



deeplearning.ai

Neural Style Transfer

Cost function

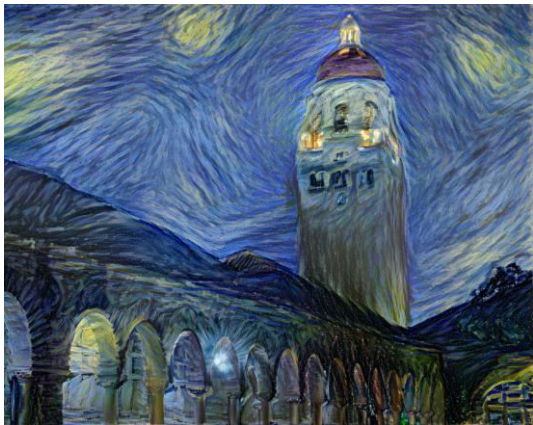
Neural style transfer cost function



Content C



Style S



Generated image G

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

α, β = hyper params

J_{content} = cost component of content
Image wrt Generated Image

(How similar is the content to the generated Image)

J_{style} = cost component of style
Image wrt. Generated Image

(How similar is the style Image to the generated Image)

Find the generated image G

1. Initiate G randomly

$G: 100 \times 100 \times 3$

2. Use gradient descent to minimize $J(G)$

$$G = G - \frac{\partial J(G)}{\partial G}$$

As a result, we're updating the
pixel values of the Generated Image

