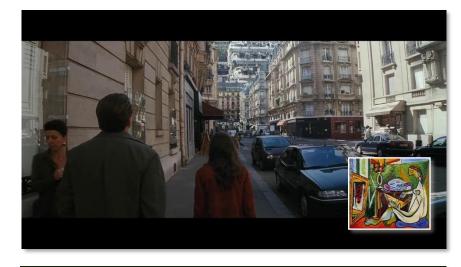# Real-time Arbitrary Style Transfer
via Deep Learning

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Stylized images versus original images:

Project Objectives:

Neural style transfer is the process of merging the content of one image with the style of another to create a new image. Many applications have recently exploited style transfer to create highly popular content on social media. Existing methods typically face limitations such as a small number of transferable styles and a sluggish image generation speed. We explored two approaches, AdaIN and MUNIT, to achieve real-time arbitrary style transfer and apply it to videos. We managed to improve the AdaIN network's style transfer speed significantly with acceptable image quality .

Method Overview:

AdaIN: It is found that the AdaIN method can be sped up by eliminating convolutional layers from the decoder. The refined decoder of AdaIN achieves a large speed boost without compromising image quality of style transfer.

MUNIT: The MUNIT method has advantages when training on a small dataset that style and content samples are from two specific domains.

Comparison of MUNIT and AdaIN method:

Stylized images generated by MUNIT (middle) and AdaIN (right).