



deeplearning.ai

Neural Style Transfer

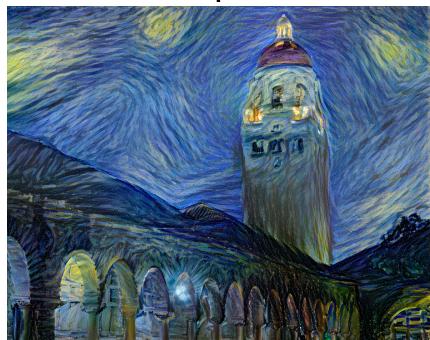
Cost function

Neural style transfer cost function



Content C

Style S



Generated image G

$$J(G) = \alpha J_{\text{Content}}(C, G)$$

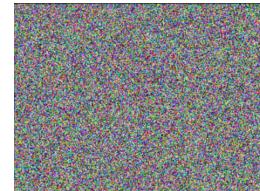
$$+ \beta J_{\text{Style}}(S, G)$$

[Gatys et al., 2015. A neural algorithm of artistic style. Images on slide generated by Justin Johnson] Andrew Ng

Find the generated image G

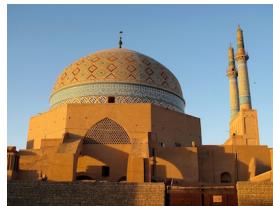
1. Initiate G randomly

$$G: \underbrace{100 \times 100}_{\text{RGB}} \times 3$$



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

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



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

Andrew Ng