APMA 2070/ENGN 2912 Deep Learning for Scientists and Engineers
Homework extra credit
Due Date: 04-30-2023, 11:59 pm (E.T.)

Turn yourself in Pixar Character using diffusion AI or GAN

If you want to be the next Woody, the next Buzz Lightyear, Lightning McQueen, or turn your fish into the next Nemo, stable Diffusion AI or GAN can achieve it. This latent text-to-image diffusion model can turn yourself into any Pixar character's look with just a simple text prompt. For example see Prof. Karniadakis in PIXAR avatar.

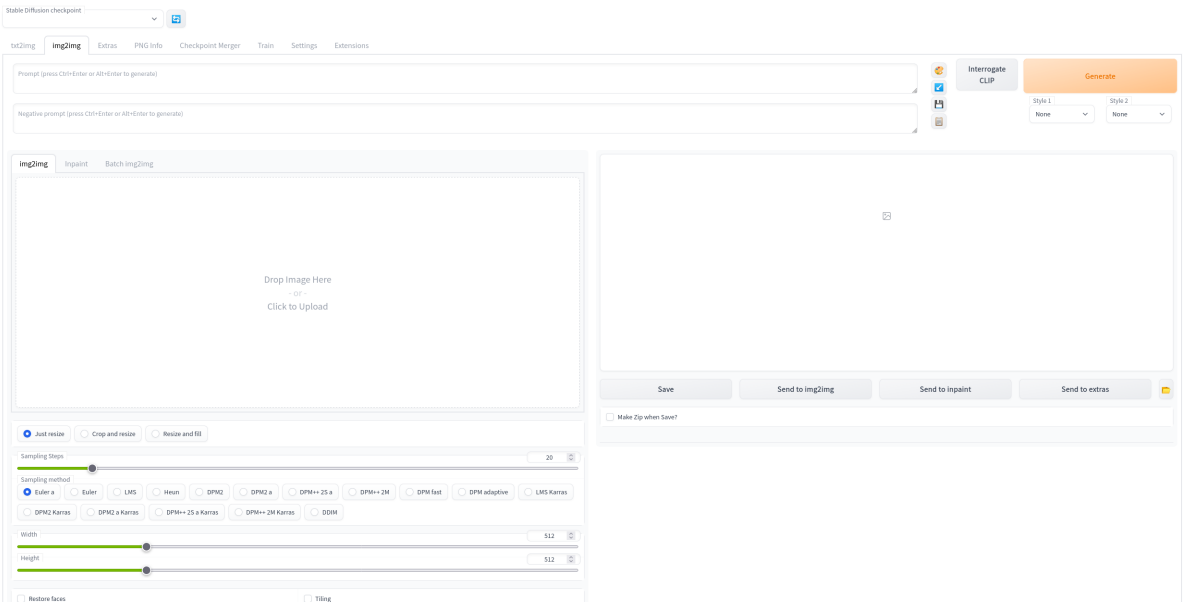
1 Instructions for Diffusion model

what will you need

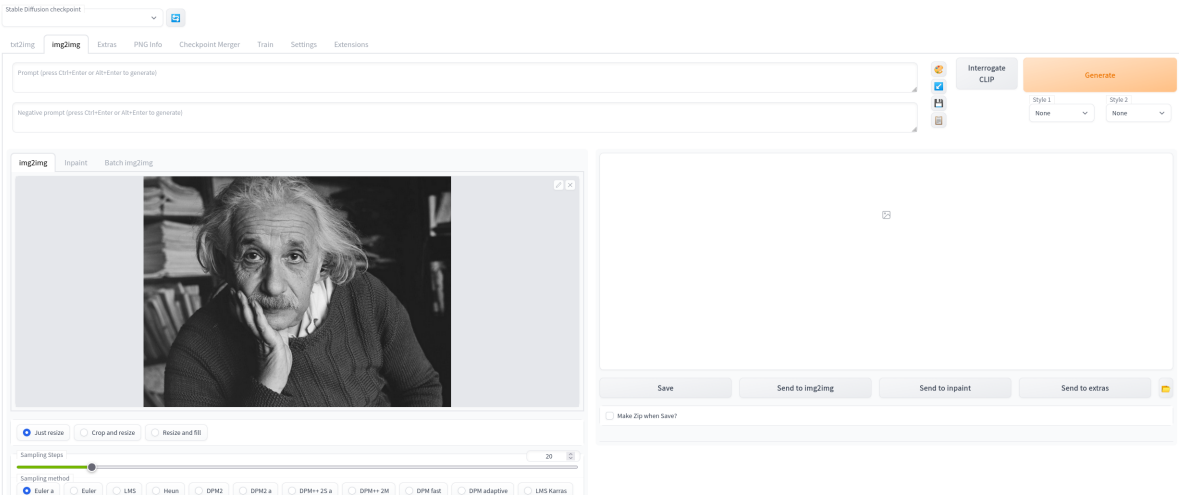
- CPU or GPU
- Stable Diffusion Web UI — Download from link
- Stable Diffusion v1.5 checkpoint file — Download from Hugging Face Download *v1-5-pruned-emaonly.ckpt* model
- A portrait photo of you

