

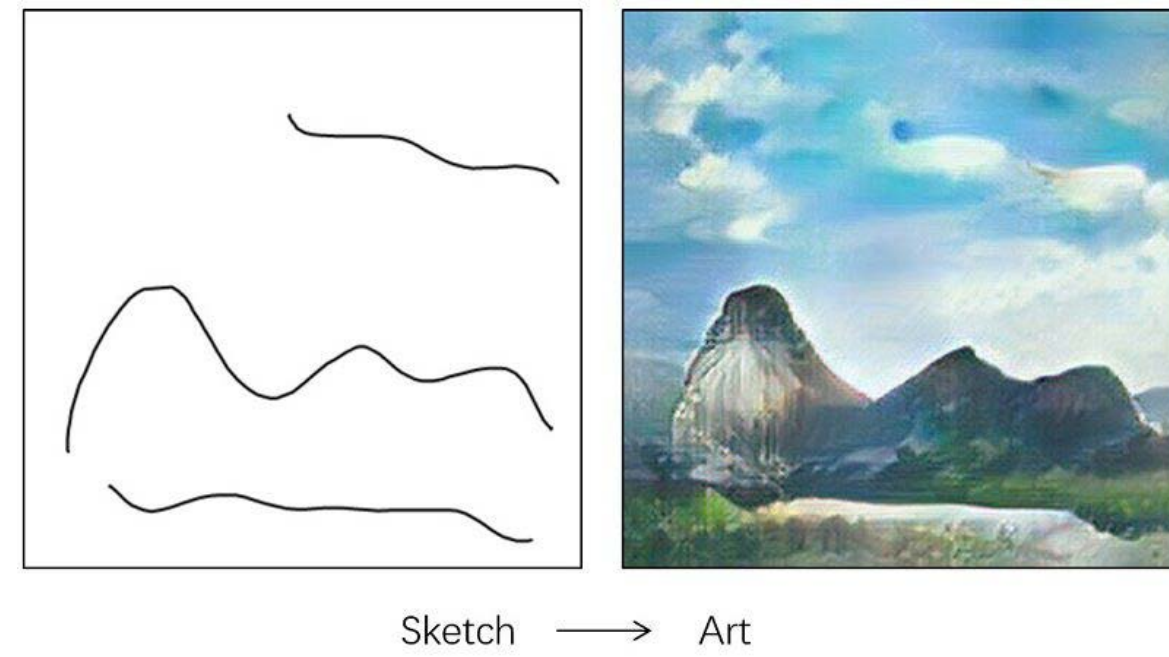
# Artistic Image Generation from Sketch

DIP201803

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## # Introduction

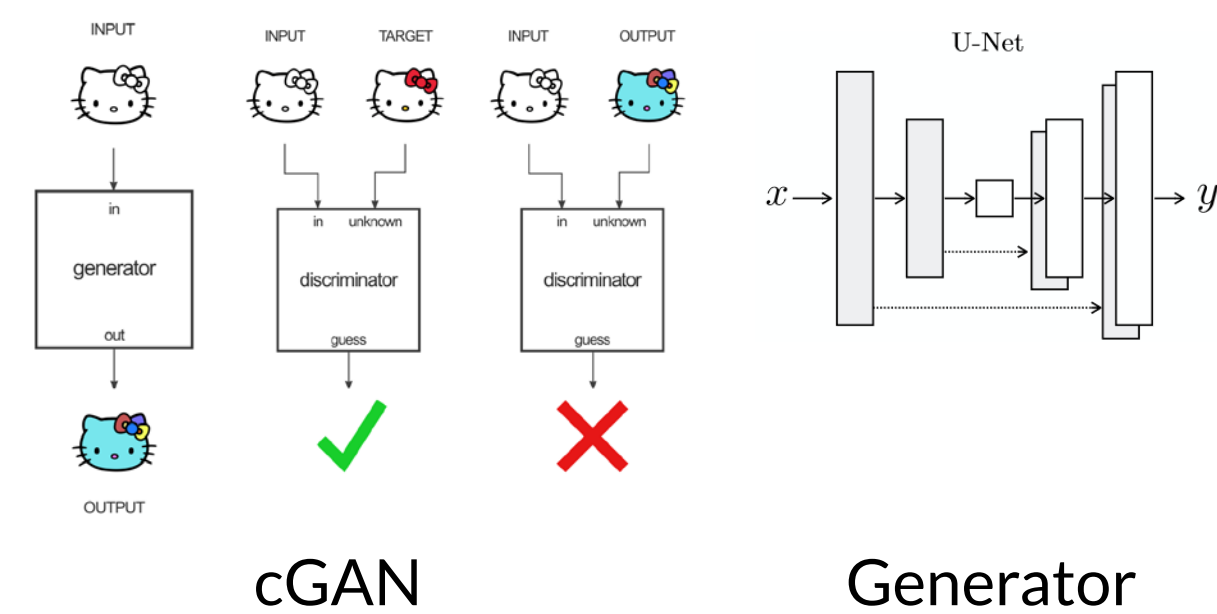


This project helps turn your casual sketches