**Image Style Transfer using VGG Neural Network**

**Abstract**

Image style transfer is a deep learning technique for blending the content of one image with the style of another. The output is a new image with the same content as the original content image, but with the style of the style image. This can be achieved by using neural networks to separate and recombine the content and style features of the images.

Image style transfer is an important research content related to image processing in computer vision. Compared with traditional artificial computing methods, deep learning-based convolutional neural networks have powerful advantages. This new method has high computational efficiency and a good style transfer effect. Pre-trained VGG-16 (Visual Geometry Group) neural network models are used to achieve image style transfer.

The main features of this project are:

1. **Artistic expression**: creating unique and visually appealing images by combining the content of one image with the style of a painting or a famous artist's work.
2. **Graphic design:** using style transfer to generate various design variations and logos.
3. **Photography:** editing photos to give them a desired aesthetic or mood.
4. **Film and video production:** transferring style from reference images to create a consistent visual style for a film or video project.
5. **Virtual Reality and Augmented Reality:** adding artistic styles to VR and AR experiences to enhance their visual appeal.
6. **Printing and publishing:** using style transfer to automatically generate visually appealing layouts and designs for books, magazines, and other printed materials.

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