+ <u>what is it ?</u>

Transfering a style onto a picture

Conten --> Style => Generates
C   S   G

+ <u>What are deep Convo Nets learning</u>

(Deeper / Shallow layers) visealization
From edges, To complex.

+ <u>Cost Function</u>

C + S = G

=> $J(G)$ => will measure how good a generated
    image is

we will use gradient descent. To minjze/generate
the image.

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

+ Content Cost Function

- Say you one hidden layer l to compute content cost

- Use pre-Trained Conv-Net

- 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 a similar content.

+ Style cost Function

A style matrix is used.

height, width

Let $a^{[l]}_{ijk} = $ activation at (i,j,k) in $n_H^{[l]}, n_W^{[l]}, n_C^{[l]}$

channel

Cost function:

$$J_{style}(S,G) = \sum_{l} \lambda^{[l]} J_{style}^{[l]}(S,G)$$

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

+ 1D and 3D generalizations

Must data in in 2D