

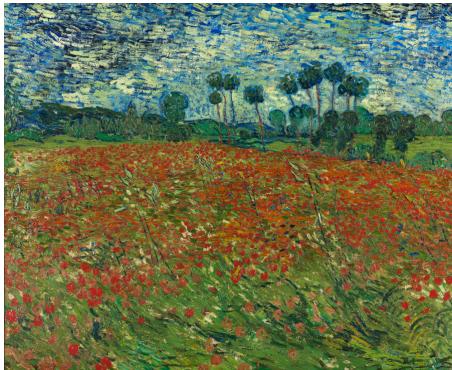
Split and Match: Example-based Adaptive Patch Sampling for
Unsupervised Style Transfer
Paper ID 1928 - *Supplementary material*

As supplementary material of our paper, we present the following contents:

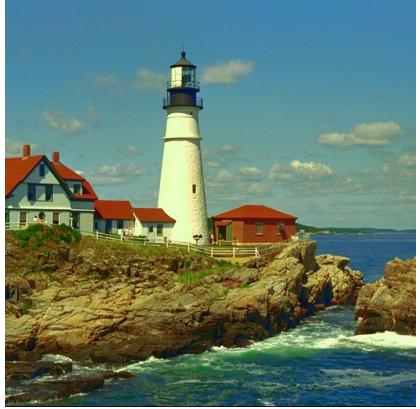
- Comparison of our style transfer approach with only texture tranfer or only color transfer (Figs 1 and 2);
- Illustration of the effects of Belief propagation in style transfer (Fig. 3);
- Additional results of our method applied with different original and example images (Figs 4 - 8).



Original



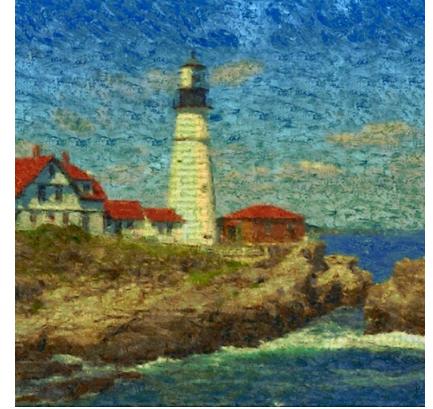
Example



Color Transfer



Texture Transfer

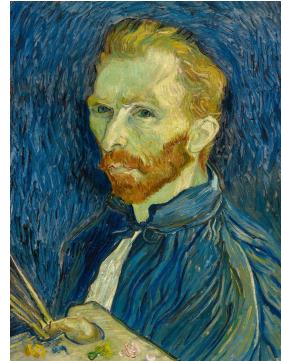


Style transfer

Figure 1: Illustration of color, texture and style transfer. Note that only color transfer (second row, left) and only texture transfer (second row, middle) are not sufficient to capture the style of the example painting. Our style transfer method combines texture and color transfer (second row, right) to better capture the style of the example image.



Original



Van Gogh's example



Gainsborough's example



Style transfer - Van Gogh



Style transfer - Gainsborough



Texture transfer - Van Gogh



Texture transfer - Gainsborough



Color transfer - Van Gogh



Color transfer - Gainsborough

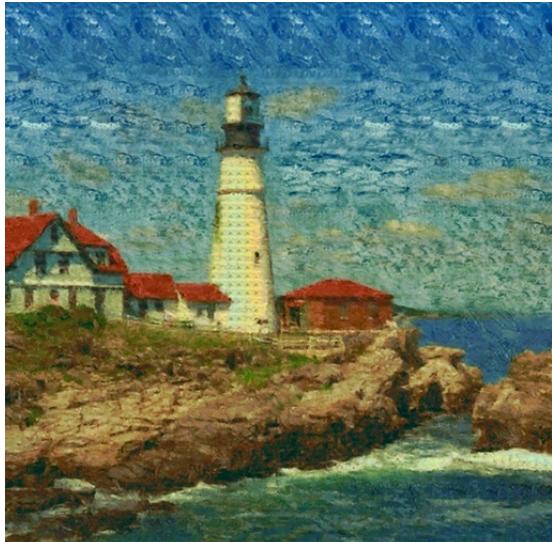
Figure 2: Illustration of color, texture and style transfer. Note that only color transfer (fourth row) and only texture transfer (third row) are not sufficient to capture the style of the example images. Our method combines texture and color transfer (second row) to better capture the style of the example image.



