



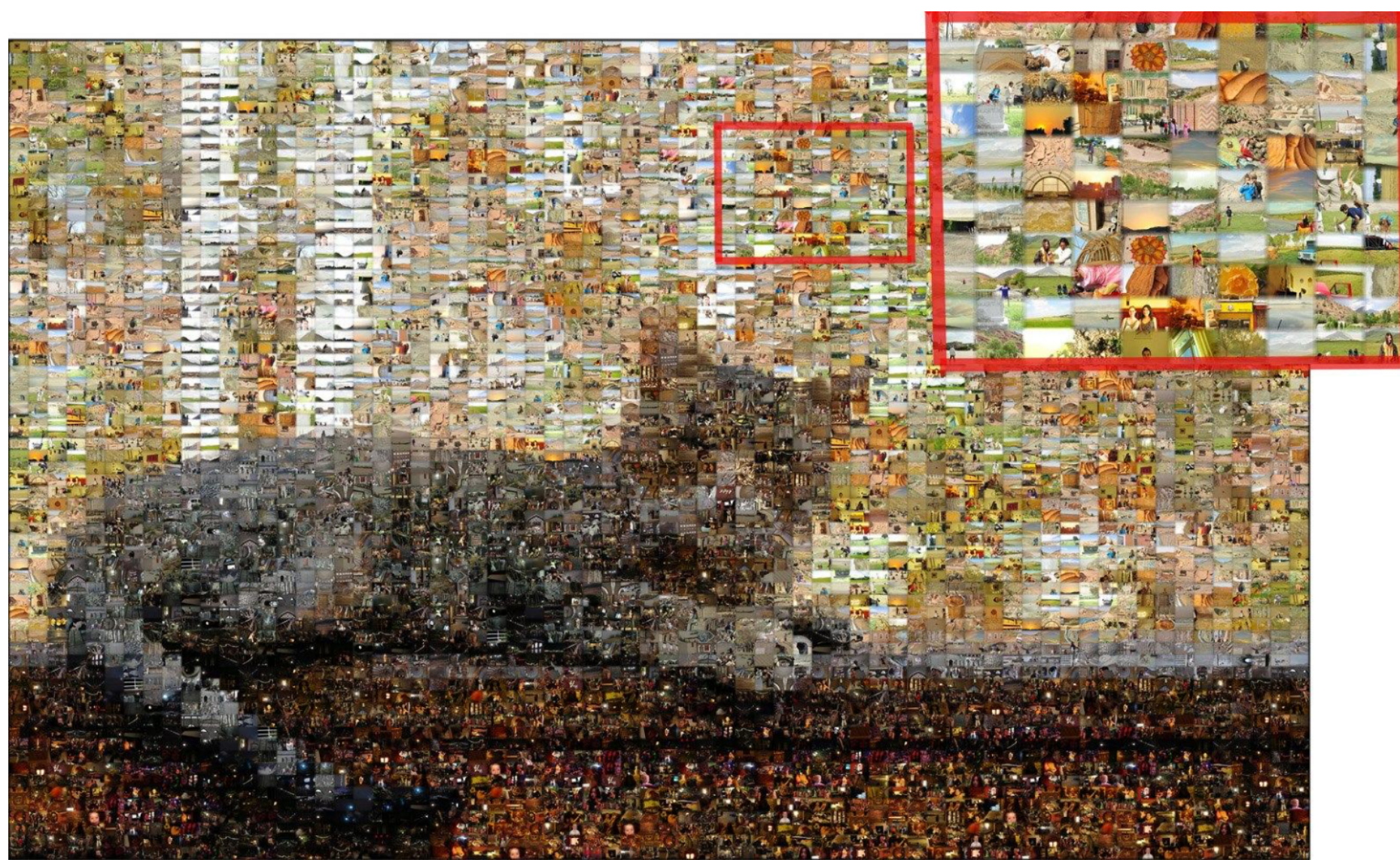
Self-Photo Mosaic

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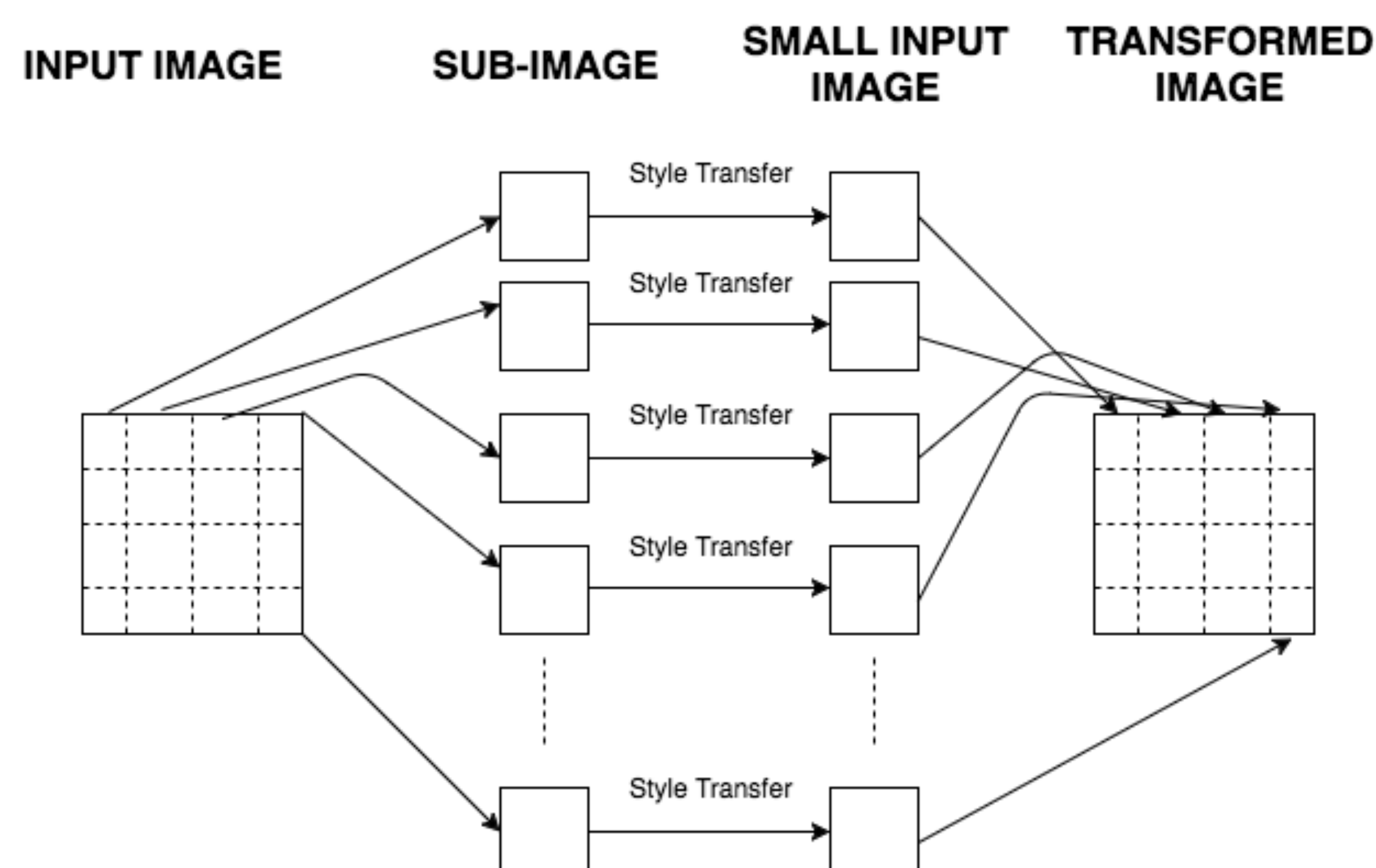
Background

Photomosaics are composed of tiled versions of hundreds of smaller images, which when combined together appear to form a larger target image. Traditionally, the content of these smaller images consist of a wide range of images with different backgrounds and color schemes and the mosaic is formed by selecting library images which minimise the loss with respect to the target patches.