into beautiful artwork automatically.

## # Related Work

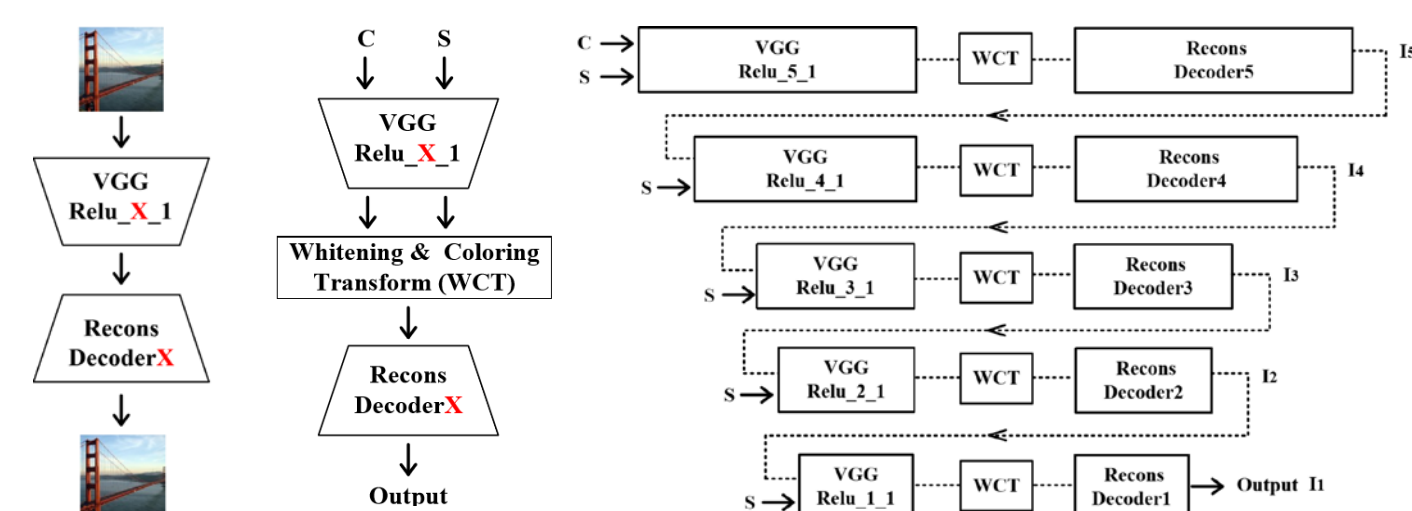
### Image-to-Image Translation

$$G^* = \arg \min_G \max_D \mathcal{L}_{cGAN}(G, D) + \lambda \mathcal{L}_{L1}(G) \quad \text{Objective function}$$