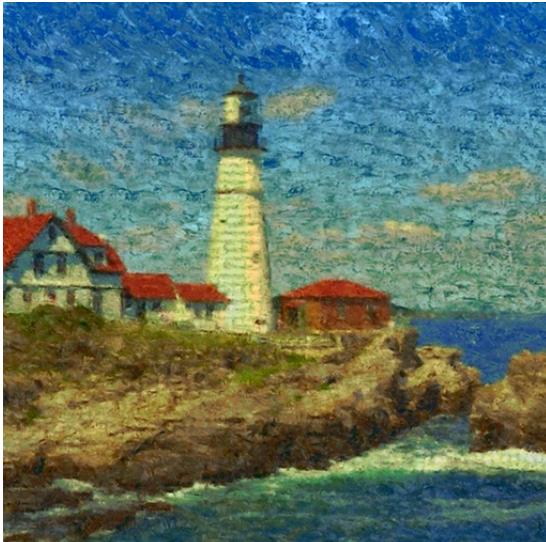
Original



Example



Only patch matching



Our method: belief propagation

Figure 3: Illustration of solving style transfer by Belief Propagation. The image on the bottom left is reconstructed by taking independently the best matching patches in the example image. It can be seen that the bottom left image contains considerable patch repetitions, notably in the top part of the image. In the bottom right image, we solve a patch labelling problem by belief propagation, considering a smoothness term and a term penalizing label repetitions. It can be seen in the bottom right image that our method synthesizes a stylized image that could be argued as looking natural, since it is more regular and non-repetitive than the image in bottom left.



Figure 4: Results of our method with Van Gogh's paintings as examples. Top row: example images, Left column: original images.

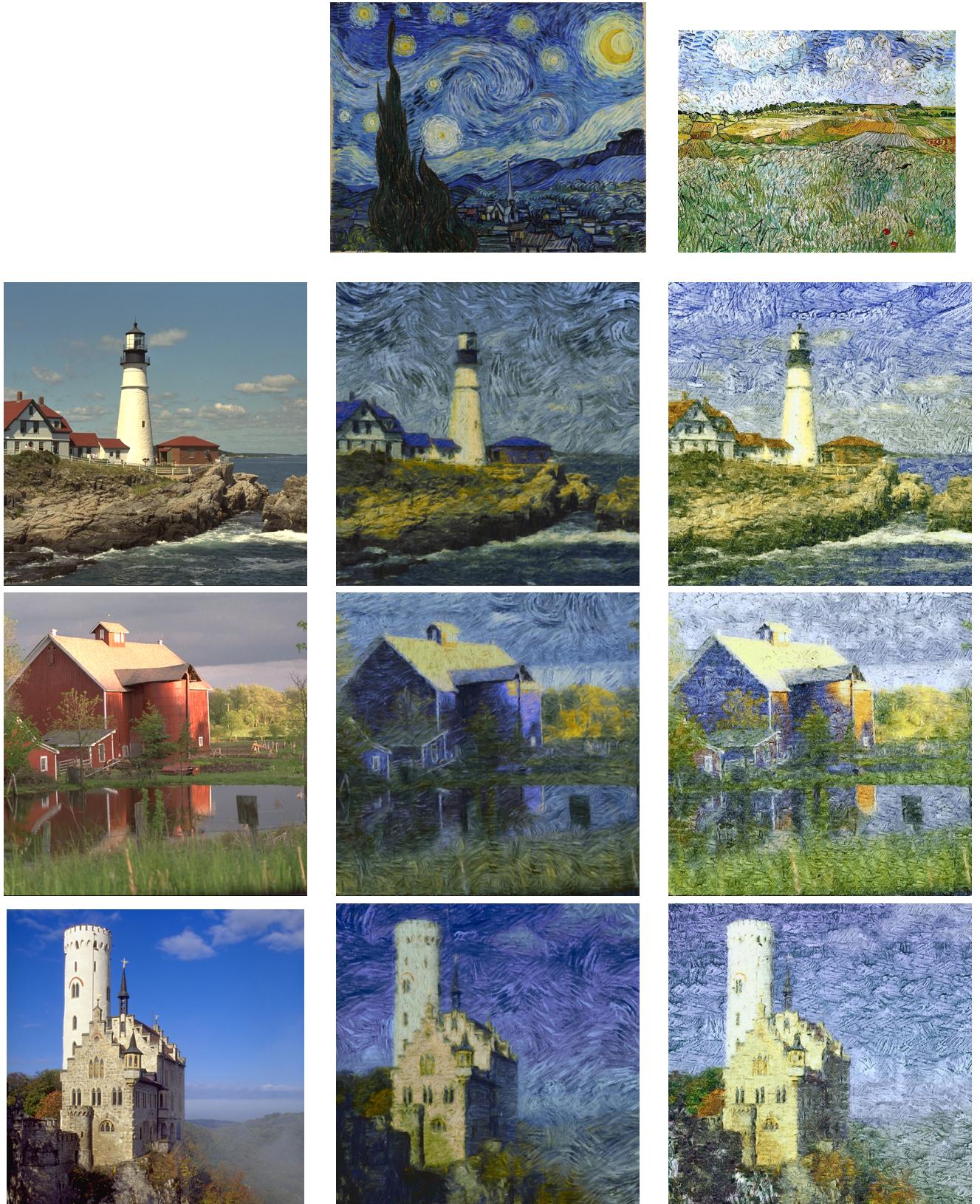


Figure 5: More results of our method with Van Gogh's paintings as examples. Top row: example images, Left column: original images.



Figure 6: Results of our method with Monet's paintings as examples. Top row: example images, Left column: original images.



Figure 7: Results of our method with Seurat's paintings as examples. Top row: example images, Left column: original images.



Figure 8: Results of our method with Gainsborough's sketch and Lascaux cave drawing as examples. Top row: example images. Left column: original images.