



deeplearning.ai

# Neural Style Transfer

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## Cost function

# Neural style transfer cost function



Content C



Style S



Generated image G

$$\mathcal{J}(G) = \alpha \mathcal{J}_{\text{content}}(\overset{\text{C}}{\underset{\text{G}}{\text{C, G}}})$$

$$+ \beta \mathcal{J}_{\text{style}}(\overset{\text{S}}{\underset{\text{G}}{\text{S, G}}})$$

Find the generated image  $G$

- ## 1. Initiate $G$ randomly

G: 100 × 100 × 3

↑  
RGB

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

$$G := G - \frac{d}{2G} J(G)$$

