Image Quilting and Texture Transfer

CMPT-888
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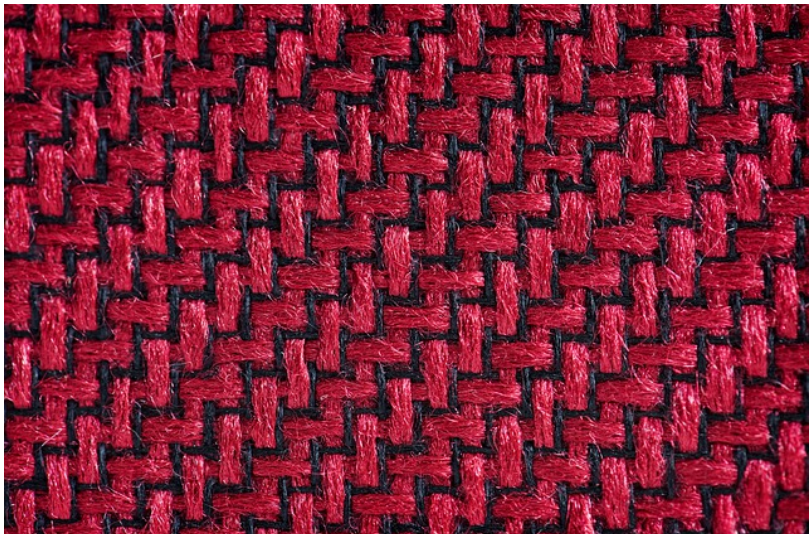
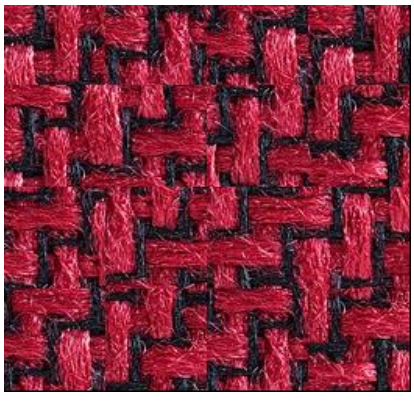
Texture Synthesis



Frost texture taken from pixabay.com - Cropped down to 192x192 px for input texture

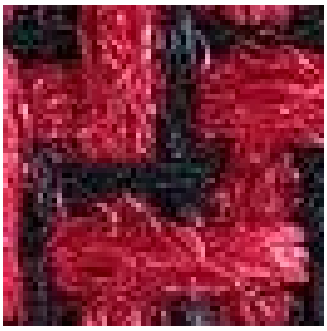


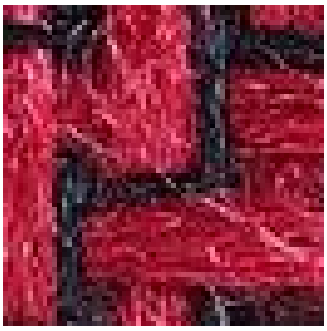
Randomly Sampled

SSD with Overlap

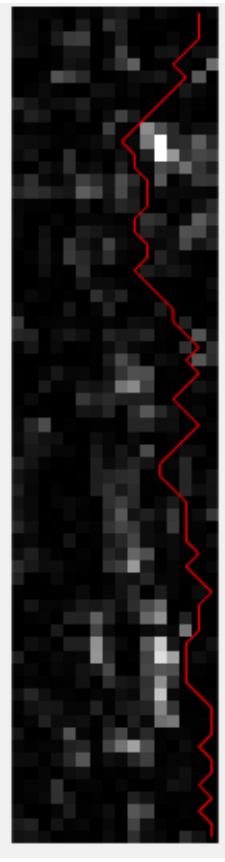
SSD, overlap and seam finding

Seam Finding Illustration





Patches to overlap



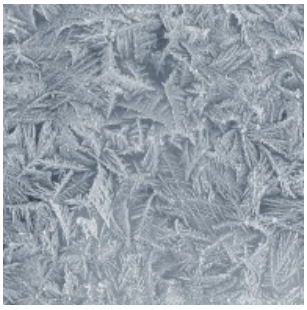
Description

Instead of naively overlapping the images, the seam finding process computes generates a path along which the two overlapping patches have the least difference between them.
As shown on the right side the, the image shows the difference between the two overlapping region. The red line shows the seam along which the pixels show the least difference (from left to right). This captures the idea of the least changes between the two sides of the overlapping region. Once the seam is found The left side of the seam is used by the patch on the left and vice versa for the right side.