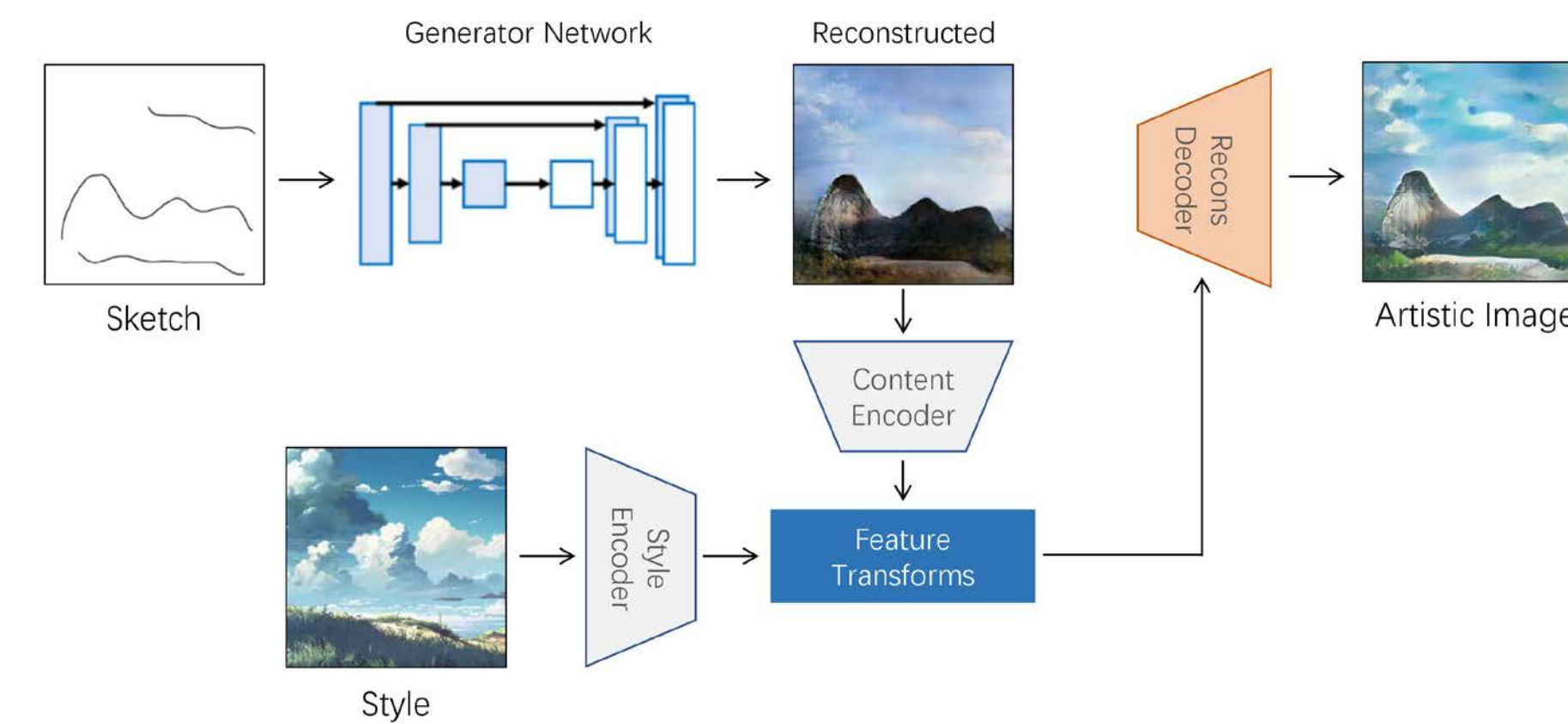
### Style Transform

In our method, style transfer is formulated by an image reconstruction process coupled with whitening and coloring transformation.



