Implementation of "Texture Synthesis by Non-parametric Sampling"

Mahmoud Afifi - York University, Canada

April 18, 2017

0.1 Texture synthesis by non-parametric sampling [1]

By growing texture pixel by pixel outwards from the initial seed based on a given texture sample, a new synthetic texture is generated.

0.1.1 Implementation

For each unknown pixel in the synthetic texture, the nearest neighborhoods in the sample texture are found. That is, the neighborhoods in the original image, that are similar to the neighborhood of the current unknown pixel in the synthetic texture, are used to pick the intensity of the current unknown pixel. Refer to the paper for more information. This implementation presents two versions of the synthesis technique. The first one is to grow a larger patch, and the second one is to fill holes in an image.

0.1.2 Results

Figure 1 shows samples of the results generated by the attached Matlab source code.

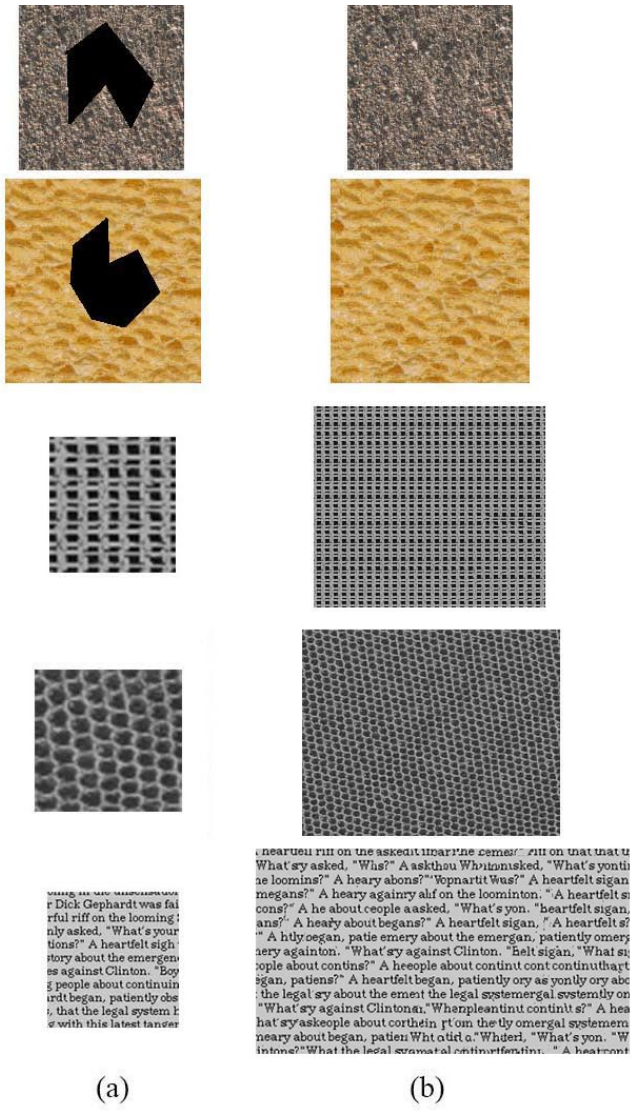

Figure 1: Results of texture synthesis paper. (a) Original images. (b) Results.

Bibliography

[1] Efros, Alexei A., and Thomas K. Leung. "Texture synthesis by non-parametric sampling." Computer Vision, 1999. The Proceedings of the Seventh IEEE International Conference on. Vol. 2. IEEE, 1999.