CNN

Later methods convert the problem from computing the global optimization to implemented forward network to approaching the optimization.

The original one have to iterate for each input content image, while the later two would train the forward network at first, then use it deal with input image and directly get the styled output。

Hello everyone, we are glad to present our achievement in image style transfer field.

In 2015, several Germen researchers came up with the idea of transferring a photograph into a specific artwork style image with CNN.

They wrote a paper of it, which comes as the first of related work. I will call it basic paper for convenience. Based on it, people developed many new methods.

We implemented the basic paper as the criteria in term of having a comparing sample when evaluating our own method. I want to emphasize higher layer tends to capture general information likes object's outline, while lower layer concern about the color and details. ~~Here we realized it with TensorFlow and VGG~~. ~~I have a image to make the explanation more straight-forward.~~

The network has content image ,style image and a white noise image. The gradient of error back-propagation is used to iteratively update the white noise image till it simultaneously matches both input features.

Here are the results. According to it, iteration round decides the

quality. ~~Since we trained the whole network with specific photograph and artwork, whenever input are changed, we have to carry on a new train process.~~

To improve the efficiency while generating visually-appealing image, we have four potential paths and we focus on the fourth point: Applying different feature extraction methods, pre-processing the image and the scaling feature up to improve the overall quality.