



deeplearning.ai

# Neural Style Transfer

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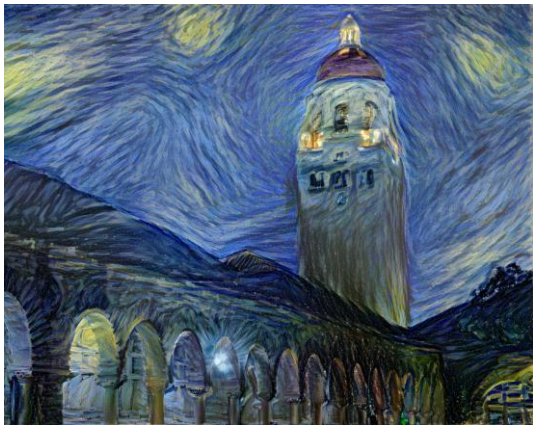
## Cost function

# Neural style transfer cost function



Content C

Style S



Generated image G

$$\mathcal{J}(G) = \alpha \mathcal{J}_{\text{Content}}(C, G) + \beta \mathcal{J}_{\text{Style}}(S, G)$$

# Find the generated image $G$

1. Initiate  $G$  randomly

$G: \underline{100} \times \underline{100} \times \underline{3}$   
                                  ↑  
                                  RGB

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

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