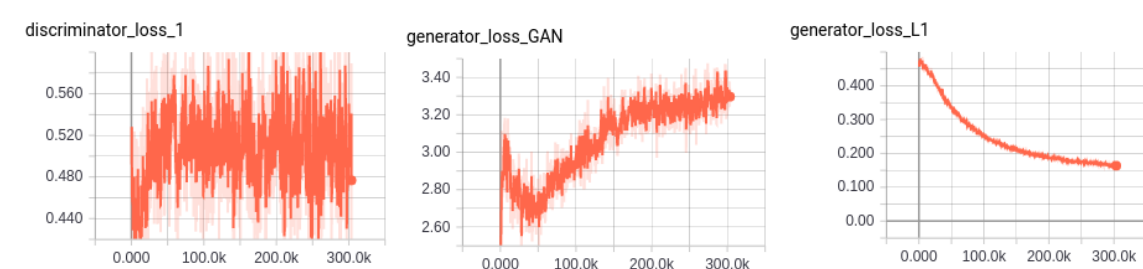
Multi-level stylization

## # Architecture



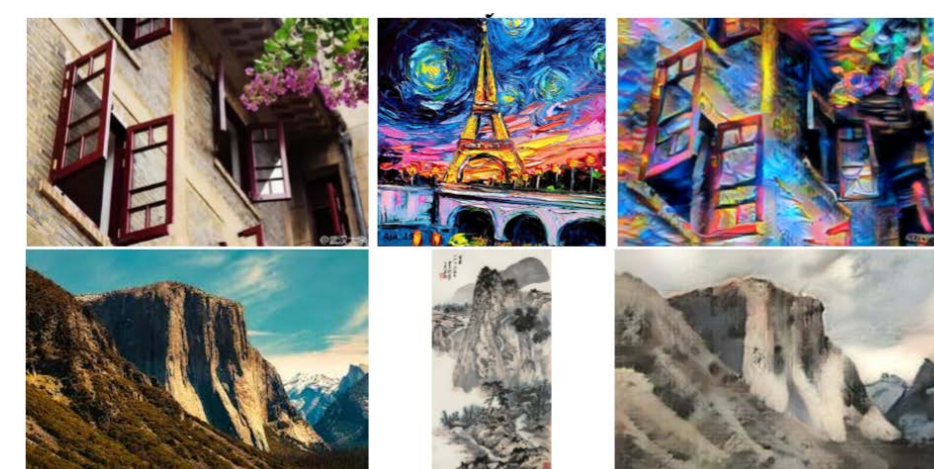
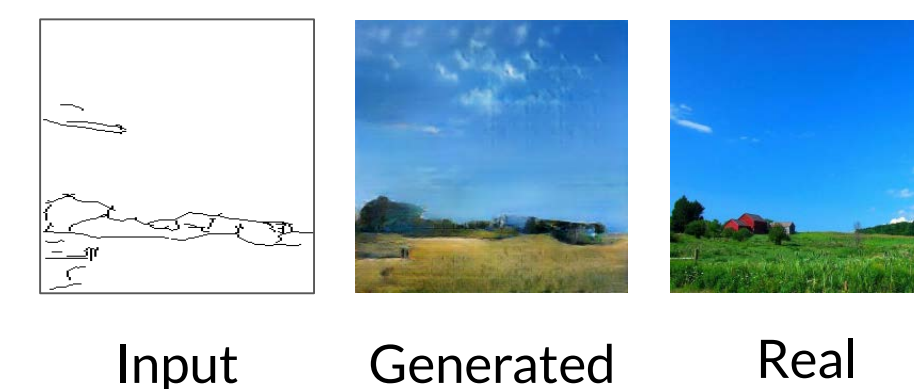
Our method contains mainly two steps:  
(1) Generate realistic image using cGAN.  
(2) Stylize the output with arbitrary style.

