- STABLE DIFFUSION -

SENIOR PROJECT I

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URL of the Project Web Page
- https://furkanozelge.github.io/seniorstedu/

What is Stable Diffusion?

A text-to-image model using deep learning is called Stable Diffusion. Although it can be used for various tasks including inpainting, outpainting, and creating image-to-image translations directed by text prompts, its primary usage is to generate detailed visuals conditioned on text descriptions.

ARCHITECTURE

Diagram of the latent diffusion architecture used by Stable Diffusion.
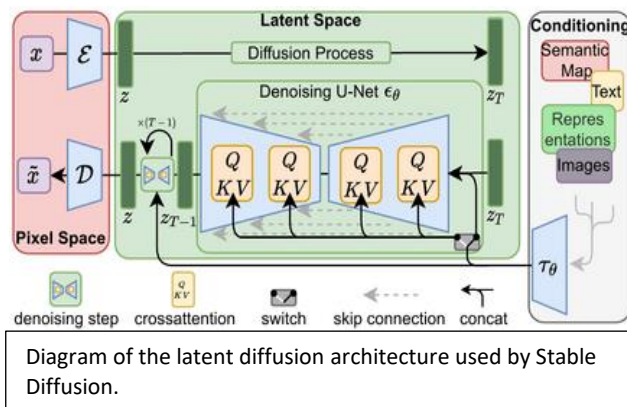
A type of diffusion model is stable diffusion. The purpose of training diffusion models is to eliminate Gaussian noise that has been applied repeatedly to training images. An autoencoder is learned to convert images into a lower-dimensional latent space rather than learning to denoise image data (in "pixel space"). This latent representation is subjected to the addition and subtraction of noise, and the denoised result is ultimately decoded into pixel space. A U-Net architecture completes each denoising stage. Reduced computing demands for training and generation are cited by the researchers as a benefit of LDMs.

IMAGE MODIFICATION

A second sampling script called "img2img" is included in Stable Diffusion. It takes a text prompt, a path to an existing image, and a strength value between 0.0 and 1.0. It then outputs a new image based on the original image that also contains the elements from the text prompt. The strength value indicates how much noise is added to the output image; a higher value produces images with more variation, but they might not be semantically consistent with the prompt provided.

WHAT WILL WE DO

We will create an application & tool that uses deep learning and artificial intelligence, which creates a design idea for the use of designers by using stable diffusion together with a model of pre-trained open-source data. While doing this, we will work on adding various features by going beyond what has been done. Stable Diffusion will reveal very creative ideas and images for designers. In this way, we will give designers a new perspective.

a photograph of an astronaut riding a horse
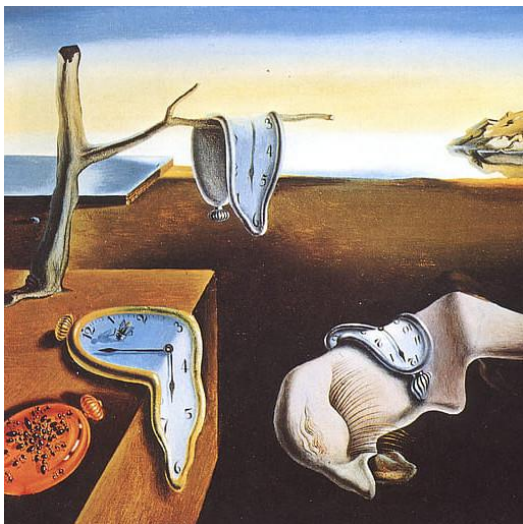
modern apple watches with colorful hd displays in a surrealist style

Beautiful digital matte pastel paint sunflowers poppies chillwave greg rutkowski artstation