Overview

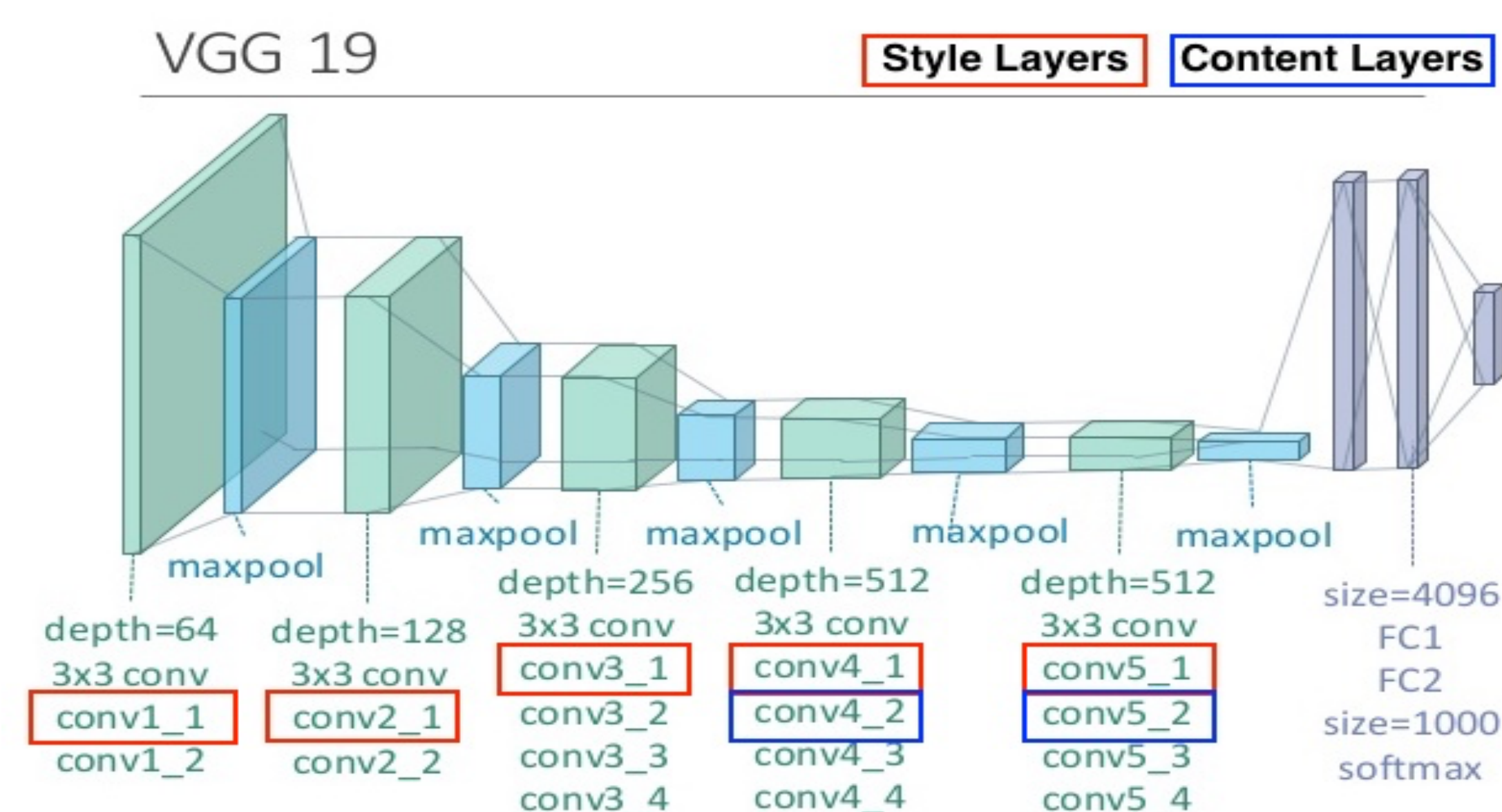
In our implementation, instead of using an array of varied library images, we used resized versions of our target image itself to replace the respective image patches in the mosaic.