## # Experiments



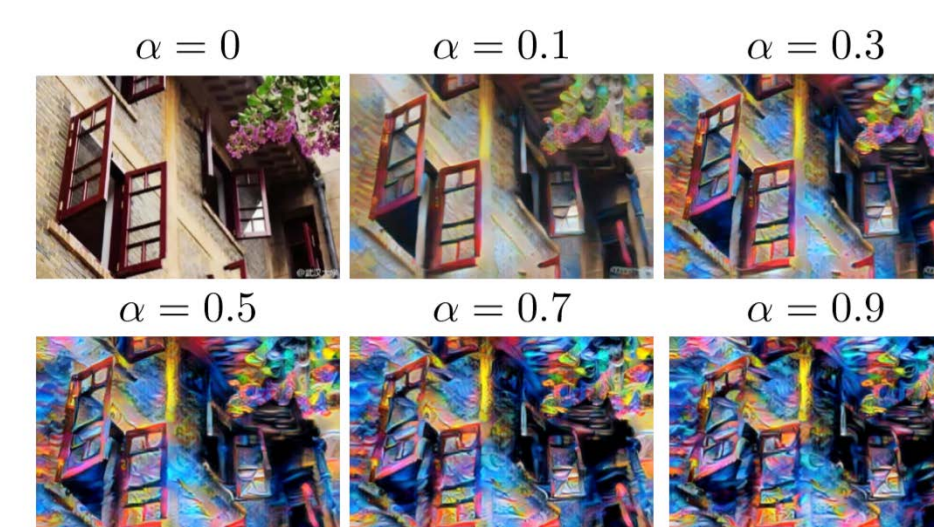
Train a cGAN using landscape pictures

Testing the cGAN model after 400 epochs

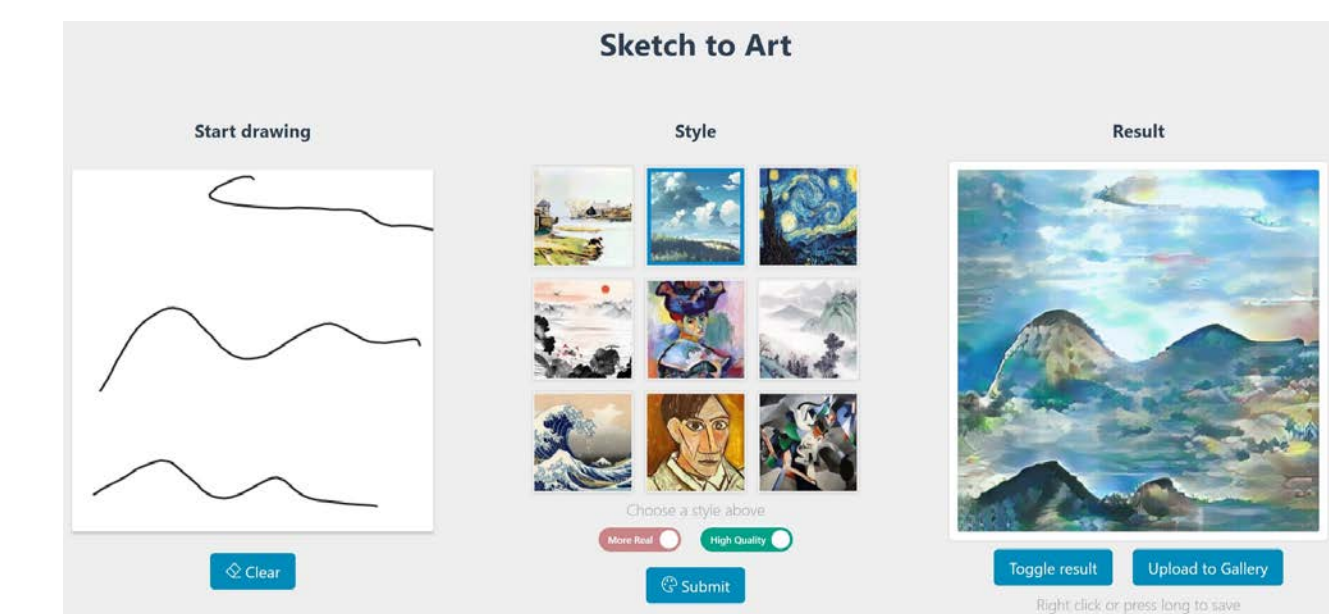
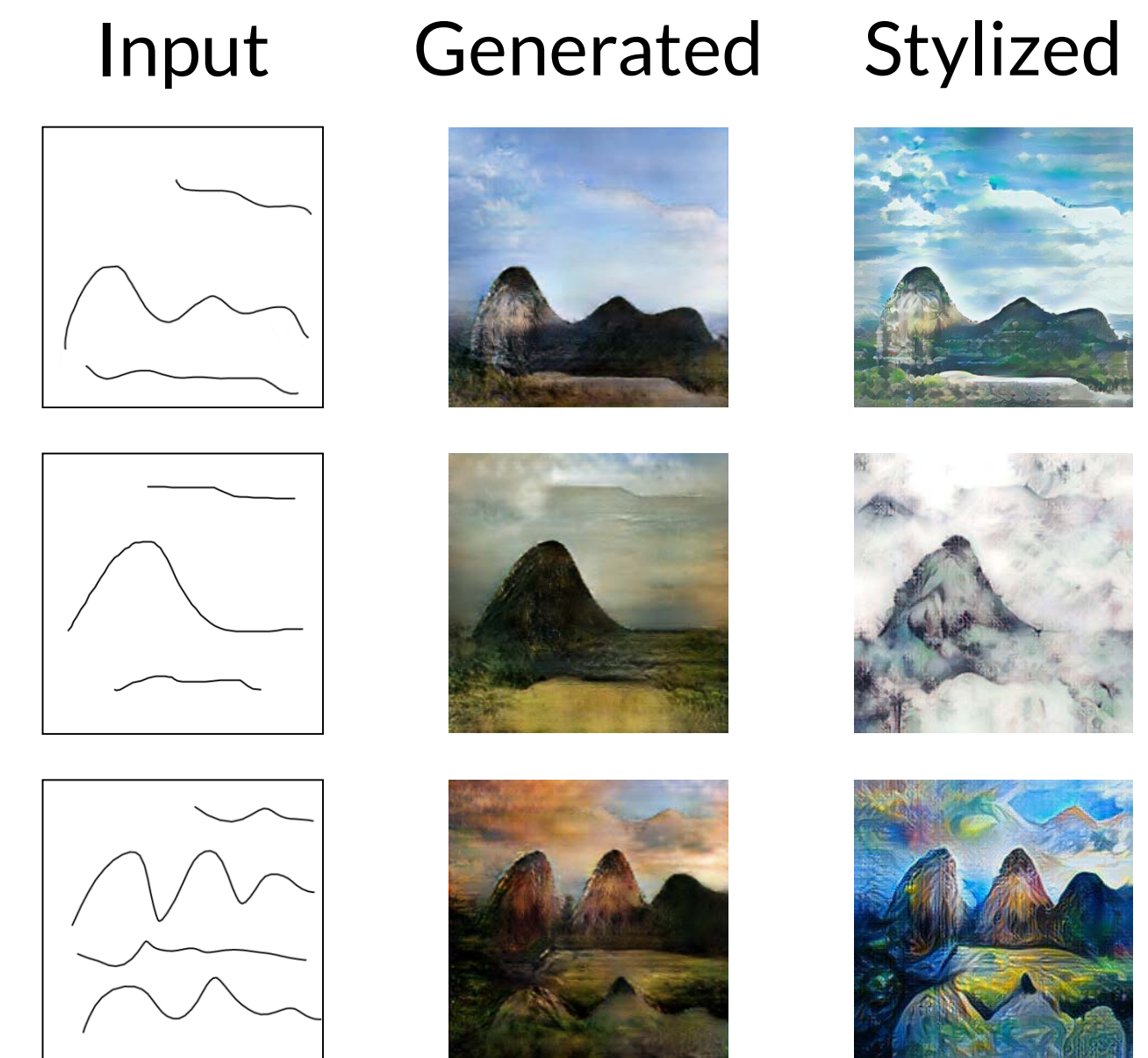


Arbitrary style transfer using pretrained model

Apply different  $\alpha$  to the model



## # Results



Online Application



## # Conclusion

In this project, we propose a novel way to generate artistic picture from casual sketch. Instead of training an end-to-end generative adversarial network, we first reconstruct realistic image from sketch using a trained conditional adversarial network (cGAN). To overcome the defects and noise of the previously generated image, we perform arbitrary style transfer afterwards. Therefore, we could obtain beautiful stylized artistic image. According to our experimental tests, our work could produce high quality artwork from casual sketch effectively.

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