Set up the environment

- Extract the downloaded Stable Diffusion project file to your local disk.
- Rename the checkpoint file to “model.ckpt" and paste it inside the models Stable-diffusion folder for windows and for unix based system use models/Stable-diffusion
- Finally, double-click the “webui-user.bat” file in cmd for windows and for unix based system go to the folder and type *./webui.sh*
- Above command will print a local url e.g., for my case it printed http://127.0.0.1:7860. Copy this URL and paste in the browser. and it will show following interface

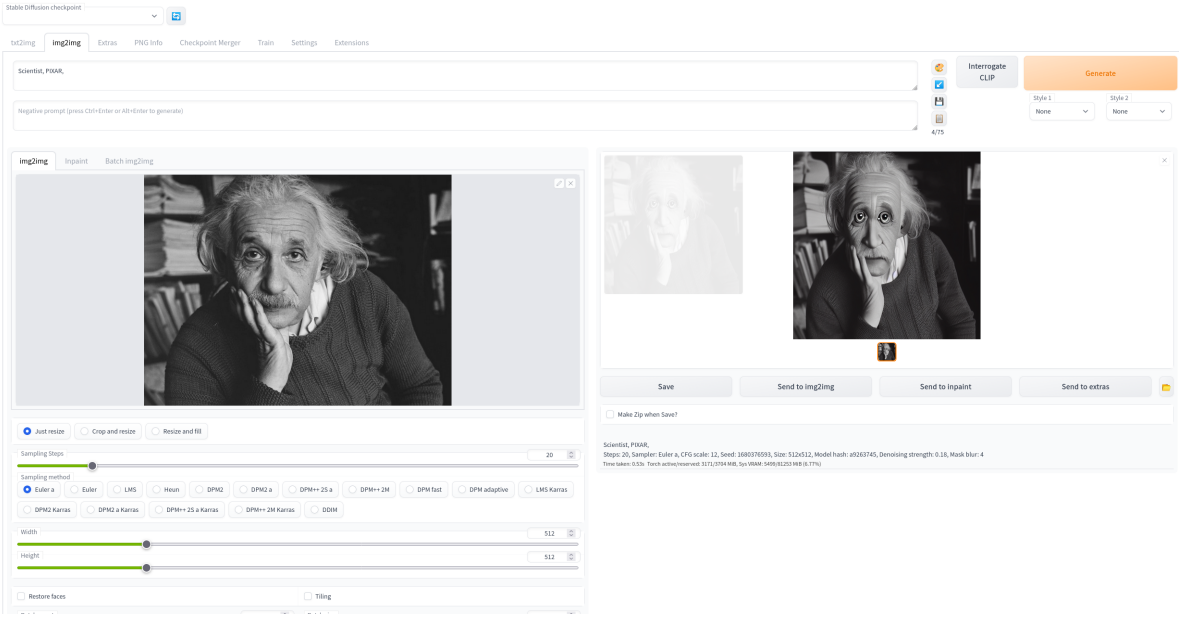


- Drag your portrait in the left big panel, which will look like



- Now fill in text in the provided box like I typed Scientis, PIXAR etc. Please see the following image

- Now play with denoising and CFG (Classifier Free Guidance) scales. Increasing the Denoising value creates a result that looks less like the reference image. The higher the CFG scale, the more strictly the AI is instructed to follow the instructions in your prompt.
- After setting up CFG and Denoising scale press generate image button and You will have PIXAR character of your.



2 Instruction for GAN

You can use the instructions given on this link for AvatarGAN

3 A general note

To complete the homework you can choose any one of the methods.