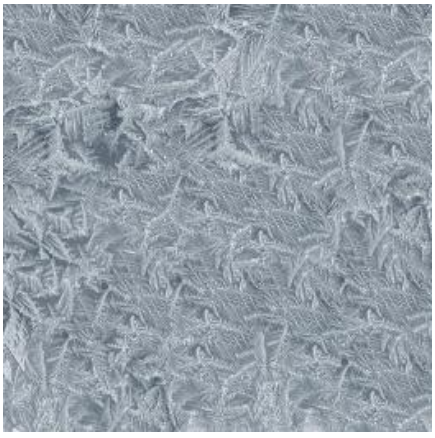
Additional results on the next page.

Additional Results for Seam Finding

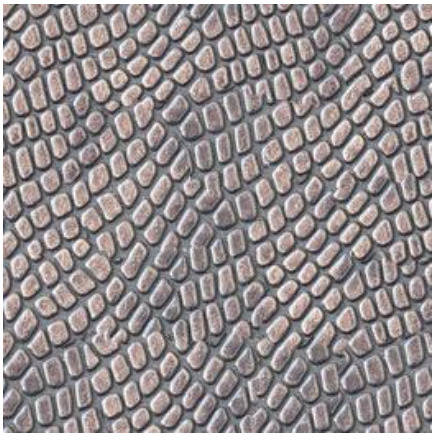
Leaves



Frost



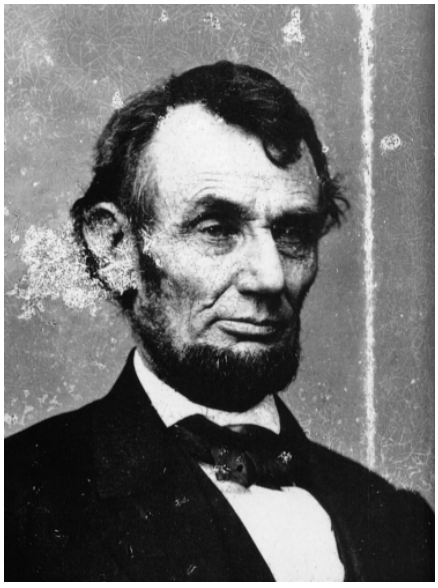
Skin

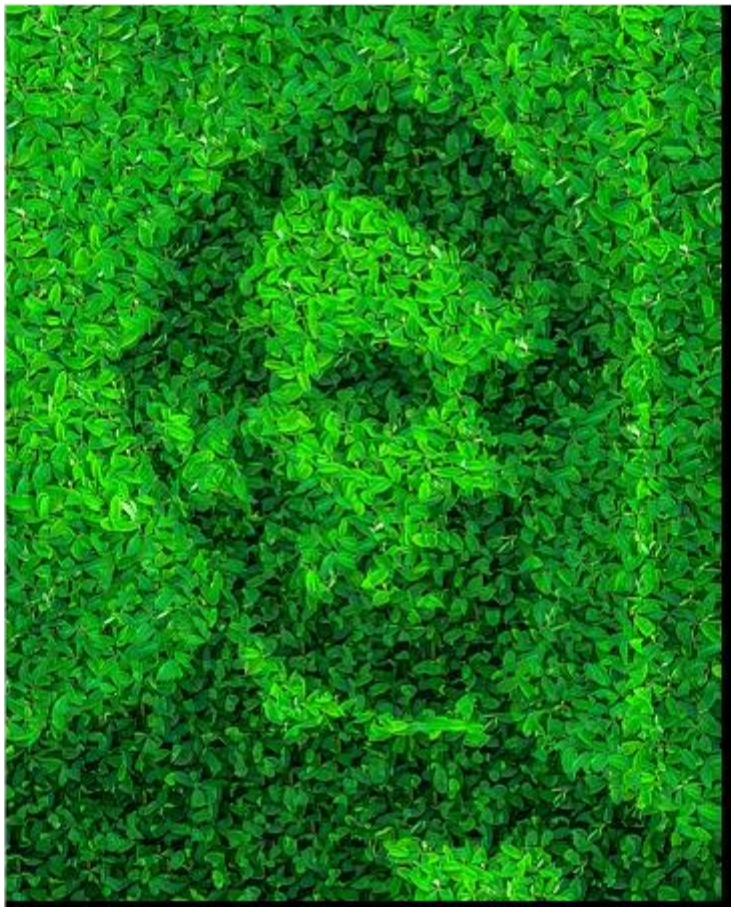


Rugs

Texture Transfer

Leafy Lincoln





Texture Transfer

Frost Dragon

(Texture input for this was quite large)

Observations

- Lower patchsize gives better texture transfer results
- Unstructured patterns (e.g. the leaf pattern shown above) seem natural even using naive synthesis methods.

Image Sources

www.pixabay.com