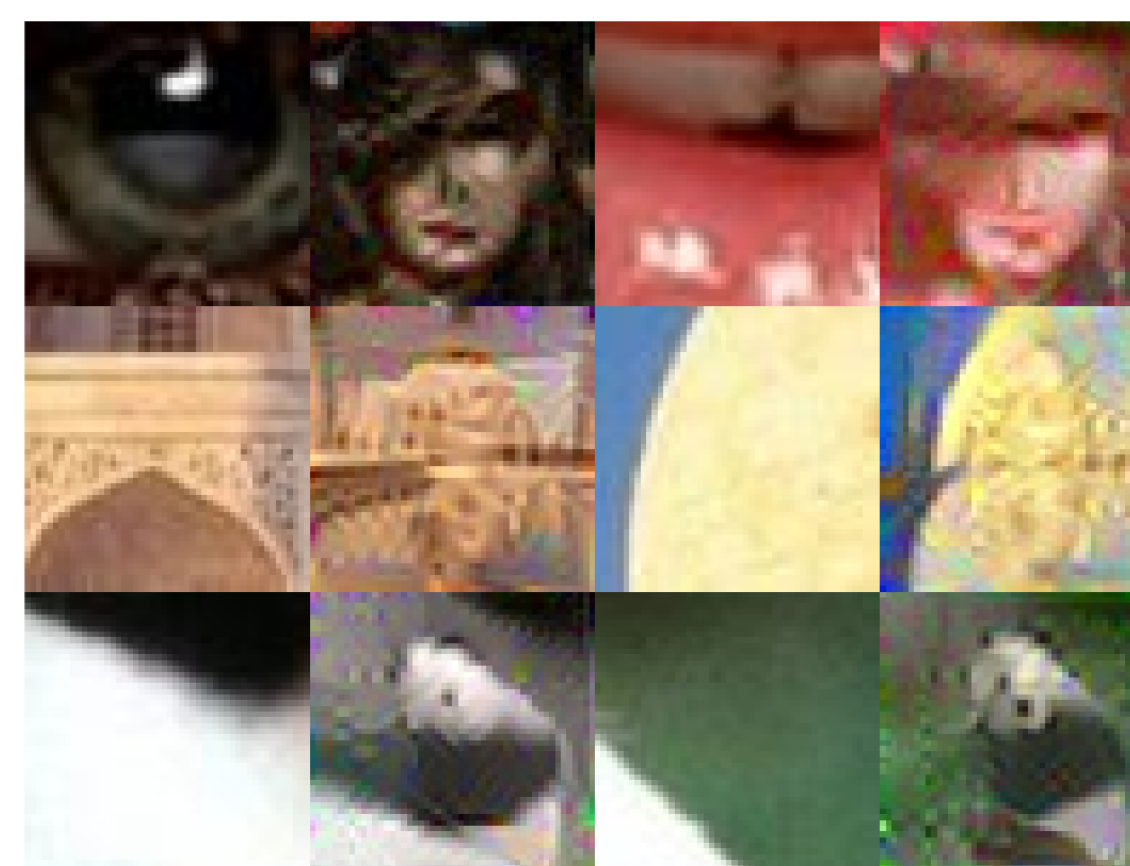
Implementation

Neural Style Transfer:

