Use txt2img and ControlNet (lineart or softedge) to generate the background image, based on the background sketch.
7. Use img2img Inpainting-tab for the farthest object
8. Repeat up to the last object that is located at the front.
9. Clean up interactions between objects using img2img Inpainting-tab.
10. Clean up incorrect details (e.g. hands, eyes etc.) using img2img Inpainting-tab.
11. Use img2img to create a more coherent image by playing with the denoising strength.
12. Inspect the high resolution image for visible defects. **NOTE:** Inpainting can only be done up to 2048 x 2048 pixels!
13. Use ControlNet Tile Upscaling method to get to a high resolution image. (Example: <https://www.youtube.com/watch?v=yv4J4orS-SY>)
14. Use Photo editing software (e.g. Krita, GIMP or Lightroom) to enhance the colors etc. and check print in the final color space.
15. Create an A4 info page for the picture
 1. Explain in compact form the topic and context by referencing the sources and own inspiration.
 2. Generate some nice background and details, similar to the picture.

SD-Web-UI Forge workflow

To get as close to the imagined concept and as efficiently as possible, the following workflow is proposed:

1. Database selection:
 1. Checkpoint selection: Each model is trained for specific output. Use the right one! (Multiple can be combined)
 2. Add additional LoRa or LyCORIS files to improve specific features (download at: <https://civitai.com/models>)
2. Prompt creation:
 1. Use prompt perfector to get to a good descriptive prompt
 2. Use CLIP Interrogator to retrieve a prompt from an example image that can be used to get detailed prompts for specific features
 3. Use a fixed seed, in order to same results for the same prompt.
3. Choose settings:
 1. Choose proper sampling method. Each method has it's own benefits and downsides.
 2. Use relative low resolution, but at the desired aspect ratio. Exact resolution is depending on the used database models (e.g. 512x512, 768x768, 1024x1024 px).
4. Image generation:
 1. Iterate the prompt until the concept is mainly displayed.
5. Finalize the details:
 1. Move to the img2img tab to use inpainting to improve certain aspects
6. Upscale image:
 1. Move to Extras tab and set higher resolution and iterations. Fine-tune the prompt until all details are correct.
7. Save image and save prompt & settings.