deeplearning.ai

Neural Style Transfer

Content cost function

Content cost function

$$J(G) = \alpha J_{content}(C, G) + \beta J_{style}(S, G)$$

Usually l is chosen to be somewhere between in the middle of the layers of the neural network, neither too shallow nor too deep.

- Say you use hidden layer l to compute content cost.
- Use pre-trained ConvNet. (E.g., VGG network)
- Let $a^{[l](C)}$ and $a^{[l](G)}$ be the activation of layer l on the images
- If $a^{[l](C)}$ and $a^{[l](G)}$ are similar, both images have similar content

$$J_{content}(C, G) = \frac{1}{2} \| a^{[l](C)} - a^{[l](G)} \|^2$$

normalization constant

element-wise difference

[Gatys et al., 2015. A neural algorithm of artistic style]