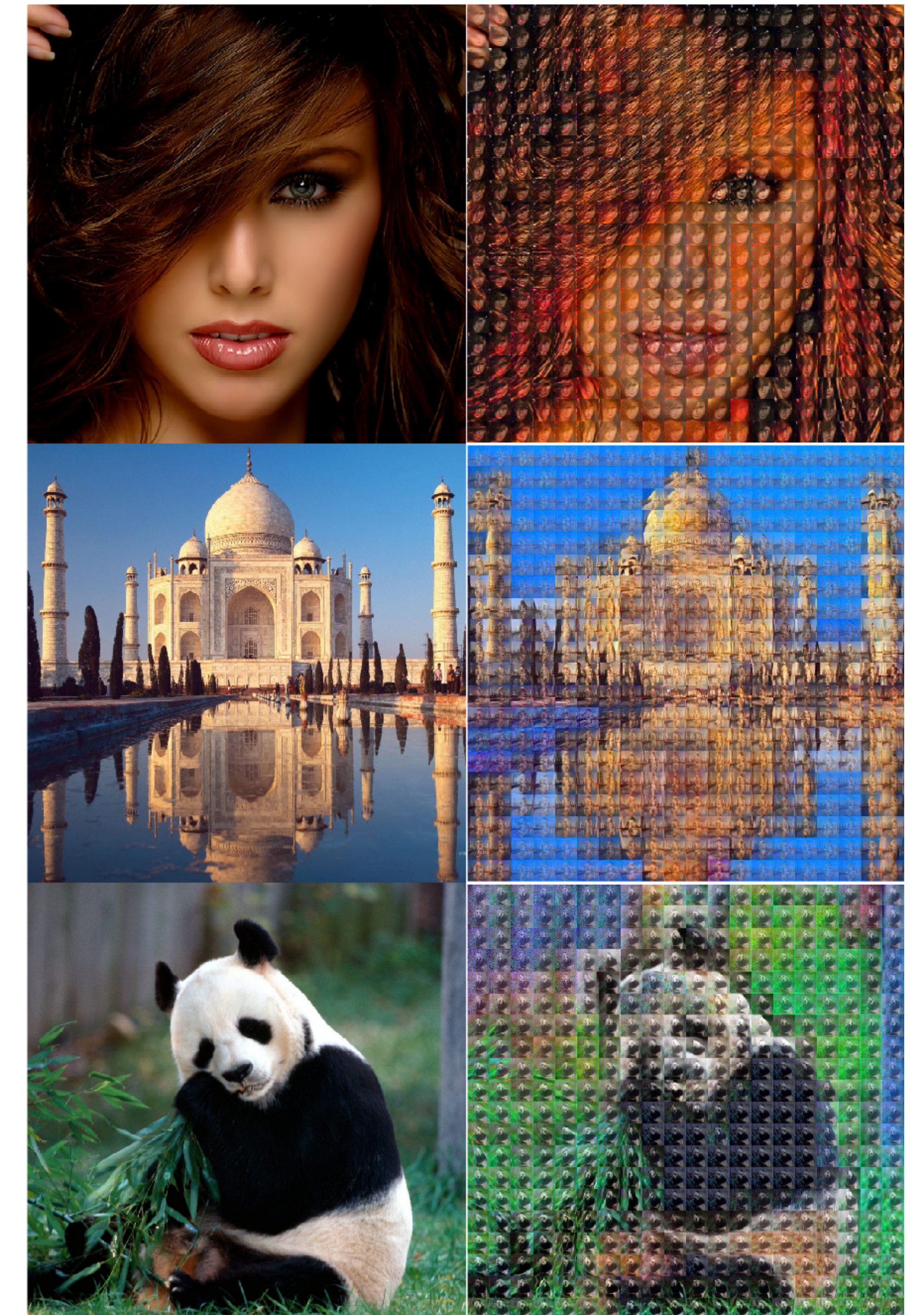
Style transfer is based on the notion that the content and style are seperable characteristics of an image. it uses CNNs to synthesize images that succesfully capture the content of an image, while blending it with the style information of another.



Since it is important for the subimages to resemble the colour scheme and texture of the target patch in the mosaic, the style weight is greater than the content weight in this loss combination ratio.



Results



Future Work

The content subimages currently lack clarity, and work needs to be focused on tuning the parameters and algorithm for the same. Also, the average run time for the mosaic creation is pretty high. Since the content image remains the same over the patches, this may provide a means of minimizing the computation required for each of the sub-images and can be optimized for better performance.